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VOLUME X
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Publishing Medical Journals for Private Profit or for the Profession.—There is a splendid, and perhaps unexpected result of the plan of the American Medical Association as to nonsecrecy in the drugs used or advertised to the profession. It has forced into the open, or will inevitably do so, the concealed journalistic supporters of the nostrum traffic. By doing this, it will as certainly expose the socalled medical journals which do not care a fig for the medical profession they have so long deceived and exploited, and which have been published solely for the financial benefit of the owners and their compliant editors. One can never cease hammering that in the professional use and control, indeed in the professional ownership of its medical literature, lies a vast deal of the progress of medical ethics, art, and science. The action of the American Medical Association cuts sharp and clear with these pseudos, and says: "On this side the sheep, upon that the goats." One of our contemporaries has come out frankly and says: "We are heart and soul with the goats, and for profits in the advertising business." Another gibes at the attempts of the "reformers," "the cackle of some young and eager reformers," criticises, charges with many innuendos that some of the American Medical Association council members are in the pay of manufacturing companies, and otherwise shows plainly its sympathies, "letting, 'I dare not' wait upon 'I would.'" Come now, gentlemen—journalists, editors, publishers, subscribers and contributors—no befogging will avail. Choose your party! Physicians must know where you stand, and writers of medical articles must know where to send them for publication.

Sexual instruction of the young is still greatly neglected, though there is much more attention paid to it in high schools and private institutions of similar grade than was thought proper a generation ago. It is often stated that such instruction is in the province of the parents, but aside from the almost universal ignorance of these matters among laymen, it is extremely difficult if not impossible for parents to deal with such tabooed subjects in conversations with their own children. The initiative must then be taken by school teachers or physicians, but as the teachers themselves have imbibed an immense amount of false information from quack advertisements thrust upon their attention in the daily press, the work of rectifying the present evil necessarily falls upon the medical profession. What to do and how to do it are two questions upon which there must be considerable differences of opinion, and it is essential that there should be greater discussion of the whole subject, to the end of reaching some agreement as to the general lines upon which the most good may be accomplished.

The average boy is given no reliable information whatever, but gains an exaggerated opinion from the lay press of the harmfulness of certain acts common in the young of all animals, and at this impressionable age he is an easy victim of scoundrelly quacks. Even among physicians themselves there is a failure to recognize the fact that the sexual instinct at puberty and for some time afterward is merely growing, that it is vague, indistinct, not directed toward any particular object, and gives rise to acts which are not permanent habits in normal development. Should mental development be perverted or arrested, or should disease supervene, these symptoms continue. They naturally give rise to the universal opinion that they were causes and not the results of the nervous or mental state. The normal never become perverts and as a matter of fact there is no evidence that the pubescent and adolescent habits of man are any more harmful than similar habits of the young of lower animals. If the harm were marked, the habits would disappear through the ordinary laws of selection by the elimination of such types. Their survival raises a suspicion that the acts must have served some useful end in the pubescent economy, and are not mere investigations of inquisitive children. This is heresy, according to the usual quack advertisements, but it may serve a useful purpose in suppressing the greatest frauds of modern times—those who play upon the fears of young men emerging from the adolescent period, and who have just realized that they have been doing that which has now become unnatural.

The proper age for sexual instruction is certainly not during the pubescent period, for the child has not the slightest power to interpret his own vague sensations, and will not for some years. He cannot possibly understand the instruction. By the time he has acquired sufficient intelligence for the purpose, the sex-

ual system has developed into a certain degree of stability, and the pubescent acts have disappeared. The rational course should then be to convince him that irreparable harm has not been done, and that there is no need to consult the advertising frauds. To attempt at puberty to prevent that which is nearly universal seems to be folly. Later, it should be an easy matter to convince the developed man that continence can be a normal state for civilized man. The ordinary excretions can be explained as normal phenomena which are absolutely harmless, if not beneficial. They, of themselves, occurring as they do in sleep, are sufficient to prevent degeneration of the sexual apparatus from disuse, and indeed, there is no evidence at all that continence, even without these phenomena, ever results in harm. All this instruction, together with a complete study of the anatomy and physiology of the sexual system, is not only proper but is an essential part of a high school education, though it should be in the hands of physicians. There are no reliable textbooks of a popular nature, but it is a simple matter to arrange such a course of lectures and recitations whose chief end should be to disprove the dreadful statements of the quacks and soothe the fears of boys who are about to become men. It is said that there are millions of letters in existence from these fear-stricken normal young men, and that the sale of such letters is a regular business of brokers, so that each writer is sure to receive hair-raising literature from several sources, only to increase his nervous state and to extract more money.

Instruction in the dangers of venereal diseases is, of course, the main necessity for high school students. Unfortunately, the tendency is toward an exaggeration which does more harm than good. It is untruthful teaching that is now and then given to the effect that syphilis is always incurable and is sure to appear in the second and third generation. There is too much evidence of the curability of syphilis for us to tolerate the quackish tone of popular instruction. The mental suffering of men who have been cured, but think that they may not have been, is totally unnecessary. The known results of gonorrhea can, of course, be enlarged upon, for this is the great blot upon humanity. Nevertheless, all such instruction, as usually given, rarely prevents young men exposing themselves to the danger, if they are so inclined. It is discouraging, to be sure, but we seem to be dependent upon nature's methods in this matter. Gonorrhea, through the sterility it so often causes, is eliminating the types which are most prone to contract it from prostitutes. It is brutal, of course, and causes incalculable suffering among innocent women, but nature's methods are often seemingly unfeeling. In time, the surviving civilized bachelors will be continent through the elimination of all others, but it is a long way off. In the meantime, rational and temperate instruction can surely limit the evils, though its chief good is, no doubt, in the direction of keeping the victims out of the hands of quacks and inducing them to consult qualified physicians. A movement is now on foot among certain physicians to bring about more complete instruction in all schools and colleges, but a careful study of the matter seems to indicate that too much is being attempted, and that the possible good to be accomplished is overestimated, as the whole movement is based upon an exaggerated estimate of some of the evils. The possible benefits, as above outlined, seem to be about all that can be accomplished, though the prevailing ignorance is, no doubt, harmful, and should be remedied. As the sexual life fades with age, the older men are prone to forget that in the young the instinct is so strong that even the fear of death will not suppress it; indeed, in many species, death is the penalty of reproduction. Species would die if the instinct were less strong.

Instruction of the lay press is probably more important than that of the boys. The newspaper owner eventually receives, through paid advertisements, a large share of the money taken from young men in this degrading form of quackery. The daily papers are the mainstay of this crime. It seems that the owners and editors might be induced to exclude these advertisements from their columns. Some of the journalists must surely see the harm they disseminate and if they cannot afford to lose the income, it is a confession that the daily press is supported by crime. The police who increase their income by money extorted from fallen women are considered to be very degraded and worthy of prison confinement, but the average newspaper owner is no better, ethically considered. He has a conscience nevertheless, and a big one too, as a rule, and is vitally interested in the nation's welfare. He merely needs a little instruction and a warming up of his conscience if it is allowed to cool in the presence of advertising money. Let the crusade against those who are profiting on the fears of boys, take in the lay editors. The great majority of boys leave school before they have attained an age which permits of useful sexual instruction. From these the greatest harvest is reaped by the charlatans and for their protection we should appeal to the human side of the lay journalist. The young men who can be reached by the school teachers are they who have the less need of it.

Short papers and sharp discussions should be the rule in the professional part of all medical meetings, not merely as a time-saving system, but as a necessity. It is rarely possible to keep the attention riveted on one topic any great length of time, unless it is one of extreme importance and is attractively presented in pleasing language. A revolutionary idea must, of course, be supported by detailed facts, and a discovery of new facts may be enlarged upon, but the average paper is likely to be a variation of some wellknown idea which needs but little defense. The medical meeting is the place for the exchange of generalizations, experiences, and conclusions. The time has long passed when scientific meetings were the only means of publishing the details of scientific work. Medical journalism now fulfils this function, and to the great benefit of science, too, for the place where such data can be appreciated is in the quiet of the study rather than in the distractions of a crowd. Darwin and Wallace successfully presented the greatest generalization of centuries in two short papers, at the

same meeting. The detailed facts upon which it was based were not made known until some time later, and this was at a time, too, when scientific publications were not numerous. Often do medical meetings become too tiresome for good thinking, and the recollection of them is a confused painful jumble, whereas each man should have carried away new, sharply-impressed ideas, as derived from short, crisp papers, and the healthy discussion which followed. In this way it is possible to gather a crop of ideas which are never suggested by reading.

Observers are very few, as most men merely see what has been pointed out to them. For every man who can see what is before him, there are a few score who can think well about the things the one man points out, and there are thousands who can write about the ideas of the few thinkers. Darwin saw something, a dozen men or so have developed the law he found, and untold thousands have rehashed the ideas of the dozen. Consequently, the majority of the papers written in any branch of science are really historic descriptions, a few are thoughtful developments of a new idea, but a really new departure is a rare exception. It is evident then, that at medical meetings the chances are greatly against there being in any paper an idea sufficiently valuable to warrant more than 15 minutes in the reading. The general trend of opinion—in the direction of limiting papers to this length is, therefore, based on sound reasons, and it should become the general rule. Discussions should be so short and crisp that no one is fatigued to such an extent that he cannot absorb what he hears. Recollections should be clear-cut, and pleasurable, and everyone should feel that he cannot afford to miss the next meeting. Perhaps these short programs of short papers will enhance the main benefit of professional meetings—personal contact with fellow workers, to the end of having our abnormal thoughts knocked off wherever they project, and of receiving a stimulus to renewed and better work. The ideas thus received orally are really a class of mental food, unattainable in any other way, and will prevent the scurvy in the productions of workers who live like hermits, with no fresh mental food. Vehemence of discussion, due to the frictional heat of opposing ideas, is a sign of health. Harmonious, sleepy meetings mean that no one has discovered anything new and that the conservative minds have nothing to strike.

Alcohol as a cause of insanity is properly attracting much attention. The evidence is so conclusive that it seems futile to urge the truth too continuously. Yet it is natural that a certain degree of exaggeration should creep into the discussion and that by giving too much weight to alcohol, writers may thus blind themselves to other removable causes of nervous and mental diseases. It has been said that if alcoholic excess could be eliminated, at least 75% of the cases of insanity would be prevented. Without minimizing in the least the known dreadful results of alcoholism and without changing the uncompromising attitude of the profession toward the attainment of greater temperance, it is wise to halt now and then and take stock of our professional opinions. The general trend of thought for some years has been to look upon many if not all cases of periodic alcoholism as the results of some unknown abnormal nervous state in which there are nerve storms of an agonizing nature, which nothing but the coma of alcohol will relieve, and that the coma must be repeatedly brought on day after day until nerve exhaustion quiets the storm and there are no further outbreaks for some weeks or months. The cure of the condition is of course the building up of the nervous system by proper nutrition and rest. If it is not cured, the alcohol itself will cause dreadful secondary results. If this position proves to be correct, it would be wise to look behind the alcoholic excesses for the ultimate causes which induce mental disease. Intemperance of opinion too often prevents the attainment of desirable ends, and postpones the establishment of the truth. We may hope then that there will be an early compromise between the two currents of professional opinion. We need not doubt that in 75% of cases of insanity alcohol is a prominent factor, or even the main factor as a rule, but if we consider it as the sole factor, we are quite apt to neglect the real causes, the removal of which may be a potent means of combating this form of intemperance.

The annual crop of spontaneous generation stories is now in full harvest time. The dearth of summer news compels the newspaper reporter to an activity which is at once amusing and pathetic. When all else fails he falls back upon the unfailing "Origin of Life," "Life from Nonlife," "Vital Force Explained," etc. Professor Loeb is sure to be on hand, and any number of other professors and scientists. The number of "discoverers" who have settled the matter in their "laboratories" is appalling. What can posterity do with the rival claims? The one who gets the greatest attention in the newspapers and digests should win. It is purely a question of the greatest number of open mouths and I-told-you-so's. Dr. Littlefield has solved the whole problem, even better than Loeb. According to a trustworthy report,

> "Life from Nonlife and Its Relation to the Doctrine of Homœopathy" was the subject of his paper read before the Indiana Institute of Homœopathy. About his laboratory and theories of life there has been much in the newspapers in the last two or three years. The exact title of his paper was "Abiogenesis and Its Relation to the Law of Similars." Dr. Littlefield illustrated his paper with a series of photographs of objects magnified many hundred times. The photographs showed several crystalline forms, a few snake-like creatures, and a creature with many legs running out in different directions like an octopus. Finally there was a picture of a fish. Dr. Littlefield did not discuss the biblical story of creation, but he said his investigations suggested that the story might not be scientific.

Dr. Bastian, of London, is said to have solved the question of the "transmutation of life"; what that may mean we can gather only from the statement that it is just as remarkable as it would be "if a cat gave birth to a sparrow, or a hen's egg produced a frog." It is all just a little unconvincing, but possibly this is because we are not sufficiently scientific. The makers of life out of nonlife have been slow to take up with radium, which

seems to be a veritable king of quacks among the elements. But the opportunity has at last been seized and by cable—not from Paris, strangely, but from London were sent last week these startling words:

After years of negative experimentation on the phosphorescence of cyanogen, which Pflüger declared to contain the element of life, Mr. Burke resolved to test it with radium, and placed it in the test-tube with sterilized bouillon. After a couple of days, cultures were obtained of atoms, which subdivide on reaching a certain size. Placed upon fresh portions of sterilized bouillon, these growths continue to grow slightly, thus showing that the influence of the radium is only initiatory. Professor Sims Woodhead pronounced them neither bacteria nor crystals; but they present many appearances of vitality, and seem to indicate the possibility of spontaneous generation.

The antispontaneous generationists should be frightened, but it is soothingly added that Mr. Burke doesn't think the discovery is in the least destructive of God or the belief in God. One breathes easier after that, and he may even seek comforting shelter under the protection of Sir Oliver Lodge's recent utterance in the *North American Review*.

This complex molecular aggregate is capable of being the vehicle of life, but we have as yet no answer to the question what life itself is. All efforts to generate life have been failures, and Sir Oliver dissents from those who regard life as being generated from matter by any such process as he has described. He regards it rather as a contact between the material frame of things and a universe higher and other than anything known to our senses.

The Correct Form of Bicycle Pedals.—An improvement in bicycle pedals lately suggested by an English writer, Dr. R. A. Lundie,[1] merits the attention of physicians and bicycle makers as embodying an anatomic principle of considerable importance. The suggested change is to make the pedals slope, the outer ends being higher—just enough to meet the angle formed by the soles when the feet are separated in bicycling. The attention of Dr. Lundie was called to the undesirability of pedals at right angles to the mesial plane of the machine by the appearance after he began bicycling, of corns at the junction of the sole with the lateral aspect of the foot opposite the fifth metatarsophalangeal joint. Patients also complained of the same effect of cycling. Coincident with the adoption of the improvement mentioned, the corns abated and finally disappeared, showing conclusively they were due to pressure brought to bear upon the affected joints by the old style pedal. With the sloping type, no tab is needed at the outer end to prevent the foot slipping off, thus preventing the side pressure of that object. Dr. Lundie was not the first to suggest this type of pedal, as William Smith, of Washington, patented a similar design in 1888. His object, however, was to prevent discomfort in the ankle and tarsal joints, an effect of the sloping pedal also noted by Dr. Lundie. The idea does not appear to have been widely adopted. For both the reasons cited the matter becomes of sufficient importance to be looked after by those who use or advise the use of bicycles.

"Be Fare-minded," is the Appeal of the Nostrum Syndicates.—The patent medicine sharpers are feeling the hurt of the crusade of Mr. Bok and the Woman's Christian Temperance Union and are making a characteristic answer. They are scattering a circular, which in lurid terms warns the public, and especially their women victims, that doctors' prescriptions are secret and harmful, while the patent medicines are open, fair, and harmless. A nastier exhibition of nasty human nature has scarcely been seen. The patent medicine men always reveal the name of their compound, and hence it is open and their business highly commendable, as the concoction can always be obtained at the drug store. The selfish, ignominious, and despicable doctor writes his prescription in Latin and it cannot be had of the druggist after the first order; hence, the doctor is conducting his business to make money. What must be the "fare-mindedness" and the intellectuality of their women customers, to whom their appeal is made! The matter is of moment in several ways: 1. All physicians must demand of their druggists, and of all druggists, that there must be no refilling of their prescriptions when the patient calls for the drug after the first time. The "self-doping" of patients is an evil for the virtuous patent medicine men to continue. 2. The rascals are ruining the health of millions of women and making drunkards and narcomaniacs of them. The circular before us is addressed to women and appeals to their vanities and appetites. 3. The basis of the vogue of these nostrums is usually the alcohol they contain, alcohol, too, of the cheapest and most harmful kind. But alcohol is not necessary as a menstruum for patent or other medicines. Public laws should therefore be passed, or those existing must be executed, to prevent the debauching of an entire people by the depraved wretches now carrying on the nostrum traffic.

Dust Explosions?—The chemicophysic explanation of the deadly "dust explosion" remained in abeyance till the declining years of the nineteenth century. It had long, indeed, been known that exceptionally dusty mills and factories were specially liable to such mysterious disasters. A recent explosion at a Liverpool flour mill has again called attention to the danger, and the necessity for precautions suitable to the neutralization of what is still regarded even by many of our best-informed contemporaries as one of the most uncanny of nature's outrages. For more than a century the liability of flour mills to destructive explosions has been recognized, and has been vaguely associated with their dusty atmosphere. It is now nearly a hundred years since Sir Humphrey Davy concentrated his best scientific attainments and abilities on the endeavor to pluck out the heart of its mystery, in which he utterly failed. After manifold and laborious experiments, he arrived at the conclusion that mere dust by itself could not prove an efficient cause for an explosion; which must, accordingly, be sought in some other direction. His cosmopolitan authority proved sufficient to lull suspicion for a long time. Accordingly, although such catastrophes continued to occur from time to time in all the continents, and with increasing frequency as mills and manufactories multiplied, they were attributed to wrong causes—such as to inflammable gas—or to unexplained ones. Thirty years or so ago, the Tradeston Mills, in

[1] British Medical Journal, April 8, 1905.

Glasgow, were wrecked by two explosions, one of which followed the other at an interval of a few seconds. Twelve persons were killed. A few years later a candy mill in New York blew up. The city fire marshal held an inquiry. It was pointed out that the place was full of starch dust; but the official conclusion was that a terrific catastrophe such as that in question could never be written down to the discredit of so inexplosive a substance as starch. Very soon after that decision a double explosion occurred in what was believed to be the largest flour mill in the world, the Washburn Mills, in Minneapolis. It laid five other adjacent mills also in ruins, destroyed property of the value of a million dollars, and killed 18 persons. Another candy mill disaster, which occurred soon after, caused renewed investigation, as the coincidence could not be overlooked. The story elicited was that one of the workmen had, in stumbling, thrown a quantity of starch dust onto a stone, on which the whole place at once blew up like a powder magazine. It was at last decided that Sir Humphrey Davy must have been wrong, and that the starch powder was the cause of the mischief.

Dust and Instantaneous Combustion.—So curiously slow was even nineteenth century intelligence in the grasp of what now seems almost elementary physical facts, that one of the novel exhibits at the ceremonial opening of the new building of the Institute of Civil Engineers, in London, which attracted special attention was a small apparatus constructed for the practical demonstration of dust explosions. The physical enigma had been solved some time before by the distinguished Irish chemist, Mr. Galloway. He showed by experiment—which like that of Columbus' egg, was perfectly plain after being pointed out—that the explosive quality of dust was simply a liability to instantaneous combustion. And, as this process is merely one of combination with the atmospheric oxygen, its rapidity depends on the freedom of exposure of the combustible material and the ready supply of the gas. A small log of wood will burn for half a day, while the chips and "shavings" of a carpenter's workshop are consumed with phenomenal rapidity. The difference depends on the exposure of surface. Continue the subdivision till the log has been reduced to the condition of floating particles—motes definitely visible only in the sunbeam—and the combustion will be practically instantaneous. In fact, the only essential conditions for a dust explosion are that the dust be composed of combustible particles, and that these be so crowded in the atmosphere that one cannot burn without igniting its immediate neighbors. The instantaneous development of gaseous products of oxidation, requiring the accommodation of hundreds of times the space which had been occupied by the solid particles, accounts for all the resulting phenomena.

Röntgen-ray Work in the Army.—The Secretary of War has authorized an expenditure of $5,700 for the purchase by the Army medical department of six portable röntgen-ray machines of a type developed experimentally during the past few years. Each machine weighs 1,350 pounds and is in two parts, being operated by a gasolin motor. The machines will, for the present, be issued to hospitals and used in the field when there is occasion for the establishment of a base or other hospitals for troops away from their posts.

AMERICAN NEWS AND NOTES

GENERAL.

Yellow Fever at Colon.—Since June 17, there have been five new cases of yellow fever in the Colon Hospital, and one death. Four cases are now under treatment.

New Hospitals for Canal Zone.—The Panama Canal Commission has decided to build new hospitals, one at Empire, with 500 beds; one at Colon, with 96 beds, and one at Taboga, with 100 beds, and also build a sanatorium. The commission will also take charge of the hospitals at Panama, which will be rebuilt and equipped with modern accommodations and appliances.

Oleo Men Give Up Fight.—The National Oleomargarin Association, formed at Worcester, Mass., more than a year and a half ago by oleomargarin dealers, large and small, throughout the United States, to obtain the repeal of the national oleomargarin or Grout law, which levies a tax of ten cents a pound on every pound manufactured, is to disband without having accomplished anything.

For Assistant Surgeonships.—The Surgeon-General of the army is in receipt of 27 applications from medical graduates who are desirous of taking the examination of next August before boards of medical officers who will convene in various parts of the country. There will probably be as many more applications before the examining boards meet, and there is consequently a fair prospect that the 20 vacancies in the grade of assistant surgeon of the Army will be filled this year or next year.

Ankylostomiasis in Porto Rico.—Reports received from Porto Rico show that Captain B. K. Ashford of the medical department of the army is meeting with great success in his work on the anemia commission, in which he is associated with a native physician of distinction and a member of the Marine-Hospital Service. These experts were first assailed on every hand as cranks, and found their work of relief impeded seriously by the prejudice of native doctors and the people generally. Now the commission finds its work encouraged on every hand and the health conditions of the island greatly improved. There are numerous applications for the establishment of stations on the island, and there have been, since June 1, no less than 700 patients who presented themselves for treatment.

Bubonic Plague near Panama.—One death from bubonic plague occurred at La Boca last week. The dead man had been working on board the British steamer Chili. The companions of the deceased laborer have been isolated. The house in which the man lived has been thoroughly disinfected and his 40 companions are well isolated and are under observation. La Boca is three miles from Panama and the measures taken will prevent the spread of the disease. The Board of Health of Guayaquil, Ecuador, on June 12 refused to admit the British steamer Chili, which had arrived there the day previous from Iquique, Chile, and she left later the same day for Panama. While the Chili was on her way to Guayaquil three persons died on board, and it was believed that bubonic plague was the cause of their death.

Commission Refused.—The following letter from a manufacturer of artificial eyes was recently received by a physician:

We wish to thank you for the many patients referred to us lately, and trust you have found the work satisfactory. We know you are often obliged no doubt to donate to charitable institutions, so enclose $10, which you may use as you see fit. Again thanking you for the many favors, we are

——— ——— ———.

This is the reply to the above letter:

I return your check for $10, with the request that you select your own charities. The receiving of commissions, however they may be disguised, is unethical from the standpoint of the medical man, and the offering of them is not conducive to the best interests of any of the persons concerned—the physician, the patient, or the business firm.

Personal.—It has been decided to assign **Major E. C. Carter**, of the medical department, to duty as post surgeon at Fort Leavenworth, Kan., one of the most important billets to which an army surgeon may be detailed including as it does the task of instructor in hygiene in the service school at that post. Major Carter will first proceed to Washington at the instance of the Secretary of War and later will go to Leavenworth. Major Carter has been on duty as Commissioner of Public Health in Manila, where he has rendered most important service in that capacity.—**Francis R. Packard**, of Philadelphia, is seriously ill at the Pennsylvania Hospital. While performing an operation some time ago one of his fingers became infected. Nothing was thought of it at the time, but the infection spread. He has been at the hospital 10 days, and although seriously ill, a fatal termination is not apprehended.—**Prof. John C. Hemmeter** delivered the address at the annual commencement of St. John's College, Annapolis, Md., last week, taking as his subject, "A Psalm of Work," and taking issue with Dr. Osler as to the comparative uselessness of men over 40.

EASTERN STATES.

Vaccination in Boston.—For the eight months beginning October 1, 1904, and ended May 31, 1905, according to the health officer, there were 1,749 vaccinations with the State virus. Of these 1,692 were primary vaccinations and 57 secondary vaccinations. For successful primary vaccination 276 certificates were issued; for successful secondary vaccination 12 certificates. During this time there were returned 12 cases of unsuccessful primary vaccination and 11 cases of unsuccessful secondary vaccination, or 23 in all. Of the 12 unsuccessful primary cases, after rescarification 4 returned successfully vaccinated. The remaining 8 did not come back.

City Physicians Organize.—About a dozen city physicians from different municipalities in Massachusetts dined together at Boston last week, and formed an organization which will be known as the Massachusetts Association of City Physicians. The purpose of organizing is to facilitate the exchange of medical and sanitary ideas. It was voted to invite the town physicians of the larger towns to join the association. Organization was effected by the election of the following officers: Edwin P. Gleason, of Brockton, president; George L. Black, Lawrence, vice-president; W. D. McFee, Haverhill, secretary and treasurer. Executive committee, Hallowell, Quincy, F. N. Murphy, Taunton, and T. E. Caufield, Woburn.

The East Boston Hospital.—At a conference of Mayor Collins and the trustees of the Boston City Hospital last week, consideration was given to the question of affording relief for the citizens of East Boston by erecting a relief hospital in the district. Mayor Collins is inclined to favor a relief hospital for the district if it is deemed necessary by the trustees of the hospital department, and the funds for the purchase of a site for its erection are available. However, he has been opposed to the legislative act providing for the borrowing of $100,000 for the erection of a branch hospital. When the representatives of the Citizens' Association called on the mayor they were of the opinion that a hospital that might cost between $35,000 and $50,000 would be all that was necessary, and that the sum of $100,000 would be excessive. At the meeting of the common council, last week, the mayor's veto of the East Boston hospital project was not considered, and, as adjournment was made subject to the call of the chair, the matter is undoubtedly dead, as at any stage it will be impossible to suspend the rules so as to get a reconsideration of the subject.

NEW YORK AND VICINITY.

Offers His "Two Hearts" for Sale.—A. Durr, of New Rochelle, N. Y., is said to have been offered large sums of money for his body, but is keeping the amounts secret in hope that a larger sum might be extended. Durr advertised in a New York paper as follows: "I agree to sell my two hearts, the buyer being entitled to same after my death. A. Durr." By trade he is a carpenter, aged 35, single, and the picture of health. He works every day and leads a regular life. Two years ago a physician discovered that he has two hearts. It is said that recently "a prominent specialist" offered Durr $10,000 if he would allow him to perform an operation and remove one of the hearts, but he declined.

Church to Cure Drunkards.—A clinic where persons afflicted with an uncontrollable craving for strong drink will be treated with absolute privacy is soon to be opened in the parish house of St. Paul's Episcopal Church, in Newark, N. J. The venture will be supported by several local clergymen and is the result of several months' deliberation. It will be conducted along nonsectarian lines, although an effort will be made to combine a moral with a medical course of treatment. A lay reader will be on hand to look after the spiritual welfare of the inmates. The funds sufficient to carry on the plan for three months have been promised, and others stand ready, it is said, to continue it if the venture is a success.

PHILADELPHIA, PENNSYLVANIA, ETC.

Help for the Tuberculous.—A committee appointed by the Inner Mission Society, to establish a free dispensary for tuberculosis in its incipient forms among the poor in the mill districts of Kensington, Philadelphia, has decided to rent a house for the purpose in a convenient location.

Dr. Dixon's Appointments.—Samuel G. Dixon, commissioner of health, has made two important appointments, naming Benjamin Lee, secretary of the former State Board of Health, as his assistant, and Frederick C. Johnson, of Bradford, to be chief of the division of inspecting, quarantining and disinfecting.

Pittsburg Bureau of Health Prepares to Fight Tetanus.—The Pittsburg Bureau of Health has issued a warning of the danger of wounds caused by blank cartridges used on the Fourth of July. It suggests that preventive injections of tetanus antitoxin be administered in doses of 5 cc. to 10 cc., preferably near the seat of the injury. Such preventive doses of tetanus antitoxin may be procured free by physicians at the office of the Bureau of Health during July.

One Hundred and Sixty-four New Typhoid Cases.—There were 164 new cases of typhoid fever reported to the health authorities of Philadelphia for the week ended last Saturday, compared with 166 cases reported the previous week. About 75% of these cases occurred in the northeastern section, where the water-supply comes from the Delaware river by direct pumpage. The Twenty first and Twenty-second wards, which receive filtered water, are credited with only three cases.

Sums Left to Charity.—The will of Pauline E. Henry, who died in New York, has been filed with the Register of Wills of Philadelphia. Mrs. Henry founded the Germantown Hospital in 1870 and that institution is given $10,000 for two beds for incurable female patients and $5,000 for the endowment fund. To the Woman's Hospital she leaves $2,000 to endow a "scholarship for nurses." To the House of St. Michael, a home for crippled colored children, she leaves $6,000, to be invested, and the income used to support free beds for the inmates. The will of John W. Parmalee, who died recently in Chicago, provides that his estate of $400,000 shall be held in trust and the net income eventually devoted to the purchase of fuel for needy families. The income from the estate is first to be paid entirely to a brother of the testator, and upon his death to another brother. Upon the death of the last surviving brother the income is to be "used annually forever for the purchase of fuel, or heat, which shall be charitably distributed among the poor and needy people of Chicago."

SOUTHERN STATES.

Memorial to Dr. E. A. deSchweinitz.—The members of the faculty and students of the medical and dental classes of 1904, 1905, 1906, and 1907, of the George Washington University, have placed a handsome bronze tablet, 2 x 3 feet, in the main hall of the department of medicine, to the memory of the late Dr. E. A. deSchweinitz, who at the time of his death was dean and professor of chemistry and toxicology.

Maryland Pharmacists.—At the annual meeting at Betterton, Md., last week, the committee on adulterations in drugs reported upon the examination of the following drugs and preparations: Laudanum, tincture of iodin, cream of tartar, Rochelle salts, essence of lemon, and essence of ginger. None of the five samples of laudanum examined was anything like full strength, and some of them so very weak that they can hardly be considered even "counter laudanum." In four samples of tincture of iodin two of them were diluted with water and did not contain the required percentage of alcohol. One sample was of full strength. Two samples were absolutely to be condemned. Of six samples of cream of tartar, five were pronounced to be medically pure and one to have a large excess of calcium salt. Of six samples of Rochelle salts, the percentage ranged from 99 to 99.5. In the examination of the essence of lemon no attempt was made to analyze it chemically. There were circumstances, however, which suggested that there were three different agents used in the coloring of the essence. Six samples were tested. In one the flavoring agent was weak. In several the odor was somewhat like turpentine. Six samples of the essence of ginger were examined, and in all the alcohol was found to be ethylic. Three of the samples were submitted especially because they were thought to contain methyl alcohol. Of two samples of essence of vanilla, one was found to have the true vanilla odor and to taste good.

WESTERN STATES.

Woman Patient Sues Hospital.—Alleging she was neglected while a rheumatism patient two years ago in Mercy Hospital, Chicago, Mrs. Margaret E. Gugerty has begun suit to recover $10,000 damages from the institution.

Cannot Stop Crying.—Mrs. Kate Wilbourn, of Sioux City, Ia., voluntarily presented herself to the board of insanity commissioners and asked to be committed to the State asylum as a result of four days' incessant and uncontrollable weeping. Otherwise she is perfectly sane, but cannot stop crying. She hopes the hospital physicians can relieve her.

Fever Proves Smallpox.—Taken to the Chicago county hospital by the police on a physician's certificate diagnosing the case as malarial fever, a girl was declared by the assistant commissioner of health to have an advanced case of smallpox. The girl's physician disputed the decision of the hospital authorities when they declared the disease to be smallpox.

Pure Food Wanted.—The Tristate Medical Association of Iowa, Illinois and Missouri has put itself on record in favor of a stringent pure food law. The association severely censures Congress for failure to pass such a measure at the last session, and advocates the passage of the strongest law possible against the adulteration of foods, drinks, and medicines, and compels the placing of the formula on all bottles of patent medicines.

Pure Food Commission in Chicago.—A commission appointed by the Secretary of Agriculture, and headed by H. W. Wiley, chief of the Bureau of Chemistry at Washington, has visited Chicago for the purpose of discovering whether the preserves—such as jellies, soups, and canned meats—manufactured there are pure and wholesome. Various food manufac-

turers will be asked to come before the commission at its sessions. The object of the conference will be to establish a legal meaning of the term "adulteration," so that when cases involving impure foods come up in court the attorneys will have something to work on.

FOREIGN NEWS AND NOTES

GENERAL.

The medical college at Bahia, Brazil, with its equipment and valuable library, has almost totally been destroyed by fire.

Death of Professor von Mikulicz. — From private advices we receive word of the death of Prof. von Mikulicz, the eminent surgeon, at Breslau on June 14. No details are obtainable at this writing.

Large Sanatorium for Nervous Diseases. — Baron Nathaniel Rothschild, who died at Vienna recently, has left the sum of $4,250,000 to found a sanatorium on the latest scientific lines for persons suffering from nervous diseases.

Measures of Rat Extermination Recommended for Bengal.—The Bengal Chamber of Commerce has written to the government of Bengal relative to the extermination of rats as a preventive measure against plague. It calls attention to the good results following crusades against rats, and intimates that any measures adopted by the government toward the extermination of rats would meet with strong support. It suggests that to be of real service in preventing plague epidemics any efforts made against rats should be widespread and cover every district of the city, and should be persisted in throughout the year, and not confined to times when plague is prevalent. Reference was also made to the measures adopted at Giridih and their attendant success.

Ainhum and Leprosy.—L. E. Ashley-Emile, of Mopra, Zambezi river, East Africa, discusses in the *Journal of Tropical Medicine*, February 1, 1905, the question whether ainhum, which is spread widely over the African continent, particularly on the west coast, is a manifestation of leprosy. Zambaco Pascha, an authority on leprosy, is of the opinion that this obscure disease is a modified form of leprosy, a view in which Ashley-Emile coincides. He believes ainhum to be a leprous manifestation occurring in persons not the subjects of typic leprosy, but of a leprous diathesis. Classic leprosy and ainhum have not been observed occurring together in the same person, but the subjects of ainhum often present the facial appearance of lepers and are in close family relationship with them.

OBITUARIES.

Edward D. Simpson, aged 51, June 23, at his home in New York City. He was a graduate of the College of Physicians and Surgeons, New York City, in 1874. He devoted his attention especially to nervous diseases, and at the time of his death occupied the chair of suggestive therapeutics in the New York Homeopathic College.

Harrison J. Hartwell, aged 77, June 25, at his home in Philadelphia. He was a graduate of Jefferson Medical College, but has not practised medicine for the past 15 years. He is best known to the profession as the discoverer of "compound oxygen," which he first used with success in the treatment of throat and lung diseases.

William Randolph Chalker, aged 57, June 2, at his home in Lake City, Fla. He was a graduate of the Medical College of the State of South Carolina, Charleston, in 1878. He was a member of the board of aldermen of Lake City, and local surgeon for three railroads passing through this city.

William E. Maloney, aged 40, June 1, from tuberculosis, at his home in Keene, N. H. He was a graduate of the University of Vermont, medical department, Burlington, in 1887. At one time he was city physician, councilman and alderman of Keene, and representative for two terms.

Martin Luther Chambers, aged 62, June 12, from heart disease, at his home in Port Jefferson, N. Y. He was a graduate of the New York University, New York City, in 1871. He was vice-president of the First National Bank of Port Jefferson, and once president of the local board of education.

Richard G. Turner, aged 65, of Houston, Texas, June 8, at the home of his son in Houston. He was a graduate of the Medical Department of the University of Louisiana, New Orleans, in 1860. He served as assistant surgeon in the Confederate service during the Civil war.

Thomas B. Steele, aged 83, June 22, from the infirmities of old age, at his home in Cumberland, Md. He was a graduate of the University of Maryland School of Medicine in 1844. He was one of the seven known survivors of the Perry Expedition to Japan in 1853.

Louis James Sutton, aged 73, of St. Mary's county, Md., June 11, at the home of his daughter in Hyattsville, Md., from injuries received while riding a bicycle about a year ago. He was a graduate of the University of Maryland School of Medicine, Baltimore, in 1855.

John H. Mullen, aged 72, June 3, from heart disease, at his home in Bellefonte, Pa. He was a graduate of Jefferson Medical College, in 1867. He served as assistant surgeon in the Twenty-eighth Pennsylvania Volunteer Infantry during the Civil war.

Gustave C. Vibrance, aged 33, of Watkins, Minn., June 10, from kidney disease, at the St. Luke's Hospital, St. Paul. He was a graduate of the University of Minnesota College of Medicine and Surgery; member of the American Medical Association.

John W. Williams, aged 65, of North Garden, Va., June 11, at the University of Virginia Hospital, Charlottesville, from acute peritonitis superseding appendicectomy. He was a graduate of the Medical College of Virginia, Richmond, in 1864.

Charles W. Bush, aged 80, June 8, at his home in Los Angeles. He was a graduate of Cleveland Medical College in 1854. He is said to have been the author of the first medical practice bill introduced in California.

William Leavitt Jackson, aged 52, of Roxbury, Mass., at Bad Nauheim, Germany, June 22. He was a graduate of Harvard Medical School in 1876; he also studied in London, Paris and Berlin.

Walter Bryan, aged 38, June 26, was found dead in his office in New York City; the cause of death was not ascertained. He was a graduate of the New York University in 1890.

Milton F. Schell, June 18, at his home in Baltimore, Md. He was a graduate of the College of Physicians and Surgeons, Baltimore, in 1887.

Charles F. Fisler, aged 59, June 21, at his home in Clayton, N. J. He was a graduate of Jefferson Medical College, in 1876.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 24, 1905:

	SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles	June 3-10	1	
Florida:	Jacksonville	June 10-17	1	
Illinois:	Chicago	June 10-17	15	
	Danville	June 8-15	3	
Indiana:	South Bend	June 10-17	7	1
Louisiana:	New Orleans	June 10-17	2	
Massachusetts:	Lowell	June 10-17	1	
Michigan:	Grand Rapids	June 18-25	29	5
Missouri:	St. Louis	June 10-17	4	1
Nebraska:	South Omaha	June 3-10	6	
Ohio:	Toledo	June 3-10	9	
Pennsylvania:	York	June 10-17	3	
Tennessee:	Memphis	June 10-17	1	
Wisconsin:	La Crosse	June 10-17	4	
	Milwaukee	June 3-10	3	
	SMALLPOX—FOREIGN.			
Africa:	Cape Town	May 6-13	3	
Brazil:	Bahia	Apr. 29-May 13	16	1
	Rio de Janeiro	May 4-28	15	1
Ceylon:	Colombo	May 6-13	1	
Denmark:	Copenhagen	May 20-June 3	2	
Great Britain:	Bristol	May 27-June 3	1	
	London	May 27-June 3	1	
	Newcastle-on-Tyne	May 27-June 3	2	
	South Shields	May 27-June 3	2	
India:	Bombay	May 8-16		34
	Calcutta	May 6-13		5
	Karachi	May 7-14	1	1
Italy:	Catania	May 27-June 8	52	10
	Lecce Province	May 18-25	9	
	Palermo	May 20-27	2	2
Mexico:	City of Mexico	Apr. 8-June 3	65	35
Russia:	Moscow	May 13-27	45	12
	Odessa	May 6-27	45	8
	St. Petersburg	May 13-27	19	1
West Indies:	Grenada	May 23-28	2	
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	May 14-28	74	24
Ecuador:	Guayaquil	May 16-23		2
Honduras:	Puerto Cortez	May 25-June 6	8	4
Mexico:	Coatzacoalcos	June 4-10	3	
	Tierra Blanca	June 4-10	2	1
Panama:	Colon	Jan. 23-June 11	27	7
	Panama	Jan. 1-June 10	78	25
	CHOLERA.			
India:	Calcutta	May 6-13		31
	PLAGUE—INSULAR.			
Hawaii:	Waupahu	June 20		1
Philippine Islands:	Cebu	Apr. 29-May 6	2	2
	Manila	Apr. 29-May 6	2	1

PLAGUE—FOREIGN.

Africa:	East London.....May 6-13.....	8	4
	Mousa.....May 6-13.....	1	1
Brazil:	Sao Paulo.....Apr. 30-May 7.....		1
India:	Bombay .....May 9-16.....		659
	Calcutta .....May 6-13.....		324
	Karachi.....May 7-14.....	158	142

Changes in the Medical Corps of the U. S. Army for the week ended June 24, 1905:

KIRBY-SMITH, First Lieutenant REYNOLD M., assistant surgeon, is relieved from duty at Camp Jossman, Guimaras, P. I., and will proceed to Oras, Samar, P. I., for duty, relieving First Lieutenant Theodore Lamson, assistant surgeon, who will proceed to Camp Bumpus, Tacloban, Leyte, P. I., for duty.

HUGHES, M. E., contract surgeon, is relieved from duty with the Thirty-eighth Company, Philippine scouts, and will proceed to Taft, Samar, P. I., for duty, relieving First Lieutenant John A. Clark, assistant surgeon, who will comply with orders.

GUITTARD, ALVIN M., contract surgeon, now at Camp Hartshorne, Lao-ang, Samar, P. I., will proceed to Llorente, Samar, P. I., for duty, relieving First Lieutenant Charles F. Morse, assistant surgeon, who will comply with orders.

FISHER, Major HENRY C., surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

BARNEY, First Lieutenant CHARLES N., assistant surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

GOSMAN, First Lieutenant GEORGE H. R., assistant surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

FIELD, First Lieutenant PETER C., assistant surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

KELLOGG, PRESTON S., contract surgeon, having arrived on the transport Thomas, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

PORTER, ELIAS H., contract surgeon, having arrived on the transport Thomas, will report to the commanding general, department of Luzon, for assignment to duty.

The following assignments to stations of officers are ordered:

PORTER, ELIAS H., contract surgeon, will proceed to Bulalacao, Mindoro, for duty.

HALL, HENRY M., contract surgeon, will proceed to Pasay Garrison, Manila, for duty.

WALD, First Lieutenant LEON T. LE, assistant surgeon, is granted leave for one month, with permission to visit the United States, effective about May 15, on account of exceptional circumstances.

RICHARD, Major CHARLES, surgeon, having reported his arrival at San Francisco, Cal., will report to Fort Jay for duty.

The following-named assistant surgeons, having reported their arrival at San Francisco, Cal., will proceed to the posts designated and report for duty: First Lieutenant Ernest L. Ruffner, Columbus Barracks; First Lieutenant Eugene R. Whitmore, Fort Jay; First Lieutenant Perry L. Boyer, Fort Sam Houston; First Lieutenant James M. Phalen, Fort Logan H. Roots, relieving First Lieutenant William E. Vose. Lieutenant Vose upon being thus relieved will proceed to Fort Sheridan for duty.

O'CONNOR, First Lieutenant RODERIC P., assistant surgeon, having reported his arrival at San Francisco, Cal., will report for duty at the Army General Hospital, Presidio of San Francisco.

RICHARD, Major CHARLES, surgeon, is granted leave for one month.

CARTER, Major EDWARD C., surgeon, is granted leave for ten days.

BRADLEY, Major ALFRED E., surgeon, is granted leave for one month and fifteen days.

BURR, ROLLIN T., contract surgeon, is relieved from duty at Fort Rodman and will proceed to New York city for annulment of contract.

WILSON, Captain WILLIAM H., assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to New York City and report to the commanding general, department of the East, for assignment to duty as attending surgeon and examiner of recruits and as medical superintendent of the Army transport service in that city, to relieve Captain Guy C. M. Godfrey, assistant surgeon, who will retain station in New York City until further orders.

PIERSON, First Lieutenant ROBERT H., assistant surgeon, is relieved from duty at the Army General Hospital, Fort Bayard, and will proceed to Fort St. Michael, Alaska, for duty, relieving First Lieutenant William M. Smart, assistant surgeon, who will proceed to Seattle, Wash., and report by telegraph to the military secretary of the Army for further orders.

The following changes in the stations and duties of contract surgeons are ordered: Luis G. de Quevedo, contract surgeon, is relieved from duty at Henry Barracks and will proceed to San Juan, P. R., for duty as assistant to Major William F. Lippitt, surgeon.

GEORGE, W. R. S., contract surgron, is relieved from duty in Porto Rico, and will proceed to New York City and report by telegraph to the military secretary of the Army for further orders.

PHILLIPS, Major JOHN L., surgeon, will repair to Washington, D. C., and report to the chairman of the Isthmian Canal Commission for duty with the Commission upon the Isthmus of Panama.

KIERSTED, First Lieutenant HENRY S., assistant surgeon, will report August 1, to Lieutenant-Colonel George A. Torney, deputy surgeon-general, president of the examining board at the Army General Hospital, Presidio of San Francisco, for examination for advancement to the rank of captain.

HOWARD, Captain DEANE C., assistant surgeon, is granted leave for one month, to take effect July 1, or as soon thereafter as his services can be spared.

PORTER, Captain Ralph S., assistant surgeon, leave granted for ten days is extended ten days.

BLANCHARD, First Lieutenant ROBERT M., assistant surgeon, leave for ten days granted May 29 is extended twenty days.

PEED, Captain GEORGE P., assistant surgeon, granted leave for one month.

BAIGENT, JOHN, sergeant first class, Fort Monroe, will be relieved from duty at that post at such time as will enable him to be sent, with permission to delay twenty days en route, to the depot of recruits and casuals, Fort McDowell and report and be sent to Manila, P. I., on the transport leaving San Francisco, Cal., about August 1.

Changes in the Medical Corps of the U. S. Navy for the week ended June 24, 1905:

CHAPMAN, R. B., assistant surgeon, orders of April 19, 1905, modified; ordered to Naval Station, Guam, L. I.—June 17.

HART, C. C., acting assistant surgeon, detached from duty with the marine detachment at Dry Tortugas, Fla., and ordered home to wait orders—June 17.

DELANCY, C. H., passed assistant surgeon, detached from the Marblehead and ordered home to wait orders—June 20.

HOEN, W. S., assistant surgeon, detached from the Zafiro and ordered to the Marblehead—June 20.

MURPHY, J. F., assistant surgeon, detached from the Hancock, June 23, and ordered to the Naval Recruiting Station, Buffalo, N. Y., June 23—June 20.

NELSON, H. T., assistant surgeon, detached from the Naval Hospital, Washington, D. C., June 27, and ordered to the Naval Proving Grounds, Indian Head, Md., June 28—June 20.

MEARS, J. B., acting assistant surgeon, detached from the Naval Recruiting Station, Buffalo, N. Y., June 24, and ordered to Washington, D. C., for examination for appointment as assistant surgeon, and then wait orders—June 20.

SHIPP, F. N., surgeon, detached from the Naval Medical School, Washington, D. C., July 27, and ordered to duty at the Naval Hospital, New York, N. Y.—June 21.

BELL, W. L., passed assistant surgeon, having been examined by a retiring board, and found incapacitated for active service on account of disability incident thereto, is retired from active service under the provisions of section 1453 Revised Statutes—June 21.

IDEN, J. H., passed assistant surgeon, detached from the Naval Medical School, Washington, D. C., June 26, and ordered home to wait orders—June 21.

CAMPBELL, R. A., acting assistant surgeon, detached from duty with the Second Torpedo Flotilla on board the Worden and ordered to Utica, N. Y., July 1, for duty with naval recruiting party No. 5—June 21.

JUDD, H. W., acting assistant surgeon, detached from the Naval Proving Ground, Indian Head, Md., June 28, and ordered to Huntington, W. Va., July 1, for duty with Naval Recruiting party No. 4. June 21.

SPRATLING, L. W., surgeon, detached from duty with the Isthmian Canal Commission and ordered home to wait orders—June 22.

HOLLOWAY, J. H., assistant surgeon, detached from the Baltimore and ordered home—June 23.

TRAYNOR, J. P., assistant surgeon, detached from the Rainbow and ordered home—June 23.

BACHMANN, R. A., assistant surgeon, detached from the Villalobos and ordered home—June 23.

DYKES, J. B., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Baltimore—June 23.

Changes in the Public Health and Marine-Hospital Service for the week ended June 21, 1905:

GEDDINGS, H. D., assistant surgeon-general, to proceed to Baltimore, Md., for special temporary duty—June 13, 1905.

EAGER, J. M., assistant surgeon-general, granted leave of absence for nine days from June 30—June 21, 1905.

PECKHAM, C. C., surgeon, granted leave of absence for twenty days from July 10—June 17, 1905.

KORN, W. A., passed assistant surgeon, granted leave of absence for one day, June 27—June 20, 1905.

CLEAVES, F. H., acting assistant surgeon, granted leave of absence for twenty-three days from July 10—June 21, 1905.

DREW A. D., acting assistant surgeon, granted leave of absence for four days, under paragraph 210 of the regulations.

HAMMOND, A. P., acting assistant surgeon, granted leave of absence for fourteen days from June 17—June 17, 1905.

KEATLEY, H. W., acting assistant surgeon, granted leave of absence for one day, June 22—June 21, 1905.

MCCORMAC, J. T., acting assistant surgeon, granted leave of absence for fifteen days from July 9—June 20, 1905.

RICHARDSON, N. D., acting assistant surgeon, granted leave of absence for five days from June 12, 1905, under paragraph 210 of the regulations.

WALKLEY, W. S., acting assistant surgeon, granted leave of absence for nine days from June 27—June 21, 1905.

ACHENBACH, J., pharmacist, granted leave of absence for thirty days from May 15 on account of sickness—June 21, 1905.

GIBSON, F. L., pharmacist, granted leave of absence for twelve days from June 18—June 16, 1905.

HOLT, E. M., pharmacist, granted leave of absence for twenty-nine days from July 3—June 17, 1905.

Board Convened.

Board convened to meet at the Marine Hospital, Boston, Mass., for the physical examination of an officer of the Revenue Cutter Service, June 21, 1905. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon W. C. Rucker, recorder.

SOCIETY REPORTS

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, Held at Niagara Falls, May 25, 26, and 27, 1905.

[Specially reported for *American Medicine*.]

[*Continued from page 1018.*]

Inflammatory Conditions of the Appendix Accidentally Brought to Light in Pelvic Operations.—HUNTER ROBB (Cleveland, O.) stated that of 370 appendices removed and examined microscopically, 103 were normal; 46 showed signs of a chronic, and one of an acute appendicitis. In 88 cases there was a hypertrophy of the subperitoneal or internal coat, or of both coats. In 63 cases the changes were of doubtful significance, in 36 the lumen was occluded, in 16 dilated, in 12 the appendix contained concretions, in 1 case the appendix was cystic and had undergone myxomatous degeneration; in 1 case no lymphoid tissue was present. *Conclusions:* 1. In a large number (in his series, 323 out of 370) of pelvic cases no inflammatory changes in the appendix were found even microscopically. 2. When one finds a normal appendix in conjunction with disease of the pelvic organs, it is improbable that the latter condition has been brought about by a perforation of the appendix which had afterwards healed. 3. On the other hand, an old periappendicitis and adhesions might often be looked upon as the result of a septic infection, originating in and spreading from the organs of generation. 4. An appendix which looks abnormal macroscopically does not always show inflammatory changes on microscopic examination. 5. Nevertheless, when the removal of the appendix adds very little to the gravity of the abdominal operation, for the benefit of the patient it should be taken away. 6. In his series of 370 cases there were four deaths, but a careful analysis shows that the fatalities should in no instance be attributed to the removal of the appendix.

Appendicitis in Its Relation to Pregnancy.—HENRY C. COE (New York) stated that his experience had led him to believe that many mild cases were overlooked, or were mistaken for other affections—adnexal disease, pyelitis, colitis, etc. In view of the tendency to obstinate constipation and intestinal toxemia, one would expect to find that appendiceal complications were not infrequent during pregnancy. Moreover, many women with a history of former attacks became pregnant, when all the conditions favored recurrences, though they were usually of a mild type. Eight illustrative cases were cited from his private practice, 4 patients recovering without operation, 2 being operated upon at the third and fifth months, without interruption of the pregnancy, while the remaining 2 were carried through the puerperium and submitted to operation later. Coe then discussed the symptoms, diagnosis, differential diagnosis, prognosis and treatment. His views coincided practically with those of Pinard, namely, to treat appendicitis in the pregnant female according to the same rules as in the nonpregnant. In mild cases carry the patient to term, if possible, and operate as soon as convenient after the puerperium, if the trouble persisted. With the persistence of local pain, and if an induration was felt, operate as in any other case. Perforation and abscess formation called for immediate operation, rapid work, as little handling of the uterus as possible, and free drainage. Accouchement forcé, previous to operation, as recommended by Marx, was not approved by the writer. Since the toxemia of pregnancy was often of intestinal origin, as in appendicitis, careful attention should be paid to the regulation of the bowels by the use of laxatives, high enemas, restricted diet, the drinking of large quantities of water, etc.

Appendicitis in Its Relation to Pregnancy.—A. LAPTHORN SMITH (Montreal) said that no machine was stronger than its weakest part, and in the human mechanism the weakest part is the one which is the least used. Owing to present methods of living, the vermiform appendix was one of the least used organs, and consequently the weakest. In all cases of pelvic disease, and in most cases of pregnancy, in cities, the whole organism was weakened and labored under difficulties. There was, therefore, in such cases a special reason why an organ, which even in man was unable to withstand the attacks of bacteria, should be unusually liable to infection, ulceration and gangrene. In many cases of supposed pelvic disease, and fever after delivery, the appendix was responsible for most of the trouble, although it might not always present gross lesions. Therefore, no woman should be allowed to begin or continue a pregnancy with an appendix which was known to be chronically inflamed, and all operations for the removal of the uterine appendages should begin by the removal of the vermiform appendix.

Discussion.—E. P. DAVIS said there were special reasons why appendicitis should appear in pregnant women, and why the appendix should be removed during pregnancy. As a general proposition, *Bacillus coli communis* was present in abundance in the intestinal tract during pregnancy, which in the slightest degree lessened peristalsis of the normal intestine, predisposed to infection by that organism—infection of the adnexa, the uterus, or the appendix. On the other hand, a pregnant woman, whose metabolism was well maintained, was in good condition for a surgical procedure, because she had a physiologic blood plethora. She bore anesthesia well. The removal of the appendix was applicable to pregnant women and need not be delayed until after delivery, as it was much safer to do the operation during pregnancy than to let the woman run risk. ELY VAN DE WARKER saw no reason why, if one saw a perfectly healthy appendix, and the abdomen was opened for some other purpose, it should be removed for fear that something was going to happen in the future. Such a proposition seemed to him too absurd to discuss. Appendicitis was comparatively rare, in his opinion. In going through the community, and he had spent his life in doing gynecologic work, and having opened the abdomen thousands of times, he had examined the appendix and had never removed one, yet he had seen no harm ensue from leaving it. If one were to follow such reasoning, he might as well remove the gallbladder and other organs for fear they would cause trouble in the future. J. RIDDLE GOFFE did not believe in removing a healthy organ, such as the appendix, when we did not know what its function was. It might have some function. There was a time when physicians did not know the function of the spleen, but it was not removed because the abdominal cavity was opened. There was a time when we did not know the function of the thyroid gland, but surgeons did not take it out. He thought we might wake up to the fact some day that the appendix had a function.

The Radical Abdominal Operation Versus the Vaginal Operation for Carcinoma of the Uterus.—C. C. FREDERICK (Buffalo, N. Y.) read a paper on this subject, in which he drew the following conclusions: 1. The radical operation for carcinoma of the uterus should be done only when the gross lesions can quite certainly be diagnosed as confined to the uterine tissue. 2. The deeper tissues of the cervix were generally invaded first, and also the deeper layers of the vagina in the immediate vicinity of the cervix were infected before the disease appeared upon the mucous surface. 3. The bladder wall was very early infected, especially when the anterior lip of the cervix was the starting point of the growth. 4. When pain became a prominent symptom, the growth had passed beyond the uterine tissue. Such an involvement was a positive contraindication to a radical operation. 5. Carcinoma of the body presented an entirely different condition. In these the liability of extrauterine lymphatic infection was less for the same period of growth. 6. When the radical operation was done, it was necessary to remove as much of the vaginal walls and pericervical tissues and broad ligaments as possible. 7. It was a well-attested fact, that in most recurrences after hysterectomy, the growth was found in the cicatrix and the adjacent vaginal tissues. 8. In view of the point at which recurrence began, removal of the pelvic lymphatics and glands did not insure against recurrence. 9. If the vagina was ordinarily capacious, and if the uterus could be drawn down, it would seem that the vaginal route was naturally the one by which the operation could be most readily and thoroughly done. 10. It was possible, yes probable, that some cases of recurrence were due to the infection of the freshly incised tissues at the time of operation by contact of the carcinomatous mass or its fluids. By the vaginal operation this might to a degree be prevented by the removal of the cancerous mass or by thoroughly cauterizing it before beginning the operation proper. 11. The operation could be more quickly done than by the abdominal route. 12. Convalescence, after vaginal operation, was much more rapid; there was much less pain, and there was much less shock to the nervous system. 13. For the cervical carcinoma, in most instances the combined clamp and cautery operation seemed to be the preferable one. 14. Undoubtedly, infected areas were reached and rendered harmless by the free use of the cautery in this operation. 15. The vaginal walls and all tissues should be seared by it, except those of the uterovesical junction. The writer would therefore limit the abdominal operation to those patients in whom the condition of the vagina or immobility of the uterus made the vaginal operation practically impossible.

Paravaginal or Abdominal Operation in Carcinoma of the Uterus.—GEORGE GELLHORN (St. Louis, Mo.) presented the following conclusions: 1. The object of the symposium was to discuss how we might improve our operative technic in order to better the results in uterine cancer. 2. The following conclusions applied only to cancer of the cervix uteri. 3. The radical abdominal operation, so far as the routine ablation of the lymphatic organs of the pelvis was concerned, had thus far failed to yield the desired results. 4. On the other hand, the eradication of the parametrium had been found to reduce greatly the percentage of cures. 5. The simple abdominal and vaginal operations which did not include this procedure should be discarded. 6. For the extirpation of the parametrium, Wertheim's method was the best of the abdominal operations. It had, however, he believed, certain disadvantages as compared with the paravaginal method of Schuchardt. 7. Considering the encouraging results of igniextirpation, a combination of thermocautery with paravaginal extirpation, gave promise of further improvement in operative results.

A Suggestion for the Surgical Treatment of Incontinence of Urine in Women—President's Address.—E. C. DUDLEY (Chicago), after referring to the expansion of gynecology, suggested an operation which was based on the same principle as that proposed by Albarran, namely, advancement of the meatus urinarius to the clitoris, but this was done with-

out dissecting the urethra free, and therefore it obviated the danger of sloughing of the urethra; it was performed as follows, in two steps: *First Step:* A horseshoe-shaped surface is rather deeply denuded between the meatus urinarius and the clitoris, and to either side of the urethra throughout the entire length of it. *Second Step:* The meatus is drawn up to a point near the clitoris and is secured there by means of two sutures. The lateral portions of the denuded surface are now closed. The effect of the operation is to replace and to retain in its functional relations the sagging displaced urethra. The two purse sutures necessarily stretch the urethra upward to the region of the clitoris and the lateral sutures must tend to hold it in its new position. By this means it is proposed to straighten out the urethrocele by longitudinal traction and by lateral traction to collapse and to hold together the dilated walls of the urethra, and thus to overcome the sacculation at the neck of the bladder, where residual urine is apt to accumulate and give rise to trigonitis, cystitis, and possible incontinence. In many cases it will be necessary to combine with the operation some appropriate surgical treatment for an associated cystocele and in nearly all cases to perform perineorrhaphy to relieve also relaxation of the posterior vaginal outlet." In one case he saw fit to narrow the pouching urethra in order to overcome the urethral dilation. He had performed this operation five times since January 1, 1905. In the first four cases, relief from incontinence was immediate and had been continuous. The last operation was too recent to be taken into account. In one case there was so much relaxation of the skin and other soft parts in the region of the clitoris that he feared the sutured urethra might pull these structures down to the old malposition instead of being held up by them, but so far it remained well in place. In such a case, again, or in the event of recurrence from such a cause, he should be disposed to make a deep oval denudation over the pubes on the mons veneris, just above the clitoris, the longer axis of the oval being directed transversely, and to unite the margins of this wound by a transverse line of union, so as to make the clitoris a fixed point on a sufficiently high plane to hold the urethra taut. For obvious reasons this procedure would be preferable to the removal of the clitoris and the union of the meatus to the parts thereby exposed.

[*To be continued.*]

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Philadelphia, June 1, 2 and 3, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 1018.*]

A Study of Pathologic Gait.—JOSEPH SAILER (Philadelphia) stated that his report embodied studies extending over a period of several years. His method was to fasten to the floor, strips of ordinary manila wrapping-paper a yard wide and about 20 feet long, and have the persons walk upon this after having first had the soles of their feet blackened with a paint made by mixing lampblack and linseed oil. The paint was made somewhat thicker than ordinary paint, and was smeared on with cotton. He exhibited some of these tracings, which had been labeled, rolled up, and stored for over four years, yet they were as good as they were at the time they were made. Although this method was condemned by some, Sailer considered it better than any other method which had been used. By its use he was able to study the length of the steps, the imprint of the foot, separation of the legs, rotation of the legs, dorsal flexion of the toes, the force with which the foot was brought to the floor, and other features of the gait. The method did not show the character of the movements of the limbs while passing through the air, but this could be studied by instantaneous photography. Reference was made to the pioneer work of Muybridge at the University of Pennsylvania. Sailer has made charts of the gait of various diseases, as well as of a large number of healthy persons. There are two groups of pathologic gait, those due to disturbance of the bones, and those due to disturbance of the neuromuscular mechanism. Tracings of the gaits of patients suffering from tabes dorsalis, paralysis agitans, spastic paraplegia, and other diseases, were exhibited and their characteristics pointed out.

Multiple Sclerosis: Four Cases, with Autopsy; Consideration of Differential Diagnosis. — E. W. TAYLOR (Boston) stated that very little attention has been given to multiple sclerosis in America, only seven cases having been reported. He said that a review of recent literature indicates that little effort has been made to differentiate multiple sclerosis from other forms of nervous disease, and that he believed the disease to be much more prevalent in this country than autopsy records show. Multiple sclerosis must be differentiated from as many as 23 other diseases. Taylor reported 14 cases with autopsy, and now has under observation 3 cases of the disease, as well as 5 or 6 others, which will probably turn out on further study to be multiple sclerosis. All of the four cases reported were in women, and two of them were in women over 40. In three the intention tremor, nystagmus and scanning speech, ordinarily considered the three cardinal symptoms of multiple sclerosis, were entirely absent. The microscopic anatomy of multiple sclerosis is definite, clean-cut and unmistakable, more so than that of any other disease. The lesions are distributed equally between the gray and the white matter. It is rare to find systemic distribution, and it is not necessary that both the brain and the cord be involved. Taylor considered the disease to be primarily a degeneration of the myeline substance and not a primary gliosis. He found actual patches of sclerosis in the dorsal roots. Taylor considered eye symptoms important, and thought more attention should be given to the study of them. The diagnosis of multiple sclerosis is difficult. In support of this he said that his first case was mistaken for hysteria, the second for brain tumor, and the third for diffuse combined degeneration. A correct diagnosis was made in one case only, and in that but shortly before death. The autopsy and microscopic study revealed the lesions of multiple sclerosis in all of the cases, although in one case the lesions were limited to the cord.

Two Cases of Cervical Rib, with Operation.—HUGH T. PATRICK (Chicago) found in searching the literature that these cases with operation are very rare. In the two cases which he reported the symptoms were in the form of sensory disturbances in the region supplied by the lower part of the brachial plexus. Both patients were young women. In one patient the condition was bilateral, but no symptoms were manifested on the side on which the larger rib existed. Although both patients had previously consulted prominent neurologists, the diagnosis of cervical rib had not been made. He made the diagnosis by the aid of the röntgen ray. No difficulty was experienced in reaching the rib and removing it. Temporary anesthesia and pain resulted from the operative disturbance.

A Contribution to the Acute Polioencephalitis Superior (Wernicke).—J. RAMSAY HUNT (New York) said that acute polioencephalitis superior is an encephalitis with a hemorrhagic tendency which involves also the white matter and the basal ganglions. In some cases the white matter is more involved than the gray. He reported a case in a man aged 40, who had been addicted to excessive alcoholism for many years. The onset of the disease was sudden, and manifested by headache, vomiting, and profound prostration. There was paralysis of all the ocular muscles except the external recti and the intrinsic muscles. Later there was difficulty in swallowing, bradycardia, delirium, great motor restlessness, and incontinence of urine and feces. Finally, coma developed, and death resulted from respiratory failure. Duration of the illness was five days. The autopsy revealed foci of encephalitis in the medulla and pons, also internal hemorrhagic pachymeningitis.

Disease of the Cerebral Venous System.—D. J. MCCARTHY (Philadelphia) had made a study of 23 brains of persons who had been the subjects of generalized arteriosclerosis. He had also studied 120 brains at the Phipps Institute without any reference to vascular disease. He found that while the arterial supply was fairly regular there was no regularity of distribution in the venous supply to the cortex. He thought that not enough importance had been attached to the unity of the vascular system of the brain. Ordinarily the intimate relation of the arteries, veins and capillaries is not taken into account. In one case he found a gelatinous exudate in the ventricles. This is a rare condition and difficult to account for, although it may be a transudate from the blood vessels brought on by passive congestion. The author considered that arterial and venous hemorrhage can be distinguished definitely from each other by the microscopic appearances of the ruptured blood vessels. He gave the details of these appearances at considerable length. Venous hemorrhage occurs more frequently in infancy and is brought on by traumatism.

Brain Tumors: A Study of Clinical and Postmortem Records Bearing on Their Operability and Their Symptomatology.—GEORGE L. WALTON and W. E. PAUL (Boston) said that while previous statistics have divided all brain tumors into operable and inoperable, they had established three classes, namely, operable, inoperable, and doubtful or possibly operable. In this way the placing of doubtful cases in either the operable or the inoperable class, as is necessitated by previous classification, is avoided. All of their cases, 221 in number, had been studied either in specimen at autopsy or from autopsy records. Inoperable tumors were found to be those involving the basal ganglions or situated in the deeper structures of the brain or in those cases in which there was widespread dissemination or metastasis. Of the 221 cases studied, 7% was operable, 80% inoperable, and 13% in the doubtful class. By further exclusion the operable cases were reduced by 3.6%. The proportion of undoubtedly operable growths is much lower than in previous statistics, even before eliminating those cases in which no symptoms during life indicated the location of the growth. Localizing symptoms are quite apt to fail in operable growths or those which spring from the dura. Therefore, it would seem desirable that, as a general rule, in exploratory operation search should be made over the surface rather than into the substance of the brain. The majority of the operable cases show the tumor somewhere about the periphery of the brain. The authors discourage the procedure of puncturing the brain with a view to locating the tumor when it does not appear upon the surface. Although it is quite frequent that a diagnosis of gumma of the brain is made, it has seldom been found

at autopsy in recent years. One should not refuse to operate in a given case because the symptoms are just like those of a previous case which was found to be inoperable. Headache with vomiting was present in 91 cases, headache without vomiting in 65, and vomiting without headache in 11. Every kind of pupillary reaction was found. In 123 cases the knee-jerks were increased and in 27 diminished or absent. In 13 the knee-jerk was increased on the side opposite the tumor and on the same side in one case. The authors gave a detailed account of the location of the tumors in reference to the reflexes. More complete hospital records should be kept and a further study of the influence of the brain upon the reflexes is desirable. In cerebellar tumors the knee-jerk was increased in five and diminished in four cases. They stated that the loss of knee-jerk in brain tumor may be due to pressure of an excessive amount of cerebrospinal fluid.

The Results of Operations for the Removal of Cerebral Tumors.—PHILIP COOMBS KNAPP (Boston) presented the statistics of 828 cases, including 14 unpublished cases, on which operation for removal of tumor of the brain was performed. In 471 of these cases the tumor was wholly or partly removed; 128 of these patients died as a result of the operation, and 78 were not benefited. In 189 cases the tumor was not found at the point of operation. In 64 cases it was impossible to remove it and in 104 cases the operation was for the relief of pressure. Of the whole 828 cases, 265 died as the result of operation, and 186 were not improved; 116 cases were classed as recovered, but the cases of actual complete restoration to health were regarded as exceedingly rare. A comparison of four of the statistics of operation, collected by the writer on four different occasions, in 1889, 1891, 1899 and 1905, showed that there had been a diminution in the mortality and an increase in the number of patients benefited, due to the improvement in surgical technic. The percentage of failures to remove the tumor, largely on account of incorrect diagnoses, showed a comparatively little gain. The palliative operation for the relief of headache and optic neuritis by relieving intracranial pressure was often unsuccessful. These symptoms were perhaps toxic in origin. Of 104 on which palliative operation was done, in 36 headache was not relieved and the optic neuritis increased.

[*To be continued.*]

AMERICAN PROCTOLOGIC SOCIETY.

Seventh Annual Meeting, Held in Pittsburg, May 5 and 6, 1905.

[Specially reported for *American Medicine.*]

Officers Elected.—President, Lewis H. Adler, Jr., of Philadelphia. Vice-president, Geo. B. Evans, of Dayton. Secretary-treasurer, A. B. Cooke, of Nashville. Executive council, J. R. Pennington, Chicago, chairman; T. C. Martin, Cleveland, Wm. M. Beach, Pittsburg. Time and place of meeting for 1906 to be determined by the council.

The President's Address.—J. R. PENNINGTON (Chicago), after the customary acknowledgments, referred to the adverse criticism which the organization and continued prosperity of this society had provoked in certain quarters. He then proceeded to show that its existence was a logical and necessary step of progress. Special societies arise by a process of natural differentiation. This differentiation, which is unavoidable, by organization of the resulting groups, makes possible a greater definiteness of structure and function of the medical profession. Special organizations have multiplied more rapidly in the past 30 years than during any previous period, and likewise the advancement in the science of medicine has been greater during the same period. But the subject of proctology had been neglected in the past until the charlatan claimed it as his special field and the profession seems still to be doing its utmost to support the claim. Of the 66 institutions belonging to the American College Association, only eight make any provision for teaching proctology. The American College Association has adopted a uniform curriculum consisting of 27 subjects. This extensive course provides for 30 hours to be given each to medical jurisprudence, dietetics, hygiene and public health, 60 hours each to nose and throat, and genitourinary diseases, and 160 hours to gynecology. No reference whatever is made to the subject of rectal diseases. "In view of the fact that the greatest breach in the science of medicine today is, and always has been, at this very point, and that it is proverbially true that because of this breach the charlatan is more securely entrenched in this than in any of the other departments, I fail to see the equity in such a curriculum." It may be claimed by the association of colleges, and those schools that do not include proctology in their curriculums, that the chairs of general surgery devote a certain number of hours to these diseases. If so, why are there so many physicians in this country who have never heard a lecture on rectal diseases nor witnessed an anorectal examination or operation? There is a distinct need for this society, viz., the reclamation of this specialty for ethical medicine, and the society will exist, prosper and grow in influence in proportion as it meets this need.

Malignant Disease of the Rectum and Its Treatment.—G. B. EVANS (Dayton) prefaced his remarks with a plea for thorough examination of all cases complaining of rectal symptoms. Many cases of uterine cancer have been termed "change of life" and very many cases of rectal cancer "piles," because of neglect of this precaution. It is the consensus of opinion that cancer is at first purely local and that early recognition and thorough extirpation will cure a large proportion of all cases. Formerly the author was an advocate of colostomy in these cases, but now believes that this procedure should be reserved for those cases only which have advanced so far as to render the radical operation hopeless. The only contraindication he would recognize as absolute is fixation of the rectum by extension of the growth to adjacent structures. The perineal and combined abdominal and perineal routes were recommended.

The Ambulant Treatment of Internal Hemorrhoids.—C. F. MARTIN (Philadelphia) strongly defended the injection method. His technic consists of the injection of 7 m. to 10 m. of a 50% solution of phenol (Boboeuf) into each pile tumor at intervals of from two to seven days, depending on the effect produced. As a preliminary to beginning the injection, the author recommends divulsion of the sphincters under nitrous oxid anesthesia, much of his success with the method being attributed to this procedure. He concluded that there are not more than 15% of recurrences and that accidents and complications are by no means so frequent as after the ligature, and clamp and cautery operations. In addition, the method is practically painless and the patient is not detained from business.

Cases of Fecal Impaction of the Rectum.—T. C. MARTIN (Cleveland), after giving the symptoms usually complained of by these patients, emphasized the value of the proctoscope for treatment as well as diagnosis. One of the cases reported was of special interest, in that the cause was found to have been a ventral fixation of the uterus, in which the rectum, by means of the uterosacral ligaments, had been anchored so immovably that the patient could no longer "bear down" effectually.

Urethrorectal Fistula.—W. M. BEACH (Pittsburg). This paper will appear in a future issue of *American Medicine.*

A Further Contribution to the Study of Pruritus Ani, with Special Reference to Its Local Treatment.—LEWIS H. ADLER (Philadelphia) said that in his experience the male sex had been affected in about 95% of cases. In nearly all the cases the patients were more or less neurotic, and in the major portion, of a decidedly bilious temperament. The cases demand the removal of all exciting causes, and regulation of patients' habits of life should precede and attend local treatment. The latter consists in the daily injection into the cavity of the rectum of from 1 dr. to 2½ dr. of the following mixture:

Fluid extract hamamelis	1 fluidounce
Fluid extract ergot	2 fluiddrams
Fluid extract hydrastis	2 fluiddrams
Tincture benzoin comp.	2 fluiddrams

Upon the first visit, if the perianal skin is dry and tough, the entire surface should be painted with a concentrated solution of silver nitrate (960 gr. to the ounce). This may require repetition several times at intervals of a few days to restore the skin to normal. After this is accomplished, the full strength citrin ointment is to be applied and renewed daily for the first two or three weeks, and thereafter on alternate days or twice a week. This method of treatment may extend over a period of six months or even longer, but in the author's hands it has proved uniformly successful.

The Operative Treatment of Tuberculous Rectal Fistula in the Tuberculous.—J. COLES BRICK (Philadelphia) said the frequent association of rectal fistula and tuberculosis has long been recognized. Some authors claim that 5% of the tuberculous develop fistula, and Hartman found that of 48 cases of fistula, 23 were positively tuberculous. In the author's opinion the irritating effects of the ether are often responsible for the onset of pulmonary symptoms. For this reason he employs nitrous oxid and oxygen when a general anesthetic is demanded. All raw surfaces are seared with the hot iron. When the case is extensive it is better to perform the operation in stages so as to minimize the period of confinement to bed. Special stress was laid on the after-management of these cases. The patient should be kept in bed as little time as possible, but no active exercise allowed until weight has returned to normal. Forced feeding and outdoor air are recommended, and daily sponging with tepid water or, if patient's vitality is sufficient, with cold water is of great value. A weekly gain of weight is the one standard of favorable progress. In conclusion the author advised that all fistula patients be carefully examined for local and pulmonary tuberculosis, and even though the examination be negative, that every case be treated as though tuberculosis were likely to be developed.

Personal Experience in the Employment of Mechanical Vibration in the Treatment of Rectal Diseases.—W. L. DICKINSON (Saginaw) concluded that this is a valuable method of treatment and deserving of more general use by the proctologist. A number of instances were recounted in which it had been successfully used for the relief of fissure and to accomplish dilation of the sphincters, but the author thought that its greatest field of usefulness was in the treatment of chronic constipation, and gave the technic of its application in such cases.

The Office Treatment of Rectal Diseases and Its Lim-

itations.—JAMES P. TUTTLE (New York) said the trend of practice in rectal diseases at the present day is threefold: 1. Toward a more general resort to operative measures. 2. Toward a wider application of local anesthesia. 3. Toward a great increase in office treatment. These tendencies are due to the following facts: 1. The public, as well as the profession, has learned that nonoperative measures cannot be relied upon for permanent cures. 2. Dread of general anesthesia has greatly diminished, due chiefly to improved methods in the use of ethyl chlorid and nitrous oxid, alone or as adjuvants to ether. 3. Dissemination of the knowledge that most of the minor rectal surgery can be done under cocain or other local anesthetic with as little pain and almost as little detention from business as is occasioned by the nonoperative measures, which give only temporary and uncertain relief. 4. Local anesthesia is being more generally adopted because it is safer, can be more quickly applied, simplifies the work, and that the same time, if properly used, permits of as thorough work as general anesthesia. Cocain, eucain, stovain and sterile water are all reliable local anesthetic agents; 1% solutions of cocain, eucain and stovain are as strong as it is ever necessary to use, and usually ½% is sufficient. Stretching of the sphincter has heretofore been the most difficult thing to accomplish under local anesthesia; but the author referred to a method he had devised by which this can be done, thus making it possible to operate painlessly on hemorrhoids, fissures, small fistulas, ulcerations, tumors low down, and even low strictures. But while these things are possible, the author considers certain conditions requisite: (1) Asepsis; (2) careful selection of cases; (3) complicated and plastic operations not to be undertaken; (4) when general anesthesia is necessary, it is better to have the patient at home or in the hospital, even though it may be possible to do the work in the office.

A Contribution to the Pathology of External Piles.—LOUIS J. KROUSE (Cincinnati) limiting his remarks to the sanguineous or thrombotic variety, after a review of the literature of the subject and of the anatomy of the parts, drew the following conclusions: 1. That the walls of the hemorrhoidal veins must undergo some pathologic change before a thrombotic hemorrhoid can develop. 2. That these changes being present, any undue pressure may cause an aneurysmal dilation of the veins. 3. When the internal coat of the vessel is altered, there is more tendency for coagulation to occur. 4. That sexual activity increases intravenous pressure and thus favors the condition. It is, therefore, a disease of adult life. 5. That the clot is always found in the diseased vessel and never in the perivenous connective tissue.

A Summary of 25 Operations upon the Rectum under Local (Sterile Water) Anesthesia.—A. B. COOKE (Nashville). The 25 operations consisted of: Internal hemorrhoids, 15; prolapsus ani, 2; anal fissure, 2; external hemorrhoids, 6. From this series of cases he drew the following conclusions: 1. The method is simple, safe and effective. 2. Pain at the time of operation is exceptional. 3. Postoperative pain is far less than after the old methods. 4. Time of detention from business is reduced more than half. 5. It offers a reliable means of extending the benefits of surgery to a large class of cases which would otherwise be unsuitable for operation. 6. It robs these operations of their terrors. Summing up all personal experience with the method, he stated that it had been satisfactory beyond his fondest hopes, and, if the promise of the method is realized in future, that he would have need for general anesthesia in rectal surgery only in the exceptional case.

Papers by Wm. Bodenhamer, Leon Straus and A. Tierlinck, in the absence of the authors, were read by title.

AMERICAN ORTHOPEDIC ASSOCIATION.

Nineteenth Annual Meeting Held in Boston, June 6, 7, and 8, 1905.

[Specially reported for *American Medicine*.]

Officers Elected.—The following officers were elected for the ensuing year: President, B. E. McKenzie, of Toronto. First vice-president, C. W. Wilson, of Montreal. Second vice-president, H. P. H. Galloway, of Toronto. Secretary, John Ridlon, of Chicago, was reelected. Treasurer, E. G. Brackett, of Boston.

Toronto was selected as the place for holding the next annual meeting at such time as would be appointed by the executive committee of the association.

The nineteenth annual meeting of the American Orthopedic Association was held in Boston at the Medical Library. The meeting was called to order by the president, E. G. Brackett, of Boston, about 45 members of the association being present.

E. G. BRACKETT (Boston) delivered the **presidential address**, reviewing the work of the association and commenting upon the enlargement of the field of orthopedic surgery in the past few years, especially in the direction of what has been called adult orthopedic surgery, to the consideration of which subject the association has seen fit to set aside a half day's session. This enlargement he considered as being one of legitimate growth the result of distinct advances made, and not by encroachment upon other fields of work. He called attention to advances made in the pathology and etiology of orthopedic conditions, and especially in the direction of what have been known as rheumatic conditions. It was gratifying too, he said, to note that the importance of mechanical treatment, the after-treatment in operative cases and the distinct value of out-of-door treatment were not being neglected and that advances were being made along these lines as along those previously mentioned. After the president's address the regular scientific program was taken up, the first papers considered being a number dealing with tuberculous bone and joint lesions.

Surgical Treatment of Tuberculous Bone Lesions.—CHARLES F. PAINTER (Boston) read this paper, pointing out that notwithstanding the great amount of literature bearing on this subject, it was difficult to formulate therefrom data which could be applied to an individual case. Aspiration was a procedure he thought should be resorted to much more frequently in children. Its value has been demonstrated in adults. Temporary fright and pain given to children are more than compensated for by the very satisfactory results obtained. Extirpation of the disease is impossible in most cases, since it is generally impossible to remove all the foci. In children the operative treatment consists principally in the management of abscess formation. He favored the closed method, although he considered it less imperative in children than in adults. Children also tolerate apparatus and mechanical treatment infinitely better than adults. Manipulations directed toward the correction of deformities following tuberculous joint disease during the acute stage, must be performed with great rarity. He used the following methods if the condition seemed suitable for operation: Erasions, whole or in part; excision; amputation, and manipulation. Conservative methods should be adopted within certain limits, and nature given an opportunity to effect a spontaneous cure under the best possible hygienic and dietetic encouragement. He drew the following conclusions as to the surgical treatment of tuberculous bone lesions: Joints which have suffered from tuberculous infection in childhood, relapsing in adult life, yield the best result if ankylosis can be secured in good position. If motion is present, together with deformity, deformity should be corrected, provided there are as many as 25° of motion. If there is less motion than this, deformity should be corrected and ankylosis secured. If deformity is present with ankylosis, ankylosis should be left alone and deformity overcome. If less motion than 25° with deformity, secure ankylosis.

The Early Operative Treatment of Tuberculous Osteitis of the Knee.—BERNARD BARTOW (Buffalo), in his paper, reported two cases of tuberculous disease of the inner condyle with the end-results in each case, corroborating the value of a method of treatment by means of extracapsular focal excision, etc., and its advantages as a practical procedure prior to infection of the knee-joint, as advocated in a previous paper of the same title. In each case reported there were good end-results, one after six months and the other after one year. He advocated this plan of treatment because of the shorter time required, the relatively large preservation of motion, the simplicity of the postoperative care, and the removal of the menace of reawakened activity which lies in an encapsulated focus. He thought this method to be preferable to conservative methods, because it is practically devoid of risk, and the avoidance of liability of infection of the knee-joint.

The Röntgen Ray as an Auxiliary Treatment in Bone Tuberculosis.—F. E. PECKHAM (Providence) in a paper of the above title reported five cases of bone tuberculosis treated by exposure to the röntgen ray. All of the cases were of the suppurative variety, and in each every means of treatment had been faithfully tried without good result before the use of the röntgen ray. As a result of this treatment, four of the reported cases showed marked improvement from the first, and continued to improve uninterruptedly. In the other case of the series there was only slight improvement at first, but no permanent good effects were observed, and the treatment was discontinued. The author of the paper believed that two of the cases had been saved from amputation, one of a leg and the other of an arm. All the cases were regarded as "desperate," and only one case was a failure. In view of its demonstrated value in these cases, as well as in others, he believed the röntgen ray may be of the very greatest assistance in many cases, even when the tuberculous process proves extremely intractable to other methods of treatment.

[*To be continued.*]

Inhumanity to Insane.—That the Salem County (N. J.) Asylum for Insane must be in a deplorable condition seems evident from the statements made recently by the president of the board of trustees of the almshouse, who reports that Dr. John C. Ward, of the State Asylum, was not satisfied with the condition and treatment of the patients in Salem; that the county is not complying with the State laws or the laws of humanity, and unless something is speedily done the place will be condemned. There are 25 inmates and only 20 cells to accommodate them; all have to be huddled together like sheep in one room, which contains the cells, and they have no place in which to walk for exercise. They cannot be allowed out of this room for fear they will break away.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A FURTHER CLINICAL STUDY OF HAY-FEVER, WITH THE EMPLOYMENT OF POLLANTIN.

BY

ALEXANDER W. MACCOY, M.D.,

of Philadelphia.

An article[1] entitled "A Clinical Study of the Use of Antitoxin Serum (Dunbar's) in Hay-fever during the Season of 1903: A New and Distinct Advance in Its Management," which I read before the Section on Otology and Laryngology of the College of Physicians on October 21, 1903, contained a short summary of my clinical experience with my private patients during the autumnal attacks. As the study in 1903 did not begin until September 1, by reason of my absence from Philadelphia during August, the cases were fully declared, and, as the report showed, exhibited the full train of symptoms and were beyond the stage of prevention. For the inspiration to use the serum I am indebted to Dr. Emil Mayer. During a discussion concerning vernal conjunctivitis, for which I was eager to find a cure, as a friend of mine had been a sufferer from this annoying complaint for several seasons, Dr. Mayer mentioned his interest in the study of Dunbar's serum for hay-fever, and it occurred to me to try it for vernal conjunctivitis. I asked Dr. Mayer to send me several vials for trial. On my return home in September, a number of hay-fever patients were under my care and I at once wrote to the agents for a supply of the antitoxin which was sent me. It proved most efficacious and made me a convert to its employment in periodic cases of hay-fever. From my satisfactory experience with the serum, I looked forward with interest and enthusiasm to the season of 1904. When the early season arrived I began the use of the new serum sent out by Professor Dunbar for 1904. In the early cases the patients did well, some were magically relieved, and all the cases were so controlled that the subjects were rendered immune. Many were enthusiastic about the results.

When the late autumnal cases began to appear I at once began the use of the serum, confidently expecting the satisfactory results of 1903. Much to my chagrin, a number of patients using it reported no relief, and none who came before the time for the attack was rendered immune. During July, August, and September I saw a number of patients; some were rendered comfortable if the serum was used continuously every day. A certain percentage passed through all the stages of the disease, and a few declared they were made worse and refused to pursue the treatment further. I was greatly perturbed by the results in these cases, as the contrast to the results in 1903 was so striking. A most graphic exhibition was made when many of the 1903 cases presented themselves for treatment, and instead of being relieved of every symptom in a week's time, they obtained little or no relief, the asthmatic cough and seizure being hardly ameliorated.

About this time I received a call from Dr. Dunbar. We went over the subject together, and I learned the cause of my failures. Dr. Dunbar informed me that not one bottle of serum similar to that of 1903 had been sent out; that in conversation with several American physicians, who had visited him in Hamburg, he had been informed that pollantin made from grasses was the only kind required for American use. I told Dr. Dunbar that I was convinced this was a mistake; and that if I could get serum similar to that of 1903 I could ask no better. It was so late in the season that I could not hope to receive more of the 1903 serum, but, fortunately, I had a few vials left over. Dr. Dunbar assured me that it could be relied upon and would undoubtedly be perfectly good, and that he himself was using it. He used it in my presence and gave me a few more vials for experimentation.

I immediately began to apply what Dr. Dunbar had given me and what I had left, with the same remarkable results as during the previous season. But the amount was far too small to accommodate the patients under my care, even though it was apportioned most carefully.

In attempting to formulate any conclusions from two seasons' trials with two different serums one can but infer that matters are still *sub judice*. The prestige of 1903 was greatly hurt by the percentage of failures for 1904. The two seasons' experiences warrant the belief that the toxins reacting in the large class of *Graminacea* are not identical with toxins found in certain American weeds. That two serums, or more, or a composite serum, will be required to cure or correct the disease causes acting in American subjects of hay-fever. The serum sent out in 1904 was the product of grasses only and perfectly adapted to the cure of early attacks, while inactive for many of the later attacks. Therefore, we see the necessity for the production of a serum adapted to the needs of American patients, for both the early and the late attacks. Again, not only was the 1904 serum composed solely of the antitoxin of grasses, but it was twice the strength of the 1903 serum, and of this fact I was ignorant. This led me into the error of pushing the 1904 product in cases showing little or no response, and thereby causing local irritation in the nasal chambers from its too frequent use. With serums of fixed units of strength adapted to the varying conditions of the inhabitants of the American continent, the immunization and cure of all sufferers from hay-fever should be a fact accomplished. Hay-fever being an acute toxemia, can be rendered harmless by the proper antitoxins. With the two serums now at my command, I feel confident of favorable therapeutic results for the season of 1905.

[1] New York Medical Journal, November 21, 1903.

SKIASCOPY.

BY

J. W. SHERER, M.D.,

of Kansas City, Mo.

In every case for refraction in which it has been possible to employ either an ephemeral or enduring cycloplegic, I have routinely practised the use of the skiascope during the last 10 years. At hospital, clinic, or private office the skiascope has been employed almost daily. In the light of this experience, the skiascope appears almost indispensable in many cases of complicated refraction, as in compound hypermetropic astigmatism, compound myopic astigmatism, and mixed astigmatism.

It is an invaluable aid to the busy practitioner who can use it skilfully, since it reveals at a glance refractive conditions which, when complicated, might otherwise require several hours' work with trial lenses. A natural result is that less accurate work is likely to be done by the busy practitioner who depends on trial lenses only, or upon these and the ophthalmoscope. In hands capable of eliciting the very exact results which the skiascope can yield, this instrument often contributes in large degree to correct diagnosis, perfectly-fitting lenses, and the relief of symptoms which are otherwise baffling. The difficulty in securing these exact results with this instrument explains why its use is neglected by many practitioners.

The presence in the dilated pupil of two light reflexes moving in opposite directions, is one of the most frequent sources of confusion. A multiplicity of light reflexes in the dilated pupil is the *bête noir* of many who try shadow testing. For the shadow at the periphery of the pupil to move in the opposite direction to the shadow in the center is an occurrence so uniform as to be normal near the reversal point.

Careful study and analysis of the conditions modifying the results in each case have been made, and the conclusions which have been gradually formed are that the conflicting factors which tend to imperfect results are: (1) The use of larger mirrors; (2) extraneous light, more or less abundant, other than from the one source required; (3) larger light orifice; (4) skiascope further from the subject; (5) inaccurately estimated distance between skiascope and subject; (6) swaying the mirror too rapidly; (7) faultily placed lenses; (8) working at too great a distance.

The opposite of these conditions, within certain limits and with a definite minimum, contribute to exact measurements. Thus, a small mirror will measure more accurately than a

larger one, due allowance being made for the skill of the user. However, the mirror should not be less than 8 mm. in diameter, and should have a sight hole not less than 2 mm. in diameter. I observe that mirrors 50 mm. in diameter are still in use. Larger mirrors give larger areas of illumination, which may even cover the entire face of the subject. The illuminated space represents a cone of light, with the base at the face of the subject and the apex at the eye of the observer. As the angular deviation of the rays of light increases as the observed pupil passes from the center toward the periphery of the base of the cone, it is evident that if the center be used in refracting, the results will be more nearly correct. Hence, a small mirror and a small light area are essential to exact work. A small mirror, sight hole and light orifice give a feeble illumination, and necessitate working at short range. Instead of taking 1 meter as a basis for measurement, I now take 67 cm. as the distance from which to measure and deduct 1.50 d. from plus refraction and add 1.50 d. to minus refraction. This distance is varied somewhat in seeking the reversal point. Great care should be taken to work in absolute darkness. The light orifice should be about 5 mm.; this may be increased slightly when difficulty is encountered in observing the shadow movement, and should be diminished as the approach is made to the reversal point and the point of exact measurement. Two important factors usually ignored are the covering of the other eye and the control of the visual axis of the observed eye. This should be directed just above the mirror. The patient should not be allowed to look directly into the light, but should be told to look at the brow just above the mirror. The lenses should be placed in a trial frame perfectly adapted to the face, so that the pupil occupies the center of the lens. The lens should be at the normal position for a spectacle lens, *i. e.*, as near to the eye as the cilia will allow. Lenses placed in a hand frame, the so-called "hand skiascope," to be moved up and down over the eye and be held by the patient, or at arm's length by the observer, are very fruitful of error, and assist largely in creating distrust in the test. The rays of light should pass through the lenses at right angles. I have found that the lens is very likely to be tilted or held obliquely unless secured in a trial frame. If the lens be tilted it produces a false appearance of astigmatism. In measuring the distance of the reversal point I bring it to between 60 cm. and 70 cm., and then measure it exactly on a meter stick. The stick is placed upon a support with zero even with the eye, so that a glance shows instantly the exact distance of the mirror. The mirror should always be swayed slowly and but very slightly. When the reversal point is still one or two diopters away the speed and amount of movement are of less consequence, but as the reversal point is approached the fundus reflex moves more and more swiftly, and will escape detection at the right moment unless the movement of the mirror be exceedingly delicate. The distance at which the measurement is taken may justly vary within certain limits, according to the habit of the operator. This is governed by the increasing divergence of the rays of light as the distance is shortened, with consequent need for increasing the allowance to be made for error, and, on the other hand, as the distance is lengthened by the increasing difficulty in seeing the central reflex, with its quick motion and quick disappearance amidst opposing shadows. I now work at from 60 cm. to 70 cm. as the shortest distance at which I can secure dependable accuracy.

SIMPLE METHOD OF DISINFECTING WITH FORMALDEHYD.

BY

J. L. MARBOURG, M.D.,

of Seattle, Wash.

To the Editor of American Medicine:—In your last few numbers I noticed a controversy in regard to a simple method of disinfecting with formaldehyd. As I believe I discovered this method, I would like to state how it came about. In 1888 I was using oxalic acid, potassium permanganate, and water to purify the sick room. I noticed when equal parts were used the water was volatilized at once; this led me to substitute formaldehyd for the water, with the result that I found about a tablespoonful each of oxalic acid, potassium permanganate, and formaldehyd was sufficient to disinfect effectually a room of 10 square feet, by simply making the mixture in an old tin can, devoid of moisture, and taking the usual precautions in regard to doors and windows. This method was successfully used in the disinfection of a large hotel at Port Gamble for a case of smallpox (not the pseudo variety), with the result that the spread of this disease was effectually prevented, there being only the one isolated case. I have made no secret of this method and have instructed sea captains, physicians and others in its use. The simplicity, efficiency, and economy of the method recommend it to all.

REPORT OF WELL-AUTHENTICATED CASES OF SCARLET FEVER OCCURRING THE SECOND TIME IN THE SAME INDIVIDUAL.

BY

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of Buffalo, N. Y.

Physician to the Buffalo Hospital of Charity and St. Mary's Orphan Asylum.

Well-authenticated cases of scarlet fever occurring the second time in the same individual are so rare that the report of two unmistakable cases may be of interest:

G. H., the second child, female, aged 4, is plump and robust. Parents are living and in good health. The previous health of the child has been good, except that when about 18 months old she had a general clonic convulsion preceding digestive disturbances and January, 1905, she had measles.

July 2, 1904, she was taken suddenly ill with moderate fever, sore throat, rapid pulse, but no eruption. Believing the case to be a rheumatic pharyngitis or streptococcic infection, I did not call again until sent for on July 6, to see her brother, E. H., aged 7, whose previous health had been good, except for occasional digestive disturbances, and January, 1905, he had measles, which were epidemic at that time. He had a high fever (104°), rapid pulse (130), sore throat, and a scarlet eruption. I reexamined G. H., who was then around the house. She still had a slight sore throat and a characteristic raspberry tongue.

E. H., the brother, on the third day and for 10 days following had also a characteristic raspberry tongue. Both desquamated freely and developed a severe nasopharyngeal catarrh and E. H. a mild attack of otitis media; no nephritis. After the development of the second case in the family, I considered them both unmistakable cases of scarlet fever, the first case taking the type known as scarlatina without eruption.

The father at the same time developed diphtheria, followed by postdiphtheric paralysis involving the pharynx, larynx, and lower and upper extremities. Two others of the family developed sore throat, but there was no rash and cultures taken did not reveal the presence of the Klebs-Löffler bacillus. All made a good recovery.

On April 3, 1905, I was called to the family of Mr. H. While there my attention was called to E. H., the little 7-year-old boy, who had scarlet fever nine months previous. He had a scarlet eruption, sore throat, moderate fever, was not confined to his bed, but playing about the house. I told the parents if he had not had scarlet fever nine months previous I should so pronounce it, but on that account was in doubt. His tongue again assumed the characteristic raspberry appearance, and he desquamated very freely. About a week later I was called to see a little 4-year-old cousin, R. T., who with his mother was visiting Mr. H.'s home at the time of his son's illness. R. T. had a high fever, 104.5°, rapid pulse, sore throat with membranous deposit, and a scarlet eruption covering his entire body. This case I considered an unmistakable case of scarlet fever. The deposit on the tonsils was so suspicious that I had a culture made from them, and received a report from the Buffalo Board of Health, to which it was sent, that it was diphtheria. About a week later the mother, who was nursing the child, developed a sore throat, high fever, and scarlet rash, rapid pulse. She also desquamated very freely. Gave a history of having scarlet fever when 4 years old. Cultures were also taken from her throat; first report being negative, second showing the diphtheric bacillus. About a week later G. H., the little 4-year-old who nine months previous had a mild attack of scarlet fever, developed all the characteristic symptoms of second attack, and had a moderately severe type.

The special points of interest in these cases are: (1) The second attack of scarlet fever in three of these individuals, two of whom I attended in both attacks; (2) that both attacks were associated with diphtheria.

ORIGINAL ARTICLES

RECTAL ALIMENTATION.*

BY

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of New York City.

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Rectal alimentation appears to have been used in the Middle Ages and was not unknown in ancient times, Aetius[1] having mentioned such a method of feeding. It was not, however, until exhaustive experiments had been instituted to prove the ability of the colon and rectum to absorb nutritive pabulum, that much value was ascribed to this method of feeding. Hood[2] and Steinhauser[3] may be mentioned as the pioneers in this line of experimental work. Hood introduced a piece of mutton into the rectum. This he examined later and concluded that it showed signs of having been digested. Steinhauser introduced pieces of albumin, smoked beef, apples, etc., into the colon through a fistulous opening. Later he failed to find the albumin in the feces, but the other substances were easily detected. From this observation he inferred that the albumin was digested and absorbed. Both these observations are crude and not very scientific compared with modern methods of experimentation. It evidently established, however, in the minds of these observers the fact that digestion and absorption could occur through the action of the large intestine.

It was not, however, until the experiments of Bauer,[4] in 1869, which were carried on under the direction of Professor Voit, that it was proved conclusively and on a more scientific basis, that proteid compounds were absorbed into the blood through the walls of the large intestine and rectum. These experiments of Bauer were as follows: He kept some dogs without feeding until the daily output of urea remained unchanged. At the end of this time injections containing albuminous solutions were given to the dogs. Following these injections the quantity of urea eliminated daily increased at once, which was taken as proof that the albuminous compounds had entered the circulation through the walls of the large intestine. Bauer further found that solutions of socalled peptones, but which in all probability were albumoses and not peptones, were the most readily absorbed. The increased quantity of urea in the urine indicates the absorption and utilization by the system of about 25 gm. of dry albumin, or a little more than 100 gm. of fresh meat. Bauer found also that white of eggs was not absorbed unless it was mixed with sodium chlorid; and that syntonin was absorbed nearly as readily as the socalled peptones.

In 1871 Professor Eichhorst,[5] of Zurich, at that time a student of medicine in Königsburg, published the results of a research carried on under the direction of Professor von Wittich. His deductions were: (1) That the mucous membrane of the large intestine formed neither a diastasic nor proteolytic ferment; (2) that the large intestine possesses the power of absorbing Meissner's a—, b—, and c, peptones (*i. e.*, albumoses and peptones), Liebig's extract of beef—which, however, does not contain any albumin—the albuminous bodies of milk, dissolved myosin, dissolved alkali albumin, egg albumen, mixed with common salt, and solutions of gelatin; (3) that it is unable to absorb pure white of egg, syntonin solutions, the albumins of blood-serum, or undigested fibrin, syntonin and myosin.

The practical application of rectal alimentation as employed by Leube,[6] Czerny and Latschenberger,[7] confirmed the experiments of Bauer and Eichhorst. Leube employed enemas containing well-chopped meat (155 gm.), fresh pancreas (62 gm.), and butter (31 gm.), these ingredients being well mixed together with water (186 cc.).

The observations of Czerny and Latschenberger were conducted upon a patient having a preternatural anus in the left inguinal region which communicated with the sigmoid flexure. They observed in this case that everything that caused any irritation of the gut hindered absorption. Their computations led them to conclude that the total amount of albumin that could be absorbed from the whole mucous surface of the large intestine was only 6 gm., while 150 gm. of proteid material is required daily to maintain a full physiologic standard, as will be more fully explained later.

In regard to the quantity of proteid compounds that can be absorbed by the large intestine there is quite a wide margin of difference: It varies between 6 gm. and 25 gm. Even if the larger estimate be accepted, it is only a sixth the quantity that is required to produce the normal output of urea daily for each 24 hours.

Marckwald[8] also in his experiments found the secretions of the large intestine contained no diastasic or proteolytic power. He determined also the total absorption power of the colon for water, which he estimated as 250 gm. in the course of 12 hours, which would be 500 gm. in 24 hours, or about a pint daily. Marckwald further found that a solution of albumin did not appear to be absorbed, that a solution of peptone acted as a decided irritant to the large intestine. The nonabsorption as here recorded by Marckwald, coupled with the fact that other observers have noted nonabsorption in connection with an irritable condition of the large intestine, leads to the supposition that he was dealing with a case in which there was an irritable condition of the large intestine. Marckwald then argues that while there is no proteolytic enzyme found in the secretions of the colon, it is highly probable that under the influence of putrefactive bacteria that are known to exist in the colon, putrefactive fermentation is excited in the proteid elements with the formation of peptones, thus explaining the possibility of the absorption of protein compounds at this point of the intestinal tract.

Ewald[9] also has noted the very interesting fact that raw eggs are much more readily absorbed than artificially peptonized foods. If it be true that the peptones are irritating and absorption ceases when the bowel is irritated, it explains the fact noted.

Fillipi[10] found after resecting seven-eighths of the small intestine there was no appreciable diminution in the absorption of food containing protein and carbohydrate substances, but 19% of the fat was found in the feces. From this he argued the colon can vicariously accomplish the work of the small intestine.

Aldor[11] in a measure confirmed these remarkable statements. He injected large quantities of milk into the bowel, followed by intestinal lavage an hour or more later, when he found very little trace of any milk in the fluid so recovered. Aldor ascribed the coagulation of the milk in the large intestine to the action of bacteria and not to the action of an enzyme.

Macfadyean, Nencki and Sieber,[12] Bienstock,[13] Wm. Booker,[14] Jackowski,[15] and Sumft,[16] by their researches have demonstrated that various microorganisms exist in the large intestine, and that they exert a powerful influence on the carbohydrates. *Bacterium coli commune* has an intense action on sugar. Bischler[17] has shown it to cause the most energetic fermentation with the formation of ethylic alcohol, acetic acid, and dextregyrous paralactic acid.[18]

If we are to depend upon the formation of peptones for absorption by putrefactive fermentation alone, it is hardly to be expected that the system will receive much nutrition through rectal alimentation, for it has been too conclusively demonstrated that the amount so produced is very small. They seem also to be very irritating and tend to arrest absorption. Further than this,

* Read before the annual meeting of the American Therapeutic Society, May 5, 1905.

very little if any of the carbohydrates and fats is absorbed, and without the requisite supply of these substances death must speedily follow.

While there appears to be some variation in the results obtained by the different observers, as there is in all experimental work, they agree in most respects, so much so that the following facts are pretty generally accepted. 1. There is no physiologic digestive fermentation of the foodstuffs in the large intestine resulting from the action of enzymes. 2. Absorption of the protein compounds does occur to a limited extent. 3. The amount so absorbed is at best comparatively small. 4. Bacterial action is quite pronounced in the large intestine. 5. All forms of irritation in the large intestine have a tendency to interfere with, or to arrest entirely, absorption from this portion of the alimentary tract.

In 1887 the late Professor Austin Flint[19] called attention to the importance of rectal alimentation from a clinical standpoint, in a paper which he read before the New York Academy of Medicine. In the discussion that followed Drs. Peasley, Fordyce Barker, Andrew H. Smith, and Gouverneur M. Smith,[20] said they had practised this method of feeding with the best results. Dr. Andrew H. Smith[21] also was of the opinion, as expressed in a paper that he published at this time, that defibrinated blood was a valuable substance for rectal feeding. His opinion was based upon the fact that rectal lavage shortly after the injections of blood-serum, failed to reveal the presence of any red blood-corpuscles. From this he inferred that the blood-serum had been rapidly absorbed into the circulation.

Eichhorst on the other hand, as we have already seen, expresses the opinion, based upon his experimental work, that blood-serum is not absorbed. Bodenhamer[22] and Stillman[23] have both expressed the opinion, from a clinical standpoint, that rectal alimentation is a valuable method for feeding patients. This is especially so when for any reason the stomach is weak or rebellious and cannot be used. Under these circumstances the large intestine, in the opinion of these observers, takes on a vicarious action. Rectal alimentation is also strongly recommended for supplemental feeding when the stomach is only partially disabled.

Looking a little more deeply into the requirements of the system, we find that a great variety of opinions has been given as to what is required to maintain a normal physiologic standard. That a certain amount of heat-producing material and protein compounds must be supplied daily cannot be denied. But what amounts must be supplied is the mooted question? With the composition and digestibility of the various food substances actually determined, this question can be settled. It is essential, however, that some definite standard shall be established by which the quantity of proteid required daily can be determined. The same is equally true in regard to the sugars and fats. Every one who has ever attempted practically to solve this problem must have found it an extremely difficult task. This is fully shown by comparing the dietaries of Dujardin-Beaumetz,[24] Moleschotte,[25] Forster,[26] Pettinkofer and Voit,[27] Ranke,[28] Atwater,[29] and others, in which the quantity of proteids ranges from 100 gm. to 145 gm.; the fats from 40 gm. to 125 gm., and the starches or socalled carbohydrates from 240 gm. to 550 gm.; the average for the proteids being 125 gm., that for the fats 69 gm., and that for the carbohydrates 451 gm.

35.00	gm. of	urea	contain	16.331	gm. of nitrogen
2.80	"	urates	"	.642	" "
.80	"	uric acid	"	.266	" "
1.00	"	creatinin	"	.371	" "
.35	"	hippuric acid	"	.024	" "
73.12	"	sodium glycocholate	"	2.098	" "
18.28	"	sodium taurocholate	"	.446	" "
14.60	"	bilirubin	"	1.267	" "
14.60	"	biliverdin	"	1.430	" "
900.00	"	perspiration	"	.330	" "
.02	"	NH in respired air	"	.016	" "
		Total		23.221	

Turning now to the estimates that have been made by the various physiologists relative to the elimination of nitrogen, we find the average daily output of nitrogen from the system is in round numbers 24 gm., distributed as in preceding table.

To the foregoing there should be added the nitrogen eliminated in the various digestive ferments, which will probably bring the total nitrogen elimination up to 24 gm. per diem.

It is not sufficient, however, to estimate the nitrogen waste only in constructing the dietary in health or disease; the loss of energy in heat and motion also must be considered. It is usually estimated in heat equivalents, and these heat units must come either directly or indirectly from combustion of the oxidizable substances contained in the food utilized.

This energy loss per diem is given by McKendrick[30] as follows:

Work of the heart	50,400	kilogram	meters
Work of respiration	11,700	"	"
Mechanical work for eight hours	125,000	"	"
Equivalent of heat produced	620,000	"	"
Total	807.100	"	"

Which is equivalent to 5,800,000 foot pounds.

Therefore, in arranging and estimating the value of any dietary the main points to be kept in mind are the ease of digestibility and utilization by the system, the ability to furnish the requisite amount of nitrogen waste and the requisite heat production. At the same time the amount of food used to produce these results must also be kept well within the oxygenating capacity of the economy. All this accomplished, the highest grade of nutrition and reparative activity will be secured and maintained.

Analyzing the various diet tables closely, it at once becomes apparent that none of them furnishes a sufficient amount of nitrogen to the system to satisfy the daily elimination of nitrogen estimated in the excretions in health. This being true, the estimate must be wrong or the patient must lose weight. Hence, a more liberal supply of proteid material must be furnished; and as animal proteid is the most easily digested and assimilated, it, rather than vegetable proteid should be secured. This is especially true in all diseased processes in which the digestive powers are exceedingly feeble.

Estimating the heat production obtainable from all combustible elements contained in the average of these dietaries the heat production is found to exceed the estimates of McKendrick by more than 400,000 kilogram meters, and in some instances by 600,000. With one exception, they all exceed considerably the estimated oxygenating capacity of the animal economy, which is given in round numbers as 750 gm. of oxygen a day. Some of the dietaries require as much as 800 gm. to 900 gm. of oxygen for their complete oxygenation.

What has been found to be true regarding the oxygenating capacity is equally true in reference to the power of the system to produce and eliminate carbon dioxid and water. They all greatly exceed the capacity of the system with one exception. Ranke's dietary keeps within these limits, but it is defective in all the ingredients, especially so in the proteids. Ranke gives only 100 gm. of proteid, when it requires the perfect utilization and oxidation reduction of 150 gm. of proteid material to furnish the 24 gm. of nitrogen estimated as the daily output in all the excretions of the body. The overproduction of heat is less detrimental to the animal economy than an overtaxing of the oxygenating capacity or inability to fully produce and eliminate the carbon dioxid and water, because the excess of heat will be rapidly dissipated under normal circumstances; if it is not, the body temperature will rise above the normal standard. Imperfect oxidation, on the other hand, is evidenced at once by a fall in the output of urea and a rise in the excretion of uric acid.

When this occurs it indicates a progressive deterioration of the system, and sooner or later the more positive evidences of pathologic changes in the animal economy will be declared.

This overproduction of uric acid is not due, as so many have claimed, to the use of animal proteid as against that of vegetable origin, but it is more directly due to the excessive use of the starches and sugars in a dietary that exceeds the oxygenating capacity of the system. Neither animal nor vegetable proteid contains uric acid as Haig[31] claims for the former, and even if they did, there is no evidence to warrant the assumption that the uric acid as such would be absorbed into the blood from the alimentary canal. On the other hand, if uric acid were introduced into the intestinal beaker, which at all times contains many strong alkaline elements, according to the common law of chemistry it would be rapidly converted into a urate. As such it might possibly be absorbed from the intestinal tract and ultimately find its way into the blood stream. This possibility, however, does not hold true, because it is universally admitted by all physiologic chemists that the salts of uric acid are never found in the blood stream. Neither are the experiments of Garrod,[32] which are generally cited as proving the presence of uric acid in the blood, of such a nature as to establish conclusively the existence of uric acid in the blood. The same may be said of Haycraft's method.[33] They prove that uric acid can be made, by a process of oxidation reduction, from the proteid constituents drawn from the serum of the blood; but that is far from demonstrating that the acid exists as such within the living animal economy. The same may be said of Roberts' quadriurate theory.[34] Therefore, many of the theories advanced regarding the production of uric acid and its presence in the blood are built upon false chemic premises.

Another fact that should always be kept in mind in connection with the use of the two classes of proteids is that they all have to be reduced to the monomolecular state known as a peptone before they can be absorbed from the alimentary canal and from there be discharged into the blood stream to form the many isomeric forms of proteid molecules found in the blood. It would seem, however, from the experimental work that we have just reviewed that in rectal alimentation some forms of albumin are absorbed without first being converted into a peptone. So far as I have been able to ascertain, there is no positive evidence tending to show that the proteid substances derived from the animal kingdom and contained within the system are less easily assimilated and oxidized than those derived from the vegetable kingdom. On the contrary, the evidence appears to point very strongly in the opposite direction. Therefore, the true cause of imperfect oxidation seems to be more directly due to the ingestion of a larger amount of the albumins, sugars and fats than the system has the capacity to reduce.

Some years ago I formulated a dietary based upon these principles.[35] It was one that yielded the full quota of heat production according to the estimates of McKendrick. It also developed the heat equally at the various oxidizing focuses in the body, such as the liver, lungs, and glandular organs in general. In it 130.32 gm. of proteid was taken as the standard, this being above the average given in most dietaries. It was deficient, however, in the amount of the proteid substances used. In this particular it had to be enlarged to furnish sufficient nitrogen to produce the 24 gm. of nitrogen eliminated in the excretions. Thus amended it is one that accomplished all this with the smallest possible outlay of oxygen, and is as follows:

198.44 gm.	(77.00 oz.) of wheat bread.
102.05 gm.	(3.60 oz.) of eggs; equal to two eggs.
680.37 gm.	(24 00 oz.) of milk, or its equivalent in
512.20 gm.	(18.06 oz.) of meat or its equivalent in
1,493.06 gm.	122.66 oz.

On the above compounds, the breakfast should consist of:

56.69 gm.	(2.00 oz.) of wheat bread.
102.05 gm.	(3 60 oz.) of eggs; equal to two eggs.
226.79 gm.	(8.00 oz) of milk.
14.17 gm.	(0.50 oz.) of butter.
399.80 gm.	14.10 oz.

For the midday meal:

85.08 gm.	(3.00 oz.) of wheat bread.
256.09 gm.	(9 03 oz.) of meat, or its equivalent in
226.79 gm.	(8.00 oz) of milk.
14.17 gm.	(0.50 oz.) of butter.
582.08 gm	20.53 oz.

For the evening meal:

56.69 gm.	(2.00 oz.) of wheat bread.
256.09 gm.	(9.03 oz.) of meat, or its equivalent.
226.79 gm.	(8.00 oz.) of milk.
14.17 gm.	(0.50 oz.) of butter.
553.74 gm.	19.53 oz.

The remaining 226.70 gm. (8.00 oz.) of milk can be taken during the evening from 9 to 11 o'clock, depending upon the time of retiring; or it can be taken with one of the other meals, if for any reason it is undesirable to take it separately during the hours just mentioned.

From the total quantity of foodstuffs as given in the first table, there must be deducted the amount which has been proved to pass through the alimentary tract undigested and unabsorbed. The investigations of Rubner,[36] Meyer,[37] and others in this line show that 19.9% of the proteid compounds contained in bread pass through the alimentary tract as waste material, and, therefore, this amount must be deducted from the total quantity of bread ingested. From the eggs 2.9% must be deducted; from milk 5.7%, and from the meats, 2.8%. When this deduction has been made from the total quantity ingested, the amount of proteid material which reaches the blood is 150.00 gm. (5.32 oz.). This is the average quantity necessary to carry on the constructive work of the system for 24 hours, and to furnish the normal kind and quantity of nitrogenous excretory material represented by 24 gm. of nitrogen.

With this material there will also be introduced into the system about 104.55 gm. (3.67 oz.) of fat and 137.33 gm. (4.84 oz.) of glucose; that is assuming that all the starch, minus the percentage deduction already made, is finally converted into glucose and absorbed.

In all probability, however, a much larger percentage of the starch and glucose passes through the alimentary tract than occurs in connection with the proteid substances. On this point, however, our knowledge is not as exact as it is in regard to the albuminous compounds. This loss of starch and glucose permits the use of a little extra fat in the form of butter without very greatly raising the heat production above the normal standard commonly computed by physiologists.

This form of diet, when the proper deductions have been made for the undigested and unabsorbed materials, furnishes to the system during the 24 hours the following classes and amounts of proximate principles:

150 00 gm.	(5.32 oz.) of proteids.
104.55 gm.	(3.67 oz.) of fats.
137.33 gm.	(4.85 oz) of glucose.
27.47 gm.	(1.03 oz.) of mineral salts.
419.35 gm.	14.86 oz.

The chief difference between this and most other dietaries is the larger amount of fat and the smaller quantity of glucose with the rise in proteids already described. Raising the fats and lowering the glucose enables the system to produce the full amount of heat and still keep well within the oxygenating capacity of the animal economy, which cannot be accomplished in any other manner. Clinical experience also proves conclusively that this distribution of the proximate principles gives the best results in the maintenance of health and in the cure of diseased processes.

If these conditions are necessary to maintain a

normal standard, what are the requirements in connection with the abnormal and pathologic states of the system? At first, one would be inclined to think that a larger quantity of food would be required to maintain life and repair the damage produced by the pathologic process than is required for the former alone. Clinical observation, however, conclusively disproves any such supposition and shows that the expenditure of energy is held in abeyance during the reparative process. This is demonstrated by the fact that the sick cannot ingest or utilize the amount of food that is required to maintain a normal standard, and still recovery occurs. Further than this the sick, during the active pathologic process, or while unable to take and assimilate the full quota of food progressively lose in weight, showing that the animal economy is compelled to draw upon its own histologic structures to maintain life until a larger amount of food can be perfectly assimilated. It is at just this point that the trained therapeutist is most needed. For so soon as the condition of the system can be brought, by well-directed therapeutic measures, to the point in which a larger amount of food can be assimilated, abnormal metabolism yields to that which is more nearly normal in character. Pathologic processes are thereby made to give way to those that are physiologic, and thus nature is placed in a position to cure disease. Hence, we find that the power of nature to overcome disease depends, absolutely, upon the ability of the animal economy to utilize perfectly the full quota of food. That the system, when expending very little energy, can maintain life for a long period of time on a very limited supply of food is abundantly proved by an almost endless amount of clinical data. It is unquestionably this fact alone, that has led to the oft-expressed belief that rectal alimentation is a very valuable method of feeding. For if we compare the quantity of food that is required to maintain the normal physiologic standard, and which must be reestablished in connection with all pathologic processes before a cure can be effected, we find that with the largest amount that can possibly be utilized under the most favorable conditions for rectal alimentation it falls very far short of the requirements. The maximum amount that can be taken into the system by this method of feeding is so small that it is hard to comprehend how any material improvement can be expected from so abnormal a process. If a highly vicarious action were developed on the part of the large intestine the result might be different. But experimental research has failed to establish this possibility. On the contrary, it has shown that only a limited amount of nutritive pabulum can be introduced into the system by this method, and this is composed largely of the protein compounds. Rectal alimentation undoubtedly relieves some of the distressing symptoms that must of necessity follow withdrawal of all food from the system through the natural channels. It supplies to the blood a larger amount of water, possibly a small amount of the protein substances, with very little if any of the saccharin elements, and practically none of the fats.

If the introduction of the food pabulum into the large intestine should excite a reverse peristalsis and cause the foodstuffs to be carried well up into the small intestine, better results might be obtained. Even then the total amount injected per diem is too small to be of any great value.

Considered in this light, rectal alimentation, from the limited amount of food that can be utilized in this manner, is at best a very poor substitute for the natural method of feeding. It does in a measure relieve the pangs of thirst and hunger that of necessity follow the slow process of starvation which occurs when the stomach and small intestines are thrown out of commission. So far as my personal experience has gone, rectal alimentation has proved most unsatisfactory. I have tried all forms of substances, predigested and otherwise, for rectal alimentation, with but one result, namely, progressive starvation without the more intensely distressing symptoms.

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TWO CASES OF KORSAKOFF'S PSYCHOSIS.[1]

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WITH

Neuropathologic Findings in One of the Cases.

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The association of a more or less definite symptom-complex with many cases of multiple neuritis is a condition which has attracted attention and evoked considerable discussion of the clinical aspects of such cases since the publication of Korsakoff's first paper on the subject in 1887. While the occurrence of such cases is perhaps not frequent, they are by no means rare, and in the past few years a number of such cases have been reported. In very few of these cases, however, has it been possible to make a study of the pathologic anatomy of the nervous system.

[1] Read by invitation before the Philadelphia Neurological Society, April 25, 1905.

By some the term Korsakoff's disease is applied only to such cases as conform to a pretty definite mental symptom-group exhibiting marked disturbance of attention and defective memory, with pronounced fabrications, and, in addition in some cases, illusions of identity and hallucinations of sight and hearing. Others have grouped all cases of polyneuritis showing mental disturbances under the same heading, and a number of cases have been reported as Korsakoff's psychosis showing little more than a toxic delirium. Between certain forms of prolonged delirium on the one hand, and transient cases of confusion due to toxic causes on the other, there is, of course, no hard and fast dividing line. Some, indeed, have been disposed to regard all cases of this psychosis as a form of delirium. If this view is accepted, the number of cases so grouped becomes much greater. It would seem well, however, to limit the application of the term to such cases as conform fairly closely to the description first given.

Most of the cases occurring in this country, at least, are alcoholic in origin. Korsakoff himself, however, while recognizing alcohol as the most frequent etiologic factor, reported 13 cases due to other causes. The disease is always toxic in origin. In rare instances the mental picture has occurred without the accompanying polyneuritic symptoms as the result of intoxication in tuberculosis, typhoid and infections of the alimentary canal.

The following cases were both committed to my care in the insane department of the Philadelphia General Hospital with a diagnosis of alcoholic confusional insanity. In both cases the onset was sudden and both exhibited the ordinary symptoms of multiple neuritis. I regard both cases as typical of Korsakoff's psychosis. This opinion is concurred in by Prof. Charles W. Burr, to whom I wish here to express my obligation for confirmation of the findings and suggestions as to their interpretation.

In the first case while the loss of power in the extremities was much greater than in the second, the mental symptoms were not as pronounced. The cases are deemed worthy of report because of the typic symptoms presented by both, and especially because of the opportunity afforded to contribute a careful study of the pathologic anatomy in a condition where very few necropsies have been performed.

CASE I.—J. W., American, white, aged 34, housekeeper, married, three healthy children, the youngest being ten years of age. Father died of sunstroke at 55. Husband is a drinking man, and during a married life of 14 years patient was accustomed to drink with her husband. It was customary to take a drink of whisky in the morning before breakfast.

Patient was admitted to the detention ward of the Philadelphia Hospital, January 3, 1905, and committed to the insane department, January 12, 1905.

The relatives stated she had been taken sick three weeks prior to admission with what they thought was the grip. Patient is said to have had fever, loss of appetite, inability to sleep, pains, and numb sensations in the limbs with later swelling of the feet and awkward use of the hands. Talked a great deal, those about her were mistaken for others, persons not present were thought to be in the room, talked to the pictures on the wall and called them by the names of her friends and relatives not present, had no clear idea of her whereabouts, imagined that her family living in another part of the city lived nearby, believed that she had just been delivered of a child.

Physical Examination.—The patient is a woman of large size, showing much emaciation and loss of subcutaneous fat and wrinkling of the skin. The expression of the face is somewhat dazed. There are no ocular palsies. Pupils slightly dilated, the right being somewhat larger than the left. Slight hippus is present. Pupils respond promptly to light and distance. Lids are slightly drooping, and the conjunctivas injected. Corneas are clear.

Mucous membranes are of good color. The palate shows a slight median ridge. Tongue is brown coated, protruded in the median line, freely movable in all directions, and shows no tremor. Breath is strong and offensive.

Heart sounds are distant and feeble. No murmurs.

Pulse is of fair volume, low tension, regular, 120 beats per minute.

There is marked wrist-drop on either side. After repeated urging and much effort the hands can be almost fully extended. The grip by dynamometer is nil. There is inability to make a fist. The position of the fingers is one of semiflexion with the thumbs protruding between the index and middle fingers. There is considerable power in the flexors of the elbows. Biceps jerk is doubtfully present on the left side, and absent on the right.

Patient lies flat on the back, with the thighs rotated outward and the feet separated 15 inches. There is extension and inversion of the feet, with flexion of all the toes. There is complete inability to flex the feet or move the toes. After repeated urging to "wiggle the toes," with very great effort the front part of the foot on the left side is very slightly inverted by the action of the tibialis anticus. There is no plantar irritability on either side. Knee-jerk and achilles jerk, clonus, absent. The legs when elevated fall helplessly to the bed. The heel cannot be raised. The knee can be flexed until the popliteal space is three inches from the bed. Complains of pain when the knees are forcibly flexed. There is no tenderness along the nerve trunks. Patient cannot turn on the side or rise to a sitting posture. A severe pin prick or pinch over the lower extremities may be entirely unnoticed. If asked to pay attention, such is felt as a slight touch and the location approximately told. A severe pin prick over a few small scattered areas on the anterior surface of either thigh is not felt even when attention is called to it. Over the abdomen, as far up as the ensiform cartilage, pain sense is diminished. Over the back, buttocks, at the sides of the abdomen, and above the ensiform cartilage, tactile and pain sense are normal. Sensation is impaired over both arms, forearms, and hands, but to a less extent than over the lower extremities. Temperature sense, tested with the hand and a piece of ice, shows that the sensation approaches normal. Such sensation is delayed, and over a few small areas corresponding to lost tactile and pain sense, is lost. Ice is thought to be cool water poured on the part. There is partial incontinence of both bowel and bladder. The bedpan is called for, but if not immediately provided, the patient soils herself. This occurs at about every third movement of the bowel. There is better control over the bladder.

Abstracts taken from notes made on mental condition during the first two weeks after commitment: Patient talks freely. Thinks she knows the doctor, and has known him for a long time. Talks of imaginary events which took place several years ago in which each was a party. If a stranger is presented to her, in about half of the cases will state she has known him for years. In the other half suggestion does not alter her belief that she has no acquaintance with him.

Does not know where she is, although she has repeatedly been told the name of the institution. Generally asks if she is not in some hospital, but often says she is in a certain room of her own home. Cannot tell how long she has been here. Says she must have come in yesterday or this morning. Cannot say where she slept last night unless it was in her own home. Asked what she was doing yesterday, replies she was with her mother or was out shopping. States she has recently been confined and accounts for being in bed in this way. The baby is either alongside her or under the pillow. Confronted with the fact that such is not the case, states quite plausibly that the nurse must have taken it away. It was there only a few minutes ago. After a week she no longer contends the baby is with her, but says it has been taken away. Believes she was recently employed in a mill, a position which she did hold 15 years ago. Frequently whines when greeted by her physician and says she is disgusted; she is of no use and we had better take her and dump her into the river. Asks how long she is going to remain in her present condition and looks ruefully at her deformed hands. She readily cheers up under suggestion and is pleasant and even witty in her remarks. When closely questioned, says: "Now, Doctor, you just quit trying to mix me up. You just give me time to think."

January 30. Patient is still peevish and childish. Whines and frets one minute, smiling and talking pleasantly the next. Fabrications less marked, although she still talks of imaginary walks, visits, and actions as having taken place the day before. May say that she has been here three weeks or say that she came in yesterday. When told she knows better than the latter statement, replies that she is going in and out of the hospital constantly. This statement immediately follows complaints as to her physical helplessness and an inquiry as to whether she is ever going to get well. Thinks she is in the Cooper Hospital, Camden. Relatives say she has never been inside this hospital. Says she knows she is not in New York, because she did not have money enough to go there. Sometimes complains voluntarily that she is all mixed up and asks if she will ever get her memory back. Does not remember the name of her physician, although the nurse has been endeavoring to impress it on her mind for more than a week.

February 3.—Patient recalls her previous statements as to her confinement, and says at the time she firmly believed a baby to have been at her side. Remembers she believed this, but now knows it was a mistake. Denies earnestly that she had any intention whatever to deceive. Fabrications are much less marked. Illusions of identity cannot be elicited. Patient has more realization of her surroundings.

Facial expression is much more intelligent. Pressure along the nerve trunks elicits tenderness not to be found before this time. The toes can be moved slightly. Still unclean as regards bowel and bladder.

February 18.—Marked improvement in mental condition during the past two weeks. Remembers her former beliefs and mistakes and laughs about them. Cannot give any reason for the existence of her former false ideas, but says at the time they seemed perfectly real to her. Now states that she has not worked in a mill for more than 15 years. Knows and remembers where she is, but has no idea of how long she has been sick, the time of year, month, etc. There are no illusions of identity, but patient finds it very difficult to remember the names of those about her. Complains her memory is bad. Realizes she has been mentally ill, and her mental ability at the present time is not what it should be. She talks and jokes, however, in a perfectly intelligent manner, complains of her physical ailments and wonders if she will recover. Disposition is pleasant and agreeable.

Physical condition shows much improvement. Sleeps and eats well. Rarely incontinence, and then only of the bladder. Complains of burning pains along the lower extremities and at the heel. The knee can be flexed to a greater extent than on admission. Over the lower extremities there is still no sensation to a moderately strong faradic current, and below the middle of the thigh no muscular response is to be obtained with such a current. Over the arms the current is readily detected and the muscular response good. Over the forearms the muscular response is slight.

February 23.—Memory for recent events is still impaired. Cannot recall the kind of work her husband is doing. An only sister whom she has not seen during her illness came to see her day before yesterday, but patient is not certain whether it was one or three days ago. Memory for past events is apparently good. Knows where she is and what kind of an institution it is, but recalls none of the circumstances or incidents of her admission. Patient voluntarily states she heard voices around her bed and in distant parts of the room talking about her and thinks it was about three weeks ago that she heard them last. This was a symptom not elicited at the time.

General condition is good. Forearms and hands show evidences of returning power. The heel can be raised from the bed 15 inches. With the thigh flexed at 45° the leg can be almost fully extended. The leg can be rotated outward fairly well. The feet show no evidences of returning power, except the ability to move the toes very slightly. There is improved muscular contraction in response to faradic stimulation over the upper extremities and over the thighs and legs, but no response can be elicited which will bring about flexion of the foot.

During the next two months the physical improvement has been very gradual. Movements are almost complete in the upper extremity, but very feeble. Improvement in the lower extremity has been less rapid. There is slight power to perform all the functions of the knee and hip in a limited way. Movement at the ankle is almost nil, with persistence of the foot-drop. On close questioning, there is evident a lack of mental acuteness, which may be, of course, easily ascribed to the effects of chronic alcoholism.

Treatment has consisted in a liberal nutritious diet, massage, faradic stimulation, tonics, and large doses of strychnin.

CASE II.—C. R., American, white, aged 42, housekeeper, married in 1885, and again in 1888. No children, but a history of two miscarriages during her first marriage. Mother died of pneumonia at 70. Father died of apoplexy at 70. One sister alcoholic and mentally deranged with a paralysis of gradual onset for a few months previous to death. One brother died of tuberculosis.

In early life patient had smallpox, diphtheria, and ordinary diseases of childhood. Left eye enucleated 18 years ago as the result of trauma. Said to have had typhoid fever twice, the last time six years ago. A profound alcoholic for more than 20 years. Mostly a whisky drinker, and taken in the morning before breakfast. No history of delirium tremens.

Patient was admitted to the drunk and detention ward of the Philadelphia Hospital on January 5, complaining of "feeling bad all over." There is a history of having been on a prolonged debauch for three weeks previous.

By referring to the hospital record I find that on admission her temperature was normal, and remained so for five days, after which time no record was kept. The pulse varied from 80 to 120, and was weak. Respirations were normal. Five days after admission the patient is recorded as "feeling much better," on the sixth day "up and about," and on the seventh day "physical condition much improved."

On the sixteenth day the patient was committed to the insane deparment. That part of her commitment paper which states the reasons for the belief that insanity exists and signed by the two committing physicians, reads as follows: "Recognizes in me her family physician. I performed an operation on her she believes. Believes this is the German Hospital. Says she came in yesterday morning. Has illusions of identity. Hallucinations of vision. Says people are trying to take her money and carry her away. Marked confusion. Dementia."

The husband gave the following history of her symptoms and condition. Ten days prior to admission to the hospital showed marked symptoms of mental derangement. Nearly all of her dead realitives were thought to be alive. The husband was repeatedly asked to bring these relatives to her, and she wandered through the house seeking for them. Her second husband was mistaken for her first husband, who is dead. The patient told her husband on his return from work of imaginary visits from her mother and other relatives who are dead, repeated the conversations, thought the doctor had been to see her, friends had called upon her or she upon them, she had been out shopping, had done some unusual work about her home, and so on. Worried much about the loss of a wedding ring, a thing she had not possessed. Believed she owned the whole house where she rented two rooms. Did not seem to understand clearly where she was. Complained of severe pain in the stomach, numb and cold sensations in the knees, loss of appetite, inability to sleep, and just before admission to the hospital was able to walk only when afforded considerable assistance.

The physical examination made at the time of her admission to the insane department showed a prematurely aged woman, with soft, flabby flesh, loose wrinkled skin, gray hair and a florid complexion. Facial expression in repose, depressed and subdued.

Left eye enucleated. Right pupil dilated, regular, responding promptly to light and in accommodation. The lid drooped and the conjunctiva was pale.

Teeth carious and dirty, gums red, palate normal, and the odor of the breath strong and offensive. Tongue thickly coated and tremulous.

Lungs resonant. No adventitious sounds.

Heart action feeble, irregular and rapid. Heart sounds distant and not distinctly heard.

Abdomen soft and flabby.

Pulse 115, of slight volume, low tension, irregular and running. Temperature 98°, respirations 22.

The knee-jerk was absent on both sides, as was the achilles jerk. No patellar or ankle-clonus. Slight flexion of all the toes on excitation of the plantar surface of either foot. Biceps jerk doubtfully present on the right side and certainly absent on the left. No distinct wrist-drop or foot-drop, but a marked weakness of the extensors. Both the feet and hands could be extended fairly well, but resistance to movements was almost nil. On command to "wiggle the toes," there was some movement. There was inability to raise either foot from the bed, but in the dorsal position the knees could be slowly flexed, dragging the heel along the bed. There was moderate tenderness along the nerve trunks of the lower extremities. There was inability to assume a sitting posture in bed without assistance. With a nurse on either side, the patient could sustain some weight, but could not take a step without very great assistance. The patient was able to feed herself with some difficulty. There was some twitching of the muscles of the arms and shoulders. Tactile and pain sense over the lower extremities were present, but diminished in intensity. Thermal sense preserved, although responses were slowly given. The application of ice over the lower extremities seemed to give rise to real pain, while a severe pin prick was barely detected. No incontinence of the bowel or bladder.

Urine examination negative, except for a slight ring of albumin.

Patient complained of chilly sensations over the entire body, burning pains in the legs, nervousness and fright, pains in the stomach, and loss of appetite.

On admission the patient gave here name as C. T., her name during her first marriage. Said she was married on the sly and never went by the name of C. R. Later admitted that she had been married twice, but was not sure whether her last marriage had taken place one or two years before. (As a matter of fact, it occurred 17 years before.) After having been a patient in the hospital for more than three weeks, the patient assured us she had just come in that morning and she had walked in. The day previous she had been in her own home doing her work as usual; had been shopping or calling or taking a trolley ride. She was quite positive of the correctness of these statements, and a few moments later equally positive as to absolutely contradictory ones. Details of supposed occurrences if asked for were readily given. Often was not positive where she had slept the night before, but generally said it was somewhere on Twenty-fourth street. Believed she was in the German Hospital, a belief adhered to during the entire time of her commitment, although often told of her error. In every one she recognized some one she had known for a long time. If questioned, would relate the circumstances of the meeting and where she had first met each person. Without being told, she recognized those about her as physicians. She assured her physician she had known him for years. Was present at his graduation. He made a speech that day. It was a speech suitable to the occasion. The doctor's brother took her to the exercises. Could not tell the name of the doctor. It was just on the end of her tongue, but she could not think of it. Thought his first name might be Charles. Another person pointed out to her had been known to her for years, so she said. Thought his first name was Will. Could not recall his last name. He was thought to have been one of the doctors present at the time of the operation on her eye. These statements were all made without hesitation and in a semiplausible manner, although the statements were not such as would have deceived one entirely unfamiliar with the facts.

A patient in an adjoining bed suffering from the same disease believed she had just been delivered of a child. This delusion was more or less closely copied and for several days was constant, although it varied in detail from day to day.

Left to herself, she saw and heard droves of horses galloping

and playing about her bed and at times was terrified for fear of being trampled upon by them. Her nurses coming to the side of the bed were warned in an excited way and told of their danger.

Things that had happened many years before were told as having taken place recently, the idea of time seemingly being lost. In other respects the statements seemed to be fairly accurate. There was apparently no desire on the part of the patient to deceive. She was not in the least disconcerted by calling attention to the flagrant discrepancies in her statements, and explained them away with equally absurd explanations, and so on indefinitely. Her mental attitude might have reminded one of a child who is playing at "keeping house" or "being a lady," and who relates imaginary experiences, acquaintances, and doings without particular regard as to whether or not the statements made will stand ordinary scrutiny. If sharply reprimanded, the patient sometimes seemed to realize for a moment the inaccuracy of her statements, and for a sentence apparently endeavored to be accurate, only to relapse again into "playing house."

Five days after she came under my observation there was a slight rise in temperature, with an increased feebleness of the pulse, which had been weak from the first. She complained of "feeling bad all over," and was much depressed and quiet. There was moderate dyspnea. There was no irritability of the stomach, and soft diet was fairly well taken. She failed rapidly, and died suddenly four days later, apparently of cardiac failure. While there was considerable depression, with incontinence of both bowel and bladder, she was never stuporous or delirious, and readily answered simple questions a few hours before she died.

NEUROPATHOLOGIC FINDINGS. BY DR. D. J. MCCARTHY.

On gross examination the brain and spinal cord present no abnormalities. The Marchi examination of the brain and spinal cord show practically no pathologic change. The anterior horn cells of the spinal cord present a marked deposit of black pigments granular in type and taking up the entire cell area. There were a few small black granules scattered throughout the cross section, but not sufficient in number to constitute a pathologic change. The examination of the peripheral nerves by the Marchi method shows very marked degeneration. The ulnar, median anterior and posterior tibial, sciatic and nerves from the lumbosacral plexus were examined. Degeneration was present in all of these. Examination of the muscles by the Marchi method (the anterior and posterior tibial muscles) shows areas of degeneration in given fields. A third to a fourth the number of fasciculi were filled with a large number of minute black granules. In the other fasciculi no such changes could be noted. Sections from the cerebral cortex show no changes by the Marchi method.

Nissl Method.—Sections from the cerebral cortex in the rolandic area show a condition of pyknosis in some of the cells of the pyramidal layer. The large Betz cells show a moderate grade of diffuse chromatolysis. There is no change in the neuroglia or the bloodvessels. The subependymal tissues are normal. The spinal cord by the Nissl method shows the following changes: The anterior horn cells were in a condition of complete diffuse chromatolysis. The cell body takes a pale blue stain and the nucleus a very light area, with a pale nucleolus. The granular pigment in the cell body is stained a dark blue. There is no degeneration of the spinal cord in the medulla or the cerebral cortex by the sheath stains (Weigert, iron hematoxylin, etc.). The examination of the sections from the different parts of the nervous system by the nuclear and connective-tissue stains shows no changes other than that described. The sections of peripheral nerves by this method show no distention of the bloodvessels or round-cell infiltration. There are no pathologic changes in the meninges of the brain or spinal cord.

The pathologic anatomy in the cases thus far reported has revealed in most instances a certain amount of cortical atrophy. The changes in the brain, however, while as a rule distinctly demonstrable, have been by no means uniform. In the present case, regarded as typical, no atrophy of the cortex was evident. The extent of the changes in the cord also varies, although some change is pretty constantly present. With marked polyneuritis, degenerative changes in the peripheral nerves and muscles are to be expected. In the present case the extent of muscular degeneration was rather greater than would have been expected from the extent of the changes in the nerves which supplied them.

Cholera Alarm in Russia.—The anxiety caused by the danger of an epidemic of cholera in Russia is growing. A despatch from Sosnovice, Poland, reports that deaths from cholera are occurring daily there, and three suspected cases are reported at Tula. The authorities of both these cities have ordered anticholera inoculations in the infected regions, but the warm, moist weather prevailing is favorable to the spread of the disease.

PRIMARY CANCER OF THE LIVER, WITH METASTASES TO THE LEFT ADRENAL AND RIGHT LUNG.[1]

BY

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Abdominal tumors lie in the borderland, or in what the Germans call the "Grenzgebiete," of medicine and surgery. They belong to the physician by right of discovery, to the surgeon by right of conquest, and to the pathologist finally by right of inheritance. The cavity of the abdomen contains many different organs; all of them packed and fastened there in a more or less shifting manner, subject to dislocation, to distention, to distortion. Hence it happens that the diagnosis of tumors in this region has always been and is still one of the most difficult and puzzling problems we ever have given us to solve. Increasing experience in these problems only makes the physician less positive and more wary in arriving at conclusions; especially if he has his decisions revised from time to time by the superior court of the operating table, the supreme court of the autopsy room, or as not infrequently happens, by both in succession. In a quaint old volume on medicine our fathers used to study, and which remains a mine of wisdom even for the present generation—I refer to "Watson's Practice of Physic"—occurs the following passage in the chapter on abdominal tumors: "Your sagacity will be abundantly tried in balancing the evidence of different symptoms in these obscure yet palpable forms of disease; and after all, you will often doubt; and often, when you do not doubt, you will mistake." The truth of this no man knows better than he who has spent much time and study in the effort to secure every possible bit of evidence bearing upon the case in hand, by history, by physical examination, by laboratory investigation, and who then has reasoned from this evidence to a conclusion that he thinks incontrovertible—only to find at operation or at autopsy that his conception of the condition present was absolutely incorrect. But all this is only the prologue; now comes the story.

A man, aged 65, came to Lane Hospital on January 12, 1905, from his home in Nevada. He had been referred to the care of Dr. Stanley Stillman, with whom I saw him. He had always been in good health previous to his present trouble. For 25 years he had been occupied with ranching and the raising of cattle, and this work kept him much out of doors and riding about the country. He did not use alcohol, and had not done so for 30 years past, and he smoked but moderately, averaging three times a day. A man of such habits ought to have been rewarded with good health all his days, but trouble came even to him.

About 15 years previous he began to have pain in the left side of the abdomen, in the region of the spleen, which he noticed especially after a long horseback ride. This pain at times would go away and be absent as long as two months, but would return again after he took a long ride, and so it continued intermittently without ever causing any great inconvenience. In August, 1902, he began to have pain also on the right side, in the region of the liver. Shortly after that he noticed also a lump in the same region, and this lump had been present ever since, gradually increasing in size. The pain in the right side was variable like that in the left, and might not be present at all for weeks at a time. During the past year, before coming to the hospital, he had lost 25 pounds in weight. For four months past he had been vomiting his food occasionally, averaging once in three days. The vomited material consisted of the food eaten at the previous meal, usually occurring after breakfast and very rarely after the noon or evening meal. The patient had noticed that if he drank coffee he was more likely to vomit, and he had not taken meat for some time past, because he found that it gave him pain in the stomach. The bowels had been rather too free than constipated, moving more than once each day, and the passages were loose. He had medical attendance in Nevada all during last winter, and up to April 1, 1904, but without any relief. During the summer and fall of 1904 he had no medical attendance, and did not see a physician again until within a week previous to coming to San Francisco, when he

[1] Read before the Cooper College Science Club, March 6, 1905.

consulted Dr. P. J. Mangan at Winnemucca, who referred him to Lane Hospital.

The man was not much emaciated and had fairly good color, though rather sallow. His arteries had not stood the strain of years very well, for the temporal vessels and the radials were quite hard and sclerotic. No abnormality was found in the chest except a loud systolic murmur, heard best over the point of maximum impulse, replacing the first sound, but not transmitted to the axilla. There was no evidence of enlargement of the heart; its rate was 92 and its rhythm regular.

On inspection of the abdomen it was seen at once that the right side was fuller than the left, and the right costal groove less prominent than the left. About midway between the navel and the lower end of the sternum, a little to the right of the middle line, a small mass was visible which descended with each inspiration. Just to the right of the navel a much larger mass was seen, which likewise moved with respiration. No peristaltic wave was present, and none could be produced by slapping the abdomen with a wet towel. On palpation, the smaller nodule visible between the navel and the sternum could not be easily defined, because the wall there was very tense, and tenderness was complained of on pressure over the stomach. The larger mass on the right side of the abdomen was found to be quite hard and slightly irregular; it also was quite tender to the touch. A third mass, not at all visible on inspection, could be felt on the left side under the costal margin, but apparently deeply situated and not well defined; this mass also was tender to manipulation and occupied the site at which the patient said his first pain occurred, 15 years before. On percussion, the liver dulness was found to be continuous below the costal margin with that found over the mass in the right side, extending as low as 1 cm. below the level of the navel. No percussion dulness was found to the left of the median line, nor over the tumor palpable below the left costal margin; the rest of the abdomen was tympanitic.

On subsequent examinations of the abdomen, the prominent features were always (1) the nodule in the epigastrium, apparently the size of a walnut, situated about midway between the navel and the xiphoid, and a little to the right of the median line; (2) the large mass in the right side of the abdomen, extending from the margin of the ribs to slightly below the level of the navel; and (3) the mass on the left side, which could be felt only by deep pressure, apparently at the posterior portion of the abdominal cavity, and which could never be seen through the abdominal wall.

In the search for an explanation of these tumor masses, an Ewald test-meal was given in the fasting stomach on the morning of January 15. An hour later, an ounce of material was obtained with the stomach-tube. This material was slimy, brownish green in color, with a few white flakes and lumps of glairy mucus, but no particles of bread visible to the naked eye. In reaction, the material was acid to litmus paper, gave a faint blue tint with congo paper, responded to the Gunzberg test and to the dimethyl test for free HCl. A large amount of free lactic acid was found. The total acidity was 60, of which the free HCl was none, the combined HCl 20, and the organic acids and acid salts 40. With the microscope, a few pus cells were seen, many yeast cells and broken down starch granules. All of these were stained green, and the test for bile showed its presence in the stomach contents. A few bacteria were seen, but none of the Oppler-Boas bacilli. No blood-corpuscles or blood pigment were found.

The next day the stomach was inflated with CO_2, by administering tartaric acid and sodium bicarbonate. By this, a fulness was at once produced in the left side of the abdomen, obliterating the left costal groove. The nodule visible between navel and sternum was carried decidedly lower by the inflation, likewise the mass on the right side of the abdomen, which then descended 5 cm. below the level of the navel. By auscultatory percussion, the lower border of the inflated stomach was found to extend 5 cm. below the navel in the median line. No new nodules were brought out by the inflation, and the most marked distention was produced in the left hypochondrium, where previously the abdomen was flat.

The collateral evidence obtained threw no light upon the problem. The blood count showed nothing, except a moderate grade of secondary anemia. The urine contained a light cloud of albumin, but this was explained by the presence of many pus corpuscles in the sediment, with the absence of casts. The material vomited from time to time was always either the food eaten at the preceding meal, or a brownish-green fluid resembling bile; never was any blood seen in the vomitus. The pain complained of was not constant, and was always described as a burning sensation rather than colic. The feces were brown in color, usually semisolid or liquid in consistency, never containing blood on gross inspection. The patient had a moderate elevation of temperature when he came to the hospital, and for several days afterward, but with this there was evidence of an acute inflammation of nasal and bronchial mucous membranes. The fever was gone by January 20, coincident with the disappearance of the catarrhal symptoms. A few rales were found at first over the upper thorax, but these likewise disappeared, and at no time was any loss of pulmonary resonance observed.

As the result of a week of investigation and observation, the conclusion reached was that the man was suffering from cancer of the stomach, probably with metastasis to the liver. The large tumor mass in the right side of the abdomen was looked upon as situated partly in the pyloric end of the stomach, partly in the liver. The small nodule visible and palpable in the epigastrium was thought to lie in the anterior wall of the stomach. The deep indefinite mass under the left costal arch was not identified and remained a matter for speculation. The reasons for concluding that the stomach was the primary seat of disease were the history of vomiting and distress after food, the analysis of the test-meal and the evidences of dilation with obstruction at the pylorus. The condition was explained to the patient and a gastroenterostomy advised, to overcome the pyloric obstruction. He consented to this, and Dr. Stillman operated on January 24.

When the abdomen was opened, it was seen at once that the large mass in the right side was a tumor of the right lobe of the liver. The tumor was directly continuous above with liver substance, and the gallbladder was situated at its lower end. It was about the size of a man's fist, its anterior surface was nodular and irregular and its consistency was elastic, as if the growth were cystic. Many enlarged blood-vessels ran across it. Posteriorly it extended deeply into the flank, and its relations could not be determined; but it lay directly upon the pyloric end of the stomach, which it compressed; and there were numerous adhesions between the two, so that the pylorus was bound down. The nodule in the epigastrium was found to be situated in the left lobe of the liver. It was about the size of a marble. Numerous other nodules like this were seen in that part of the liver exposed to view. Finally, there was found on the left side of the abdomen, back of the stomach and deeply situated, another large tumor mass, the size of an infant's head. This mass seemed to be connected with the left kidney, but no attempt was made to enucleate it or to locate it definitely. To the touch it seemed cystic, like the tumor in the liver. The stomach was dilated, but no tumor could be found in any part of it. The dilation was undoubtedly due to compression at the pylorus by the mass in the liver. One of the small nodules in the liver was excised for microscopic examination, and a gastroenterostomy was done; but no attempt was made to remove the main tumor causing compression of the stomach, or the mass in the region of the left kidney. The patient did not rally from the shock of the operation and died the same evening at 8 o'clock.

An autopsy was made by Dr. William Ophüls on January 25. Overlying the left kidney and anterior to it, covering the upper pole and the middle, was found a large tumor the size of an infant's head. This tumor was elastic to the touch and coarsely nodular. On section, the tumor tissue was very soft, almost of the consistency of butter. The living parts of it had a yellowish-red appearance, with small red spots all through them; while scattered about in the tumor were irregular, opaque, bright yellow, necrotic masses, and in places a few small hemorrhages. The left kidney was considerably compressed by the tumor, but the tumor was not directly attached to it. The renal pelvis was moderately dilated, slightly inflamed and contained a hard ovoid calculus, 18 mm. by 14 mm. in dimensions, with a slightly irregular surface and of dark brown color. No adrenal could be found on the left side. The right kidney was normal in size and structure and presented a normal adrenal gland.

On the anterior part of the right lobe of the liver was found a tumor mass a little larger than the closed fist, projecting quite a little distance below the lower edge of the liver and overlying the pyloric region of the stomach. The gallbladder was very much displaced downward and toward the right, firmly attached on its left side to the surface of the projecting tumor mass. The liver itself was very large, measuring 25 cm. by 26 cm. by 10 cm. In addition to the large tumor mass in the anterior part of the right lobe, there were several small nodules about the size of a walnut in the posterior part of the right and in the left lobe. The tumor nodules in the liver were very sharply circumscribed, projected from the cut surface, were very soft in consistency and grayish-red in color. Some of these nodules were necrotic and of a bright yellow color. The large tumor in the anterior part of the right lobe showed large necroses and some hemorrhage. There was no interference with the bile ducts.

The stomach was found to be moderately dilated but otherwise normal. Its contents were bile stained. No tumor was found in any part of the intestinal tract. The pancreas was normal, likewise the spleen. Quite a number of small yellowish tumor nodules were found in the right lung but none in the left.

Microscopic examination of the liver tumor and of the adrenal tumor, as well as of the nodules in the right lung, showed that the whole process was carcinoma. The conclusion reached was that the primary condition was an adenocarcinoma of the liver, with metastases in the left adrenal and in the right lung. Dr. Ophüls' reasons for considering the adrenal growth secondary to the liver tumor were (1) that the tumor in both organs resembled the structure of liver tissue; and (2) that the adrenal tumor cells contained dark green masses in their protoplasm, which were found to be bile pigment—a secretion that adrenal cells could scarcely have produced.

The structure of the lung tumors is described by Dr. Ophüls as follows: "The tumor nodule consists of irregular rows of large polygonal cells; the rows are separated by thin meshes of connective tissue with capillaries in them; the

tumor cells contain more or less fat in the shape of small and large droplets. In the liver the tumor cells contain little or no fat; they have the same arrangement as those of the metastatic nodules in the lung; in the center of some of the rows of epithelial cells there is a narrow lumen which is filled in places with green homogeneous material. The adrenal tumor shows large central capillary spaces of irregular shape, with thick masses of tumor cells around them, arranged in a radial direction to the surface of the capillary; many of the tumor cells contain dark green masses in the protoplasm; considerable fat is seen in places and some areas of necrosis."

In the light of the information afforded by autopsy, the man's clinical history is easily understood. The old pain in the left side, dating back 15 years, always aggravated by a long horseback ride that jolted and shook the body, was no doubt due to the large renal calculus pocketed in the pelvis of the left kidney. The pain in the right side, the lump there, and the loss of weight, were all due to the cancer in the liver. The vomiting and the gastric distress after certain foods were due to dilation of the stomach, this in turn due to obstruction at the pylorus, produced by the pressure of the liver tumor on it and by the adhesions between the two. His death was inevitable, and no surgical procedure, no matter how successful, could long have delayed the end.

I have recently reported two other cases of abdominal tumor, one of them diagnosed during life as primary cancer of the liver, the other as tumor of the spleen; but both proving at autopsy to be cancer of the stomach. Now comes this case, which seemed most clearly during life to be cancer of the stomach, and yet after death was determined to be a primary cancer of the liver, with no involvement of the stomach by the growth. And this experience with abdominal tumors prompts me to recall in closing, the words of Watson, which I quoted at the beginning: "And after all, you will often doubt; and often, when you do not doubt, you will mistake."

SOME PHASES OF TROPIC MALARIAL DISEASE.

BY

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During the decades immediately preceding the Spanish war, malarial disease had so nearly disappeared from many parts of the United States that the average practitioner knew comparatively little from actual observation of its multiform manifestations. Much of the current belief concerning it was traditional, and it is sad to relate, but true, that ignorance of the disease often led to the use of its name in a diagnostic way to conceal ignorance of other diseases. It is believed that the importation of tropic malarial disease into the United States during the last five years will supply clinical teachers with material for some time to come.

During a tour of duty of 14 months in Cuba, in 1899 and 1900, I had a somewhat exceptional opportunity to observe and study malarial fevers. The results of these observations in more than 1,900 cases were published in the annual report of the Surgeon-General for the year 1900. For nine months following my Cuban service I was stationed at West Point, N. Y., where I saw comparatively few cases, but a large proportion of these were of tropic origin, and here I first had an opportunity to see some of the manifestations of chronic malarial disease. During the months of January, February, and March, 1901, while stationed at the United States General Hospital, at San Francisco, practically all of my cases were of Philippine origin and nearly all were chronic in character. During the remainder of 1901 and 1902 my cases were both acute and chronic and were observed in the Philippines.

There is a prevalent tendency to consider only the febrile manifestations of malarial disease and to overestimate the diagnostic significance of periodic paroxysms. It must be admitted that both fever and periodic paroxysms are usually present in any case of acute malarial disease, but it must also be borne in mind that both are frequently absent in chronic malarial disease. The microscope has superseded the thermometer as a diagnostic instrument in this disease and the terms intermittent and remittent have lost something of their former significance. It can no longer be doubted that malarial disease may persist for a long time without rise of temperature or the occurrence of recognizable paroxysms. A number of times in my experience blood-examinations with positive results have been made in cases in which the sum of the symptoms was best expressed by the term "debility," and in which no febrile manifestations were present, the patient being entirely without suspicion of malarial disease, having recognized no paroxysms. Much oftener have the parasites been found, in greater or less profusion, in the blood of those who suffered from the usual forms of malarial infection months before and who were without suspicion that they were suffering from afebrile malarial disease. I would invite consideration to a common form of expression of malarial infection in the Philippine Islands, often due to the afebrile type of the disease, which usually receives scant attention. This is diarrhea. There are many, doubtless, who do not admit the occurrence of diarrhea as an expression of malarial infection, and I shall endeavor to establish the fact that it does occur. Authorities are somewhat silent upon this point. Manson, in his "Tropical Diseases" (page 114), writes as follows: "We find that the subjects of malarial cachexia are apt to be dyspeptic; to suffer from morning diarrhea, at first of dark, bilious, later, perhaps, of pale, copious, and frothy stools." Again (on page 118), under the head of sequels: "Dysenteric conditions and forms of diarrhea may supervene at any time and rapidly carry off the subject of advanced malarial cachexia."

Osler remarks, under the head of estivoautumnal fever that "intestinal symptoms are usually absent" (page 168), but under the pernicious malarial fevers, states that "there may be most severe diarrhea, the attack assuming a choleriform nature" (page 168). Under malarial cachexia he makes no reference to the condition of diarrhea. He admits, however, that many of the malarial fevers require studying anew. Under the causes of diarrhea, Munson, in his "Military Hygiene" (page 664), does not mention malarial infection. I have been unable to find any reference to diarrhea as an expression of malarial infection in the circulars on tropic diseases, published by the Medical Department of the Army in the Philippine Islands.

It is fair then to assume that diarrhea is not generally considered as an expression of malarial disease. In Cuba the occurrence of diarrhea in cases of malarial infection (chiefly acute cases) was noted, but the proportion of cases showing this symptom was not recorded. I quote the following from my paper "Twelve Months' Observation of the Cuban Malarial Fevers in Pinar del Rio Province" (1,904 studied cases), published in the annual report of the Surgeon-General for 1900: "It is frequently difficult to decide whether or not dysenteries, apparently of the simple catarrhal variety, which occur coincidently with malarial fever are in any way referable to the latter disease. Their apparent cure in certain cases by quinin strongly points to a relationship between the conditions. The ambulatory fever cases are more apt to present this symptom. No cases of amebic dysentery or liver abscess have been observed at Pinar del Rio." Again, "It is well known that digestive derangement is fairly constant in all malarial fevers."

While in charge of two medical wards, of 40 beds each, at the United States General Hospital at San Francisco, I began first to observe that in a very large proportion of the chronic malarial cases returned from the Philippines, the patients had diarrhea.

Upon admission to the hospital the blood and stools

in each medical case, received careful microscopic scrutiny at the hands of an excellent pathologist (Dr. C. F. Craig). These procedures were repeated as often as requested by the surgeon and the examination for both blood and intestinal parasites was exhaustive. Blood counts and hemoglobin percentages were also freely furnished. The stools in many malarial cases contained *Amœba dysenteriæ*, the parasites, ova or segments of *Ascaris lumbricoides*, *Ankylostoma duodenale*, or *Tœnia*. On the other hand, the blood in many of the patients suffering from these intestinal parasites contained malarial parasites, even when none of the ordinary manifestations of the latter organism was present. After eliminating all of these cases of combined infection there remained not a small percentage of cases of chronic malarial infection with diarrhea, in which the causative organisms of diarrhea mentioned were not found in the stools upon repeated examinations. It was likewise observed that these diarrheas were extremely irresponsive to the most careful dieting, intestinal antiseptics and opium preparations, but frequently responded to quinin enemas. We did not interpret this fact to mean that the cases were, after all, cases of amebic dysentery, and that the benefits were due to destruction of amebas in the colon by the quinin enemas. It was believed, rather, that the absorption of the quinin solution was destructive to the malarial parasites within the smaller intestinal bloodvessels. The fact that cinchonism followed these enemas proved that absorption occurred and it was often difficult to secure cinchonism by the oral administration of quinin in these same cases, absorption undoubtedly being interfered with by the chronic catarrhal condition of stomach and small intestine. In this connection the observations of Marchiafava and Barker, as pointed out by Osler, that the gastrointestinal mucosa is specially invaded by the malarial parasites in a certain type of pernicious malarial fever and that actual thrombosis of the small vessels, with superficial ulceration and necrosis, occurs, are interesting. If this extreme condition occurs in pernicious cases it is fair to presume a milder degree of the same invasion of the mucosa in chronic infections. It is, however, possible to explain the occurrence of diarrhea in malarial infections in other ways.

The constant supply of impoverished blood, innutritious and with lessened oxygen-carrying capacity, to such organs as the stomach and intestine, cannot fail to pervert the function of digestion, and one of the commonest forms of such perversion of the digestive function is diarrhea.

The destruction of red blood cells by malarial parasites, and the presence in the blood plasma of hemoglobin, pigment, and corpuscular materials, which under ordinary circumstances are largely converted into bile pigment, produce an actual polycholia. Bile flow in the intestine is known to promote peristalsis, to stimulate a watery flow from the intestinal follicles, and to act as an intestinal lubricant. These functions carried on to an abnormal extent constitute a pathologic condition, viz., diarrhea.

These facts seem sufficient in explanation of the occurrence of diarrhea in malarial infections, acute and chronic.

The following tables are compiled from 119 cases of malarial disease personally observed in the Philippine Islands during the year 1901 to 1902. Of this number 98 were studied at the Base Hospital, at Santa Cruz, Laguna Province, and 21 at the Military Hospital, Naic, Cavite Province.

Attention is invited to the fact that no cases of diarrhea or dysentery due to amebas, ankylostoma, tenia, or other intestinal parasites are included in these tables. Such combined infections, particularly amebic dysentery and malarial disease, were frequently encountered, but were carefully excluded from this consideration and these tables. All diagnoses are, of course, microscopic.

Attention is especially invited to the fact that the subjects of the cases here reported were all exempt from the exposures of recent field service, with such predisposing and exciting causes as hard campaigning, restricted rations, and impure water. The garrison ration, upon which all of these patients were subsisting when admitted to hospital, included fresh beef and vegetables, and water of unquestionable purity, sterilized, such pure water, indeed, as the dwellers in our American cities rarely, if ever, enjoy.

TABLE I.—SANTA CRUZ, LAGUNA, CASES.

	Tertian benign.	Tertian benign and estivo-autumnal.	Estivo-autumnal.	Variety undetermined.	Total.
Malarial infections	70	1	20	7	98
Malarial infections with diarrhea	13	1	9	4	27

Percentage of all malarial cases with diarrhea..... 27½
Percentage of estivoautumnal cases with diarrhea..... 45
Percentage of double infections with diarrhea..... 100
Percentage of benign tertians with diarrhea..... 18⅔
Percentage of cases of undetermined variety with diarrhea.. 57½

NAIC, CAVITE, CASES.

	Tertian benign.	Tertian benign and estivo-autumnal.	Estivo-autumnal.	Variety undetermined.	Total.
Malarial infections	13	0	4	4	21
Malarial infections with diarrhea	4	0	2	0	6

Percentage of all malarial cases with diarrhea..... 28 4/7
Percentage of estivoautumnal cases with diarrhea..... 50
Percentage of double infections with diarrhea..... 0
Percentage of benign tertians with diarrhea..... 30⅔
Percentage of cases of undetermined variety with diarrhea.. 0

The similarity of the percentages in these two series of cases, observed during different seasons of the year and at points many miles apart, one inland, the other upon the seacoast, is certainly striking. I have no hesitancy in expressing the opinion that many cases of diarrhea and gastrointestinal catarrh are constantly occurring in which the real cause, viz., a malarial infection, is overlooked. Not forgetting the numerous water-borne causes of digestive and diarrheal disease and their prevalence, it is believed that the gastrointestinal tracts of soldiers serving in our tropic possessions are damaged as greatly by malarial infections, in the manner explained, as by improper diets and the much-abused and alleged irrational ration. I am pleased to find in the excellent work of Dr. Craig upon "Estivoautumnal Malaria,"[1] which reached me after the compilation of these tables, confirmation of some of my statements in this paper. Upon page 116, he mentions nausea, vomiting, pain over the stomach, and diarrhea as common symptoms, occurring as a rule during paroxysms. Under "Latent or Masked Infections" (footnote, page 167), appears the following: "Since writing the section upon 'Latent and Masked Estivoautumnal Fever,' I have kept a record of the cases in which malarial parasites were present in the blood, but diagnosis other than malaria, and in nine months at the United States Army General Hospital, at San Francisco, I found 172 such cases; (131 were estivoautumnal. T. W. J.) Of these 131 cases, 43 were diagnosed as chronic dysentery, 15 as chronic diarrhea, in 34 no diagnosis was recorded, while the remaining 39 were variously diagnosed." Upon page 179, under sequels, he states that: "As a result of the localization of the malarial parasites in the mucous membrane of the stomach, and in the intestine, a true acute or chronic ulcerative enteritis and the formation of gastric ulcers may occur."

The introduction of histories of individual cases into

[1] Published by Wm. Wood & Co., New York, in 1901.

this report was not contemplated, but I will report briefly a case which came under my observation and which may be described a type of the atypical. It illustrates a number of the points cited and is not included in the preceding tables:

Recruit L. R. B., Troop A, Sixth Cavalry, just arrived in Philippine Islands from the United States. Previous history negative. The patient was never aware of malarial infection nor treated for it. He was taken ill early on the morning of March 6, 1902, with vomiting, diarrhea, and epigastric pain. While at stool he had marked chilliness and shivering, with copious perspiration. He was immediately admitted to the hospital. Temperature was normal. By the following morning the sclerotics were icteric and the skin of the chest and abdomen was distinctly yellow. Blood-examinations, made March 7, 9, 11 and 13, were as follows:

TABLE II.

Date.	Parasites.	Pigment.	Leukocytes.	Lens.
March 7.[1]	Few hyaline motile parasites, variety uncertain	Present	Reduced	1/12
" 9.[1]	Numerous hyaline forms	Recent bl'ck pigment	Leukopenia	1/12
" 11.[1]	Many intracorpuscular parasites, motile, hyaline and pigmented; 1 large presporulating form. Benign tertian	Black pigment, free and included in leukocytes	Leukopenia	1/12
" 13.[2]	Parasites extremely numerous. Sporulating forms. Benign tertian	Pigment as before	Leukopenia	1/12

[1] Temperature normal. Has had no quinin.
[2] Temperature normal. Quinin ordered for first time.

The patient felt well from a few hours after admission to the hospital. His temperature was taken at intervals of six hours, and was invariably normal or subnormal—never elevated. There was no tenderness in the regions of the gallbladder and spleen. No chill, vomiting, nor diarrhea occurred during the patient's stay in the hospital, but slight sweating occurred once or twice. The treatment was as follows: Confinement to bed, liquid diet, an initial dose of magnesium sulfate with camphorated tincture of opium for relief of epigastric pain. Upon the appearance of jaundice, sodium phosphate was administered. No quinin was given until March 13, when gram doses every three hours were ordered. Under this treatment all intracorpuscular parasites disappeared from the circulation in three days, fragmented dead parasites and pigment persisting for some days. Until after the blood was examined the case was considered one of acute gastroenteritis or acute cholecystitis.

This case illustrates the facts that elevation of temperature and periodic paroxysms are not always present, even in benign tertian infections. Also that gastric and intestinal disturbances are sometimes the only expressions, even in an original case, and that while objective symptoms sometimes disappear upon confinement to bed, parasites will persist in the blood, and blood destruction continue until enough quinin is given to destroy them, an accomplishment frequently more difficult than in the case here cited.

SURGICAL AIDS IN THE TREATMENT OF PARALYZED MUSCLES AND THEIR DEFORMITIES.

BY

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The treatment of paralyzed muscles and their deformities all depends upon the stage in which the case is observed. This is especially true in anterior poliomyelitis, for in the early stage of the disease the general state of the patient is cared for by medicinal means and when the acute stage is passed, tonics, massage and electricity are useful and needed; and at the same time it is the duty of the physician to prevent deformities and later if necessary to correct those which have occurred. When the paralysis is limited to certain groups of muscles the electric reactions should be taken and in those muscles in which no reaction can be obtained, massage should be applied and the part placed in a position opposed to the direction of the deformity.

Many physicians, after examining a patient with anterior poliomyelitis in which the paralysis has been of long standing, give as their opinion that nothing can be done for the affected muscles and tell the parents that in all probability the child will outgrow the deformity. This opinion should never be given by anyone as there are many tests by which we can ascertain whether the case is hopeless or not. A simple test and one which has served me well in ascertaining the recoverability of paralyzed muscles is as follows:[1] If spasmodic movements occur on a voluntary attempt at opening the fingers, mechanical methods will only partially succeed. If, when a patient is asked to extend the fingers he can only do so by simultaneously moving the fingers of the other hand, the case is hopeless. If, however, a patient on being asked to move his fingers, responds by the faintest quiver, the surgeon, still further contracting his hand, shall ask him to repeat the effort, and the fingers are at once moved back to the point from which the physician started them; such a case, should it have lasted one year or thirty will end in complete recovery.

In cases of anterior poliomyelitis in which mechanical means have failed to restore the paralyzed and deformed limbs to usefulness, such surgical procedures as tendon transplantation or arthrodesis should be employed. The theory upon which tendon grafting is based is that every motion produces a peripheral stimulus which is transmitted through the muscular sensory tracts to the cerebral cortex. When a flexor tendon (the antagonist) is transplanted into an extensor, the stimulus is so changed that the cerebral cortex gradually adapts itself to the anatomic change that has been produced in the affected parts, converting the antagonist tendon into an extensor. This explanation does not hold good when the tendon is split, as it has been demonstrated that each muscle half may take up separated and independent actions.

To explain this, Montz[2] accepts the following theory: A muscle is supplied by quite a number of ganglion cells which will not always have to work together. If the impulse of innervation occasionally comes only from the ganglion cells which belong to the split-off muscle part, only this contracts and we arrive at a first independent movement of this muscle slip; a new, unaccustomed, peripheral impulse is produced, and the center adapts itself into independent centers, which correspond to the two muscle halves. In spastic paralysis the elongation of the muscle lessens the traction at the point of insertion of the tendon and at the same time the peripheral impulses are abolished and as a result a calming of the cerebral center is obtained.

Many methods of tendon transplantation have been recommended, but the most useful and those which have given the best results are as follows: (1) To the paralyzed tendon the proximal end of the reinforcing tendon is grafted, allowing the distal end to remain free; (2) the paralytic tendon is completely divided and into the distal end a slip of the reinforcing tendon is joined; (3) a slip of the reinforcing tendon is attached to the paralytic one.

In anterior poliomyelitis the paralysis is circumscribed, and placed next to the affected muscles are healthy ones, making it a suitable and typic case for tendon transplantation. Deformities in the lower extremities are more common, as the result of anterior poliomyelitis, and the one which is most frequently found is paralytic talipes calcaneus, which is treated by grafting the peroneus longus into the outer side and the flexor proprius pollicis into the inner side of the tendo-achillis, or these tendons may be inserted into the periosteum of the os calcis. If at the same time it is deemed necessary, the tendo-achillis may be shortened. In all cases of simple calcaneus it is advisable to remove a wedge-shaped piece of bone from the outer side of the

astragalus, the base being upward to prevent valgus and downward to prevent varus. Of all cases of paralysis about the feet, tendon transplantation has given the best results in talipes calcaneus. Talipes varus is due to paralysis of the peronei group of muscles; therefore the tibialis anticus or the extensor proprius pollicis should be transplanted into the peroneus brevis above the ankle and a wedge-shaped piece of bone, the base being downward, removed from the outer side of the anterior surface of the astragalus.

In talipes valgus, if the case is slight, grafting the outer tendons of the extensor communis digitorum into the tibialis anticus is all that is necessary. If the case, however, is of long standing, it is best to transplant the proximal part of the peroneus brevis into the tibialis anticus above the ankle-joint. In many cases it will be found necessary to remove a portion of the astragalus, as the foot is liable to return to its former position, due to the alterations which have taken place in the articular surface of the joint.

In cases of talipes equinovarus,[3] the tendo-achillis should be split throughout its entire length and the gastrocnemius as well, so making a new muscle. Then, by dividing the peroneus longus and brevis, and attaching to their distal ends the outer half of the tendo-achillis with the corresponding half of the gastrocnemius, we will have succeeded in replacing the paralyzed bellies of the peronei by the healthy outer half of the gastrocnemius.

The treatment of talipes equinovarus and valgus depends upon the ingenuity of the physician, as so many of the nonparalyzed tendons can be grafted into those which are involved, and in both instances if the equinus is marked, arthrodesis should be done.

In paralysis about the knee-joint the quadriceps muscle may be affected with or without contraction of the hamstrings, and the noninvolvement of the sartorius. When the sartorius muscle retains its strength it can be used as a substitute for the extensor by tendon transplantation.

When the paralysis is of such a character as to produce genu recurvatum and the sartorius and hamstring muscles retain their power, it is advisable to graft the sartorius into the top of the patella, or if this cannot be accomplished, advance a slip from the outer side of the biceps and one from the inner side of the adductors.

A slight degree of genu valgum may be overcome by simple mechanical measures, but if after the knee has been straightened and some power remains in the contracted flexor muscles, transplantation should be advised. After the flexor muscle is divided a portion of it is advanced to the top of the patella. When it is impossible to advance the muscle on account of the bony deformities, arthrodesis should be employed.

A very valuable point to be borne in mind in paralysis about the hip is that if the iliopsoas muscles still retain their contractile power we can assure our patient that he will be able to walk; even in cases of paraplegia when one iliopsoas remains undisturbed, the same result is produced, as he is able to bring the other limb forward by a swing motion of the pelvis. The best results in paralysis about the hip are derived from simple tenotomies and the application of suitable mechanical apparatus.

The paralytic conditions which are found in the arms are especially suitable for muscle transplantation. The pronation of the forearm, which is so frequently combined with flexor contraction, can be corrected by transplanting the tendon of the pronator teres and carrying it around the radius, so that when it is tense it will act as a supinator. A method has been devised to transplant the carpal flexors into carpal extensors. In cases of spastic paralysis, these operations can be combined with elongation of the flexors of the fingers, and as a result of this correction, the angle of flexion is diminished at the elbow with lessening of the pronator spasm and an increase of extensor power at the wrist. By these operations, the power of supination is always improved, while that of carpal flexion is diminished.

When the biceps is paralyzed in cases of spastic paralysis, the triceps may be transplanted into it, or vice versa. Tubby and Jones have reported cases in which these muscles have been grafted into each other with excellent success.

Of late, increased attention has been given to the physical mechanical treatment of the sequels of apoplexies, and it has been found that usually sufficient muscle material has been spared from the paralysis to restore with its aid a certain usefulness of the paralyzed extremity.[4] It is this circumstance which has led to the thought of tendon transplantation and the restoration of the most important functions, and the obviating of contractures by the proper distribution of the preserved muscles. Naturally, such an operation may only be performed if the danger of a renewed apoplectic attack is remote. Some of the deformities which arise from degeneration of the spinal cord can be corrected, but the results are only temporary, although a few cases have been recorded in which permanent results have been obtained.

In locomotor ataxia, when a Charcot joint forms, it should first be treated by rest and the application of suitable splints; however, if these measures fail, excision of the joint may be tried. The results of excision of these joints have been very unpromising. Of 18 cases in which resection was performed by Ullman,[5] 10 affected the knee-joint, and 9 only were purely tabetic. Of these 9, all resulted unfavorably, 2 patients dying as the direct result of operation, 3 patients required amputation, and in 1 nonunion followed.

Tubby and Jones report a case of the peroneal type of muscular atrophy; "the patient complained of pain in both feet. They were rigid in contrast to the ordinary paralytic type, voluntary movements of the toes being limited. In the right foot, division of the tendo-achillis and tibialis posticus was performed, followed by an energetic application of a club-foot wrench, massage, and exercise. The right foot, in addition to the equinovarus, exhibited hyperextension of the toes and pes cavus. The tendo-achillis, tibialis posticus, plantar fascia, and deep ligaments were divided, and an incision made across the dorsal aspect of the foot opposite the heads of the first phalanges of the toes. An interesting condition was found, all the phalanges being dislocated upward and backward. The heads of the first phalanges were removed and the foot restored to normal shape. The patient made an excellent recovery and can walk long distances."

As a result of weakness of the muscles of the back and extensors of the hip-joint, lordosis is produced in the ordinary form of progressive muscular atrophy; while in the hands the interossei are paralyzed and the long flexor and extensor muscles are contracted, producing the characteristic claw hand.

For these conditions surgical interference is of little value. It is inadvisable to operate upon any deformity occurring in pseudohypertrophic muscular atrophy, Friedreich's disease or syringomyelia, as the prognosis in these diseases is extremely grave.

Certain precautions are necessary in tendon transplantation: 1. The careful selection of cases. 2. Before muscle grafting is performed the electric reactions should be taken to determine the strength of the muscles to be transplanted. 3. The reinforcing tendon should be as nearly parallel as possible to the one to be reinforced and it should belong to the same muscle group, although this latter precaution is not absolutely necessary. 4. Over-extension at the time of suture should be avoided, as subsequently the muscle will lose its contractile power. 5. The tension of the reinforcing muscle should be estimated by pulling upon it until it shows signs of complete resistancy. 6. Silk sutures should be used and the

muscles quilted together firmly. 7. Strict asepsis should be observed during the operation.

The advance that has been made in the treatment of paralyzed muscles by nerve grafting has been due to the researches of Ballance and Stewart, who in 1895 united the spinal accessory and the facial nerves in a case of facial paralysis, although in one case they made an anastomosis between the facial and hypoglossal nerves. Along with Ballance and Stewart, Faure, Forst, Borrago, Ciarella, and Manasse have transplanted these nerves with varying success. In some of the cases which have been reported, improvement in the muscular movements of the face has been detected a number of months after the operation. The anastomosis of the spinal accessory with the facial is the most simple, and should be used in preference to suturing the hypoglossal, as the former is more accessible. The argument which is used against this operation is that associated movements take place in the muscles supplied by these nerves; that when a contraction occurs in the trapezius it is also produced in the facial muscles and vice versa. The contractions of the facial muscles produced by the action of the muscles about the shoulder have been observed in every case in which these nerves have been sutured. It is interesting to note the manner in which motor cortical control is restored. It is assumed that each nerve fiber is represented in the cortex of the brain by a nerve cell, so that when a transplantation is done the cells are connected with different groups of muscles and as a result the movements are incoordinate, but by constant training functional restoration takes place.

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RHEUMATIC PURPURA IN CHILDREN.*

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Rheumatic purpura, peliosis rheumatica, or arthritic purpura of Schoenlein is one of the varieties of purpura which is distinguished by acute pains in the joints, and accompanied by an eruption of livid patches, generally raised, which do not fade upon pressure. In 1853 Condie, in his "Diseases of Children," gave a fine description of purpura, but did not distinguish the rheumatic form from the others. He called the condition accompanied by typic symptoms purpura febrilis. The etiology of purpura is still obscure; heredity plays an important part; attacks occur more frequently before puberty than after, and are generally confined to children who are badly fed and housed, and exposed to the debilitating influence of an impure, cold and damp atmosphere. Some appear to be peculiarly predisposed to these attacks, and it occasionally occurs subsequent to such acute diseases as measles, smallpox, chickenpox, typhoid fever and pneumonia. It occurs late in the course of many protracted and exhausting diseases, especially in infancy.

Pathology.—Many theories have been advanced as to why, under certain circumstances, bloodvessels will not hold their contents, but the condition itself is difficult to understand. Some have described changes in the small bloodvessels as an endarteritis. No doubt this is dependent upon some change in the blood itself, though we know that diseased blood is capable of passing through normal vessels. Purpura may occur in malignant endocarditis as an infectious thrombosis, in vasomotor changes in which there is first paralytic distention of the small bloodvessels, followed by stasis, hemorrhage, or edema.

The skin lesions may vary in size from a small pea to a half dollar. Often the hemorrhage is very severe, and we have pemphigoid purpura or the formation of bloody blebs. The blood is changed in its fibrin-forming elements, and coagulation is retarded 10 or 15 minutes. Before the appearance of the hemorrhage, the joint symptoms are similar to an ordinary attack of rheumatic arthritis—pain, tenderness, immobility, swelling. There may be hemorrhage from the mucous membrane; internal hemorrhage is rare.

D. B. Lees[1] reported a case of severe rheumatic purpura in a patient predisposed to rheumatism, with subsequent death. The necropsy revealed a heart altered in size and color. There was a collapsed left lung, a splenic infarct, and numerous internal hemorrhages. The blood was examined before death, but showed no leukocytosis. Cultures were made from the blood withdrawn from the blebs, and a pure growth of cocci ranging in chains was obtained.

F. P. Weber[2] reported a case in a boy aged 17, in which there were subconjunctival ecchymoses and bloody sputum.

Diagnosis.—In diagnosing the condition of rheumatic purpura we must bear in mind scurvy, which is a common disease of childhood. We can distinguish this by the absence of spongy gums, the antecedent debility, and anemia. In scurvy there is a history of bad feeding, with deprivation of vegetable food, whereas purpura may occur in robust health.

Hemophilia: We can diagnose from this condition by the history of being a bleeder by heredity, and from the fact that the bleeding has been started by an injury.

Leukemia: From this condition by the absence of enlarged spleen and liver and by the fact that there is no excess of leukocytes in the blood.

Symptoms.—There is usually some indisposition for a few days, accompanied by elevation of temperature, ranging from 101° to 103°; muscular and arthritic pains, and sore throat. There may be vomiting and diarrhea. Wallace Johnson[3] reports a case in a boy, aged 12, in which there were three periods in the disease, separated by intervals of eight or ten days of health. Each attack was marked by colic, with, or preceded by, rheumatic pains in the legs, and followed by purpura.

About the third or fourth day hemorrhages appear as small petechias, varying in size from a pinhead to a pea, usually first upon the lower extremities, but sometimes upon the trunk and upper extremities.

The color is at first bright red, but after a few days gradually fades. The following cases occurring during the last year in my practice, show the usual course of the disease, one being more severe than the others.

CASE I.—C. E., aged 3, an American.

Family History.—Mother, aged 30, no disease except mumps during childhood. Father, aged 27, typhoid at 16, appendicitis at 27. Paternal grandmother had rheumatic arthritis and died at 34 from endocarditis.

In July the child complained of headache, which was followed by a rise in temperature. Fever ranged from 102° F. to 104° F. There was some sore throat, nausea, but no vomiting. On the third day the eruption appeared upon the lower limbs quickly followed by crops upon the body and arms. The eruptions varied in size, some were as large as a quarter. The joints of the knee, wrists, and ankles, were puffed and tender. Child could not be touched on account of the extreme pain and cried upon the least motion. The fingers of the right hand were contracted, and the middle finger remained so even after recovery. Bowels were loose during the attack but no blood was noticed. The urine showed a trace of albumin. On the sixth day of the disease the child could not distinguish objects placed in front of the eyes, and would not withdraw when a light was placed near. This condition remained for two days, but a retinal examination could not be obtained. The stomach became irritable during the course of the disease and vomiting was frequent, but the vomitus contained no trace of blood.

Upon the lower limbs a number of large bloody blebs appeared, and these soon became necrotic. The ulcerations were deep and left large scars. Recovery was slow and it was

* Read before the Northwest Medical Society, February, 1904.

fully four weeks before the purpura had disappeared and the rheumatic symptoms had subsided.

As to the treatment, although many things were tried, nothing seemed to influence the hemorrhages. Ergot was first given, but when it produced no result it was discontinued. Solution of potassium citrate with strychnin was given throughout the entire time and seemed to alleviate the intense pain and to stimulate. The limbs were wrapped in cotton after the local application of oil of gaultheria.

CASE II.—E. W., aged 9, English. Mother and father living, both subject to attacks of muscular rheumatism. She has had measles, whoopingcough, and frequent attacks of pain in the limbs, which mother attributed to "growing pains." In April, after coming home from school, the child was taken with vomiting and chill, which was followed by fever, aching in the limbs, and some tenderness in the joints. On the second day petechial spots appeared on the limbs and lasted about ten days. The course of the disease in this case was mild and not marked by any of the severe symptoms as in Case I. The salicylates were given in this case and the rheumatic symptoms soon subsided. The child made an uneventful recovery with no complications.

CASE III.—The patient was a boy, aged 8; American. Parents are living and well. He had scarlatina in March. Four weeks later he was taken with vomiting and fever. He complained of general pains, but there was no localized tenderness and no joint involvement.

About two and a half days later small ecchymoses appeared upon the arms and legs. With the eruption, the pain and fever subsided. The petechial spots were not noticed upon the body. The spots gradually faded and entirely disappeared in about eight days. Recovery was rapid and there were no complications.

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SPECIAL ARTICLES

NOTES ON DISEASES ENCOUNTERED IN BAGUIO, BENGUET, P. I., AND THE ADJACENT HIGHLANDS OF CENTRAL LUZON, INCLUDING REVISED EXCERPTS FROM THE ADVANCE SHEETS OF A REPORT TO THE SECRETARY OF THE INTERIOR.[1]

BY

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The village of Baguio is situated on a small plateau in the province of Benguet, at an altitude of about 5,000 feet. This plateau is on the summit of the western coast range of Northern Luzon, and is distant about 35 miles from the China Sea. It is covered by a park-like growth of noble pine trees, and the rolling fields of long grass suggest the hills of the famous grazing region of Kentucky.

Climate.—The climate resembles in many ways that of San Francisco, Cal., in a milder and modified form. The mists roll in from the China Sea during the middle of the day for a part of each year; the mornings and evenings are cool enough to make a small grate fire desirable throughout the entire year, and blankets are in order at night. In the middle of the day it is hot in the sun and cool in the shade. The dry and rainy seasons correspond pretty nearly with the same as experienced at Manila, the rainfall being heavier in the mountains. The difference in temperature between Manila and Baguio ranged between 12° F. and 16° F. during the year 1900 and 1901, according to the report of the Weather Bureau, and that is probably a fair average for all years. As to extremes of temperature at Baguio, the same report states that the temperature frequently falls to 50° F. during the northeast monsoon, and that on February 18, 1902, it registered 42.1° F. During April, the hottest month in Baguio, the temperature seldom exceeds 75° F. to 80° F. at noon. The cool and rarefied air acts as a prompt and powerful stimulant to those who come up from the lowlands, a distinct sense of exhilaration being experienced by the time one has reached an altitude of 4,000 feet. The following data contained in my annual report for the period September, 1903, to September, 1904, summarize the climate at Baguio during that period:

The highest official temperature registered at this station during the year was 77.7° F. on April 5, 1904, and the lowest was 49.8° F. on January 6, 1904. The highest monthly average or mean maximum temperature was 74.1° F. for April, 1904, and the lowest or mean minimum temperature was 52.5° F. for February, 1904. There were 201 days during which rain fell and the rainfall for the 12 months reached the phenomenal total of 195.56 in. as compared with 96.29 in. for the same period in 1900–1901. The highest monthly rainfall was 54.92 in. in July, 1904, and the lowest 0.81 in. in March, 1904. The maximum rainfall in 24 hours occurred October 26, 1903, with a deluge of 19.82 in. Two other days of exceptional rainfall were July 12, 1904, 15.5 in., and June 25, 1904, 15.31 in.

Igorrotes.—The original inhabitants of the pueblo of Baguio and the neighboring country are of the Benguet family of Igorrotes, with a fair sprinkling of Ilocanos. Inasmuch as this paper treats mainly of diseases occurring among the Igorrote population of Baguio and vicinity, a brief consideration of the ethnology of this interesting people will not be superfluous.

The Igorrotes comprise the great stock of primitive Malayan tribes occupying the Cordillera Central of Northern Luzon. They are regarded by Dr. David Barrows, former chief of the Ethnologic Survey, as the most primitive Malayan tribe of the Philippine Islands, probably originating in the migration which at the same period peopled Korea and the Batanes and Babuyanes Islands. The Igorrote of Benguet differs in a marked degree psychologically from his savage head-hunting cousin of the North. He is essentially gentle, easily controlled, shrewd at a bargain, agricultural in his tastes, possessed of a keen sense of humor, and as rule, honest. He subsists mainly on sweet potatoes, with the occasional addition of a pig or a dog during fiestas. Since the advent of the American, bringing plenty of work at five-fold prices, the Igorrote has added rice to his regular dietary. He wears a simple loin cloth while at work and a thin cotton blanket at other times. Even during the coolest nights he makes no addition to his clothing, but depends upon a tiny fire of pitch pine and the body heat of his fellow sleepers to keep him from freezing. These are not sufficient, and during the cool season the natives seem to pass a good share of their nights in physical discomfort, waking at frequent intervals to rekindle the little fire.

It should be noted that purely characteristic customs and modes of living are not encountered among the Igorrotes of Southern Benguet, probably because of their long intercourse with Ilocanos and Spaniards and their frequent visits to the adjacent lowlands, where, by the way, they often become infected with diseases that do not flourish in their native mountains. They retain, however, the fundamental traits of their race.

A consideration of the diseases encountered among the Igorrotes is interesting from the standpoint of the student of disease and because the Philippine Government has established in Baguio an important American settlement which is probably destined to be the summer capital of the islands.

The diseases described below were encountered during the year 1903 to 1904 among the Igorrotes and Ilocanos living in Baguio and the neighboring highlands. It should be noted, however, that a large proportion of the cases developed while the natives were absent working in the lowlands, especially in the laboring camps of the Benguet road.

Beriberi.—Beriberi was recognized in Baguio for the first time during the past summer of 1904, and by the late fall it still persisted in a mild form. I treated 29 patients, 25 of whom were Igorrotes and four Ilocanos. Several Japanese had been working in Baguio during the past six months, but no case of beriberi was observed among them. Most of the patients presented the mildest symptoms of the rudimentary form of the disease, so mild that they would not have been recognized if a severe case had not developed among them and led to a careful examination of all persons living in the same neighborhood. With one exception the patients were members of the detachment of constabulary quartered at Baguio or were prisoners at

[1] Read before the Manila Medical Society, February 6, 1905.

the provincial jail at Baguio. The constabulary officer in command of the Baguio detachment is an ex-steward of the United States army and kept the quarters of his men in excellent sanitary condition. The building is of pine, with floor two to four feet above ground, and is furnished with a rubberoid roof. The interior is warm and dried by two stoves. The ration of the men is varied and simple, including fresh meat for all usually twice a week. The men occupy much drier and cleaner quarters, wear warmer clothing, and consume a much more varied and nitrogenous diet than their fellow natives in private life. The only factor that would predispose to the contraction of the disease is the crowded condition of the sleeping room. The provincial jail, however, was damp and poorly lighted, offering conditions favorable to the development of beriberi, although the diet of the prisoners was very satisfactory from a hygienic standpoint.

In two-thirds of the cases observed, the only symptom presented was a more or less complete anesthesia of certain areas of the skin, notably over the shins, abdomen, and extensor side of the forearms. The patients were energetic, had a good appetite, and walked and worked without difficulty or complaint. No evidences of cardiac weakness were present. Several of these men gave histories of previous attacks of illness followed by long convalescence with difficulty in walking, and I am inclined to believe that their present sensory disturbances are residual phenomena, the remnants of a previous acute beriberi with its accompanying peripheral neuritis. The lighting up of these phenomena was perhaps induced by life in the crowded barrack and prison, and by the extraordinary duration of the rainy season of the present year with consequent dampness. During the period from September 1903 to September, 1904, 195.56 inches of rain fell, as compared with 96.29 inches in 1900 to 1901. As pointed out by Hamilton Wright, this explanation of repeated nerve disturbances in beriberi would accord with the behavior of analogous forms of neuritis. It is possible, however that new infections occur in these cases followed by a renewal of the toxemic neuritis. It would appear that only the discovery of the active causative agent of the disease could settle this question.

Beriberi has existed in severe form for many months among the Filipino and Japanese laborers of the Benguet road, and it is probable that the disease was introduced into Baguio from that locality. These camps have been located in the hot valleys at an altitude of only a few hundred feet above the sea. The mortality among the laborers has been great at times, but no fatal case has occurred among those observed at Baguio.

My observation of the disease as it exists in Baguio leads me to the following tentative conclusions: 1. The disease is much moderated by a high altitude, which opinion accords with that of most writers on tropic diseases, it being affirmed that beriberi seldom affects localities lying at an altitude higher than 3,000 feet. 2. A rich and generous diet affords no protection against the disease though malnutrition may predispose to beriberi as it does to practically all forms of disease. 3. The disease is infectious and at the acute onset affects most frequently the stomach and bowels. This explanation of the etiology of the disease is offered by Wright in his able report on beriberi in the Malay States. As a corollary to this it may be stated that the cause of the disease should be sought for in the gastrointestinal canal. 4. The disease often appears to select muscular and robust men by preference, resembling in that respect typhoid fever. 5. Overcrowding and dampness are most important predisposing conditions in the development of beriberi. 6. The large majority of cases occurring in Baguio were retrogressive nervous phenomena induced by the prolonged rainy season with attendant dampness. 7. Fever rarely exists even in the acute stages of beriberi.

The foregoing conclusions are, of course, tentative. They are based upon a small number of cases, but on the other hand the patients were, with a few exceptions, prisoners and constabulary men, subject to military discipline and control, and good opportunity was thus afforded to control and observe them. I hope to consider the subject of beriberi at greater length in a later paper devoted to that disease alone.

Bronchitis is quite prevalent in Baguio during January and February, and during the rainy season, affecting Igorrotes and Ilocanos in about equal proportion, with an occasional patient among the Americans. Among the natives insufficient clothing and shelter account for a large number of these cases, as evidenced by the groups of shivering, blue-lipped natives that huddle about the fires during the cool nights or the prolonged rainstorms. The shacks often leak, and floors are built too near the ground.

Dysentery prevails commonly among Igorrotes and Filipinos during, and especially at the beginning of the rainy season. It is also frequently contracted by Americans at that season, particularly by newcomers who are not yet acclimated. The disease is usually of the simple catarrhal variety, usually accompanied by slight fever, with but little if any pain. Since March, 1904, I have made many microscopic examinations of the dejecta of both natives and Americans suffering from this form of dysentery, without thus far finding *Amœba dysenteriæ* in any case that undoubtedly had its origin here in Baguio. The disease is, as a rule, self-limited, and disappears after a few days of rest and proper diet. Some cases in which there is considerable hemorrhage clear up completely within a week, presenting the characteristics of an acute congestion rather than of a specific disease. Exposure and chill appear to be the most common predisposing factors.

During the summer just past amebas were demonstrated by Mr. Clegg in two of the surface springs in Baguio, and during the rainy season I demonstrated amebas in one of these and in two other springs from which the natives are accustomed to drink. My experience thus far has been that amebic dysentery is unknown among the Igorrotes of this region, and I have not yet encountered a case of primary infection among the Civil employes and other Americans living in and near Baguio, though most of them take no precautions as to the sterilization of their drinking water. Among 55 microscopic examinations of feces made by me between March 1 and August 31, 1904, including Americans, Igorrotes, and Ilocanos, the 11 cases in which amebas were found were patients transferred here for treatment from Manila or other lowland towns.

It would appear from a consideration of these facts that either the human host living in the mountains at the altitude of Baguio, owing perhaps to natural resistance founded on the temperate climate, does not offer fertile soil for the development of amebas in the intestinal tract, or that the local amebas are of a nonpathogenic or feebly parasitic variety; or that both of these conditions obtain.

Both natives and Americans are especially susceptible to diarrhea and dysentery during the rains and it would seem that the amebas would find very suitable conditions for growth in the intestinal canal under such circumstances. That they are being swallowed every day in large numbers by all the natives and most of the Americans, is beyond doubt. Low personal resistance due to the tropic climate, considered as a predisposing cause of infection by the amebas, and the effect of tropic environment upon the ameba itself perhaps encouraging it in parasitic activity, perhaps evolving new varieties pathogenic to man—are matters the relative importance of which in the causation of amebiasis we can not decide with our present imperfect knowledge of the subject.

I trust that we shall be able to pursue during the coming season and with the cooperation of the Bureau of Government Laboratories, this most important investigation of the prevalence of amebas in the mountain streams and springs about Baguio with an especial view to determining their pathogenicity.

No amebas have been encountered thus far in the water from the Bued River Spring, which gushes from the face of a limestone cliff in quantities sufficient to supply a small city with drinking water. When the source of this spring has been properly protected and suitable pumping machinery has been installed, we hope to have a water-supply free from all suspicion.

As to the effect of the Baguio climate in cases of amebic dysentery, the number of such patients treated during the past year has been so limited that it would be inadmissible to generalize from them. My experience has been that the cases in which treatment was begun early have, as a rule, responded promptly to the stimulus of the pure mountain air. On the

other hand, cases of long standing in which advanced pathologic changes have occurred in the intestinal mucous membrane progress very slowly, as indeed they would in any climate. This latter class of people is subject to relapses during the prolonged cool rains and mists of the rainy season.

Indigestion.—Gastric and intestinal indigestion usually accompanied by diarrhea prevails during the rainy season, at times almost in epidemic form, but it is not as severe or general among the native inhabitants as among the newcomers, especially Americans and Japanese. This condition and the catarrhal dysentery that prevails at the beginning of the rains I believe to have their main cause in the chilling of the surface of the body under the favoring circumstances of humidity and high altitude. Those who have lived for a long and continuous period in the lowlands are particularly susceptible and frequently suffer from indigestion for several days after arriving at Baguio, even during the dry season. Probably an important factor in the causation of these digestive disturbances is the abrupt change from the tropics to the temperate days and the cool nights of the mountains; the functional activity of the skin is suddenly and markedly diminished, throwing upon the renal and gastrointestinal apparatus an unusual burden of excretion.

The functional derangements described are strongly suggestive of the socalled "hill diarrhea" of India, though the symptoms do not agree completely with the symptom-complex as described by the Indian military surgeons. This "diarrhea of altitude" is said to occur in the highlands of Europe and South Africa as well as in India, and an elevation of 6,000 feet or more with a very humid atmosphere are conditions said to be especially favorable to its development. Dr. Manson in his text-book on Tropical Diseases states that in Simla during the wet season of 1880 an epidemic of hill diarrhea affected from 50% to 75% of the population, three-quarters of the cases occurring within a week of each other. He further remarks that during the season few of the various hill sanatoriums of India are without examples of the malady.

An epidemic of diarrhea and indigestion with a few cases of catarrhal dysentery occurred in Baguio and vicinity at the beginning of the rainy season of 1904, affecting with especial severity the Americans and the recently arrived Japanese laborers. Many Igorrotes and Ilocanos were also affected. The outbreak was so abrupt, and the distribution of the cases so extensive, with such varying water and food supplies that only atmospheric conditions could satisfactorily account for the epidemic. It passed in ten days or two weeks, but sporadic cases occurred for a month or more. Numerous microscopic examinations of dejecta were negative for amebas, and none of the patients who remained in Baguio presented evidences of chronic involvement of the intestines or of amebiasis. A few of these patients were found to have amebic dysentery soon after their return to Manila, and the important question suggests itself as to whether the disease was contracted in Baguio, on the road returning to Manila, or whether there was a rapid development of an infection acquired in Manila immediately after returning there. The question of the possibility of the disease having existed in these patients in a latent form prior to and during their sojourn in Baguio, also enters into consideration. The fact, however, should not be lost sight of, that amebiasis is actually and relatively a very rare complaint among the permanent population of Baguio, white and native.

Influenza.—Two local epidemics of influenza have occurred in Baguio during the past year, the first during the winter months of January and February, when the cool northeast monsoon was blowing, the season when all diseases of the respiratory tract are most prevalent there. The second epidemic appeared during August, following a sudden change from three weeks of continuous rain to clear weather, with shifting of winds to the northeast. The symptoms are ushered in by a chill, followed by fever and headache lasting from one to three days, when the catarrhal symptoms of the respiratory tract supervene and continue as a rule for several weeks. There is considerable prostration during the acute stage of the disease and weakness and malaise continue for several days. Igorrotes, Ilocanos and Americans were all afflicted, but the Americans appeared to suffer least severely. The foregoing symptoms, in my opinion, justified a diagnosis of classic influenza, although the specific bacillus was not isolated from the catarrhal secretions. I have seen no case approaching in severity those that commonly occur in the winter epidemics of the United States.

Malaria.—Malaria exists to some extent among the natives and I believe that the Igorrotes are usually inoculated during their visits to the lowlands, their naked condition exposing them particularly to such infection. I have not yet encountered a case of malaria among the white population of Baguio which appeared to have originated in that locality. Mosquitos are present in such small numbers that the plateau may be said to be practically free from them. The genus has not yet been determined. Among the natives occasional chronic cases are met, showing marked enlargement of the spleen. As far as my experience goes, the variety of malaria encountered in the highlands is the tertian and is almost always benign. Since submitting my report for the past year I have seen one case of pernicious malarial fever occurring in an Igorrote boy recently returned from the lowlands south of Baguio. He was brought to the sanatorium in a comatose condition and died in about 36 hours without regaining consciousness. The peripheral blood revealed an infection of half to a third of the red cells with small motile plasmodiums and with pigmented ovoids. The spleen reached to the umbilicus and was packed with crescents and pigmented cells.

Meningitis.—I have encountered the epidemic form of cerebrospinal meningitis during the past six months in six Igorrotes treated in the sanatorium wards and the outdoor department, and according to report, many have died of this disease in the camps of the Benguet road. Three of my cases originated there and the patients were brought to Baguio in a dying condition. The origin of the other three cases is unknown. All the cases were clinically unmistakable and in four of them the specific diplococcus was demonstrated in the spinal fluid obtained by lumbar puncture. The rainy season apparently predisposes to this disease probably by the chilling of the surface of the body. I have not heard of any case of the disease having occurred among the white or Ilocano population of the neighborhood. Lumbar puncture afforded temporary relief in one case and in another case the relief was prompt and followed by rapid and uneventful convalescence without sequels. The disease as found among these mountain tribes retains practically unchanged the characteristics that distinguish it in other parts of the world. Obstinate vomiting, intense headache, restlessness, and delirium were present in all cases. Kernig's sign was present in all cases examined during the acute stage of the disease. No new foci of meningitis have appeared in Baguio since the occurrence of the foregoing cases.

Parasites, Intestinal.—This part of the mountains of Luzon has been so generally invaded by the Americans and a small army of men employed on government works, that it can no longer be taken as an index of the condition of similar but more remote and isolated localities of Benguet. According to a recent series of examinations made by me, the ordinary intestinal parasites are very common here in Baguio, but it should be noted that 21 out of the 25 persons examined, were members of the local detachment of constabulary, whose duties call them frequently to the lowlands. The water furnished at the constabulary quarters is boiled, but the men are careless as to their drinking water when off duty. Of the total of 27 persons whose dejecta were examined, 22 were Igorrotes and 5 Ilocanos. Only one or two of the men gave any history of bowel trouble. Three of them were suffering with acute beriberi, and 12 presented signs of residual neuritis, but were otherwise apparently in good health. The remainder of the men were picked at random, and were apparently healthy. It is of interest to note that only 5 of the 11 ankylostoma infections occurred in beriberi cases, this in view of the theories advanced in the past suggesting the ankylostoma as the possible causative agent in beriberi.

In one patient apparently in good health, two or three motile amebas, about 30 microns in diameter, were discovered. A saline cathartic was given before breakfast in each case, and the watery portion of the stools subjected to careful microscopic examination.

Ovums of the ankylostoma were found in 11 cases (9 Igorrotes, 2 Ilocanos).
Ovums of *Ascaris lumbricoides* were found in 10 cases (9 Igorrotes, 1 Ilocano).
Ovums of *Trichocephalus dispar* were found in 13 cases (11 Igorrotes, 2 Ilocanos).
Amebas were found in 1 case (1 Igorrote).
Flagellates in great numbers in 3 cases (3 Igorrotes).

I have seen two or three cases of tapeworm among the Ilocanos, but none among the Igorrotes.

To me the most surprising result of these examinations was the large percentage of infections with the ankylostoma. In no case were the ovums found in great numbers and in no infected case did the patient present symptoms of ankylostomiasis. These two facts suggest that the parasite may not find satisfactory conditions for growth at this altitude. The round worms and whip worms occur so commonly in all latitudes that their presence in these cases was of no particular interest.

Rheumatism.—Rheumatism seldom occurs among the Igorrotes and the only cases I have seen were among the well-to-do, who did not find it necessary to limit their supply of meat and fermented rice-water as their poorer brethren must do. One case of inflammatory rheumatism with pericarditis occurred among the United States scouts, the patient being an Ilocano from the lowlands, serving on the military reservation in Baguio. A case of chronic articular rheumatism occurred among the constabulary, this patient being an Ilocano. The cool season and the rainy season predispose to this disease.

Skin diseases are very prevalent among the Igorrotes of this province as one would naturally expect from their naked condition and unsanitary habits. The most common skin disease is scabies which, through scratching, infection, and lack of cleanliness, sometimes assumes very severe forms, incapacitating the patient for work and causing much suffering. Ichthyosis is common and impetigo and seborrhea are frequently seen, the latter especially in children. Eczema is not uncommon, in rare cases affecting the soles of the feet.

Smallpox is endemic in Benguet, but owing to the scattered and sparse population and the amenable character of the natives, can be easily controlled and in time stamped out. Baguio and the villages in its near vicinity have been frequently and quite thoroughly vaccinated.

Stomatitis, Acute Ulcerative.—This disease was observed in three Igorrotes during the early part of the present rainy season, and in the one fatal case it assumed a gangrenous form, destroying the soft palate and the adjacent tissues of the nose and pharynx. There was no membrane present in any case, but a deep, obstinate ulceration of the buccal mucous membrane, with fetid breath. Anemia was marked in all cases. The predisposing causes of the disease are probably asthenia and damp cold. Two of the patients came from the same camp.

Tuberculosis.—Since my last report only two or three patients with pulmonary tuberculosis have entered the sanatorium, and they remained such a short time that no effect of climate on their condition could be noted. The fact that during two years' practice in this vicinity I have not yet seen a case of pulmonary tuberculosis among the native Igorrotes and Ilocanos, would indicate at any rate that the disease is uncommon in this region; and, indeed, we should naturally expect that tuberculosis would find adverse conditions for development on a pine-clad plateau 5,000 feet above the sea, with a temperature cool and bracing, but at the same time equable enough to permit outdoor life throughout the year.

I doubt, however, if it would be wise for the Philippine Government to institute sanatorium treatment for American members of the Philippine Civil Service who have contracted pulmonary tuberculosis in the islands, for the principal reason that such patients should renounce all thought of further service in the Archipelago. In the occasional tuberculous patient in whom the disease has progressed so far that debility makes the long sea voyage to the United States a serious complication, Baguio would offer pretty sure and prompt relief during at least eight months out of a year. The pure, cool air of the highlands stimulates the appetite, improves nutrition, and increases strength. As to the rainy season, however, it is a matter of doubt whether tuberculous patients would not lose ground during the storms, cold mists, and all-pervading dampness characteristic of that time of the year, when there is a tendency both among natives and Americans to contract influenza, bronchitis, and other catarrhal affections of the respiratory tract.

If wider experience in the treatment of the tuberculous in Baguio proves that the beneficial effect of our climate is continuous, and not merely a temporary reaction to the stimulus of the cooler regions, the civil government will probably find it advantageous to erect an institution in that vicinity for the treatment of tuberculous Filipinos. A sheltered and sunshiny location in the mountains of southern Benguet would be desirable, near the lines of transportation but far enough distant from the town of Baguio to separate the communities effectively.

Venereal Diseases.—Diseases of this nature are practically unknown, except in the "civilized" districts, and I have seen but two such cases among the Igorrotes. I have encountered a few cases of gonorrhea among the Ilocanos.

Yaws.—I have observed three cases of this disease among the Igorrotes, presenting typic lesions, two cases with Dr. P. G. Woolley, of Manila. All three cases presented fungoid growths at the junction of the skin and mucous membrane, the locations being the corners of the mouth and the borders of the nasal and anal orifices. The patients were well nourished and apparently in good health at the time of examination. According to Manson, this is likely to be the condition of the patient, except during the initial or recurring febrile attacks. As these patients live in a distant village, I have been unable to examine them again.

At a later date, while passing through the same part of Benguet in which Dr. Woolley found his case described in *American Medicine*, Vol. viii, No. 6, I examined three patients whom I supposed to be afflicted with leprosy, as the settlement in which they live has been known for many years by natives and by Spaniards as the "leper village." One patient, a boy about 14, had chronic, fissured sores on the soles of his feet and a small suppurating sinus connecting with the terminal phalangeal joint of one finger. He was sowewhat anemic, but presented no nerve symptoms. His mother, whom I examined at the same time, stated that she had had a severe ulcerative skin disease, but had cured herself by taking hot baths in the neighboring thermal springs. She was at that time free from all signs of disease.

Another patient, a woman of about 40, was quite anemic and had on her throat over the region of the larynx an old granulated, crusted, not very sensitive ulcer about one and a half inches in diameter, the surface covered with small tuberculated elevations. I removed one of the latter with the scissors and made smear preparations for microscopic examination, but failed to detect the bacillus of leprosy in any of the preparations. The woman had no other skin or sensory manifestations.

Another patient absent in a distant part of the village was described to me as having symptoms very like those of the first case described. He was unable to walk on account of the fissures on the soles of his feet. Several other inhabitants of the village were said to have suffered from similar skin manifestations in the past, but were at that time free from their troubles, thanks to the hot baths, as their fellow townsmen believed.

The absence of anesthesias in these cases, the history of prompt amelioration or disappearance of lesions following the systematic use of hot baths at the neighboring springs, the cessation and long-continued freedom from lesions after the disease had once attacked the skin, failure to find the lepra bacillus in the tissue removed from the granulating ulcer, and the absence of typic lepers in the settlement convinced me that I had to deal with the yaws. Since I have read Dr. Woolley's careful study of the history and the histology of a similar case from the same region I have but little doubt as to the identity of the disease of that locality, hitherto supposed to be leprosy.

It will be noted that this second set of cases differs considerably from the first set, and presents symptoms which vary in a marked degree from the classic features of the disease as described by Manson. They rather resemble the socalled tertiary manifestations of the disease described by Daniels and de Boissiere as occurring frequently in the Fiji Islands. These

authors writing in a recent number of the *Journal of Tropical Medicine* (June 15, 1904) include among the sequels of yaws, dactylitis closely resembling that of syphilis and "deep fissures and cracks in the soles of the feet, and to a lesser extent in the palms of the hands." In view of the much discussed question as to the identity or close relationship of syphilis and yaws it is interesting to note that both of the writers mentioned state with great positiveness that syphilis is unknown among the *native* inhabitants of Fiji. My experience among the Igorrotes of Benguet leads me to conclude that syphilis, at least in the form so familiar to all physicians in the United States and Europe, is rarely if ever encountered among these primitive mountain tribes.

A point of interest in connection with this infected village is the persistency with which the disease has affected the inhabitants of the settlement for many years, and I know of no other settlement in Benguet with a like reputation. The most intelligent Igorrote in the province of Benguet lives near this village, and he informed me that 40 years ago when he was a child there were three "lepers" living in the village and that careful precautions were taken to prevent the spread of the disease, the infected persons being compelled to use separate dishes and drinking vessels both at home and on visiting their neighbors. He observed that the patients lived to an old age and did not seem to be more susceptible to epidemic disease than was the rest of the community. The disease spread in time, but all patients were "cured," so he stated, if they took the pains to bathe frequently in the hot springs. He admitted, however, that these cures were usually only temporary, and that the disease was apt to recur at a later date. These statements were also confirmed by other natives whom I questioned on the subject. It is a matter of common knowledge among the inhabitants of this part of Benguet that the village is an infected spot, and the disease is regarded as true leprosy.

THE WORLD'S LATEST LITERATURE

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2. Case of Exophthalmic Goiter, with Unusual Associated Symptoms: Discussion of the Clinical Problems Suggested Thereby. ARTHUR R. ELLIOTT.
3. The Normal and Pathologic Histology of the Aortic and Mitral Valves. JOHN HOMANS and J. BURRAGE.
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9. Turning in Organic Hemiplegia. RALPH PEMBERTON.
10. The Prevention of Shock and Hemorrhage in Surgical Practice. GEORGE W CRILE.

1.—The Treatment of Pulmonary Tuberculosis.—According to G. W. Norris, the only treatment that has stood the tests of study and experience in tuberculosis is that now in vogue in the various sanatoriums throughout the world. Its underlying bases are fresh air and sunlight, constant and unlimited, with regulation of diet and metabolism, so that there shall always be a balance on the right side. Early diagnosis and the closest attention to the details of treatment are also essential; they must be absolutely in the physician's hands. Relinquishment of business is not always possible in incipient cases, but it is always desirable. He gives details as to diet, which should be more abundant than that of the normal individual, though overfeeding should be avoided. Rest before and after meals is advised, also only the one heavy meal a day, preferably at noon. Next to importance to hygiene and diet is what may be called the psychic treatment; the physician must study the mental state of the patient, in order to be able to exercise the proper influence over him. As regards medical treatment the regulation of the gastrointestinal functions is the most legitimate form of phthisiotherapy. This can largely be effected through the diet, and vegetable laxatives, such as aloin, cascara, podophyllin, etc., if employed, should be used with caution. No drug should ever be prescribed for any purpose in tuberculosis without a definite indication or object in view. The main thing is to keep up satisfactorily the digestive functions and to have the liver, gastrointestinal organs and kidneys in good working order. Special symptoms often call for treatment, but some of these are largely to be controlled by due attention to the general conditions already noted.

2.—Exophthalmic Goiter with Unusual Complications.—A. R. Elliott reports a case of exophthalmic goiter complicated with diabetes, Bright's disease, mitral disease and retinitis. He discusses the association of glycosuria and this form of goiter, the influence of the latter and of Bright's disease in causing valvular lesions, and the differentiation of secondary cardiac lesions so caused from antecedent obscure endocarditis origin, as well as the question of the association of glycosuria and nephritis and the interpretation of retinitis in cases with both glycosuria and albuminuria. Glycosuria is not a very rare accompaniment of exophthalmic goiter, which generally antedates it. The most reasonable explanation, in Elliott's opinion, is that it is a toxic symptom, due to increased thyroid or parathyroid activity, and as such it may have some prognostic importance. In his case the thyroidism clearly preceded the glycosuria by a considerable interval.

3.—The Aortic and Mitral Valves.—John Homans and J. Burrage publish the results of their studies on the normal and pathologic histology of the aortic and mitral valves. They studied especially the normal structure and the variations of these bodies, their degenerative lesions with the relations of these to acute infections. After describing their technic and reviewing the literature which, they remark, is not full or accurate on this subject, they report their own findings in detail, which were disappointing, in that they failed to find the expected relations between the degenerative lesions of the valves and acute infections. They can only conclude, they say, from their observations, that mucoid and fatty degenerations of the valves do not apparently predispose to infection; that "benign thickenings" likewise do not, though it is hard in the case of the mitral valve to tell whether a thickening is benign or due to repeated acute attacks; that the thickenings in mitral valves when infected are better repaired than those of aortic valves; and that acute toxemias do not cause what they can recognize as degenerations predisposing to infection.

4.—See *American Medicine*, Vol. VIII, No. 21, p. 873.

5.—The Surgical Importance of the Cervical Rib.—While the supernumerary ribs of the lumbar vertebras have only an academic interest, those of the cervical region, as Carl Beck points out, have a real practical importance. The observations of disturbances due to a cervical rib are multiplying every year. The anomaly may vary from a slight growth just extending beyond the transverse process to a complete rib with a cartilage uniting with that of the first rib. It is bilateral in two-thirds of the cases, but a complete rib on both sides is a rarity. When not complete, or nearly so, it may give rise to no special symptoms, and before the use of the röntgen ray it was comparatively seldom diagnosed during life, and most of the reported cases were, therefore, accidentally discovered at autopsy. Even when it caused trouble, the symptoms were often credited to tumor or other causes than cervical rib. It is probably, therefore, a more common anomaly than might appear from the small number of cases reported. Though of congenital origin, it does not cause trouble until about the twentieth year, a fact that is hard to explain. The principal symptoms of the anomaly are a hump-like prominence in the lateral cervical region, a superficial pulsation of the subclavian artery, and the appearance of pressure symptoms in the brachial plexus. The trouble is mechanical, and the treatment, when required, must be surgical. Beck finds that a triangular flap incision, running directly downward along the trapezius and then conducted toward the sternum about an inch above the clavicle, fully exposes the field of operation. If the trapezius cannot be sufficiently retracted with a broad retractor, a transverse incision must be made into the muscle, for next to a strict asepsis, the success of the operation depends on extensive exposure of its field. The brachial plexus, which usually runs across the rib, can be pushed aside; the subclavian artery is

best pulled forward. The scaleni are carefully divided at their point of insertion, and this is best done by using a Cooper shears and, advancing layer by layer, lifting the several muscle fibers with the flat of the scissors and using the instrument like a grooved director. By means of a ring-shaped periosteotome the rib is then freed of any small muscular appendages. The division is easy with Beck's beak-shaped rib shears, but some may prefer the Gigli saw. Any remains are nipped off with rongeur forceps.

6.—Bloodless Reposition vs. Arthrotomy.—F. Müller claims that the question of the advantages of the bloodless method of reposition of the congenitally dislocated hip has been settled, so far as competent authorities in Germany, France and Italy are concerned, but seems to have been resurrected in America in recent days. The accidents that have occurred, he holds, cannot be accredited to the method, but to unsuitable selection of cases and to rough handling and mistakes in technic. More than half of the cases treated by Lorenz in this country were, he says, unsuitable ones, and yet, under the peculiar circumstances, he could not well refuse to operate on them. The few cases pronounced favorable by him could not give the best possible results, as the very important after-treatment had to be left to surgeons who were unavoidably unacquainted with Lorenz's latest methods. Müller gives tabulated statistics of 34 cases operated on by Lorenz and left under Müller's care, with 21 anatomic repositions and 11 cases of subspinal position, with excellent functional results.

7.—Intestinal Peristalsis.—Isaac Ott and J. F. Ulman have studied the effects of various agents on the intestinal movements, confirming Ott's earlier findings that adrenalin arrests the pendulum movements and causes relaxation of the longitudinal musculature, and that splenic extract increases the peristaltic action both in frequency and force. Infusion of the pancreas was found to relax the muscles and slow the movements of the intestine, at the same time increasing the force of the contraction. Experiments were also made with other animal extracts, ovary, testes, parotid and mammary glands, pituitary, thyroid, brain and spinal cord, but they had no marked effect on intestinal peristalsis. The thymus seemed occasionally to increase its force. Sodium citrate increased the force of the contraction, which was slowed, weakened, and made irregular by the addition of calcium chlorid, thus agreeing with McCallum's observations. It is suggested, therefore, that calcium is indicated, in agreement with McCallum's and with Loeb's theories of the action of the calcium ions, in persistent diarrhea of nervous and hysteric cases. A series of experiments were made testing the effects of various drugs, atropin, eserin, nicotin, muscarin, pilocarpin, strychnin, curare, morphin, etc., on intestinal peristalsis and also on their antagonistic action to each other, which are discussed in detail, especially their relations to the nervous supply of the intestine, and the conclusion is deduced that the automatic movements of the bowel are not myogenic, but are dependent, as shown by Magnus, on Auerbach's plexus. The action of certain organic bodies, bile, albumoses, peptones, leucin, tyrosin, was also tested; they all increased the force, and most of them also the frequency of the intestinal movements. It is evident, the authors remark, that the products of proteid digestion are active stimulants of peristalsis. A good digestion predisposes to regular evacuation of the bowels, and this accounts for the habitual constipation of dyspeptics.

8.—Treatment of Middle-ear Disease.—A. E. Bulson, Jr., thinks that the prophylaxis of middle-ear disease is too often neglected. Every slight earache should be looked after, constitutional conditions be attended to, and proper treatment be given to conditions of the nose and throat. Opiates mask symptoms and should not be used for pain; dry heat will usually suffice. As the pain is due to pressure from congestion, the essential treatment is depletion, and this may be accomplished by catharsis, leeching, the application of carbolic acid and glycerin to the membrana tympani for its osmotic effect, or by direct incision. Bulson does not favor waiting for bulging of the membrane before incising. He has never seen any bad effects from an early incision done with proper antisepsis and precautions, but he has seen delayed cessation of discharge, impairment of hearing, and even more serious results from waiting. Summing up his recommendations, he says: 1. The patient should be kept quiet, preferably in bed, and the more active the symptoms the more necessary the enforcement of this measure. 2. Secure a prompt and free movement of the bowels by calomel and salines. 3. Secure depletion of the vessels or membrani tympani, and of the tympanic cavity by leeches applied immediately in front of the tragus, and the osmotic effect of carbolic acid (10%) and glycerin tampons applied directly against the drum membrane. 4. Cleanse the pharyngeal and nasal mucous membrane with a saline antiseptic spray or douche. Remove any existing hypertrophied lymphoid tissue. 5. Advise cautious blowing of the nose to avoid infection of the tympanic cavity. 6. Apply dry heat for control of pain. 7. Incision of drum membrane under strict asepsis on appearance of profound redness of any portion of that organ when accompanied by pain, impairment of hearing, and other evidence of acute inflammation. 8. Following perforation of drum membrane, the use of aseptic dry gauze packing to exclude infection from without and also to withdraw the discharge from the tympanic cavity by capillary attraction. 9. Judicious inflation by Politzer's method only after the acute symptoms have subsided or after the drum membrane has been opened to facilitate removal of discharges and to prevent adhesive changes in the sound-conducting apparatus.

9.—Turning in Organic Hemiplegia.—R. Pemberton has examined 36 cases of organic hemiplegia with special reference to the direction of turning in walking, to test Kidd's conclusion that if the patient turns to the affected side an organic lesion is present. He found that only about two-thirds of the cases turned to the affected side; of the remainder, about half turned to the sound side, and the remainder turned indifferently to either side. Much depends on the degree of paralysis or deformity, according to Pemberton. If there is marked foot-drop and contracture of the affected limb, requiring it to be swung in a wide circle, the well leg will be the pivot. If the deformity is not so great and it is not necessary to swing the leg around, or it is difficult to do so, the affected leg may be the pivot. There may also be intermediate condition, in which either limb can be used. He therefore considers Kidd's conclusion not universally applicable and not so reliable a test for organic involvement in hemiplegia.

10.—The Prevention of Shock.—Assuming that surgical shock is due to the functional impairment or even exhaustion of the vasomotor centers through afferent impulses set up by trauma, exposure, etc., G. W. Crile discusses the means of its prevention, as well as that of hemorrhage, in various surgical procedures. Aside from the impulses mentioned, there are a number of important accessory causes to be reckoned with, he states, including psychic emotions, such as fear, hemorrhage, cold, acute, and chronic infections, anemia, cachexia, etc., and age and sex. One or more of these is met with in every case. In operation on the head he emphasizes the importance of giving particular attention to circulatory conditions, of reducing to a minimum the exposure and manipulation of the meninges and the brain, and of having as complete control of the blood-pressure as possible. He has clamped the carotids in 41 cases without unfavorable effects, and thinks it a valuable method of controlling hemorrhage in certain cases, together with the head-up posture and the use of the pneumatic rubber suit. In laryngeal operations, the danger of cardiac collapse can be avoided, he says, by previously giving a physiologic dose of atropin, or by the local use of cocain. In minor intrathoracic operations, when there is hampered respiration and seriously impaired circulation, Crile advises local anesthesia, and if further measures are needed, they can be carried out later, after the patient's forces are recruited, under surgical anesthesia. The supreme importance of the respiratory action on the circulation must be kept in mind, as well as the danger of interfering with the large venous trunks. In abdominal operations, shock is in direct ratio to the trauma and exposure. In all time-consuming, exacting technics, he advises, no special contraindication existing, the use of morphin-ether anesthesia, ether during the abdominal incision and the exploration and development of the operative field, morphin alone with slight or no ether accessory during the technic proper, and ether again in closing the abdominal wound. The region around the diaphragm is

much more shock-producing than the lower abdominal tract, and he cautions the anesthetizer against operations and overdoing the anesthesia. In anemia, cachexia, and acute infections, the available vitality must be most carefully estimated and methods safely within its limits be adopted. The prevention of shock in operations on the extremities is narrowed down to two or three simple propositions, the minimum loss of blood and the least manipulation and force, and the "blocking" of the nerve-trunks by intraneural injections of cocain or eucain.

June 24, 1905. [VOL. XLIV, No. 25.]

1. Six Years' Experience at the Massachusetts State Sanatorium for Tuberculosis. VINCENT Y. BOWDITCH and HENRY B. DUNHAM.
2. When Not to Operate for Appendicitis. JAMES E. MOORE
3. The Circumstances and Treatment of Bright's Disease. ALFRED C. CROFTAN.
4. A Study of Proprietary Medicine Advertisements. ROBERT HESSLER.
5. Circumcision. GEORGE TULLY VAUGHAN.

1.—The Sanatorium Treatment of Tuberculosis.—The results of six years' experience in the treatment of tuberculosis at the State Sanatorium at Rutland, Mass., are reported by Drs. Bowditch and Dunham. Notwithstanding the fact that the majority of the patients treated were past the incipient stages of the disease, and the lack of a sufficient number of assistants, and other drawbacks, the showing they make is most encouraging. The average percentage of arrested or apparently cured cases has ranged from 34 in 1899 to 49 in 1903, the percentage in 1904 being 45. Taking incipient cases alone, the percentage of arrests or cures reached 76 in 1904. The reduction in the total figures for 1904 from that of the preceding year is accounted for by the larger number of advanced cases received that year. Following up the histories of those discharged, it appears that of the patients sent out over five years ago as arrested or cured, about 70% are now actively working, and out of the total number discharged as only improved, a considerable number (63) have since reported arrest or cure of their disease. As regards treatment, the authors have found nothing to equal the socalled hygienic treatment. Tuberculin has been tentatively used, but no positive opinion is ventured as to its therapeutic value. The authors believe in the value of moderate calisthenic exercises for the chest, and disagree wholly with those who would prescribe absolute immobility in every case, however slight the disease. Rest of the diseased organs is required in very active trouble, but expansion of the lungs at regular intervals, where the disease is quiescent, is productive of excellent results.

2.—When Not to Operate for Appendicitis.—J. E. Moore combats the dictum that all cases of appendicitis are operative cases, holds that while certain classes of cases, such as chronic appendicitis without acute attacks, those with localized abscess, and acute cases seen in the beginning of the attack call for operation, provided hospital facilities and a good surgeon are available, there are others, he believes, in which surgical interference is not advisable. The conditions in which the radical operation is not the best treatment are summarized by him as follows: (1) When the patient is evidently moribund; (2) when the patient is evidently convalescing; (3) when certain grave complications are present; (4) in the midway cases, beginning with the third day when the physician and surgeon are in doubt; (5) in the extreme cases of suppurating peritonitis. Even in serious complications, or when general anesthesia is contraindicated by the condition of the patient; if localized abscess exists, he states that it should be evacuated under local anesthesia. Ochsner's starvation treatment, Moore says, has been badly misunderstood. Ochsner did not recommend starvation and lavage for appendicitis, but for spreading peritonitis due to neglected appendicitis. In such cases Moore, by opening abscesses locally, and by using to a greater or less extent Ochsner's method, has been able to tide them over to a successful interval operation.

3.—See *American Medicine*, Vol. VIII, No. 20, p. 832.

5.—Circumcision.—G. T. Vaughan performs circumcision as follows: He attaches three hemostats to the preputial margin, one at the frenum and the others at the sides, in such a way that when traction is made the inner skin of the prepuce is tightly stretched and the outer skin is lax or nearly so. While an assistant keeps the parts on the stretch, he cuts off squarely the portion beyond the glans, slits up and trims the remaining hood of inner skin covering the glans and unites it to the outer skin by a continuous suture of fine catgut, securing with the suture any bleeding vessels. The blood is then wiped off and the foreskin pulled forward to cover two-thirds of the glans, and the patient put to bed. No dressing is required. The advantages he claims for this method are: The line of union is covered and protected from infection. No dressing is needed. Little or no danger of adhesion of prepuce to glans, or of contraction of preputial orifice. The glans is left partially covered, as it should be, and plenty of skin left to meet the varying conditions of the organ. The cosmetic result is good.

Boston Medical and Surgical Journal.

June 22, 1905. [Vol. CLII, No. 25.]

1. Eyestrain, Its Importance, and Its Limitations. G. L. WALTON.
2. The Preservation of the Urine. J. BERGEN OGDEN.
3. Impetigo Contagiosa: Cutaneous Abscesses Caused by Pyogenic Microorganisms. J. T. BOWEN.
4. Scabies. J. S. HOWE.
5. Vegetable Parasites of the Skin and Modern Methods of Culture. CHARLES J. WHITE.
6. The Use of the Röntgen Rays in Some Skin Affections. F. S. BURNS.

1.—Eyestrain.—G. L. Walton has collected statistics showing that among those totally blind since infancy 66% were free from headache, as against 31% of those having sight and 29% of those with partial or acquired blindness. Should these figures prove constant, the inference is that half the headaches in health are due to eyestrain. Headache in the totally blind since infancy was sufficiently often of the migranoid character to preclude the supposition that all migraine is due to eyestrain. The study indicates that while migraine and migranoid headaches have a constitutional basis, and while other factors than eyestrain may act as exciting causes, still eyestrain is one of the most, if not the most important of these causes, and steps for its relief are imperative. Correction of refraction has not been given a thorough trial till (*a*) the glasses are properly centered, (*b*) their continued readjustment is practised, (*c*) the patient looks as much as possible through their centers instead of from side to side, (*d*) efforts are avoided at straining the eyes to see distant objects with glasses, (*e*) spectacles instead of eyeglasses are used, and (*f*) the use of spectacles is constant, not intermittent. The constitutional headache of the deviate is probably allied to the headaches of "brain fag," but is out of all proportion to the sources of fag. Little can here be expected of spectacles. In the proportion in which obsessive tendencies and other signs of constitutional peculiarity accompany errors of refraction, efforts at correction will fail to relieve nervous symptoms. [H.M.]

2.—Preservation of the Urine.—J. B. Ogden finds boric acid to be the most practical preservative when used in the proportion of 1¼ gr. to the ounce. Formaldehyd should be used only by a responsible person. One drop will preserve a pint about a week, and 1 drop can be used in 4 oz. without harm. Other substances should not be used. The name and quantity of the preservative should accompany the specimen. [H.M.]

3.—Impetigo Contagiosa.—J. T. Bowen describes this as a superficial abscess between the horny layers and the rete. Uncleanliness is an important factor in the entrance of microbes. In Boston in certain epidemics it has presented an annular type which is not described in the textbooks. Many cases are confounded with eczema which may complicate it. As there is no inflammation in the lower layers of the skin, treatment may be energetic. Soap and water should be used to remove the crusts and boric acid, 10%, in lanolin or lard be applied twice daily. In adults an ointment of sulfur or ammoniated chlorid of mercury may be necessary. With eczema the treatment must be less vigorous. [H.M.]

4.—Scabies.—J. S. Howe alludes to the many mistakes in diagnosis. The characteristic features are the location, the presence of burrows, the intense pruritus—worse at night—and similar disease in associates. Treatment is easy and the cure quick. A scrubbing with soap and hot water should be followed by an ointment of napthol b., ℥j; sulfur, ℥ij; balsam

of Peru and vaselin, āā ʒj, well rubbed in. In infants, balsam of Peru is very effective. After three days' treatment, soothing remedies should be applied, returning to the first treatment at the end of the week if itching continues. The clothing should be boiled or baked. [H.M.]

5.—Vegetable Parasites of the Skin.—C. J. White outlines what is known of the dermatophytes of erythrasma, pityriasis versicolor, favus, and ringworm. [H.M.]

6.—Röntgen Rays in Some Skin Affections.—F. S. Burns thinks that the röntgen rays will heal almost every case of folliculitis of the beard, by modifying the inflammation and conditions in the skin, and by producing a temporary alopecia, thus removing the irritation caused by the hairs. The hair will return in one to two months. Concomitant antiseptic treatment of the skin in the immediate neighborhood is also necessary. The technic in ringworm is practically the same as that in pyogenic sycosis. The value of the rays in favus is still debatable. In the latter disease protracted applications to the skin are needed after the hair is removed. In tuberculous lesions the writer removes the major part by excision and curetage and then applies the röntgen rays. The wound heals by granulation in four to six weeks and the smooth elastic cicatrix compares favorably with that of cases treated exclusively by the rays. [H.M.]

Medical Record.

June 24, 1905. [Vol. 67, No. 25.]

1. The Treatment of Inoperable Cases of Malignant Disease of the Orbit by the Röntgen Ray. CHARLES STEDMAN BULL.
2. The Treatment of Renal Inadequacy Complicated by an Apparent Nephritis. W. J. PULLEY.
3. The Prophylaxis and Treatment of Pyosalpinx. JAMES N. WEST.
4. Formic Acid in Rheumatic Conditions. LOUIS BRADFORD COUCH

1.—The Treatment of Inoperable Cases of Malignant Disease of the Orbit by the Röntgen Ray.—C. S. Bull says that while malignant disease of the orbit which has apparently not originated in or involved the adjacent sinuses should be extirpated by the knife as soon as possible, the consensus of opinion seems now to be that when the neighboring sinuses are involved a complete removal of the growth is impossible, a recurrence of the growth is certain to appear, and with each repetition of the operation the return of the disease is hastened, and the life of the patient is by just so much shortened. On the other hand, in view of what we actually know of the action of the röntgen rays, it would seem not only wise, but our duty, after such operation by the knife as may be necessary, to expose the parts a certain number of times to the rays, in order, if possible, to destroy isolated cells or aggregations of cells in the neighboring parts which cannot be reached by the knife. It is stated on good authority that there has been a marked diminution in the deathrate following operations on patients so treated. His experience, based on his own cases, has satisfied him that the rays are of value in removing the pain so constantly complained of, and he, therefore, believes that the treatment is to be recommended in inoperable cases because it relieves much of the patients' suffering, and thus may prolong their lives. It would seem that the more recent and superficial a malignant growth is, the more rapid and favorable are the results, but it takes time to prove the ultimate good results.

2.—The Treatment of Renal Inadequacy Complicated by an Apparent Nephritis.—W. J. Pulley says that true nephritis must be distinguished from functional inefficiency of the organ dependent on other causes, which condition he characterizes by the term renal inadequacy. Two instances of the latter and four cases of true nephritis are described, in which improvement followed lavage of the pelvis of the kidney. The author states that it is his belief that: 1. Chronic nephritis is never cured by purely surgical procedures or any kind of local treatment. 2. Many symptoms of chronic nephritis, which are due to an increase of internal kidney pressure, can be relieved by decapsulation. 3. Many socalled cases of chronic nephritis are simply mechanical interferences with the normal kidney function, and the inflammatory process, if any, is of secondary importance. 4. Lavage of the kidney pelvis is limited in its good effects to two conditions only, viz., pyelitis from any cause which affects the functions of the kidneys by increasing their internal pressure, and second, in parenchymatous and diffuse nephritis where there is a great deal of cellular debris, a concentrated urine, increased kidney pressure and tension of the capsule. He suggests that the good results following this treatment are obtained in pyelitis by clearing the pelvis and ureters of irritating substances, and in the parenchymatous and diffuse nephritis principally by reflexly influencing, as a counterirritant does, the blood supply of the kidney.

3.—The Prophylaxis and Treatment of Pyosalpinx.—J. N. West says that an analysis of the statistics shows that about 78.5% of the cases of pyosalpinx are due to gonorrhea or incomplete abortion, and are, therefore, preventable. In the treatment of gonorrheal infection of the uterus, curetage is, of course, out of the question, but the author believes that much may be done by washing out the uterus through a cervical speculum with an alkaline solution and following this with a solution of nitrate of silver 1 to 240. The general prophylaxis of gonorrhea lies with the practitioner and genitourinary specialist, and in forbidding marriage to infected subjects. Prophylaxis against infection following incomplete abortion is carried out by making it a rule to operate in every case of abortion in which it is certain that the abortion is inevitable. Under all precautions the uterus should be cleansed with the finger or semidull curet. Conclusions: 1. All cases of abortion should be operated upon. 2. Gonorrheal invasions should be fought from their start to their finish. 3. The greatest possible aseptic precautions should be used whenever the uterus is entered either by instruments or fingers. 4. All cases of pyosalpinx should be operated upon. 5. Certain cases may be relieved by a proper form of drainage. 6. An operator should not enter upon a case with a fixed determination to do a radical operation. 7. The vaginal route is unsuitable for a radical operation. 8. Vaginal gauze drainage is the best form and has its definite indications and use.

4.—Formic Acid in Rheumatic Conditions.—L. B. Couch has drawn the following conclusions in regard to the nature of rheumatism: (1) All rheumatism, acute or chronic, muscular or arthritic, is due to self-generated systemic poison; (2) it is not bacterial; (3) it is chemical; (4) it is an acid and a suboxidation product; (5) it is not uric acid; (6) uric acid is a product of, not the cause of rheumatic conditions; (7) it is produced by starchy indigestion alone; (8) it is produced by fermentation; (9) it is produced by a carbonic acid gas generated in the bowels, and is due to drinking at meals and washing the food into the stomach without proper mastication and mixing with the proper ferments designed to digest such foods. He was led to study the action of formic acid in the treatment of rheumatic disorders by the experience of a farmer who was cured of the disease after being stung by bees. The remedy was found of the greatest value, and the histories are given of several cases in which remarkable results were obtained. His directions for using the formic acid are: (1) Always cleanse the parts thoroughly before injecting formic acid solution; (2) never use a stronger solution than 3%, and a 2.5% solution is better; (3) never use it without using five to eight drops of a 1% solution of cocain, or other local anesthetic as a preliminary; (4) always choose exterior or outer parts for exhibiting the remedy and inject it just beneath the skin; (5) never use more than eight drops in any place of either cocain 1% solution or of the formic acid solution; (6) if larger doses are used of formic acid, hard, painful lumps are formed which are slow of absorption and painful, whereas, if smaller doses are used, no destruction of tissue results; (7) Couch makes the injections not less than two inches apart, and he has never used more than 30 injections at a time, and it is far better to use only 12, and repeat the following day in another place. Injections may be given every day, or every other day, till all the pain has ceased.

New York Medical Journal.

June 17, 1905. [Vol. LXXXI, No. 24.]

1. The Modern Doctor. (Continued.) A. JACOBI.
2. The Etiology and Diagnosis of Cholelithiasis. WILLIAM RUOFF.
3. Clinical Experience with Antitoxin, and the Advantages of Large Doses. LOUIS FISCHER.
4. Observations on the Diagnosis and Treatment of Herpes Zoster. (Concluded.) DAISY M. ORLEMAN ROBINSON.
5. Local Versus General Anesthesia in Rectal Surgery. JAMES P. TUTTLE.

6. Fibroid Tumors of the Uterus: Their Surgical Treatment. FRANKLIN H. MARTIN.
7. A Shot at Christian Science from a Toy Pistol. A. C. MCCLANAHAN.
8. The Problem of the Tropics: The Interrelation of Certain Social and Business Questions. GEORGE ALLAN ENGLAND.

2.—Cholelithiasis.—William Ruoff names the following microorganisms as capable of producing gallstones: *Bacterium coli commune*, *Bacterium typhosum*, *Staphylococcus pyogenes aureus*, and *Bacillus subtilis*. The influence of appendicitis, peritonitis, and salpingitis is suggestive. Any inflammation of infective character, no matter how remote from the gallbladder, predisposes to the formation of gallstone. He accepts the following etiology (Moynihan): 1. The chief characteristics of gallstones, cholesterin and bilirubin-calcium, are produced by subacute inflammatory changes in the membrana mucosa of the gallbladder, resulting in a disintegration of its epithelium and increased production of mucus. 2. That any agent capable of disturbing the motility of the bile through the ducts favors the introduction of microorganisms. 3. That the injection of virulent microorganisms into the gallbladder produces only a violent cholecystitis or cholangitis, with negative results. 4. That the injection of attenuated cultures causes no change provided that the drainage from the bladder is free. 5. Biliary stasis from the introduction of sterile foreign bodies does not occur; but will if the foreign body is infected. 6. The clumping or agglutinizing of *Bacterium typhosum* in the gallbladder may account for the occurrence of cholelithiasis following typhoid. In some cases severe purulent cholecystitis or cholangitis are formidable complications, either purulent from the beginning or as a sequel. It is a pretty safe rule in cases of severe paroxysmal pain in the hepatic region, attended with jaundice, in a middle-aged patient, particularly a woman, to think of gallstones. If there is no jaundice, and sometimes there is none, the character of the pain, localized tenderness, vomiting, and finally the enlarged and palpable gallbladder make the diagnosis reasonably certain. [C.A.O.]

4.—Herpes Zoster.—The plan of treatment recommended by Daisy M. O. Robinson is rest, attention to the general nutrition of the body, the combating of the microbes, the application of cold over the affected ganglions, a coaltar preparation for the toxemia, and codein and potassium bromid for pain not controlled by the antipyrin. Local treatment consists in aseptic and antiseptic measures. If the case is seen at a very early stage, the affected area can be disinfected in the usual manner by soap and alcohol and then painted with flexible collodion, and when convenient, an antiseptic gauze applied. If seen later, when vesicles are changing in color, an ointment of boric acid and bismuth subnitrate, and avoidance of soap and water meet the indications. Later, ichthyol can be added to the ointment, or an antiparasitic preparation, as the ammoniated mercury chlorid ointment with rose ointment, to which bismuth may be added and also ichthyol. For the persistent neuralgias following zoster, anodynes and the faradic current or röntgen ray may be of some curative value, but on account of probable structural changes in the nerves and connective tissue of the ganglions, the condition is very rebellious to usual methods of treatment for neuralgia. Tonics, such as phosphid of zinc and alteratives, such as arsenic, are also recommended. [C.A.O.]

5.—Rectal Surgery.—J. P. Tuttle says that simple fissures, small straight uncomplicated fistulas, ordinary skin tabs, isolated, prolapsing internal hemorrhoids in patients with stable nervous organisms, may all be satisfactorily operated on with local anesthetics, of which cocain and eucain are the best. In all other conditions, including extensive hemorrhoids, complicated fissures and fistulas, and always in neurotic hyperesthetic individuals, we should resort to general anesthesia. [C.A.O.]

6.—Fibroid Tumors of the Uterus.—F. H. Martin says that the routine treatment for fibroids of the uterus presenting symptoms, in women under 45, should be by supravaginal hysterectomy, except as hereinafter stated. 1. The exception to this rule should be (*a*) in subperitoneal tumors, either pedunculated or not, in which only one or more distinct developments exist which do not materially increase the size of the uterus proper and the area of its endometrium, when myomectomies may be resorted to; (*b*) in fibroids which present excessive hemorrhagic tendencies, in which the hemoglobin is reduced below 25%, or in which serious vascular cardiac or kidney complications exist, which greatly increase the risk of the operation, when a preliminary operation of vaginal ligation of the uterine arteries should be resorted to; (*c*) in cases in which a radical operation will not be accepted, a curetment and vaginal ligation of the uterine arteries may be resorted to, or, if no operation at all will be accepted, general tonics, ergotin in tonic doses, and galvanism scientifically applied may be depended upon to relieve the patients materially, and occasionally tide them over the menopause to a complete symptomatic cure. 2. The treatment for large complicated tumors without regard to age, or large apparently uncomplicated tumors in which symptoms of hemorrhage or pressure exist, should be supravaginal hysterectomy. 3. Tumors of medium size apparently uncomplicated in women over 45 may be managed by one of the less radical forms of treatment, as (*a*) when the tumors are of the symmetric development type, enlarging uniformly the uterus, and the principal symptom is an exaggerated menstrual flow, the cases may almost invariably be relieved by galvanism and tided over the menopause; or (*b*) if the growth is of the irregular type, which has distorted more or less the uterine cavity, the case should be submitted to dilation, finger exploration, curetment, and, if considerable flowing is a symptom, vaginal ligation of the uterine arteries, with the idea of obtaining a symptomatic cure over the menopause. 4. The extremely small class of tumors coming under the head of "inoperable" cases must be managed on general principles—rest in bed, general tonics, treatment of the cardiovascular and kidney complications when they exist, cureting and irrigating for septic endometritis, electricity for pain and hemorrhage, ligation of the uterine blood supply if practicable for intractable hemorrhage, and vaginal incision for impacted cysts or pus accumulations. [C.A.O.]

Medical News.

June 24, 1905. [Vol. 86, No. 25.]

1. Education within the Medical Profession. PRINCE A. MORROW.
2. The Best Way to Treat the Social Evil. HOWARD A. KELLY.
3. The Prophylactic Value of Normal Marriage. ANDREW H. SMITH.
4. The Need of Sexual Education. E. L. KEYES, JR.
5. Report on Gallbladder Surgery, with Especial Reference to Early Diagnosis and Early Operative Interference in Cholecystectomies, with Brief Summary of Twenty-eight Cases, Including Six Cholecystectomies. FRANK MARTIN.

1.—Education within the Medical Profession.—P. A. Morrow points out that many of the views of the laity on venereal diseases are but the discarded opinions of the medical profession, *i. e.*, the fallacy that sexual indulgence is a necessity for men, the contempt of the danger of gonorrhea, the belief that the contagion of syphilis ends with the cure of the chancre. There is no class of diseases which in the past has been so neglected and mismanaged as the venereal class. Even in the present day, venereology is not an obligatory study in the medical schools, and in most of these, clinical facilities for the practical treatment of these diseases are lacking. Under these circumstances it is not surprising so many mistakes are made and that so many physicians lightly sanction the marriage of uncured patients. The writer reviews the statistics of some of the grave pathologic conditions resulting from infection. He emphasizes the importance of their study forming an essential part of medical education. There is more venereal infection today among virtuous wives than among professional prostitutes. When the public realizes this, an enlightened sentiment will sanction the placing of these diseases under the same sanitary control as tuberculosis. [H.M.]

2.—The Best Way to Treat the Social Evil.—H. A. Kelly reviews the results of legislation in foreign countries where attempts have been made to regulate this vice and shows why legal measures have failed. All true reform must spring from the hearts of the people. The sanitary laws fail because they are applicable to only one sex, because only a small number of prostitutes submit to examination, because it is impossible to examine the women often enough or thoroughly enough, because so large a proportion of women cannot be examined because they are menstruating when they present themselves, because syphilis can be spread by mediate con-

tagion when the prostitute associates with infected men. Prophylactic measures should include better provisions for the recreation for the children of the poor, better homes, and better wages for working women. [H.M.]

3.—The Prophylactic Value of Normal Marriage.—A. H. Smith points out that the natural physical attraction must be combined with admiration, esteem, and affection and that the union must not be dictated by policy alone in order that it may be normal. When the protective influence of an early marriage is impossible the writer advocates an early engagement. [H.M.]

4.—The Need of Sexual Education.—E. L. Keyes, Jr., believes that the first illicit intercourse is not prompted so much by the impulse of passion as by the desire to appear manly, or that it occurs when the boy is just drunk enough to follow where others lead. Parents are responsible because they have failed to give any instruction in sexual matters, to appeal to his real manliness, to his inborn sense of decency, to his sense of physical cleanliness, or of religion. Promiscuous intercourse is a habit, like smoking or drinking, easy to begin and hard to break. [H.M.]

5.—Gallbladder Surgery.—F. Martin reports cases illustrative of the article abstracted in last week's issue. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN — A. O. J. KELLY
NORMAN B. GWYN — BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Relation of Chlorids in the Urine to the Digestive Processes.—The experiments of A. Mueller and P. Saxl[1] show that the daily excretion of chlorids follows a more or less definite law. The curve of chlorid excretion shows plainly the influence of digestion; after a meal there is first a slight rise, then a fall, and then another rise. The first rise is the result of absorption of chlorids from the stomach. The succeeding fall lasts several hours and corresponds to the utilization of the NaCl of the blood for the formation of HCl in the stomach. The second rise in the curve is parallel with the absorption of chlorids from the intestines; it begins three to five hours after the meal, and lasts for three to six hours. During the night the excretion of chlorids is low, irrespective of the time at which the evening meal is taken. The intestinal absorption from this meal takes place the following morning. In renal disease the diurnal excretion of chlorids is not affected, but the nocturnal excretion is much increased. In gastric carcinoma and other anacid conditions there is an omission of that drop in the curve, which corresponds to HCl production. In gastric catarrh the curve is practically normal, showing that the subacidity of the stomach is not due to diminished secretion of HCl, but to its partial neutralization by mucus. The complete absence of the postprandial drop in the curve may therefore be utilized as a diagnostic sign of some value. The motility of the stomach may also be gauged by observing the time at which occurs the rise due to intestinal absorption. [B.K.]

The Results of Prophylactic Inoculation with Antidiphtheric Serum.—F. Wesener[2] reports concerning the results of preventive inoculation with diphtheria antitoxin as practised in one of the large hospitals in Aachen. Prophylactic inoculations were made in three classes of cases: In wards in which diphtheria developed; when cases suspected to be diphtheric had to be placed in diphtheria wards; and when in epidemics of measles, etc. some cases of croup developed; relatives of individuals having developed diphtheria. The following conclusions are drawn from the results: 1. Prophylactic inoculation with diphtheria serum serves to prevent the spread of the disease to other members of a family or household. 2. The protection is not absolute, but almost so; isolation of the patient is still necessary, but need not be carried out so strictly. 3. The duration of immunity averages only from three to four weeks; this is sufficiently long, if careful disinfection is insisted on at the end of the illness. 4. Should inoculated persons develop the disease, either because this was performed too late, or in spite of the inoculation, the case is usually a very light one. 5. In small children, 200 units, as a rule, suffices; it may be enough also for larger children, but larger doses give more protection; as larger doses do not produce an injury, it were better to inject from 300 to 400 units. 6. Town authorities will find it cheaper from a hygienic and pecuniary standpoint to insist on an extensive protective inoculation, and all hospitals and physicians should be enlisted in the warfare. [E.L.]

Influence of Smallpox on Vaccination.—In 20 cases of smallpox, vaccinated by J. C. Hibbert[1] after the appearance of the eruption, 11 vaccinations proved successful; 10 of these successful cases had been vaccinated within the first four days of the eruption. This goes to show that the fact of vaccination being successful in a case where there is a rash of doubtful character, is no argument against that rash being one of smallpox. In no case did the vaccination appear to have any modifying effect on the course of the disease. [B.K.]

[1] Zeitschrift für klinische Medicine, Bd. lvi, p. 546.
[2] Münchener medicinische Wochenschrift, 1905, lii, No. 12, 568.

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Appendicitis in Advanced Age.—According to the investigations of R. de Bovis,[2] the greatest real frequency of appendicitis occurs between 20 and 30, while it is much less frequent in subjects past 50. The latter class of patients are usually suffering from their first attack, when surgical intervention becomes necessary. In advanced age the appendix is usually found empty or obliterated, and its histologic structure shows degenerations. Perforation and gangrene are much more frequent in these patients than in younger subjects, the catarrhal inflammation being quite rare. A form of predilection of senile appendicitis is the large abscess of the iliac fossa, which shows little tendency to extend in various directions, as it does in younger subjects. Inflammation of the psoas muscle is a not uncommon occurrence, however. A peculiarity in the symptomatology is the extreme rarity of chronic or recurrent appendicitis in advanced age. The statistics of senile appendicitis show a remarkable lateness of operation, the average time being the fifth or sixth day of the disease. The author ascribes this fact to an insidiousness in the course of the affection. The disease is often accompanied by the presence of a marked tumefaction in the right iliac fossa, which has at times been mistaken for a neoplasm. Among the complications, those of the liver and the lungs are much more frequent in advanced years than in the young. The prognosis is twice as serious in the old as in younger patients. [B.K.]

Dilation of Cicatricial Stenoses of the Esophagus with the Esophagoscope.—In a number of cases of cicatricial esophageal stenoses, A. Reizenstein[3] was able to produce dilation of the impermeable stricture with the esophagoscope after he had failed with simple esophageal sounds. The esophagoscope shows why simple measures fail: The opening may have been excentric; folds, bands, valves may have obscured it; a dilation above the stenosis may have misled the sound, etc.; frequently the opening has not been such a small one. After the reason for the failure has been discovered, dilation may be performed visually with any suitable instrument; conic tubes, rubber tubes, metallic sounds, etc., have been employed. He relates the details of two cases: A boy of 3 had acquired an apparently impermeable stricture from drinking caustic potash; the ordinary method of passing a sound had failed, but by means of the esophagoscope he could make a metallic bougie enter the stenosed orifice and was able to dilate it at six sittings. Within six weeks the boy could eat bread and meat, and he reported himself well at the end of two years. In a second case the patient, who had multiple stenoses, was too weak to be treated with the esophagoscope, and a gastric fistula was made, the patient being fed through it. After recovering

[1] The Lancet, May 20, 1905.
[2] La Semaine Médicale, May 24, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 12, 551.

sufficiently, two stenoses were dilated; the third one he expects to remove by means of a combined esophagotomy. In cases where no sound can be passed by esophagoscopy, the author recommends gastrostomy and retrograde dilation. If the patient is very weak, as in the second case, gastrostomy should be performed at once. [E.L.]

Congenital Hypertrophy and Dilation of the Sigmoid Flexure.—W. F. Brook[1] reports a case in which this anomaly was not discovered until adult life. The patient was a woman of 21, who had suffered from constipation since birth. At times the bowels would not move for one to three weeks, and the abdomen would become enormously distended. She came under the observation of the author for a hard lump, that had made its appearance in the lower left segment of the abdomen, and had recently increased in size. On operation there was found an enormously dilated and hypertrophied sigmoid loop, containing a fecal concretion, weighing 20 oz. The most recent explanation of this anomaly is a congenital variation in the length of certain parts of the colon and mesocolon. [B.K.]

Gaseous Tumor in the Clavicular Region.—A. Chauffard and L. Laederich[2] report the case of a man with tuberculosis of both apices, in whom an expiratory effort caused the appearance of a gaseous swelling above and below the right clavicle. This was accompanied by a noise resembling that produced by the reduction of a hernia. The tumor was very soft, resonant above, but somewhat dull below, and easily reducible. On auscultation, large, loud, dry, metallic rales were heard. It was evident that the supraclavicular and subclavicular pockets communicated with each other. The authors ascribe the origin of these swellings to a tuberculous perforation, either of the trachea or of the pulmonary apex, with an infiltration of air into the cellular tissue around the clavicle. [B.K.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Therapeutics of Aspirin and Mesotan.—J. Burnet[3] has had good results with these derivatives of salicylic acid, and gives his methods of employing them. Normally, aspirin does not become disintegrated until it reaches the intestines; it therefore does not irritate the stomach, and is less likely to cause tinnitus aurium, as it is more slowly absorbed than other salicylates. It is readily decomposed by dilute alkalies, and must never be given in combination with them. The best vehicle is lemonade, or it may be given in powder or capsule. The adult dose is 10 gr. to 15 gr. Of course its chief value lies in the treatment of acute rheumatism. The author also has obtained good results in chronic rheumatic affections, muscular rheumatism, chorea, rheumatic sore throats, the hectic fever of pulmonary tuberculosis, and diabetes mellitus. As an analgesic large doses are valuable in the pains of cancer, in neuralgia, and in the myalgic pains of influenza. Mesotan is a pale, yellowish fluid, miscible with alcohol, ether, and vegetable oils. It is absorbed rapidly by the skin, and should be diluted with an equal part of olive oil. In employing it, about a teaspoonful of this solution should be painted or rubbed gently over the affected part. Moisture decomposes mesotan and produces active irritation of the skin. Therefore the part should not be covered by any impervious material that would allow the accumulation of sweat. The use of water locally must also be avoided. The author has found mesotan useful in acute and chronic articular rheumatism, and especially in muscular rheumatism. The pains of arthritis deformans are often relieved. Used externally it is also of value in rheumatic sore throats. [B.K.]

Treatment of Epidemic Cerebrospinal Meningitis.—H. Lenharz[4] has been able to observe 45 cases of epidemic cerebrospinal meningitis during the last 10 years and has come to the conclusion that repeated lumbar puncture offers the best chance for recovery in each instance. He found this to be the case not only when the spinal canal was punctured in the early days of the disease, but also in the later stages, when life was threatened through the accumulation of cerebrospinal fluid and the development of an acute hydrocephalus. The details of four cases of epidemic cerebrospinal meningitis and one case of acute hydrocephalus are given. In not one case did the puncture produce untoward results. During the operation the patient should lie on his side with the head on the same plane as the rest of the body and the thighs flexed on the abdomen. The needle should be pushed through between two spinous processes directly in the median line. No more than 30 cc. to 50 cc. of fluid should be removed at one sitting. [E.L.]

Treatment of Puerperal Infection.—F. J. McCann[1] divides puerperal infection into two varieties—wound intoxication or sapremia, and wound infection, or septicemia. The former is due to toxins absorbed from the putrefaction of dead matter, while in the latter there is an invasion of the organism usually by streptococci. This is naturally the more serious affection. The local changes consist of the socalled puerperal ulcers on the vulva, vagina, and cervix, and a septic endometritis, if the uterus is invaded. Lining the uterine cavity is a thin necrotic layer, teeming with microorganisms, which permeate the muscular wall to the peritoneum, and spread along the lymphatics. If the tubes become involved, pyosalpinx results. Prophylaxis is naturally of prime importance, and the following rules should be observed: (1) Antiseptic precautions before, during, and after labor; (2) examinations as rare as possible; (3) avoidance of prophylactic douches; (4) repair of perineal lacerations; (5) avoidance of examinations by nurses and of unauthorized douches. Curative treatment is divided into local and general. The former consists of a careful cleansing of the entire genital tract under anesthesia. Puerperal ulcers should be cauterized, retained products removed by hand alone, and the whole tract gently swabbed with a bichlorid solution. The author does not advocate the curet or the intrauterine douche. In cases of septic endometritis the uterine cavity may be found quite smooth, the microorganisms having already penetrated into the uterine wall. In such cases this local treatment is of little avail, and more radical surgical treatment may be called for. General treatment should consist of stimulation, quinin, and calomel in moderate doses, later replaced by tincture of the chlorid of iron. [B.K.]

Hyoscin Treatment of Drug and Liquor Habits.—H. G. Wagner[2] reports five cases of morphin and cocain habit, and 7 of the alcohol habit treated by the administration of hyoscin, combined with atropin and strychnin. The atropin was found to aid materially the hyoscin, which is the active drug in the formula. An average dose was:

Hyoscin hydrobromate	0.00033 ($\frac{1}{200}$ gr.)
Atropin sulfate	0.00011 ($\frac{1}{600}$ gr.)
Strychnin sulfate	0.00044 ($\frac{1}{150}$ gr.)

Treatment lasted three to six days. It is not devoid of danger, and the patient must not be left alone a minute. Wagner's results were satisfactory with the morphin and cocain patients, but with the alcohol habitues, the only effect was a temporary loss of desire for the drug. A course of tonic treatment and rest should follow the active treatment in every instance. [A.G.E.]

Inhalations of Sodium Phenyl Propiolate in Pulmonary and Laryngeal Tuberculosis.—Bulling[3] reports the results of his treatment in 50 cases of pulmonary and laryngeal tuberculosis treated since his last paper on the subject. Seven of the patients were in the incipient stage; the time of treatment varied from 6 to 11 weeks; 5 were discharged "cured"; both objective and subjective symptoms disappeared with a possible exception of a hardly noticeable prolongation of expiration; the other two were much improved and were discharged with the order to continue the inhalations. Of the 38 patients in the second stage all were improved from the standpoint of their subjective signs; appetite and sleep im-

[1] British Medical Journal, May 13, 1905.
[2] La Semaine Médicale, May 17, 1905.
[3] The Lancet, May 6, 1905.
[4] Münchener medicinische Wochenschrift, 1905, lii, No. 12, 537.

[1] The Lancet, May 27, 1905.
[2] Cleveland Medical Journal, June, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 8, 354.

proved, weight increased, night sweats disappeared, the lung signs became fewer, and in five instances the tubercle bacilli disappeared from the sputum. The fever was not so easily influenced, and all of them retained some cough, expectoration, weakness, rise in temperature on exertions, etc. Of five patients with laryngeal ulcers, the inhalations acted curative in four and improved the state in the fifth. The third stage patients (5) were made to feel better, but no change could be noted objectively. Some of his results he is satisfied to ascribe to the invigorating atmosphere of Bad Reichenhall, but a great deal of good is done in his opinion by the sodium phenyl propiolate inhalations. [E.L.] [The fallacy of all such reports lies in the short time covered. Four years at least should elapse before reports of results in treatment of pulmonary tuberculosis are made. Many patients are "cured" half a dozen times in three or four years, appearing and reappearing in private and institution statistics and finally "dying cured." Nevertheless 75% of all patients with pulmonary tuberculosis ought to recover permanently under good treatment, which includes good food and proper environment generally. S.S.C.]

NERVOUS AND MENTAL DISEASES

J. H. W. RHEIN. ALFRED GORDON.

EDITORIAL COMMENT

Lassitude as a Cerebral Symptom.—Change of disposition in children is often wrongly interpreted, and both parents and teachers have recourse to various means to secure improvement, such as reprimanding, forcing, depriving of food, etc., although conditions grow worse instead of improving. A child, for example, enjoying heretofore good health, all at once undergoes a radical change; he becomes slow in his actions, takes more time than usual in eating, dressing, studying; his intellectual faculties become less vivid, memory fails, he lacks attention. The condition is diagnosed as "laziness," and bodily punishment is inflicted. A child like this is certainly ill, and coercive training will not improve the condition, but strictly medical attention. The subject is certainly important from practical standpoint, as the future of such a patient depends upon the early recognition of the pathologic condition. It should be borne in mind by every parent or teacher. Cheerfulness, laughter, vividness, are all attributes of youth, and if these characteristic features of childhood are rapidly replaced by lassitude and impairment of intelligence, the condition is undoubtedly morbid. A striking example is given by Decroly:[1]

A boy of 12, in the midst of good health, began to show symptoms of lassitude and indifference, also impairment of mental energies. A physician pronounced it to be a case of anemia and treated accordingly. The result was not only negative, but the condition grew worse. When the patient fell under the author's care, the latter found a distinct deviation of the lower half of the face toward the right, which was particularly noticeable when the teeth were shown. Further investigation showed also a paretic condition of the entire left side of the body, with exaggerated reflexes on the same side. The patient complained of heaviness in the left arm. There were also marked trophic changes on the left side; arm and leg on the left were less developed than on the right. Beside, the patient had continuous headache and attacks of vomiting. The examination of the eyes showed a stasis in the papilla on the right, a diminished visual acuity of the left eye. The symptomatology of the case pointed undoubtedly to a diagnosis of intracranial pressure (tumor). In view of the family history, the tumor was supposed to be tuberculous in nature.

Blindness in Tabes and Paresis.—According to the generally accepted opinion, blindness is frequent in tabes and rare in paresis. A surprising fact in view of the close relationship between these two affections. André Léri[2] attempts to solve this puzzling problem and explain the cause of this difference in the two closely allied diseases. He found that if in averred cases of paresis blindness occurs sometimes, it is on the contrary very frequent in advanced cases—many years after the onset. If on the other hand blindness is rarely met with in paresis, lesions of the retina are frequent, as for example irregular papillas, dilated bloodvessels, depression of the center of the papilla. In a certain number of cases blindness is a premonitory, initial, or precocious symptom paresis. As to tabes, according to Gowers,[1] blindness is rare. He said that when optic atrophy commences in the first stage of tabes, the progressive tendency of the atrophy is often great, while that of the spinal lesion is slight. But when the optic atrophy begins in an advanced stage of tabes, the progressive tendency of the atrophy is considerably less pronounced, and in a number of cases the amblyopia remains stationary, or even ameliorated. A number of writers has since admitted that when visual disturbances occur in advanced tabetics, they are usually moderate in degree, and lead rarely to blindness. As an initial symptom, blindness is a very frequent occurrence in tabes. Duchenne, Charcot, Gowers, and Leyden, insisted upon the long duration of tabes when it begins with amaurosis. Benedikt, Babinski, Marie, observed the favorable course of tabes when amaurosis is an early sign. Léri made a thorough investigation of the subject, and an examination of 45 cases corroborated the above statements in all their details. Moreover he observed that moderate lesions of the fundi and functional disturbances of vision are not rare at all periods of tabes. The same series of cases was examined for mental symptoms, and it was found that while the mental disturbances observed in amaurotic forms of tabes are not similar to those of paresis, they, however, have many points in common, and there is no absolute difference. The frequent occurrence of mental disturbance in tabes with amaurosis, as confirmed recently by Mott and Cassirer, is very suggestive of the fact that in a certain number of cases the diagnosis could be made, "paresis with blindness" as well as "tabes with blindness." Blindness would seem to be, therefore, in the same relationship to paresis as to tabes. It rarely complicates paresis as well as tabes, it often precedes or accompanies the ordinary symptoms of either affection.

[1] Journal de Neurologie, May, 1905.
[2] Journal de Neurologie, No. 7, 1905.

REVIEW OF LITERATURE

Intention Tremor Limited to One Arm.—An intention tremor is usually considered one of the most important symptoms of multiple cerebrospinal sclerosis. A diagnosis therefore does not present any difficulty when other symptoms of the affection are associated. A tremor alone without any other symptom is almost impossible to explain on a basis of an organic lesion. Bouchard[2] reports a very interesting case with autopsy. A man of 62 had an anthrax on the neck. Energetic treatment promptly applied improved the condition, but the recovery was extremely slow. During convalescence he had several attacks of loss of consciousness. After the last attack he noticed some weakness and a tremor upon voluntary acts in the left arm. At rest the arm was perfectly quiet, but as soon as it attempted to do anything the tremor appeared. Apart from a tachycardia, the patient did not show any other symptoms until his death. At autopsy were found atheromatous changes of the arteries and a distinct linear area of softening in the very posterior portion of the right internal capsule. It is therefore evident that this lesion was the immediate cause of the intention tremor. [The case is certainly highly important from the standpoint of the pathogenesis of a limited tremor.] [A.G.]

A New Bone Reflex of the Lower Extremities.—J. Valobra and M. Bertolotti[3] examined 500 healthy individuals who exhibited no nervous symptoms, and found that when the inner malleolus was struck with a heavy, broad rubber reflex hammer while the individual was lying upon the back, there was a contraction of the adductors of the thigh on the right side in 35% of the cases. If the flexor surface of the heel was struck

[1] The Lancet, 1883.
[2] Journal de Neurologie, No. 8, 1905.
[3] Neurologisches Centralblatt, April, 1905, p. 343.

there was contracture of the adductors of the thigh on the opposite side in 40% of the cases. When the inner condyle of the femur or the tibia is struck while the individual lies upon the back with the knees a little separated, the adductors on the same side contract in 60% of the cases; on both sides in 50% of the cases. If the patella is directly struck in the supine position, the contraction of the adductors on the opposite side is seen in 50% of the cases. The authors found this reflex very marked in organic nervous affections with increased tendon reflexes. It was present in 3 cases of multiple sclerosis, 2 cases of amyotrophic lateral sclerosis, 2 cases of meningomyelitis, 3 cases of caries of the spinal cord, 3 cases of progressive paralysis, and many cases of neurasthenia and hysteria, and in acute and chronic poisoning with increased reflexes, such as uremia, tuberculosis of the lungs, and pneumonia. In cerebral hemiplegia the reflex was increased on the affected side. In cases in which there is excitation of the cells of the anterior horns there is a parallelism between this reflex and the tendon reflexes. In 2 cases of sciatic neuritis with absence of the achilles tendon reflexes, the bone reflex described was present. In tabes dorsalis this reflex is usually absent. In 2 cases of multiple neuritis of the lower left leg with absence of all reflexes, a contralateral reflex was observed on the opposite side. In a case of crural neuritis in which the knee-jerk was absent, the bone reflex was present on both sides. They claim that striking the bony skeleton of the lower legs calls forth a vibration by which the posterior roots become irritated, and from which the reflex originates centripetally. The centrifugal impulse, as in tendon reflexes, originates in the motor cells of the anterior horns. It is not clear to these authors why the irritation of the posterior roots causes the movements of the adductor muscles. It is probable that the spinal centers for these muscles are normally highly irritable. [J.H.W.R.]

Jacksonian Epilepsy.—It is a well-established fact that unilateral epileptiform convulsions are due to a focal lesion of the motor area of the brain. Henneberg's[1] case seems to indicate that this view is not absolute. A child of 10 had a typic Jacksonian epilepsy with a motor aphasia. She was accordingly trephined. Nothing was found. When a month later she died from meningitis, sections of the brain gave equally negative results. The author explains this curious negative finding by circumscribed circulatory disturbances or by a toxic condition. He recalls a similar case of Oppenheim. [A.G.]

Traumatic Epilepsy in Medicolegal Relations.—A. C. Brush[2] concluded from a study of the literature that the weight of evidence was in favor of considering epilepsy as an organic disease of the brain cortex. The degeneration and the epileptic discharge result from certain unknown toxins, and if this be true, injury and disease of the cortex produce epilepsy only in persons predisposed by the presence of these toxins. This theory cannot, however, be proved until the toxin has been isolated. It cannot be said that epilepsy following a slight cerebral contusion would not have developed if there had been no injury, even if the patient was predisposed, where the symptoms were slight, and in the event that a considerable time lapsed between the injury and the onset of the epilepsy, and also when the two were not associated with any mental or physical symptoms. When the injury to the brain is considerable, the relationship between the trauma and the epilepsy would seem to be clear. The convulsions are usually of the major type, and may follow at once upon an injury, or after months or years, but usually the first attack occurs within a year. In the cases which follow coarse organic lesions, localized spasms without loss of consciousness usually are the first symptoms. Brush collected 38 cases from his hospital records. He concluded that present knowledge permits the statement that certain injuries to the brain can excite epilepsy, and that the toxin theories require more evidence before they can be advanced as facts. [J.H.W.R.]

Edema in Hemiplegia.—Loeper and Crouzon[3] reports three cases of hemiplegia in which the edema of the paralyzed limbs occurred several weeks after the apoplectic stroke. In view of the fact that there were also disturbances of the heart and kidneys, they conclude that edema in such cases is not always dependent exclusively upon a lesion of the vasomotor and trophic pathways and their centers. The origin of the condition should also be looked for in the heart and kidneys. [A.G.]

Dissociation Symptoms in Injury and Disease of the Spinal Cord.—J. Piltz[1] believes that disturbances of temperature and pain senses can be cerebral, spinal or peripheral, and may be observed in hysteria, hemiplegia of capsular or cortical origin, and in injury and disease of the spinal cord, as well as in compression, injury to or disease of the peripheral nerves. Spinal thermoanalgesia is present in syringomyelia, in trauma and compression of the spinal cord, in central hematomyelia, in apoplexy of the lateral columns, in tabes, pachymeningitis hypertrophica, spinal syphilis, compression myelitis, and in chronic myelitis. There exist spinal fibers for the transmission of temperature and pain sense which can be separated from those for the transmission of tactile sense and muscle sense. The upper limit of total crossed thermoanalgesia caused by lesion of the white substance, including Gowers' tract, lies usually five vertebras beneath the site of lesion. The upper limit of total crossed thermoanalgesia depending upon a lesion of Gowers' columns, is usually about six to seven vertebras beneath the lesion. If this is true then it can be said that the pyramidal tracts are not destroyed, and in spite of the presence of hemiplegia or hemiparaplegia, a good prognosis may be given. In the region of the upper limit of crossed total thermoanalgesia there is often found a dissociation of heat, cold and pain sense in which the upper limit of the heat anesthesia is highest, then the analgesia is observed, and finally below, the anesthesia for cold. The dissociation of sensation for heat and cold reaches its maximum in the use of +50°, and 0°. The upper limit of thermoanalgesia for temperature above +50°, that is to say, +60°, +70°, +80°, and so on, is found beneath the limit of thermoanesthesia for +50°. The upper limit for thermoanesthesia under 0°, that is to say, for −5°, −10°, and so on, is higher than the upper limit of thermoanesthesia for 0°. [J.H.W.R.]

Microcephaly.—An interesting case from a hereditary standpoint is reported by Houzé.[2] The grandfather of a microcephalic child of 3 had a small cranium (circumference 515 mm., length 175 mm., width 159 mm., cephalic index 90.85). His son presented peculiarities of the cranium and face to a marked degree; he could be called "submicrocephalic" (circumference 492 mm., length 169 mm., width 158 mm., index 92.30). One grandchild is also microcephalic (circumference 309 mm., length 99 mm., width 95 mm., index 95.95). The mother of the present child after the second confinement had a protracted attack of typhoid fever. She soon became pregnant again, and during this third pregnancy she suffered from a suppurating focus of the upper jaw, which weakened her considerably. The child, which was the third, was born microcephalic. The fourth child presented the same malformation as the third. [A.G.]

The Diagnosis and Treatment of Myelomalacia.—F. W. Langdon[3] states that in myelitis there is preceding disability or acute illness present, while in myelomalacia these are absent. In myelitis the onset of the paralysis is gradual or rapid, but not sudden as in myelomalacia. Fever is present and the pulse tension high early in myelitis, while in myelomalacia the fever is absent and the tension of the pulse is low. Chill is absent in myelomalacia, but sometimes present in myelitis. Rigidity of the spine is present in myelitis and absent in myelomalacia, and myelitis differs further in the fact that spasm of the extremities is often present, that one or more segments of the cord are usually affected, and that the paralysis is always paraplegic and the extension progressive, while on the other hand, in myelomalacia the affected areas are often only unilateral and slight in extent, the paralysis monoplegic, and the extension by sudden increments. The sensory changes in myelomalacia are manifested as a dissociation symptom and the girdle symptom is often absent. The knee-jerks are unlike and often abolished on one side, while in myelitis they are

[1] Centr. f. Nerv. u. Psych., No. 187, 1905.
[2] Journal of Nervous and Mental Diseases, April, 1905, p. 245.
[3] Nouv. Iconogr. d. l. Salpetr., 1904, p. 181.

[1] Neurologisches Centralblatt, March 16, p. 242.
[2] Bull. et Mem. de la Soc. d'anthrop. de Bruxelles, 1904, T. xxi.
[3] Journal of Nervous and Mental Diseases, April, 1905, p. 233.

usually diminished bilaterally and equally. In myelomalacia the unilateral Babinski sign is common and the plantar reflexes are unlike. The loss of control over the sphincters in myelomalacia is usually transient. If bedsores are present in myelomalacia they are usually small, discrete lesions. In myelitis, leukocytosis is probably present; in myelomalacia it is absent. The prognosis in myelomalacia is more favorable than in myelitis. The indications for treatment are (1) to increase the blood-pressure and to stimulate the peripheral circulation; (2) to bring about liquefaction and to limit organization in the inflammatory exudate surrounding the affected area after a few days. [J.H.W.R.]

Bilateral Cervical Sympatheticectomy in Epilepsy.—W. P. Spratling and R. Park[1] cite the statistics of Winter, who collected 203 cases of epilepsy in which this operation had been done. The operation produces a twofold effect: (1) By cutting off sensory stimulation from the viscera, thereby preventing the stimuli from reaching the brain; (2) by affecting the circulation of the brain through the influence of the vasomotor nerve. The details of three cases operated upon are given. A study of the histologic changes found in the sympathetic nerves shows that there was pigmentation of the nerve cells in the cervical ganglions in all three cases. In one of the cases a nerve cell with double nucleus was found, and in another case half a dozen such cells were present. The medullated nerve fibers in the sympathetic cord and ganglions in the excised portion showed degenerative changes. A focus of inflammation was present in one case. [J.H.W.R.]

Traumatism of the Head.—Injuries to the head are very frequently overlooked or treated in an indifferent manner. It is not only the injury which is followed by immediate paretic symptoms, but also and particularly the apparently slight traumas, followed by remote symptoms, that are to be given great concern. Ley[2] reports such a case. A man in looking out of an open window, suddenly raised his head and struck the woodwork. He felt pain, but this gradually subsided. However, a slight aching persisted in the right parietal region, but two months later a slight prominence appeared in the same region and pain became severe. Four months after the accident a hemiparesis of the entire left side, including the face, was noticed. There was also a tremor in the affected limbs and exaggerated reflexes. A trial of increasing doses of iodids was made, with apparently good results. The patient was shown to several neurologists, and the majority advised an operation. Apropos of this patient, Glorieux reports the history of a similar case, in which in spite of marked improvement under the iodids, an operation was urged. An intracerebral cyst was found. Another writer, De Buck, calls attention to a case of supposed idiopathic epilepsy. The autopsy revealed unexpectedly an encapsulated abscess in the left cerebral hemisphere. A search into the antecedents of the patient showed that he had a fall at the age of 18, and while there were no immediate bad consequences, he developed shortly epileptiform attacks with mental disturbances. There cannot be any doubt, remarks the author, of the relationship between the epilepsy and the trauma; latent cerebral abscesses are not rare. [The most insignificant traumas may, sometimes, cause serious lesions of the brain; the latter may develop insidiously, months or years after the accident. This is an extremely important subject from the standpoint of legal medicine and prognosis.] [A.G.]

The Location of Fibers for Temperature and Pain Senses.—W. G. Spiller[3] cites a case which adds important evidence to show that the fibers for pain and temperature are located in the tracts of Gowers. The patient, a man of 23, began to suffer from pain in the lumbar region and abdomen four months before examination by Dr. Spiller. Some resistance to passive movement was observed in the legs; sensation for touch was normal, or nearly so, in the legs, but that for pain was abolished or almost so, in these parts. Temperature sense was lost in the legs below the knees, and much impaired in the thighs and lower part of the trunk. Later sensation to touch was found preserved in the legs, sensation for pain irregularly preserved, and temperature sense much impaired in the lower limbs. At the autopsy a small tubercle was found in the right lateral column at the extreme lower end of the thoracic cord, involving the area of Gowers. About an inch higher another tubercle was found in the left tract of Gowers. Some myelitis existed, but it was evident that the symptoms had developed since a recent fall down stairs, causing complete paralysis of the legs, as when first observed by Spiller, the weakness in the lower limbs was slight. [J.H.W.R.]

Traumatic Myelitis.—Lesions of the spinal cord, due directly to trauma without fracture or dislocation of the vertebras, are not a frequent occurrence. Libotte's[1] case is very interesting from two standpoints—etiology and treatment. A man with a good previous record had a fall from a tree. Flaccid paraplegia with complete loss of reflexes, pain in the lumbar region radiating in the legs and involvement of the sphincter of the bladder were the symptoms of the case immediately after the injury. That the trauma was the direct cause of the myelitis was evident. Prompt intervention, consisting of a plication of continuous electric currents to the lower extremities, faradization of the spinal column, and especially local application of high-frequency currents, improved the patient's condition considerably, so that two and a half months later he was able to resume his usual duties. The pain in the extremities, the condition of the bladder, disappeared entirely. There was left some difficulty in walking. [A.G.]

The Abdominal Reflex in Tabes.—G. Católa[2] examined for this symptom in 38 cases, almost all of which were in the advanced stage of the disease. It was active in 9 cases, in 6 of which it was present on both sides, and in 3 on one side. It was normal in 9 cases, lowered in 6 cases, and absent on both sides in 13, and on one side in 1 case. In studying the relation between the abdominal reflex and the duration of the disease, he was able to conclude that the abdominal reflex held no direct relation to the duration of the tabes; in fact, in the older cases the absence of the abdominal reflex was less frequent than in the early cases. He is not willing to admit that the absent reflexes appeared later, but the fact appears to signify that there is no distinct relation between the course of the disease and the presence of the reflex. [J.H.W.R.]

The Curability of Epilepsy.—James W. Wherry[3] emphasizes the importance of individual treatment in cases of epilepsy, not only as to the administration of drugs, but also the regulation of the diet. Of equal importance is change of environment. Wherry does not believe that epilepsy is by any means incurable, and explains the rarity of cure by the fact that (1) an insufficient knowledge of the real conditions exists; (2) that the convulsion is treated instead of the condition; (3) that epileptics are treated en masse instead of individually; (4) that treatment is usually begun only when the disease is well established; (5) that the provision for special care and treatment is limited. According to recent writers, the percentage of recoveries varies from 5% to 12.5%. Wherry is hopeful that individualization of treatment and change of environment will double the percentage of recoveries, and that this result will be doubled by judicious selection of cases. [J.H.W.R.]

Localization of the Motor Function in the Spinal Cord.—The theories concerning spinal localization, generally accepted today, give each muscle and muscle group a definite center, that is, a special collection of ganglion cells, from which all the movements of this muscle are innervated. M. Lapinsky's[4] theory considers this fundamentally wrong, as there are no ganglion cells which do not normally communicate with their neighboring cells and therefore do not lose their independence as such. He says that the spinal centers govern the individual functions rather than the individual muscles, and bases this statement upon the following facts: It is well known that individual ganglion cells are divided among a number of nerves, which supply muscles possessing different functions and situated in different parts of the extremity; also that these nerves have large numbers of ganglion cells supplying them;

[1] Journal of Nervous and Mental Diseases, April, 1905, p. 217.
[2] Journal de Neurologie, No. 7, 1905.
[3] Journal of Nervous and Mental Diseases, May, 1905, p. 318.

[1] Journal de Neurologie, No. 7, 1905.
[2] Neurologisches Centralblatt, January, 1905, p. 7.
[3] Journal of Nervous and Mental Diseases, May, 1905, p. 325.
[4] Deutsche Zeitschrift für Nervenheilkunde, 1904, xxvi, 457.

thus muscles derive their nerve supply from a number of anterior roots, each one supplying not the whole muscle, but only a part of it; the ganglion cells in dividing themselves thus among a number of muscles always go to muscles serving the same function, even though being in different parts of the body, and that muscles, even though deriving their energy from different ganglion cells, get it always from ganglion cells supplying muscles having the same function. The nourishment of the muscle also depending upon the cells of the anterior horns, each center must possess both motor and trophic functions. The existence of such spinal centers for a definite function facilitates the conception of the development of complicated skin reflexes. The fact that after an irritation of the foot all flexors of the leg are brought into action, demonstrates that the flexor muscles of the thigh, pelvis, and leg must be connected with one cell group of the anterior horns, and such a group possessing therefore one definite motor function, can exert it either voluntarily or reflexly. The impulses pass to the spinal center, regulating the activity of the muscle needed for the movement. The acceptance of special centers in the spinal cord, each one to regulate a definite muscular accord, facilitates the understanding of how automatic movements are performed and explains the rapidity with which voluntary and reflex coordinate movements are performed. It also explains why a muscle in certain conditions will be able to perform some of its functions and not others, and why in muscular atrophy of spinal origin portions of different muscles of different segments only are affected. [E.L.]

Myelitis Caused by Tuberculous Toxins.—Clément[1] calls attention to several cases in which a beginning tuberculosis was masked by the development of marked nervous symptoms, resembling tabes. Among the most frequent symptoms developed were lancinating pains, loss of patellar reflexes, Argyll-Robertson pupils, Romberg's symptom, and gastric crises. Incoordination was never marked, and the diagnosis might well have been made of incipient tabes. The nervous condition never got beyond this stage, however, and in the course of time the pulmonary tuberculosis developed. In most cases, however, the course of the latter seemed much slower than usual. [B.K.]

Incoordination of Eye Movements after a Superficial Cerebral Lesion.—H. Klien's[2] patient, a man of 53, fell from a wall six yards high and suffered a complicated fracture of the left temporal bone and concussion of the brain, which left him with a depressed scar over the middle third of the ascending frontal, ascending parietal and the lower part of the middle frontal convolutions. Four years later he came under observation because of ocular disturbances. It was found that whenever the patient was told to fix upon a given point, whether with one or both eyes, that the eyes performed a series of irregular movements in all directions, chiefly slowly performed extensive rotary movements; after a few seconds (three to four), when trying to see with one eye, patient could fix upon the object; the disturbance is more marked in the right than the left eye. When binocular vision is attempted, the movements of the eye previous to definite fixation are found in addition, to be entirely independent of each other; when an object in the distance is being focused, for instance, the eyes at first are absolutely divergent. The condition is not due to either a muscular paralysis or a disturbance of vision, but rather to an incoordination of ocular movements. The author reasons from this that the injury above mentioned must have produced a lesion (partial destruction) in the lower part of the second frontal convolution on the left side, where Beevor and Horsley have found by irritating the brain of the orang-outang electrically a center for volitional associated movements of the eyes. This lesion disturbed the sensibility of the muscles of the right eye and its influence on the motor impulses. [E.L.]

Increase of Lunacy.—W. A. Parker[3] notes that the increase in registered lunatics now over those registered in 1857 is due, in large part, to the better care given to the insane. This is not a real increase. There is an increasing reluctance to be burdened with insane relatives. A true increase is due to the increase of general paralytics, generally from syphilis and alcoholism. The deathrate has not been proportionate to the greater number of paralytics and senile cases, and this has caused increase by accumulation. Insanity is hereditary. A lessened infant mortality allows weaklings and imbeciles to survive. The greater proportion of cases in the Highland and insular parts of Scotland is due to the constant stream of the marriageable to the cities. To improve conditions, patients should be sterilized before discharged from the asylum. A law should automatically dissolve all marriages in case of insanity, and should make it illegal for any one to marry who had suffered from insanity or epilepsy. Adolescents should not be stimulated into overwork at school. There should be more complete control of the drink traffic. There is hereditary predisposition to alcoholism in 52.3% of all admissions. [H.M.]

A Case of Chronic Anterior Poliomyelitis with Autopsy.—T. Aoyama[1] reports the case of a physician in whom he made a diagnosis of chronic anterior poliomyelitis. The history of the case which extended over two years is very minutely reported. The diagnosis from progressive muscular atrophy was made by the fact that the paralysis preceded the muscular atrophy and attacked muscles and muscle groups at once, while in the latter muscular weakness and atrophy are simultaneous and fiber after fiber is destroyed slowly; its course also is therefore much more chronic than that of chronic anterior poliomyelitis. The primary increase of muscle reflexes which others have also observed, he explains after Erb by the slight irritation produced by the progression of the degenerative processes in the anterior horns. The pathologic findings of the case include the destruction of the ganglion cells of the anterior horns from the lowest parts of the sacral cord to the highest of the cervical. It was diffuse everywhere excepting in the sacral cord where the median group of cells was still preserved. There was degeneration of the fibers along the anterior and lateral pyramidal tracts; also along Türck's path. The bloodvessels along the cervical, lumbar, and sacral cords were thickened and round-cell infiltration noted in their walls, a condition in which it differs also from progressive muscular atrophy. [E.L.]

Acute Ascending Paralysis in Cases of Chronic Cystitis.—T. J. Walker[2] reports three cases of long-standing chronic cystitis, which terminated fatally by acute ascending paralysis of the most malignant type. No certain information could be obtained as to the pathology of these cases. They evidently belong to that class of cases termed "urinary paraplegia" by various writers, the process being an extension of a specific inflammation from the urinary organs to the lumbar cord along the nerve trunks. It has been proved by competent investigators that Landry's paralysis is an intoxication of the nervous centers due to infection by specific organisms. The analogy of these reported cases to Landry's paralysis is evident, and the suggestion is offered that the pathology of this latter disease might find an explanation along these lines. [B.K.]

A Contribution to Pseudosclerosis.—A. Fickler[3] reports the cases and autopsies of two patients who, during life, had presented the clinical picture of multiple sclerosis, but in whom the nervous system showed no characteristic anatomic changes. They therefore should be classed among the cases of socalled pseudosclerosis, described by Westphal and Strümpell, and of which only 11 cases have been reported. Fickler emphasizes as points important in the differential diagnosis, the marked appearance of the oscillating tremor, the spastic symptoms being less marked than in multiple sclerosis, and the psychic disturbances, which consist of a gradually increasing intellectual deficiency; changes in temperament (the patient becoming angry very readily), and other changes in mentality—for instance, the gradual appearance of hallucinations. He gives a full description of the symptom-complex of the condition, and subscribes to Strümpell's statement that the cases have nothing to do with hysteria, even though the central nervous system does not explain the symptoms of the disease. The cases are decidedly chronic, the patients living for many years after the development of the first symptoms. [E.L.]

[1] Lyon Médical, March 12, 1905.
[2] Deutsche Zeitschrift für Nervenheilkunde, 1904, xxvi, 327.
[3] Glasgow Medical Journal, March, 1905.

[1] Deutsche Zeitschrift für Nervenheilkunde, 1904, xxvi, 375.
[2] The Lancet, March 11, 1905.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 1886.

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The limitations of honesty is a subject which has gone beyond the stage of discussion by psychologists. It is now a practical matter, and far more than a question of ethics. The cynical have too long been permitted to harp sneeringly upon the idea that every man has his price, and that a bribe is always successful if it is big enough. Others have not dared to agree with them because it strikes a blow at self-respect. No one cares to acknowledge that human nature is the weak thing we find it, and we must believe that at least some men are incorruptible and above suspicion. Physicians meet man in his hours of weakness and see the bad traits of character even more than priests in the confessional, and are more competent than any other class of citizens to sound a warning. Yet every thinking man knows that average men are incorruptible just as long as it pays to be so. The Chinese are looked upon as very dishonest, yet when it is to their interests to be honest, they can be trusted implicitly. The fear of losing caste for crime is the greatest deterrent among all races, but even this will not always suffice if the prize is great. The noble Macbeth did not refrain from murder to be king. This law of psychology has been known as a practical matter perhaps since prehistory, and the early Christians had no better way of signifying their belief in the superhuman nature of Christ than to state that he was able to reject the bribes of the devil. Is it not time to act upon this natural law?

Too much money may be entrusted to the average man, for in spite of the safeguards thrown around corporations, we are almost daily furnished with accounts of the defalcations of men long trusted. The latest case of this kind involves the loss of nearly $2,000,000, and the culprit was a leader among bankers, who are looked upon as the embodiment of honesty and safety. There is then a suspicion that the huge combinations due to modern business methods have progressed beyond human capacity to manage them. Life insurance advertisements have dilated upon the immense surplus funds as a guarantee of safety and of some kind of excellence, but recent scandals show that such idle sums are so tempting as to be now and then an element of weakness which may lead to loss and disintegration. When men pay two and a half million dollars merely to control the funds of a life insurance company, it is time to stop and think. The trusts are no doubt a great evil in spite of the benefits they can confer upon society, but their very size may bring about the remedy in time, for they, too, are growing beyond our ability to manage them. There are natural causes, then, for the birth and healthy growth of the enormous number of small fraternal beneficial and life insurance societies, which are such a feature of our civilization, and which, in their sphere, are competing so successfully with the old line companies. They are based upon the law of mutual aid, they are not too big to manage, their expenses are few, their small short-time investments necessarily return larger profits than big loans. They do not require such high-priced officials, and they are not so tempting to potential criminals, though, of course, they have their little scandals, too.

Government supervision of all combinations of citizens seems to be the trend of present statesmanship, and it is in obedience to the natural laws of organization. No organism can survive if some of the units become powerful enough to destroy others. The policy of our national administration to check corporate abuses may not be the wisest possible, but it is certainly in the evolutionary direction which every social body takes to prevent one unit injuring another. This does not mean that the government must take up the functions of the units. It is a biologic fact that an organism has entirely different duties than the units composing it and it cannot safely usurp their duties lest the units degenerate from disuse of their proper functions. Yet every organism then evolves some system of nervous connections whereby it controls every unit and every combination of units. The corporation is a legal invention of modern times and is treated in all respects as a person, except that it is immortal, soulless and unpunishable for its crimes. It is in the same position as a group of body cells would be, say in the liver, if they were working together without any control from the organism. It is evident then that government control of corporations is a biologic necessity, a law as necessary for the social organism as for any other combination of units. America is backward in all such matters of organization because it began as a mass of absolutely independent units who have resented the necessary restrictions upon their personal liberties. In Europe, where government

control of all matters is very old, the trend is in the opposite direction of increasing the personal liberties and powers of the units, and it is possible there to control corporations in a manner unlikely to be attained in America in the near future.

Government insurance is not necessarily an eventual result of natural law. New Zealand has tried it with apparent success, but whether it is a natural and therefore a proper function of government, is open to question. It is but one of the many departures which have been made by the Australasian colonies, and the experiments are being watched with the keenest interest by thinking men the world over. When one type of man is conquered by higher ones and takes no part in the government, he immediately sinks into a semiparasitism in which he expects more and more from the organism, but gives less and less mutual aid in return. This class of evils is already evident in Australia, and is giving rise to considerable alarm, though the responsible officials will not admit, of course, that anything but good can come from their defiance of natural law. Business enterprises depending upon individual initiative are being stifled, if we are to believe a small minority of observers, and it is said that the growth and development of the colonies are thus being seriously hampered from feebleness of the units. In life insurance there is a government guarantee, which merely means that if the funds collected from policy holders prove insufficient, the whole colony will be taxed for the benefit of these few, and this is unnatural too. In addition, the amount of business transacted is but a tiny fraction of that done by any one of the large American companies, and there has been less chance for the serious mismanagement which is apt to characterize government business conducted by little men. Even the eventual success of public ownership of street car lines in Glasgow is questioned, and the manager flatly states that the system is not appropriate for America. It is probably true that government insurance, as well as all other socialistic ownership schemes, can never become the proper duties of the organism, for they are functions of the units or of small groups of units. It will be wise, then, to wait the results of the New Zealand experiments before we embark in government insurance, and in the meantime devise means of better regulating the private companies to the end that the policy holders are properly protected. Such laws will be analogous to a nervous system.

Compulsory insurance is of vital importance to the medical profession, because it generally includes some kind of aid in case of sickness, childbirth or injury, and the physicians are employed by contract at very cheap rates. This form of insurance has long been a necessity in dangerous trades, such as mining and railroading, and is a distinct advance in civilization, as it diminishes the dreadful pauperism of the past. Animal tissues are so adjusted to a struggle for existence as to depend upon it for health, and though we are constantly seeking easy methods or an escape from the slavery, yet cessation of the struggle brings decay as an inevitable consequence. It is generally recognized that pauperization is a psychic disease resulting from such a cause and that the most dreadful thing we can do to any family is to make them the recipients of charity. The old poor laws of England are said to have done much harm in this way, and have unduly increased the burdens of taxation and the army of unemployed. The natural course of events the world over is in the direction of replacing charity by some system of insurance against the disease of pauperism. Corporations are also finding that they are better served by employes who are thus protected and who are assured of support when disabled by old age. Sometimes the costs are paid by the corporation as an unrecognized part of the pay, as in the case of military men in most countries and civil officials in a few; sometimes the costs are deducted from the pay, and a great variety of other partly compulsory methods are in practical operation and their main but unconscious object is to end pauperism by mutual aid. An interesting synopsis of the subject is found in a report by Consul Haynes, of Rouen, France, and it is noticed that in Europe, where individual initiative is stifled so greatly, the government, at present at least, must do what in democratic America is the function of the innumerable small beneficial societies. The multiplicity of methods of accomplishing the same result is a very pretty illustration of the law that organisms develop by selection many methods of accomplishing the same result, which vary according to the particular environment. Hence, though some of us may deplore the present trend toward contract practice, it appears to be an inevitable evolution the world over, as necessary as the medical corps of armies and navies. Government supervision of all such combinations of men being a necessity, it thus seems as though many physicians were gradually becoming salaried public servants, a curious socialistic tendency of the law of mutual aid.

Old age pensions are not an unmixed good. Their evil side is found in the fact that pensioners rapidly decay from disuse of their functions. The morbidity and mortality rates of retired English army and navy officers have been reported to be dreadfully high from this cause alone, the dementia of a premature senility being specially noted. Most of our own retired officers simply fade away and are never heard of until the funeral. But such retirements are necessary for the good of society, as young brains are a necessity in these public employments and also in private corporations, like railroads and steamships. The individual is invariably sacrificed when the organism or species demands it. Yet a retirement on a pension simply because of age, where there is no necessity, is unnatural—a mere death sentence—and we can confidently assert that our Australian cousins are injuring themselves and their organization by their bizarre plans for pensioning every old citizen. Let us keep the harness on, well greased, so that it will not chafe, but merely as a matter of personal hygiene to prevent senility. We will find that we will be compelled to draw smaller loads every year, have to call in the aid of a younger team for heavy grades, be unable to learn new gaits, and gradually drop

all fancy work requiring a high head and springy step, but we will live longer and be happier, and that's the main point. We may not make revolutionary discoveries, for they come from very young brains, but we can work until the end, even if the product is of poor quality, and we can give the young man a chance without blocking the track or leaving it.

Early retirements on old age pensions have been a part of Japanese civilization for many centuries, but it is accompanied by a wonderful development of mutual aid. The ethics of the race compel a man to support all his relatives who need it, so that every successful man is surrounded by a host of drones. Refusal to help them causes a loss of caste which amounts to ostracism so complete that death is preferable. It is a system which keeps many from employment and hampers competition, but it also induces a man to aid his sons very early by turning over the business to them. He must be supported, and really exists on an annuity, and the advantage to society lies in the fact that all work is in the active management of men in the prime of life. This partly accounts for the vigor of the civilization, but the retired men are not idle like our retired men. They have some duties and appear to be occupied, but it is not known how much premature senility results; yet they are adjusted to the system by centuries of use, and we are not, so that it is foolish to point to the Japanese and try to imitate them. There is too much wisdom and experience in old brains of vast value to society to chloroform them into senility by retirement and disuse, and except in the case of the few callings needing young brains, let us work on as happy as our juniors will permit.

The Methods of the Osteopath.—The recent veto-ing of the bill to legalize osteopathy in Pennsylvania has disposed of that question for the time being. The surety of further attempts by its adherents to secure recognition, probably at the ensuing session of the Legislature, impels us to direct attention to a clause in the defeated act, which clearly shows that their pretended compliance with the spirit of existing medical regulations is on a par with their "practice." Said clause confers upon the majority of the board to be appointed the power of issuing, or to be exact, says they shall issue certificates "conclusive of the right of the lawful holder thereof to practise osteopathy in the State," to all applicants possessing a diploma from a college of osteopathy in good standing. What about examination of the candidates? And the "good standing" of the college is distinctly referred to the time the diploma was issued. Are these people so perfect they do not intend to raise their standards as time goes on? The bill they are trying to legalize in Illinois states plainly the certificate to practise is granted by the board *without examination* if the applicant files a voucher from the State association. This simply puts the matter on a worse basis than obtained in the regular schools before State examining boards were created. And yet a bill bearing this iniquitous provision (we are not now commenting on osteopathy as such) passed the Pennsylvania Legislature! And if physicians and the laity of this and other States are not alert, similar despicable measures will again be jammed through, with the possibility of signatures by misguided executives. To preserve the standing of the medical profession and protect the people, this malodorous affair requires some one sitting on the lid constantly.

Aggressins.—A new planet—or to be more just in our similitude, a group of (fulgurating) meteorites—has appeared in the firmament of bacteriologico-pathologic chemistry. This latest scientific innovation is appropriately connoted by the pictorial appellation of aggressins. This name has not yet made its way into any of the medical lexicons, as it was introduced into professional terminology this year by Professor Oscar Bail.[1] This observer employed it in connection with the results of his own researches in the investigation of the phenomena of the rapid death of "supertuberculized" guineapigs. When a guineapig which has been already tuberculized for some weeks has the peritoneal cavity injected with tubercle bacilli, the animal rapidly develops symptoms of hyperacute intoxication and dies in a few hours. The inference suggested itself that the intraperitoneal injection was followed by the liberation of large quantities of tuberculin. The autopsy showed a turbid exudate abounding (almost exclusively) in lymphocytes; some few large mononuclear and macrophage cells being also present. In fresh guineapigs, injections—even copious—of tubercle bacilli are never followed by such symptoms. A peritoneal exudate is formed, which contains almost exclusively large polynuclear, macrophage cells, which take up the bacilli and thus enable the animal to survive the immediate infection, while it gradually develops the pathologic phenomena of tuberculous invasion. The results are nearly the same whether the injection has been made with a mixture of bacilli and tuberculin, or when the latter has been got rid of by lavage. But symptoms of a fulminating type may be induced in a fresh animal by injecting the peritoneal cavity with a mixture of tubercle bacilli and some centrifugated peritoneal exudate taken from a tuberculous guineapig which had been killed by a new infection. An animal (guineapig) injected with 4 cc. of such exudate and 100 mg. of tubercle bacilli dies within 20 to 24 hours; and the autopsy displays, as in the case of the supertuberculized animals (guineapigs), a peritoneal effusion abounding in leukocytes, but (almost) without a trace of phagocytes. Death occurs more slowly in the case of an animal injected with a mixture of tuberculin and peritoneal exudate. Accordingly, the conclusion was drawn by Professor Bail that the peritoneal exudate of supertuberculized guineapigs contains active compounds other than tuberculin, whose presence determines the aggressive phenomena. Those hypothetic substances are the "aggressins."

Aggressins and Bacteriolysis.—In order to explain the distinctive properties of such bodies, Professor Bail has been obliged to suggest a very considerable expansion of the preexisting theory of phagocytosis.

[1] Wiener klinische Wochenschrift, 1905, No. 9, p. 212.

The new (aggressive) hypothesis so furnished is as follows: When tubercle bacilli have effected a lodgment in the animal body and formed tuberculous foci, a life-and-death struggle between them and the phagocytes takes place at each point of infection. The bacilli defend themselves by secreting aggressins which inhibit phagocytic action. The latter pass—probably through lymphatic channels—into the general circulation. When the economy has become so far saturated with aggressins that all phagocytic action is effectually paralyzed, the action of the bacilli is unopposed, and the phenomena of tuberculous intoxication proceed without further impediment. The course of the fulminating symptoms observed in supertuberculized guineapigs is, accordingly, explained as follows: The peritoneal exudate which forms after the injection—like all the tissues and fluids of the tuberculous organism—abounds in aggressins. These effectively prevent the entrance of the phagocytes into the peritoneal cavity (where, accordingly, only lymphocytes are to be found), and, as the bacilli are not swallowed up by their natural antagonists, they undergo the process of bacteriolysis, which sets free their tuberculin—their endotoxin—that causes the development of the hyperacute symptoms. And when a healthy animal has a mixture of bacilli and peritoneal exudate injected into its peritoneal cavity, the aggressins paralyze the leukocytes, and bacteriolysis sets free the tuberculous endotoxins which immediately give rise to the development of the fulminating symptoms. The recent discovery—and consequent hypothesis—of Professor Bail have been almost immediately followed, as has so often occurred in the annals of scientific evolution, by similar reports in connection with the pneumococcus and *Bacillus dysenteriæ*, made by Drs. Hoke and Kukushi, respectively.

Bacteriolysis versus Anaphylaxia.—As might well be anticipated in connection with the story of a new hypothesis involving new names, and etceteras, the views of Drs. Bail, Hoke, and Kukushi have been disputed, and the truth of the theoretic assumptions, on which they were founded has been denied. Drs. Pirquet and Schick very justly point out that Professor Bail is obliged to invoke the assistance of bacteriolysins in order to furnish an explanation of the action of his hypothetic aggressins, a solution of the tubercle bacilli by the fluids of the organism. Why then not consider the aggressins also as products of the infected organism, which might as rightly claim the output of such substances as that of the bacteriolysis? If it were demonstrated that, in an infected animal, the phenomena of hyperacute intoxication may be provoked by the introduction of inanimate agents, does not such fact prove—Pirquet and Schick demand—that the aggressiveness is not a function of the bacillary secretion? The latter observers indicate a similarity of the series of facts observable after the injection of antidiphtheric serum, the "maladie serique" which follows the injection of a heterogeneous serum usually appears at the end of an interval of eight to ten days. This is the period required by the organism for the manufacture of the specific antibodies, and we find that the date of the symptoms coincides with that of the appearance of precipitins in the serum of the patient. According to Pirquet and Schick then, the serum malady would be regarded as an intoxication produced by the substance formed by combination of the antibody (of precipitin species) and certain constituents of the serum of the horse. But the clinical picture of the serum malady is totally changed by a second injection of serum—up to the end of six weeks. At the end of a few hours, symptoms of exceptional gravity develop, which these observers explain by the combination of the ready-prepared antibodies with the constituents of the new serum injection. They would in this way explain the observations reported by Arthus of the death of rabbits produced by repeated injections of normal horse serum, and those of Richet of the death of the dogs following a second injection of the poison of actinia. All the symptom-groups—including the serum fever and the hyperacute intoxication of supertuberculized guineapigs are referred by these scientific pathologists to the existence of *anaphylaxy*. In all such cases, the introduction of a foreign substance into the organism a second time finds antibodies already formed as a result of the former injection; which antibodies on combining with the new foreign substances at once form the toxic compounds that produce the fulminating symptoms in question.

Antiaggressin Serum.—The most interesting practical result derived from all these observations and discussions is that antiaggressin serums have already been prepared. The preparation is effected in the classic fashion—of immunizing an animal by means of subcutaneous injections of peritoneal or pleural exudate taken from an animal which has received an intraperitoneal injection of *Bacillus typhosus* or *B. dysenteriæ* (or of Koch's cholera vibrio). Before injection, of course, the exudate has been centrifugated, sterilized, and carefully examined with regard to absence of all living microbes. A guineapig immunized by injections of "aggressin" exudate (active immunization) was found to bear the intraperitoneal injection of aggressin exudate and typhoid bacilli in doses which infallibly kill fresh animals; and passive immunity has been conferred with corresponding certainty by the prophylactic injection of fresh animals with antiaggressin serum. A guineapig receives 1 cc. of "antiaggressin" serum under the skin, and on the following day a mixture of washed typhoid bacilli and typhoid "aggressin" exudate is injected into the peritoneal cavity. The animal survives; the one used in the control experiment perishes. Whatever the true theory may be, the discovery (?) of aggressins has opened up an enlightening pathologic vista.

War on Tuberculosis Camp.—Residents of Mt. Airy have entered legal proceedings against Mrs. Margaret G. O'Hara's sanatorium for the open-air treatment of tuberculosis patients. The patients occupy tents, and it is charged that the management showed a lack of proper regard for propriety in neglecting to provide or use screens in front of the tents to conceal the movements of patients from the neighbors. The patients are seen so frequently clad only in night robes that it was stated the street had come to be known as "Night Gown avenue." The neighborhood is a strictly residential one, and the sanatorium is not only objectionable for the reasons mentioned, but it is also regarded as a menace to the health of the community in that section.

AMERICAN NEWS AND NOTES

GENERAL.

Unable to Starve, so Starved.—Frau Liza Schenk, a professional faster in Hamburg, recently committed suicide by hanging because she was starving owing to her failure to get fasting engagements.—[*Medical Record.*]

Fever Panic on Isthmus.—The steamer Seguranca, which arrived at New York last week, brought 149 passengers who fled from the Isthmus to escape yellow fever and bubonic plague. This was her full passenger quota. Scores who clamored for passage back to the States were turned away at Colon. Those who came brought sensational tales of the conditions existing along the line of the canal, stories of plague and sudden death, of almost criminal negligence in caring for the employes in the great work, charges of all sorts against the officials in charge, histories of favoritism, black listing, filth, and hunger. There was one body aboard, dead of yellow fever. Three persons were taken off at quarantine, two as yellow fever suspects.

Personal.—**C. G. Dwight, M.D.**, has been elected to professorship of otology, rhinology, and laryngology of the Chicago Eye, Ear, Nose, and Throat College.—**Dr. John C. Hemmeter**, of Baltimore, received the honorary degree of LL.D. from St. John's College, Annapolis, at the commencement held June 21. —**Dr. Florence R Sabin** has been appointed associate professor of anatomy in Johns Hopkins University. She is a graduate of Smith College and of the Johns Hopkins Medical School. —Mayor Dunne has appointed **Dr. Charles J. Whalen** as commissioner of health of Chicago, to succeed Dr. Arthur R. Reynolds, who has held the position for eight years. Dr. Reynolds has been a most efficient health officer, and has done yeoman service in awaking public interest in health and sanitation. His weekly bulletins have been widely read and quoted.

Sabbatarian Advocacy.—The attention of the Woman's National Sabbath Alliance having been called to the harmful effect of overtaxing brain and nerves, resulting from incessant excitement and toil, appeals to the medical faculty for a leaflet of not more than 2,500 words, demonstrating the urgent need of a weekly mental and physical rest day as appointed of God for the moral and religious welfare of man, and offers a prize of $25 for the best essay on this subject, the experience of a Christian physician preferred. Manuscripts, with the name and address of the writers in a sealed envelope, will be received until November 1 next, at the headquarters of the alliance, 156 Fifth avenue, New York City. The accepted manuscript shall become the property of the Alliance, and the others will be returned when called for or accompanied by the full amount of postage needed.

New Pattern of Shoes for the Army.—A contract has been placed for 20,000 shoes of the orthopedic pattern. This is the style of shoe which is supposed to follow the shape of the foot and to make concessions in that direction without much regard to what is known as style. The shoe therefore is made broader across the toes than it is across the sole of the foot. In a well-made shoe this is not nearly so clumsy as it sounds in a brief description of the scheme. It is believed to give greater ease to the foot, and consequently may be more suitable as a marching shoe than the present type of foot apparel. Of the 20,000 shoes of this type to be bought, half of them will be of single marching pattern and the rest of double marching pattern, the latter having a shank that is thinner than the present marching shoe, so as to give more play to the foot. It is believed this will give a pliability to the sole and remove one of the objections which have been made to the present marching shoe, sometimes criticised for its stiff and unyielding character.

EASTERN STATES.

Yale University.—The annual address in medicine this year at the commencement was delivered by Professor A. Jacobi, M.D., LL.D. His subject was "The Era of Therapy."

Massachusetts Medical Society.—At the annual meeting in Boston the following officers were elected: President, A. T. Cabot, of Boston; vice-president, F. H. Thompson, of Fitchburg; corresponding secretary, Francis W. Goss, of Roxbury; recording secretary, Edward H. Brigham, of Brookline; treasurer, E. M. Buckingham, of Boston.

NEW YORK AND VICINITY.

$17,000 to Kill Mosquitos.—An appropriation of $17,000 for the mosquito warfare which Health Commissioner Darlington proposes to conduct on Staten Island, has been granted by the Board of Estimate.

Site for New York City Sanatorium.—Dr. Thomas Darlington, president of New York City's Board of Health, has succeeded in obtaining a site for the establishment of a sanatorium where tuberculosis patients can be cared for. He has obtained permission from the authorities of the towns of Greenville and Mount Hope to locate his sanatorium there, and also secured options on the necessary land.

New Hospital for New York.—Plans have been filed for a new three-story hospital to be built on the southwest side of North Brother Island. The building will be of ornamental brick, 114 ft. long and 73½ ft. deep, and is to cost $150,000.

To Regulate Sale of Cocain.—A committee of the New York State Pharmaceutical Association, at a convention of that association last week, approved the recommendation of President Anderson for the enactment of a law permitting the sale of cocain only on physicians' prescriptions.

Meningitis Disappearing in New York.—The deathrate for New York City for the week ended at noon July 1, as indicated by the returns to the Board of Health, was 17.20 per 1,000 of population. In the same week of 1904 the rate was 22.98, but this high figure was due to the fact that a large proportion of the deaths in the Slocum disaster were recorded in that week. The past week's rate is a trifle higher than the figures of a few weeks previous. The deaths from cerebrospinal meningitis last week numbered only 34, almost as low a figure as has been recorded since the epidemic began to lessen.

$30,000 as Nurse's Fee.—Mary Klinker, of New York City, sued the estate of Frederick Akers, a wealthy soap manufacturer, to recover $30,000, alleging that he promised to remember her in his will in that amount for caring for him. He did not mention her in his will. Akers died at Mrs. Klinker's home. Mrs. Klinker testified at the trial that she pumped out Akers' stomach daily and had to climb on a chair with a rubber hose to do it. She washed and bandaged his feet, too, and bathed his head. A Supreme Court Jury was unable to agree whether this was worth $30,000, so the case will have to be tried again.

Hospital Physician Dismissed for Branding Patient. —Dr. John W. Brannan, president of the board of trustees of Bellevue and Allied Hospitals, last week dismissed Dr. Dubois Hunt, one of the internes at Gouverneur Hospital, for branding Isaac Chaves, an immigrant, who complained that he had been branded by a doctor at Bellevue Hospital. Dr. Gregory, the acting superintendent at Bellevue, who suspended Dr. Hunt, said that the interne had confessed to branding the word "Fakir" on the immigrant's chest. According to the story told by Dr. Hunt to Dr. Gregory, Chaves had repeatedly visited the institution, complaining of pains in the chest. He had been treated several times, in a superficial manner, and on the occasion of his last visit it was decided to give him what is known as the "thermocautery treatment." Dr. Hunt was applying the treatment in the operating-room, when one of his fellows remarked: "That man is a fakir." The remark lingered in Dr. Hunt's mind, and, without thinking, he says his hand followed the lines of the letters "f-a-k-i-r." Dr. Hunt is a native of Toronto, Canada, and is a graduate of the Toronto Medical School, of the class of '03.

PHILADELPHIA, PENNSYLVANIA, ETC.

Baltimore and Ohio Surgeons Convene.—The sixteenth annual convention of the Baltimore and Ohio Association of Railway Surgeons was held last week in Pittsburg, continuing three days. There were about 150 delegates present, including all the surgeons of the Baltimore and Ohio system and its affiliated lines. The object of the organization is to consider practical questions and promote the best means of providing first aid to persons injured on railroads.

The Free Hospital for Poor Consumptives is still in debt on the buildings in White Haven, Pa., and is asking contributions to raise this debt, particularly seeking small contributions on the ground that these give the most enduring support. The society is ten years old, and has maintained 2,458 patients up to the present time, at an outlay of $155,810.43. The sanatorium cost $138,471.89, on which they owe $20,000. They are unable to take half the people who apply.

Registration of Tuberculosis.—In accordance with an act of the recent Legislature, physicians hereafter will be required to report tuberculosis cases. The Bureau of Health is now preparing regulations to comply with the law. As soon as the regulations of the board authorized by the new act are ready for publication they will be distributed to physicians. It is of the greatest importance that the exact location of all cases of tuberculosis be known. By this plan the attention of the board is directed to all localities in which there is a preponderance of cases, and the Bureau of Health can then proceed to make appropriate inquiries concerning the sanitary condition of such localities.

Closer Tab on Hospital Funds.—Hospitals that receive State aid and are not under control of the State will have their exact status laid before the Legislative appropriation committee, and the amount of their appropriations will be governed by it. The auditor-general of Pennsylvania has instructed his traveling auditors to examine the books of these institutions and make quarterly reports to him of the number of free and pay patients treated and the amount paid weekly by the latter, so that he can place the reports before the appropriation committeemen, and let them be used as a basis for the amount to be appropriated. This information heretofore has come direct from the institutions, and it is alleged that it was occasionally garbled.

Homeopaths and Eclectics Allege Unfairness at State Examinations.—By changing questions prepared by the State Medical Council to be put to graduates of the medical colleges who are seeking State certificates, Dr. Henry Beates, president of the State Board of Examiners and a member of the State Medical Council, has caused much displeasure among homeopaths and eclectics, who claim that he favored the students of the regular school in making the alterations. It is stated that Dr. Beates, without consultation with the other members of the medical council, made certain questions easier than those prepared by the council, and gave the new questions to all the students of the regular school without notifying either the homeopaths or the eclectics, although he telegraphed the news of the change to Pittsburg, where an examination of regular students was going on. This procedure, the sectarians say, gives the students of the regular school the advantage of higher marks and makes them appear superior to those of the other schools, as it is generally understood that all the students are asked the same questions. Those who have the easier questions to answer naturally get better marks than the others.

Jefferson Medical College, Philadelphia.—Appointments in hospitals from the class of 1905: Frank C. Abbott, Garretson Hospital, Philadelphia, Jefferson Hospital; C. G. Alderman, St. Joseph's, Reading, Pa., Kings county, N. Y.; A. E. Austin, Philadelphia Hospital; J. W. Barr, Philadelphia Hospital (Sub.); L. F. Berry, Philadelphia Hospital; J. W. Beyer, Allegheny General Hospital, Pa.; H. E. Blanchard, Jewish Hospital, Philadelphia, Rhode Island General Hospital, R. I.; Philadelphia Hospital (Sub.); M. D. Bloomfield, Jewish Hospital, Philadelphia, Gouverneur Hospital, N. Y.; J. C. Borland, Hamot Hospital, Erie, Pa.; R. Bosworth, Pottstown Hospital, Pa.; A. J. Brewe, Philadelphia Hospital (Sub.); Ray C. Brown, Central Maine General Hospital, Lewiston, Me.; J. L. Burkholder, Allegheny General Hospital, Pa., Mercy Hospital, Pittsburg, Pa.; M. M. Caldwell, Easton Hospital, Pa.; F. A. Cregg, Jewish Hospital, Philadelphia; T. J. d'Apery, Philadelphia Hospital; R. T. M. Donnelly, St. Mary's, Philadelphia; H. A. Dunn, German Hospital, Philadelphia, Jefferson Hospital, Philadelphia Hospital (Sub.); E. A. Eichman, St. Timothy's, Philadelphia; G. T. Fluke, St. Mary's, Philadelphia; C. D. Gamble, Easton Hospital, Pa., Jefferson Hospital, Philadelphia Hospital (Sub.); C. R. Garrett, M. E. Hospital, Philadelphia (Sub.), Wilkesbarre City Hospital, Pa.; M. Z. Gearhart, Reading Hospital, Pa.; W. H. Glick, St. Francis', Trenton, N. J.; H. J. Hallatt, Passavant Hospital, Pittsburg; H. B. Hanchett, Jersey City Hospital, N. J.; J. P. Harley, Williamsport Hospital, Pa.; J. H. Harper, Mercy Hospital, Pittsburg; H. H. Harrison, Charity Hospital, Norristown; W. C. Heisey, McKeesport Hospital, Pa., Philadelphia Hospital (Sub.); F. P. Herff, Jefferson Hospital, Philadelphia Hospital (Sub.); J. D. Hogue, Altoona Hospital, Pa.; J. R. Hoskins, Chester County Hospital, West Chester. R. G. Jackson, Jefferson Hospital; R. R. Jackson, St. Joseph's, Philadelphia, Philadelphia Hospital (Sub.); L. F. Johnson, Highsmith Hospital, N. C.; H. O. Jones, Allegheny General Hospital, Pa., Philadelphia Hospital (Sub.); R. C. Kell, Phœnixville Hospital, Pa.; F. W. Killian, Seaside Home, Cape May Point, N. J.; T. B. Lee, Cooper Hospital, Camden, N. J., Jefferson Hospital, Philadelphia Hospital (Sub.); C. A. Lehman, Williamsport Hospital, Pa.; H. E. McCaffrey, Philadelphia Hospital (Sub.); C. H. McCallum, Jefferson Hospital, Philadelphia Hospital; W. J. L. McCullough, West Penn, Pittsburg; R. W. McDowell, Philadelphia Hospital (Sub.); J. P. MacFarlane, Williamsport Hospital, Pa.; J. C. Magee, St. Agnes' Hospital, Philadelphia; E. E. Maier, Jefferson Hospital, Philadelphia Hospital; L. F. Milliken, Jefferson Hospital, Philadelphia Hospital; I. R. Mohney, Uniontown Hospital, Pa.; T. A. Monahan, Mercy Hospital, Wilkesbarre, Pa.; E. L. Morrison, Lock Haven Hospital, Pa.; C. C. Moyer, Allegheny General Hospital, Pa., Mercy Hospital, Pittsburg, Philadelphia Hospital (Sub.); S. A. Munford, Jefferson Hospital, Philadelphia Hospital (Sub.); H. J. E. Newnam, Philadelphia Hospital (Sub.); T. C. Park, Jefferson Hospital, Philadelphia Hospital; A. B. Raff, Jewish Hospital, Philadelphia; J. L. Rains, Jefferson Hospital, Children's Hospital, Philadelphia (Sub.): E. E. Rhoads, Philadelphia Hospital (Sub.); W. F. Ross, Allegheny General Hospital, Pa., Philadelphia Hospital (Sub.); Louis Schwartz, Atlantic City Hospital (Sub.); S. C. Smith, Philadelphia Hospital (Sub.); H. M. Snyder, Presbyterian Hospital, Philadelphia, Jefferson Hospital; W. L. Snyder, Jefferson Hospital, Philadelphia Hospital (Sub.); G. Sonneborn, St. Francis', Trenton, N. J.; J. N. Stanton, West Penn, Pittsburg, Philadelphia Hospital (Sub.); E. B. Starr, St. Joseph's, Philadelphia, Philadelphia Hospital (Sub.); Samuel Stern, Atlantic City Hospital (Sub.); H. M. Stewart, Germantown Hospital; F. X. Strong, Philadelphia Hospital (Sub.); H. W. Thomssen, Philadelphia Hospital (Sub.); Vere Treichler, Pottsville Hospital, Pa.; W. H. Tallmadge, Jr., Children's Hospital, Philadelphia; G. F. Tucker, Mercy Hospital, Pittsburg, Philadelphia Hospital; J. H. Underwood, Cooper Hospital, Camden, N. J.; V. C. Wagner, West Penn, Pittsburg; M. D. Weed, German Hospital, Philadelphia, Philadelphia Hospital (Sub.); Julius Werner, Mt. Sinai Hospital, Philadelphia; J. D. Wilson, Philadelphia Hospital, pathologic resident; W. J. Winters, Philadelphia Hospital (Sub.); N. C. Womack, Reading Hospital, Pa.; J. W. Wood, Jewish Hospital, Philadelphia; W. F. Wood, Jersey City Hospital, N. J.; F. J. Ziegler, Pittston Hospital, Pa., St. Timothy's, Philadelphia (Sub.), Reading Hospital, Pa. (Sub.), Pottsville Hospital, Pa. (Sub.) It will be seen that 84 men secured 119 appointments and substitute appointments.

SOUTHERN STATES.

Journal of the South Carolina Medical Association.—The first number appeared on June 21. The object is to publish reports of the county medical societies and any news of importance occurring throughout the State. It is under the management of the Board of Editors of the House of Delegates.

WESTERN STATES.

Anticigaret Law in Force.—The anticigaret law enacted by the Wisconsin Legislature went into effect July 1. Not a cigaret nor cigaret paper is obtainable in any store in Milwaukee.

Gives Birth to Four Children.—Mrs. Evigne E. Reilly, of La Moure, N. D., gave birth to four babies, three girls and a boy, last week. The little ones are perfectly formed and normal in every particular. Mrs. Reilly is 34, and is now the mother of ten children.

Missouri State Medical Association.—The following officers were elected at the last annual meeting: President, D. C. Gore, Marshall, Mo.; secretary, C. M. Nicholson, St. Louis, Mo. The next annual meeting will be held at Jefferson City, Mo., May, 1906.

"Surgery, Gynecology, and Obstetrics" is the name of a new surgical journal, published in Chicago, beginning July, 1905. The managing editor is Franklin H. Martin, and its editorial staff embraces Drs. Senn, Andrews, Webster, etc. The journal will cover the fields of general surgery, gynecology, and obstetrics.

Fourth of July Ordinance.—The Cleveland, O., city council has adopted an ordinance requiring special permits from the mayor on legal holidays, 30 days' notice being given in local newspapers. The rule applies to all days except July 4, when these permits are not required, but the use is forbidden of blank cartridges, blank cartridge pistols, nitroglycerin, fireworks containing nitroglycerin, repeating marbles, toy-cannons or dynamite torpedoes.

Children with Smallpox Hidden by Their Mothers.—Seven children afflicted with smallpox were hidden from the health authorities of Chicago for several weeks by their Italian mothers for fear the little ones would be sent to the isolation hospital. While disinfecting the houses and vaccinating the inmates J. R. Neely found the cases and had each of the children taken to the hospital. Three children, one of them a baby only 15 days old, were found on Twentieth street, where they have been sick with smallpox for the last three weeks.

Work of the Cleveland Milk Commission.—The milk commission appointed in 1904 by the Cleveland Academy of Medicine, appointed a veterinary inspector and assistant and sent them to eastern cities to study the workings of their systems of inspection. Because of the expense, only one dairyman has fulfilled the requirements for certified milk, which will be distributed as soon as chemic and bacteriologic examinations have been completed. At first the price will be 12 cents a quart, but it is believed that a large patronage will make possible a reduction. Physicians are urged by the commission to recommend the milk for infants and invalids, and also to suggest its use as table milk.

Child Slavery Revealed.—A system of virtual child slavery, in which children under 14 are "farmed out" into households in an attempt to solve the "servant girl problem," is a state of affairs that has been brought to the attention of the Department of Compulsory Education of Chicago. That such a system exists to an alarming degree is the declaration of Superintendent W. L. Bodine, who says there are hundreds of children from institutions who are drudging as servants in many households of the city without being sent to school. Warrants have been secured for several persons, many of whom are said to have taken children from institutions and forced them to do work far beyond their strength.

Liable to Unborn Child.—Under a decision of the Indiana Supreme Court, a saloonkeeper through whose sale of intoxicants a man is killed in a brawl, is responsible in damages to the child of the deceased, though at the time of the killing the child is unborn. The case came up from Vigo county, where the father of Wesley Nichoe, born two months after his father was shot and killed in a drunken brawl, claimed damages through his next friend. The court holds the right of a child to be supported by its father is a property right in which the unborn child suffers equally with any other children the parent may have when deprived of that support. Though the saloonkeeper has since died, the court holds that his estate is liable to the child for damages sustained.

FOREIGN NEWS AND NOTES

GENERAL.

The Causation of Plague.—Dr. Charles Creighton communicated to the Society of Arts (London) the results of the investigations which he has been carrying out with regard to the prevalence of the plague in India. He took the trouble of making a special journey to India for the purpose of being able to make his own inquiries on the spot. He had already expressed his dissatisfaction with the composition of the British Plague Commission of 1898—which was constructed for the purpose of investigating the question—specially pointing out that there was no epidemiologist included among its members. Dr. Creighton gave his audience an interestingly detailed account of the geographic distribution of plague. He directed special attention to the difference in the degrees of incidence of the disease in the villages of the district of Ratnagiri and those of the adjoining district of Satara. In the case of the former, all the buildings, roadways, etc., are formed of stone, and they are but little, if ever, troubled by visits of the plague. In the latter, on the other hand, the crowded dwellings are formed of mud, while the floors are saturated with offal of every conceivable kind. The villages of this district are plague-stricken. Dr. Creighton's conclusion is that the great source of the plague trouble is the condition of village sites which are without anything approaching efficient drainage, are permanently crowded—both with regard to the number of dwellings, and that of the dwellers which occupy them, and have been also long occupied under these conditions. The entire plague trouble then is explicable on the laws of soil infection which were enunciated by Pettenkofer years ago, and are still promulgated by his school.

Liquozone in the Coroner's Courts.—At the Stoke Newington coroner's court, Dr. W. Wynn Wescott on June 5 held an adjourned inquest upon two children who died after taking daily doses of liquozone. One case was briefly referred to in *The Lancet* of June 3. Since then Dr. H. R. Oswald has held an inquest at the Rotherhithe coroner's court upon a woman who had just been taking liquozone; he adjourned the inquiry for further toxicologic evidence. The main facts of the Stoke Newington cases are as follows: Mr. S., having obtained a free sample bottle of liquozone on May 17, proceeded to take some himself for the relief of hemorrhoids and to give some to his wife to relieve her neuralgia; success followed in neither case. The directions covering the sample did not specifically advise its use as a vermicide, but Mrs. S. proceeded to dose her two little girls with half an ordinary teaspoonful of liquozone appropriately diluted, and given once daily before breakfast; she believed that her daughters suffered from worms, but they were otherwise in good health; Mrs. S. informed Dr. Wynn Wescott that she considered "germs meant worms." It is apparently common for those who take liquozone to complain of subsequent nausea and "pain in the stomach," the proprietors considering this a proof of its desired activity. There are no explicit directions as to what dosage children should receive; adults are told to take a teaspoonful in water, "for children it must be proportionately diminished." The elder child, aged nearly 4, became ill on May 21, and when seen by T. W. M. Harneis on May 22, she was delirious and collapsed, and had had vomiting and diarrhea; she died from exhaustion on May 23. The younger child, aged 2, was attacked with similar symptoms on May 22, and died on May 26. The coroner instructed Dr. F. J. Smith to conduct both necropsies. Dr. Smith found all the viscera of the children healthy and normal, except for a small patch in the mucous membrane of the stomach of the elder girl, which was suggestive of the effect of an irritant poison. Dr. J. R. Wallace gave evidence as permanent medical adviser to the British Liquozone Company; he had often taken liquozone without ill-effects, but had never analyzed its contents; he doubted if an overdose could be taken, but he excepted babies from this statement. Mr. Avory, K. C., and Mr. C. Matthews are appearing for the company. Dr. Wynn Wescott again adjourned the inquest until a report could be furnished by Sir Thomas Stevenson on behalf of the Home Office as to the nature and the probable effects of the administration of liquozone in these cases.—[*The Lancet.*]

OBITUARIES.

L. A. Prefontaine, aged 39, of Springfield, Mass., June 19, at the Springfield Hospital, from Bright's disease complicated with abscess of the muscles of the chest. He was a graduate of the department of medicine of the University of Pennsylvania in 1892; member of the American Medical Association, Massachusetts Medical Society, Hampden District Medical Society, American Ophthalmological Society, and New York Ophthalmological Society; ophthalmologist, otologist and laryngologist to Mercy Hospital, and ophthalmologist to Springfield Hospital. He was a prominent specialist on diseases of the eye and ear.

James Alexander Close, aged 63, June 15, from gunshot wound in abdomen, accidentally received, at his office in St. Louis. He was a graduate of the Toronto (Ont.) University in 1873; Royal College of Physicians and Surgeons, Kingston, Ont., in 1873; Royal College of Physicians, Edinburgh, in 1880; Royal College of Surgeons, Edinburgh, in 1880. He was a fellow of the Royal Microscopical Society, and professor of pathology and bacteriology in the Barnes Medical College.

Benjamin W. McGalliard, aged 43, of Trenton, N. J., June 14, at the Friends' Sanitarium, Philadelphia. He was a graduate of the department of medicine of the University of Pennsylvania in 1889; member of the American Medical Association, the Mercer County (N. J.) Medical Society; formerly health inspector and city physician of Trenton; member of the medical staffs of Mercer and St. Francis hospitals, and physician to the Trenton Children's Home.

R. M. Fletcher, aged 74, June 17, from senile debility, at his home in Madison, Ala. He was a graduate of the department of medicine of the University of Pennsylvania, 1854. He was president of the Madison County Medical Society for several terms; sometime president of the Medical Association of the State of Alabama, and a member of the council for many years. During the Civil war he served as surgeon in the Confederate army.

Benjamin Franklin Showerman, aged 41, of Batavia, N. Y., June 15, at the Batavia Hospital, after an operation for cancer of the stomach. He was a graduate of the New York University, New York City, in 1886; member of the American Medical Association, New York State Medical Association, and Genesee County Medical Association; and twice president of the Batavia Hospital.

Warren Schoonover, Jr., June 12, at his home in New York City. He was a graduate of the Bellevue Hospital Medical College, New York City, in 1897. He was a member of the Medical Association of the Greater City of New York, the New York County Medical Society, King's County Medical Society, and the New York Medico-Surgical Society.

George Phillip Fenwick, June 14, at his home in Washington, D. C. He was a graduate of the National Medical College, Washington, D. C., in 1859; member of the Medical Society of the District of Columbia; Washington Gynecological and Obstetrical Society, and the Medical Association of the District of Columbia.

Clarence E. Bizzelle, aged 32, of Monroeville, Ala., June 13, from pneumonia following appendicectomy, at the Providence Infirmary, Mobile. He was a graduate of the medical department of the University of Nashville and Vanderbilt University, Nashville, Tenn., in 1893.

John B. Enright, aged 48, June 20, from nephritis, at the Sts. Mary and Elizabeth Hospital, Louisville. He was a graduate of Louisville University, medical department, in 1885, and was for seven years professor of anatomy, Kentucky School of Medicine, Louisville.

Thomas B. Gunn, aged 59, of North Yakima, Wash., June 14, after an operation for the relief of intestinal obstruction, at the St. Elizabeth's Hospital, North Yakima. He was a graduate of the Missouri Medical College, St. Louis, in 1874.

Edwin P. Bigelow, aged 39, of Wolcott, Vt., June 12, from tuberculosis, at the home of his father in Stowe, Vt. He was a graduate of the University of Vermont, medical department, Burlington, in 1897.

Martha J. French, of Indianapolis, Ind., June 15, from spinal disease, at the City Hospital of Indianapolis. She was a graduate of Central College of Physicians and Surgeons of Indianapolis in 1882.

Thomas Sanderson, aged 67, June 18, from heart disease, at his home in Kent, Ind. He was a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, in 1863.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 30, 1905:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Illinois:	Danville	June 17-26	2	
Indiana:	South Bend	June 17-24	4	2
Louisiana:	New Orleans	June 17-24	6	2
			Imported	
Michigan:	Grand Rapids	June 17-24	7	4
Missouri:	St. Joseph	June 17-24	6	
	St. Louis	June 17-24	2	1
New Jersey:	Newark	June 18-25	1	
South Carolina:	Charleston	June 10-17	2	
Wisconsin:	Appleton	June 17-24	6	
	La Crosse	June 17-24	1	
	Milwaukee	June 10-17	1	
	SMALLPOX—INSULAR.			
Philippine Islands:	Manila	May 13-20	2	
	SMALLPOX—FOREIGN.			
Brazil:	Pernambuco	May 8-16		323
Canada:	Winnipeg	June 10-17	2	
China:	Hongkong	Apr. 22-29	8	2
	Shanghai	May 6-13	1	
Colombia:	Cartagena	June 3-10	1	1
Denmark:	Copenhagen	June 3-10	1	

Ecuador:	Guayaquil	May 31–June 6		1
France:	Paris	May 27–June 10	46	4
Germany:	Bremen	June 3–10	2	
Great Britain:	Bristol	June 3–10	1	
	Edinburgh	June 3–10	1	
	London	June 3–10	3	
	Newcastle-on-Tyne	June 3–10	1	
	Nottingham	May 27–June 3	1	
	South Shields	June 3–10	1	
India:	Bombay	May 16–23		34
	Calcutta	May 13–27		14
	Karachi	May 14–21	2	2
	Madras	May 13–19		2
Italy:	Catania	June 8–15	3	
Mexico:	City of Mexico	June 10–17	6	4
Russia:	Odessa	June 3–10	8	3
	St. Petersburg	May 27–June 3	10	3
Turkey:	Constantinople	May 20–June 10		6
Uruguay:	Montevideo	Apr. 1–31		4

YELLOW FEVER.

British Honduras:	Belize	May 25–June 15	5	4
Ecuador:	Guayaquil	May 31–June 6		12
Guatemala:	Livingston	June 10	1	
Honduras:	Puerto Cortez	May 25–June 15	18	8
Mexico:	Coatzacoalcos	June 11–17		1
	Tierra Blanca	June 11–17	2	3
Panama:	Colon	Jan. 23–June 16	28	8
	Panama	Jan. 1–June 16	91	29

CHOLERA.

India:	Calcutta	May 13–27		42

PLAGUE—INSULAR.

Hawaii:	Hilo	June 24		1
	Honolulu	June 25		1
Philippine Islands:	Cavite	May 13–20		1
Arabia:	Aden	May 12–26	2	1
Australia:	New South Wales Newcastle, N. Rivers District	Apr. 22–May 6	4	2
	Ballina	Apr. 25–May 6	2	1
	Lismore	Apr. 29–May 6	2	2
India:		Apr. 29–May 6	60,674	59,253
	Bombay	May 16–23		577
	Calcutta	May 13–27		318
	Karachi	May 14–21	119	116
Japan:	Tokio	May 6–20	3	3
Panama:	Panama	June 26		1
Peru:	Chiclayo	May 11–31	12	4
	Lima	May 11–31	5	2
	Mollendo	May 11–31	6	7

Changes in the Medical Corps of the U. S. Army for the week ended July 1, 1905:

STARK, Captain ALEXANDER, assistant surgeon, now at Camp Wallace, Union, will proceed to Camp Stotsenburg, Pampanga, for duty.

MILLS, FREDRICK H., contract surgeon, now at Camp Stotsenburg, Pampanga, will proceed to Camp Wallace, Union, for duty.

CORNMAN, LEIGHTON R., contract surgeon, now at Cuartel de Espana, Manila, will proceed to Polo, Bulacan, for duty.

FISHER, Major HENRY C., surgeon, will proceed to Camp Jossman, Guimaras, P. I., for duty, relieving Major William E. Purviance, surgeon, who will proceed to Ilolio, P. I., and assume command of the Base Hospital, relieving First Lieutenant William P. Banta, assistant surgeon. First Lieutenant William P. Banta, assistant surgeon, will remain on duty at the Base Hospital.

FARR, First Lieutenant CHARLES W., assistant surgeon, will proceed to Camp Warwick, Cebu, P. I., for duty, relieving Major Peter R. Egan, surgeon.

BARNEY, First Lieutenant CHARLES N., assistant surgeon, will proceed to Camp Jossman, Guimaras, P. I., for duty.

GOSMAN, First Lieutenant, GEORGE H. R., assistant surgeon, will proceed to Camp Downes, Ormoc, Leyte, P I., for duty.

FIELD, First Lieutenant PETER C., assistant surgeon, will proceed to Santa Mesa, Manila, P. I., for duty, relieving Captain Christopher C. Collins, assistant surgeon, who will report to the chief surgeon of the department for duty in his office and as attending surgeon, headquarters, department of Luzon.

HEIZMANN, Colonel CHARLES L., assistant surgeon-general, is granted leave for two months, from about July 1.

GIRARD, Colonel JOSEPH B., assistant surgeon-general, upon his arrival at San Francisco, Cal., will report at the Army General Hospital, Presidio of San Francisco, for observation and treatment.

DARNALL, Captain CARL R., assistant surgeon, is granted leave for one month, from about July 1.

HALLORAN, First Lieutenant PAUL S., assistant surgeon, is granted leave for ten days.

Par. 6, S. O. 127, W. D., June 2, relating to Sergeant First Class Edward R. Murphy, now on duty in the office of the attending surgeon, Washington, D. C., will be sent on July 1 to the General Hospital, Fort Bayard, for duty.

LEWALD, First Lieutenant LEON T., assistant surgeon, leave granted May 8 is extended fourteen days.

HARTSOCK, Captain Frederick M., assistant surgeon, is granted leave for one month from about July 1.

SMART, First Lieutenant ROBERT, assistant surgeon, will proceed to Fort Washington, for temporary duty during the absence of First Lieutenant William H. Brooks, assistant surgeon. Upon the return to duty of Lieutenant Brooks, Lieutenant Smart will return to his station—Fort Myer.

JONES, First Lieutenant PERCY L., assistant surgeon, is granted leave for twenty days, to take effect upon being relieved from duty in connection with the army and navy joint exercises at Fort Monroe, with permission to apply for an extension of ten days.

Orders of April 25, W. D., are so amended as to relieve Major Frederick P. Reynolds, surgeon, from duty at the Presidio of San Francisco, to take effect July 15 instead of August 1.

FORD, Captain CLYDE S., assistant surgeon, is granted leave for two months, to take effect July 1, with permission to go beyond the sea.

HARVEY, Colonel PHILIP F., assistant surgeon, is granted leave for a month, from about June 21.

Changes in the Medical Corps of the U. S. Navy for the week ended July 1, 1905:

DENNIS, J. B., surgeon, detached from the bureau of medicine and surgery, Navy Department, and ordered to the Navy Yard, Pensacola, Fla.—June 26.

FISKE, C. N., passed assistant surgeon, detached from the Naval Medical School, Washington, D. C., June 27, and ordered to the Marblehead—June 26.

GUEST, M. S., surgeon, detached from the Lancaster and ordered to Naval Training Station, Newport, R. I., with additional duty on the Constellation—June 27.

WIEBER, F. W. F., surgeon, ordered to the Navy Yard, Pensacola, Fla., and to additional duty in command of the Naval Hospital at that yard—June 27.

VON WEDEKIND, L. L., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to the Lancaster—June 27.

SHIFFERT, H. O., passed assistant surgeon, detached from duty under instruction at the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, Philadelphia—June 27.

TOLFREE, H. M., passed assistant surgeon, detached from duty under instruction at the Naval Medical School, Washington, D. C., and ordered to the Navy Yard, Norfolk, Va.—June 27.

IDEN, J. H., passed assistant surgeon, orders of June 21, modified; ordered to the Naval Hospital, Newport, R. I.—June 27.

BELL, W. H., passed assistant surgeon, detached from duty with the marine detachment on the Isthmus of Panama and ordered to the Dixie—June 27.

ANGWIN, A. A., assistant surgeon, detached from the Naval Academy and ordered to the Massachusetts—June 27.

HOEN, W. S., assistant surgeon, detached from the Marblehead and ordered to the Chicago—June 27.

MCCLANAHAN, R. K., assistant surgeon, discharged from treatment at the General Hospital, Fort Bayard, N. M., and ordered to the Naval Recruiting Station, Baltimore, Md.—June 27.

BROWN, E. M., assistant surgeon, detached from the Chicago and ordered to the Navy Yard, Mare Island Cal.—June 27.

MCMURDO, P. F., assistant surgeon, detached from the Naval Recruiting Station, Baltimore, Md., granted leave for one month and ordered then to wait orders—June 27.

SPEAR, R., surgeon, detached from the Naval Hospital, Washington, D. C., and ordered to St. Petersburg, Russia, for special duty in connection with the naval medical and sanitary features of the Russo-Japanese war—June 28.

WRIGHT, B. L., passed assistant surgeon, detached from the Naval Hospital, Pensacola, Fla., and ordered home to wait orders—June 29.

MICHELS, R. H., assistant surgeon, detached from the Wilmington and ordered home via the Lawton—June 29.

STRINE, H. F., assistant surgeon, detached from the Barry and ordered home via the Lawton—June 29.

GRIEBE, C. C., assistant surgeon, detached from the Naval Station, Guam, L. I., and ordered to the Oregon—June 29.

STRITE, C. E., assistant surgeon, detached from the Lawton and ordered to duty on the torpedo boat flotilla with station on the Barry—June 29.

STOOPES, R. E., assistant surgeon, detached from the Lawton and ordered to the Naval Station, Olongapo, P. I.—June 29.

OWENS, W. D., assistant surgeon, detached from the Lawton and ordered to the Villalobos—June 29.

Changes in the Public Health and Marine-Hospital Service for the week ended June 28 1905:

CARRINGTON, P. M., surgeon, department letter of April 13, 1905, granting him leave of absence for one month and fifteen days from May 2, 1905, amended to read one month and nine days—June 27, 1905.

CLARK, TALIAFERRO, passed assistant surgeon, granted leave of absence for one month from July 7—June 24, 1905.

GOLDBERGER, JOS., passed assistant surgeon, to proceed to Grafton and Morgantown, W. Va., for special temporary duty—June 24 1905.

EARLE, B. H., assistant surgeon, granted leave of absence for seven days from June 25—June 24, 1905.

STEGER, E. M., assistant surgeon, relieved from duty at New Orleans, La., and directed to proceed to Philadelphia, Pa., for temporary duty—June 27, 1905.

GRAY, R. H., acting assistant surgeon, granted leave of absence for thirty days from July 6—June 24, 1905.

KEATLEY, H. W., acting assistant surgeon, granted leave of absence for seven days from June 14, under paragraph 210 of the regulations.

OWEN, H., acting assistant surgeon, granted leave of absence for thirty days from July 3—June 23, 1905.

SINKS, E. D., acting assistant surgeon, granted leave of absence for twenty-one days from July 7—June 23, 1905.

RYDER, L. W., pharmacist, granted leave of absence for seven days from June 26—June 23, 1905.

HALL, L. P., pharmacist, granted leave of absence for thirty days from July 10—June 23, 1905.

STIER, C., pharmacist, to report to chairman, board of examiners, to determine his fitness for promotion to the grade of pharmacist of the second class—June 22, 1905.

Boards Convened.

Board convened to meet at Washington, D.C., June 27, 1905, for the physical examination of candidates for cadets in the Revenue Cutter Service. Detail for the Board: Assistant Surgeon J. W. TRASK, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board convened to meet on the revenue steamer McCulloch, Portland, Oregon, July 3, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon B. H. Earle, chairman; Acting Assistant Surgeon C. H. Wheeler, recorder.

Board convened to meet at Key West, Fla., July 3, 1905, for the examination of Pharmacist C. Stier, to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the Board: Surgeon C. E. Banks, chairman; Acting Assistant Surgeon S. D. W. Light, recorder.

SOCIETY REPORTS

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, Held at Niagara Falls, May 25, 26, and 27, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 10.*]

The Mortality in Operations for Fibroid Tumors of the Uterus.—J. MONTGOMERY BALDY (Philadelphia) said that degenerations of fibroid uterus, except malignant and necrotic, were of more scientific interest than practical value. The greatest dangers of fibroids lay in the large deathrate following operations, due to heart degeneration, arterial changes, lung thrombosis, etc. He pointed out the condition inherent in all fibroid tumors of the uterus, and said the tumor should be removed at a period early enough to anticipate the changes.

Migratory Uterine Fibroids.—REUBEN PETERSON (Ann Arbor, Mich.) reported cases showing the different stages of the separation of uterine growths from the uterus, and their attachments to other abdominal organs. The causes and results of such migration were studied in the light of the literature on the subject and the personal experience of the author. Case I was an irregularly shaped subperitoneal fibroid, the size of a fist, attached to the uterus by a very slender pedicle. The latter was very friable and broke away from the uterus during the removal of the tumor. The omentum was attached to the posterior surface of the fibroid and partially nourished it. Case II was one of subperitoneal uterine fibroid, the size and shape of a normal kidney, connected with the uterus by a narrow pedicle, twisted once on itself. The tumor was situated on the right uterine horn, although the pedicle came from the other horn. The tumor was also attached to the bladder, pelvic peritoneum, omentum, and appendix. Case III was a hard, smooth tumor, the size of an orange, unattached to the uterus, having all the characteristics of a subperitoneal fibroid, surrounded on all sides by the omentum and nourished entirely by the omental bloodvessels.

Surgical Treatment of Ulcer of the Stomach.—WILLIAM H. WATHEN (Louisville, Ky.) after discussing the various pathologic conditions indicating the necessity for stomach drainage, and the operations that had been performed, drew the following conclusions: 1. Some cases of acute and subacute gastric and duodenal ulcer, and many cases of chronic and duodenal ulcer, should be treated by efficient stomach drainage into the duodenum or jejunum. 2. Drainage by pyloric divulsion and by pyloroplasty with its modifications has not been successful, and these methods are now practically obsolete. 3. Gastroduodenostomy, as modified by Kocher and Finney, may give efficient drainage in many cases, but it should be limited to such cases as cannot be operated upon by a posterior retrocolic gastroenterostomy with the anastomosis near the duodenojejunal flexure. 4. Anterior anticolic gastroenterostomy should not be an operation of election, but an operation of expediency or necessity, to give temporary relief, or to meet special abnormal conditions that may contraindicate the posterior attachment. 5. The ideal operation of election must be the posterior retrocolic attachment near the beginning of the jejunum, and at the bottom of the stomach in the pyloric end, thus eliminating the loop. 6. This gives the most efficient drainage, prevents the vicious circle and regurgitant vomiting, leaves stomach and intestine in nearly normal relation, and is followed by better immediate and ultimate results. 7. The intestinal incision should be made longitudinally, and not less than two inches long, and the stomach incision of corresponding length, preferably in the oblique direction. An elliptic strip of mucosa should be incised from both stomach and intestinal incision. 8. The anastomosis is best made with a continuous suture (Pagenstecher or silk), using a full-curved round-pointed needle. The suture should be applied in double layers, the inner to include all the visceral layers, and unite the cut edges of the opening; the outer, a fifth inch away, to include the serous and subserous layers. 9. Enteroenterostomy, or closure or resection of the proximal jejunum or the pylorus is unnecessary. It commits a traumatism and leaves a deformity that may cause immediate and subsequent bad results.

Symposium on the Toxemias of Pregnancy.

Clinical Types of Pregnancy Toxemia.—J. CLIFTON EDGAR (New York) considered the benign type, subacute type, acute type, fulminant type, toxemic coma without convulsions, acid toxemia simulating hepatic pregnancy toxemia, persistent hyperemesis without clinical symptoms of toxemia, etc. Cases illustrating each type of toxemia were reported.

Renal Insufficiency.—HENRY C. COE (New York) referred not only to diminished amount of urine, but to deficient excretion of urea, with or without accompanying albumin and casts. The importance of this subject could not be overestimated, on account of its direct bearing on the prevention of eclampsia. He mentioned the erroneous views formerly held that eclampsia always came suddenly, without warning. Now it was known that danger signals were seldom absent long before the attack, if careful watch was kept over the urine. Diminished urea, not the presence of albumin, was the important point. There were two channels for the excretion of toxins—the kidneys and intestines. Both must be made use of. The kidneys and bowels should be flushed, and the diet regulated all through pregnancy. One should know the daily amount of urine at frequent intervals, and the amount of urea. He should not wait for general evidences of toxemia, gastric disturbances, pruritus, headache, etc., but anticipate them. Preventive medicine had nowhere more important application than in the case of a pregnant female. Every one had had occasion to reproach himself for carelessness in this particular. Illustrative cases were cited.

Pernicious Vomiting of Pregnancy.—J. WHITRIDGE WILLIAMS (Baltimore, Md.), after pointing out the distinction between vomiting of and vomiting in pregnancy, divided the former into three groups, and discussed their nature, etiology and treatment, namely, reflex, neurotic and toxemic. The reflex vomiting of pregnancy might be due to the presence of abnormalities of the generative tract or ovum, which existed prior to the onset of pregnancy, or were coincident with it. Among such conditions might be mentioned retrodisplacements of the uterus, ovarian tumors, certain forms of endometritis, and abnormalities of the ovum, such as hydatidiform mole, hydramnios, and certain cases of twin pregnancy. The observations of the author and others showed that typic lesions might be found at autopsy in certain cases, and these consisted in the necrosis of the central portions of the liver lobules, and fatty degeneration and necrosis of the secretory cells of the kidney. Such changes could be produced only by the circulation in the blood of some toxic substance, which acted destructively upon the cells in question. The occasional occurrence of jaundice in some cases added confirmation to the existence of a hepatic lesion; while the not infrequent association of peripheral neuritis with the vomiting accentuated the probability of its toxemic origin. The liver lesions were identical with those observed in acute yellow atrophy of the liver, and icterus gravis, though in most of the cases of vomiting no marked diminution in the size of the liver had been noted. As the former affections occurred usually in the second half of pregnancy, and the vomiting in the first half, it seemed probable that the effect of the toxemia varied somewhat with the duration of the pregnancy. At present, we were unacquainted with the exact nature of the toxic substances, though they were supposed to be metabolic in origin, but whether derived from the mother or fetus, or both, was not known. All that was definitely settled at present was that we had to deal with a toxemia, which gave rise to serious lesions in the liver, and later in the kidneys. That the latter were secondary in character was indicated by the fact that the urine did not contain albumin or casts until shortly before death. Associated with these lesions was a striking change in metabolism, manifested by a marked increase in the percentage of the total nitrogen of the urine put out as ammonia, which, instead of being 2% to 5%, as normal, might rise to 16%, 32%, or even 46%. Whether the increased ammonia output was due to the fact that the liver lesions interfered with the normal oxidation of nitrogenous material, so that large amounts escaped conversion into urea, and were therefore excreted in a less highly oxidized form, as ammonia, or whether it represented an attempt to neutralize an acid intoxication, was as yet undetermined. The practical point established was that a marked increase in the percentage of the urinary nitrogen excreted as ammonia indicated the existence of a serious toxemia, which, if allowed to continue, would bring about lesions in the liver and other organs inconsistent with life, and accordingly abortion should be induced as the only hope of saving the patient. It was probable that an ammonia output of 10% represented the danger signal, and as soon as it was reached immediate interference was demanded. In the reflex and neurotic forms of vomiting, the ammonia output remained normal, and accordingly in such cases the treatment should consist in correcting genital lesions, if present, and the employment of mental suggestion and rest cure. There were at least two forms of toxemia of pregnancy, one giving rise to pernicious vomiting and acute yellow atrophy, and the other to eclampsia. These conclusions as to the nature of the vomiting of pregnancy were based upon a number of imperfectly observed cases in previous years, and seven carefully studied cases occurring during the past two years.

Eclampsia and Its Treatment.—CYRUS A. KIRKLEY (Toledo, O.) said that other toxins than urea might produce eclampsia. Mixed infection was most probable. Renal insufficiency rather than albuminuria was an etiologic factor. Although the source of the toxins was unknown, recent research rather pointed to functional disease of the liver. Prophylactic treatment, as a rule, was successful, and this consisted of means to promote elimination through the great emunctories. Venesection in suitable cases, both as a prophylactic and curative measure, stood first in the list of remedies.

The Treatment of Eclampsia.—FRANKLIN S. NEWELL (Boston), before considering the curative treatment of eclampsia, discussed the prophylactic treatment, because there was but little question that eclampsia was a preventable disease in the great majority of cases, even of those who developed the signs of a toxemia. Prophylaxis should be directed to the prevention of any accumulation of waste products at any period of pregnancy, combined with the ordinary hygienic measures

to maintain and improve the patient's general condition. The treatment, to be efficient, should have four distinct objects in view: (1) The prevention of further absorption of toxins by the removal of the cause; (2) limitation of damage by the toxins already in the system; (3) elimination of the toxins; and (4) treatment of the patient. These objects were discussed in consecutive order, and at considerable length. As to after-care of the patient, for some days after the acute process had subsided, the patient should be kept on a liquid diet. Absolute quiet and freedom from care were imperative, and free excretion should be maintained. Sedatives and stimulants should be used as indicated.

Vaginal Cesarean Section, Its Indications, Advantages and Technic.—HENRY D. FRY (Washington, D. C.) said that the chief indications for the employment of vaginal cesarean section, and that which had mainly led to its adoption, were the prompt and easy emptying of the uterus in cases of grave eclampsia. Other indications claimed were cancer of the uterus, rigidity of the os, threatened rupture of the uterus, prolapse of the funis, placenta prævia, heart disease in the pregnant woman, and hemorrhage from the normally implanted placenta. The writer entertained grave doubts regarding the application of this operation or any other method of rapid dilation to the treatment of placenta prævia. The reduced maternal mortality from this serious complication was largely due to recognizing the value of slow dilation. One might be tempted to employ it in a case of placenta prævia complicated by a long undilated cervix, but this condition presented the limited field assigned to abdominal cesarean section. He summed up the various indications for this new operation. The advantages for vaginal cesarean section were the rapidity with which the uterus could be emptied. From 6 to 10 minutes was all the time that operators had reported necessary, and as they became more familiar with the technic, it might be further reduced. Few operators had done more than one or two operations; 20 to 30 minutes should complete the sewing up of the wound. There was little traumatism, and a clean surgical cut to sew up instead of leaving a lacerated surface. In eclampsia the blood resulting from the operation was beneficial, and the patient was returned to bed in the best condition to overcome toxemia.

The Mortality of Operations, Other Than Strumectomy, in Cases of Exophthalmic Goiter, with Special Reference to Gynecologic Operations.—BARTON C. HIRST (Philadelphia) said that to learn the collective experience of American surgeons with Graves' disease, complicating operations, 366 letters were despatched to the members of the national societies of surgery and gynecology. Forty-three surgeons reported 69 cases. This number added to the 6 collected and reported by Sanderson, made a total of 75. Of this number, 13 died. In 11 of these fatal cases, the cause of death was expressly stated to be acute thyroidism, with tachycardia to an extreme degree, and eventual heart failure. In one case of appendiceal abscess, the patient died of the combined effects of sepsis and thyroidism. In another case of pelvic abscess, the patient died under chloroform before the operation was begun. Excluding these two cases, the mortality from thyroidism was 14.6%, or including them, 17.3%. The character of the operation seemed to have made little difference in the results. The mortality of the minor operations was 16%; that of the hysterectomies and myomectomies, 13.3%. It appeared, therefore, that the existence of exophthalmic goiter added about 15% to the mortality of any operation performed upon the patient. In the first of the author's patients, there had been a distinct goiter and exophthalmos for years, but the tachycardia was moderate. The symptoms in this case were never very alarming, and soon yielded to treatment. It was not known that the second patient had Graves' disease until two days after the operation, when the pulse rose to 180; the eyes protruded, and the throat swelled. He then learned that since girlhood the woman had been subject to such attacks, but lately had been free from them. Although some improvement was shown after hypodermoclysis, purgation and heart stimulants, on the first day that symptoms appeared, a rapid and complete recovery was secured in the next three or four days, apparently in consequence of the administration of suprarenal extract in 3-gr. doses every four hours.

Sudden Death during or Immediately after the Termination of Pregnancy or Operation on the Pelvic Organs in Women.—EDWARD P. DAVIS (Philadelphia) reported three instructive and interesting cases, and presented a table of 25 typic cases, selected from 193 papers on the subject consulted, and drew the following conclusions: (1) That sudden death might occur after abortion, labor, or operation, from undemonstrable causes; (2) death might follow abortion, labor or operation from the rapid formation of pulmonary embolus. Examination of cases showed that this happened after so many different procedures that it was impossible to designate any one operation or manipulation which produced it. Pulmonary embolism might develop before the placenta had been delivered, or when delivered by Credé's method, although it was impossible to select any one manipulation which produced this accident. It was not frequent after cesarean operation, nor after the more complicated obstetric operations. Predisposing and probably exciting causes were bronchial infection and abnormal conditions of the blood. In 18,800 women in childbirth or having operation, 30 cases of immediate pulmonary embolism occurred, with a mortality of 73⅓%. Diagnosis, respiratory spasm, with continued heart action. Treatment, hypodermic stimulation and electric current. Intravenous saline transfusion had not been proved efficient; (3) primary thrombosis and secondary embolism might cause death after the termination of pregnancy or operation. Causes: Preexisting infection, mechanical violence, altered conditions of blood-serum, and lesions in the walls of the vessels. Most important symptom, Mehler's sign, rapid pulse. Temperature curve in these patients fell on the third or fourth day, while the pulse curve rose. Death usually occurred from secondary formation of pulmonary embolus. Treatment consisted in absolute rest, bandaging of extremities, and in some cases abdominal section with ligation and excision of the veins of the broad ligament. Pulmonary complications developed in 25% of the cases. Thrombosis was most common in vessels connected with the left iliac vein. There was not conclusive evidence that the entrance of air into the veins was a sufficient cause for death. Gas might form in the vessels from infection; (4) sudden death occurred in parturient women and after operation, from reflex nervous shock, without assignable cause; also from disease of the thoracic viscera, from infection of the placental site, and other obscure conditions. Patients having fibroid tumors were especially liable to disease of the heart and vessels.

What is the Present Status of Electricity as a Therapeutic Agent in Gynecologic Practice?—CHAUNCEY D. PALMER (Cincinnati, O.) spoke of the importance of this subject, and referred to its evolution. He referred to the value of measuring the current in individual cases, and discussed at great length in what classes of gynecologic cases electricity was useful. The possibilities of electricity as a therapeutic agent were by no means limited. The object of the paper was an effort to speak of electricity and place it on its proper basis, not to magnify or misrepresent its virtues, nor to depreciate its powers.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Philadelphia, June 1, 2 and 3, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 11.*]

The Motor Area of the Human Cerebrum as Determined by Cortical Faradization, with a Discussion of the Surgery of the Motor Region.—CHARLES K. MILLS and CHARLES H. FRAZIER (Philadelphia) presented this paper, illustrated by several diagrams. One represented the position and general outlines of the motor region and the subdivisions of the area for the face and upper extremity, several of these having been determined by faradic investigations of the cortex. Another indicated the exact method of passing to and fro between the postcentral and the precentral convolution until a minimum standard current was obtained, and others illustrated the exact methods of surgical procedure in exposing the motor cortex, and also the results of investigation upon the cadaver, demonstrating the accuracy of the plans employed. In all the operations large openings were made, and these were of the osteoplastic type. In the paper, extensive references were made to personal experiences, many of them recent, but some reaching back as far as 1888. A series of unpublished cases of W. W. Keen, and also of Mills, Frazier and Spiller were given in abstract. A historic review of the American and foreign literature of the subject was made, beginning with the case of Bartholow in 1874, and including cases both by neurologists and surgeons. The authors discuss the observations of Grünbaum and Sherrington on the chimpanzee and gorilla, comparing their findings with those of Ferrier, Horsley, Schäfer, Beevor and others on monkeys below the anthropoids. Papers of Lamacq, Rothman and Krause were considered. The readers of the paper took strong stand in favor of the view that the motor zone was located entirely, or almost entirely, cephalad of the central fissure. The methods of operating for the relief of brain lesions, employed at the hospital of the University of Pennsylvania, were detailed, and illustrated by the presentation of a patient who had recently been operated upon for a cyst in the motor region.

Postoperative Asthenia.—S. WEIR MITCHELL (Philadelphia) said that a third of all cases operated on by abdominal section are doomed to six months of helplessness after the operation. This could be avoided if care was taken to put the patient into the best possible condition before the operation. After the operation the patient should be put into the care of a physician. He referred to asthenias following operation in soldiers during the Civil war. Keen, Moorehouse, himself, and others called this condition acute exhaustion. He often saw men so weak they could hardly stand, and others who could walk only a short distance as a result of heavy marches. There seemed to be great sensitiveness of every muscle in the body, and many months' treatment by surface friction and good diet are required to bring them back to health. In other patients a widespread crop of boils would break out.

Cerebellar Tumors, with Reference to Diagnosis and Surgical Treatment.—B. SACHS (New York) reported not merely successful cases, but his entire experience with cerebellar tumors. In the last few years he has had 22 cases in

which the diagnosis was certain; 14 were hospital cases and 18 were private. Optic neuritis appears unusually early, and soon leads to absolute blindness. Paralysis of the external rectus is unusually frequent and more important than any other symptom. Indirect cranial nerve symptoms involving the first, third, and fifth pairs are very frequent. They are usually unilateral. Very little stress can put on the deep reflexes. In some they are lost, in other exaggerated. Exaggeration is probably due to pressure on the pyramidal tracts. Cerebellar tumors are difficult to differentiate from those of the frontal lobe. Direct sensitiveness to touch and localization of the headache are not very helpful. The question of the character of the tumor, whether gumma, tubercle, or sarcoma, malignant or benign is important. In one case where the tuberculin reaction was obtained, the tumor turned out to be sarcoma. Localization of the tumor is difficult, as localizing symptoms are frequently absent. Facial and auditory nerve involvement occur when the tumor is in the depth of the cerebellum as well as in the cerebellopontile angle. Of 22 cases, he advised operation in six; in others there was no sufficiently localizing symptom to warrant operation. Of the 6 patients, 3 died in 1 to 2 weeks. In none of them was the tumor found. In two of the three, autopsy revealed the tumor exactly at the site diagnosed. Of the 3 patients living, 1 improved after a preliminary operation, and 1 after the removal of the tumor. In the third case the tumor was not found, but the man has been able to go out and attend to his business. In spite of the good results obtained by some, Sachs still holds to the view that there is not much in the statistics to encourage operation, but we may encourage exploratory operation early.

Thyroid Metastasis of the Spine.—F. X. DERCUM (Philadelphia) reported the case of a woman who had been admitted to the Philadelphia Hospital in June, 1904, with a history of an operation for the removal of goiter in August, 1899, by A. C. Wood, at the University Hospital. She had made apparently a complete recovery from the operation, but about a year afterward she began to suffer excessively from severe pains in the left upper extremity. The pains were sharp and shooting. Subsequently, pains made their appearance in both lower extremities, and later in the right upper extremity. She finally became entirely paraplegic. When admitted to the Philadelphia Hospital both legs were in a position of extreme contracture. They were also markedly wasted. Contracture with extreme wasting was also present in both upper extremities. A dissociated sensory loss was also present. Tactile sensation was preserved over the entire body, save that over the left leg a tactile hypesthesia existed. Over the trunk as far as the nipples anteriorly, and as far up as the axilla posteriorly, and over the entire right lower extremity, there was a complete loss of pain and temperature sense. The autopsy revealed a tumor involving the fourth and fifth cervical vertebras. The tumor involved the dura mater and pressed upon the cord. In its gross appearance, the tumor suggested a sarcoma. Similar masses were found infiltrating the sternal end of the left clavicle and also several of the ribs. A microscopic examination of the growth revealed the astonishing fact that it consisted of thyroid gland. The acini were well formed. lined by typic cubic epithelium, and filled with colloid material. Dercum discussed the question of thyroid metastasis, and also the question of malignancy. The tumor did not of itself show such anomalies of thyroid structure as would justify the diagnosis of a malignant growth. Dercum dwelt upon the resemblance of this case to one reported by Gussenbauer, in 1891, and to a second reported by Hollis, in 1893, in both of which paraplegia and associated symptoms had resulted from thyroid metastasis of the spine.

Concerning Operative Intervention for the Intracranial Hemorrhages of the Newborn.—HARVEY CUSHING (Baltimore) said that a few years ago upon studying newborn children that had died suddenly, he found that in 50% of the cases death was due to intracranial hemorrhage. The early lesion which presents itself later in life as sclerosis of the brain is little known and is probably very often due to hemorrhage at or about the time of birth. Many cases of intracranial hemorrhage early in life recover and we see its after-effect in the form of birth palsies, which he considers are mostly of traumatic origin. The chief symptom is tense fontanel; asphyxia and early convulsions are important historic facts. The hemorrhage is always venous and is due to laceration in the veins over the cortex as they pass up to enter the superior longitudinal sinus. Often there are no symptoms. Cushing has operated on four patients; the first was one of twins born in difficult labor, terminated by forceps. The child was asphyxiated. It was in very bad condition at the time of operation. The entire parietal bone was turned down and extensive hemorrhage was found covering the entire hemisphere, the clot being 1 cm. thick. The baby took the bottle subsequent to the operation, but died the next morning. Cushing thinks that, contrary to the usual opinion, infants endure operation very well. The second patient was operated upon when 8 days old. Convulsions appeared on the sixth day of life and on the seventh day there were 11 convulsions. The hemisphere was exposed and an extensive clot was found. The child is now 18 months old and is perfectly well. The third case was very serious, the child having been born in forceps labor. There was slight cranial injury and the child was asphyxiated; it nursed for 24 hours and later became stupid, and the fourth day there was very marked unilateral exophthalmos which led to the diagnosis of hemorrhage from the lateral sinus. Two days later Cushing saw the child and began operation, with the idea of removing the eye for the sake of appearance. He determined, however, to undertake the operation for hemorrhage. It was found that the hemorrhage had been from the lateral sinus, which later underwent thrombosis. He exposed the hemisphere on both sides to make sure that nothing would be overlooked. The child made a complete recovery. It is now 8 months of age and appears to be perfectly normal, although it is impossible to determine its exact mental condition. The fourth case was very much like the first, the child perishing soon after the operation. Cushing thinks that the way in which the hemorrhage does harm in cases that are not fatal is by pressure, which interferes with medullation of the nerve fibers which occurs during the first 10 days. The indications for operation are the same as for hemorrhage in the adult.

The Progressive Spinal Atrophies—Study of the Etiology, and Grouping of Fifty Cases, with Report of a Case with Autopsy.—CHARLES L. DANA (New York) said that of the cervical and cervicobulbar (Duchenne-Aran) type he had 19 cases; of the lumbar cervical, or leg and shoulder type, 15 cases; of the amyotrophic lateral sclerosis type, 10 cases; and of the bulbar and bulbospinal, 6 cases. Syphilis is the most common cause, being active in 25% of his cases. He thinks that the percentage is really larger than this. Syphilis was the causative factor in 8 out of 19 cases of the cervicobulbar type and in 1 case of the pure bulbar type. It is rarely the case in the cervical or the amyotrophic type. Occupation is the next most common cause. It is also due to exhaustion, acute infection, lead and tobacco. Lead does not have much to do with it as only 5 of Dana's cases were traceable to lead as the probable cause. Heredity does not play any part in the cervicobulbar type, but is active in amyotrophic cases. The author reported a case of bulbar palsy and tabes with autopsy. JOSEPH COLLINS (New York) reported a case of the amyotrophic form which he thinks is due to lead as the urine shows large quantities of lead.

[*To be continued.*]

AMERICAN ORTHOPEDIC ASSOCIATION.

Nineteenth Annual Meeting Held in Boston, June 6, 7, and 8, 1905.

[Specially reported for *American Medicine.*]

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Limitations of Erasion in Coxalgia.—R. TUNSTALL TAYLOR (Baltimore), in line with two previous papers on the same subject, outlined what was termed the combined method of treating hip disease. He emphasized (1) the value of the röntgen rays as a means facile princeps in making a diagnosis and indicating the treatment in conjunction with the characteristic symptoms; and (2) the necessity in using in the after-treatment such mechanical measures as are required and as thoroughly as if erasion or attempted extirpation had not been attempted. He divided cases of coxalgia into three groups and indicated the treatment as follows: 1. Beginning cases with a small focus within the bone and not encroaching upon the joint. Such cases should be treated by conservative methods of rest, fixation, and traction in the hope that nature will arrest the disease. In such cases röntgen-ray examinations should be made frequently to determine whether or not the treatment is adequate and extension of the process checked. 2. If extension is found, erasion must be performed if the acute symptoms persist. 3. If there be extensive sinuses, secondarily infected, with bad condition of the patient and extensive joint destruction, as shown by the skiagraph, nothing is to be gained by erasion or excision. The best plan is to lay the sinuses wide open and overcome secondary infection, leaving the original trouble to conservative methods. The middle class of cases only are suitable to erasion. Erasion is of unquestionable value in properly selected cases, but is unwarranted where steady improvement is obtained by conservative treatment. In the experience of the author, erasion had yielded the best results in function and length if operated upon within 12 to 18 months of the onset. With the disappearance of the other symptoms, a secondary cold abscess in the soft parts is no indication for extensive erasion of the bone.

Discussion.—JOHN RIDLON (Chicago) reported a case occurring in a practising physician, aged 30, who had had hip disease at the age of 10. He was treated for five years at that time, but for 15 years had been without treatment or symptoms. The röntgen ray showed a distinct focus an inch in diameter just above the rim of the acetabulum, in the center of which was a piece of carious bone nearly an inch in diameter. This condition, which had existed for 15 years, had given no trouble. There was no deformity, and function was good. This case illustrated clearly, he thought, that conservative methods of treatment were productive of good results. B. E. MCKENZIE (Toronto) stated that he had obtained uniformly good results in the treatment of tuberculous conditions of the tarsus and ankle by the use of mechanical treatment. Contrary to statements made in former years with reference to this and allied conditions, he considered the prognosis good. His plan of treatment comprised the use of the Thomas splint, a brace to

hold the foot at right angles to the leg, and the use of iodoform, which latter agent, he believed, materially aided in recovery. Practically the same principles of treatment were applied to all other joints in the early stages. Even in advanced cases, he had never done an excision under 14. In adults, excision had been done comparatively frequently when the disease was of long standing and causing considerable destruction of tissue. The results had been good after excision in knee cases. The treatment of hip cases had resulted less satisfactorily. In the future he said that he would be more disposed to amputate in such cases than he had been in the past. He believed that in the treatment of cases of joint tuberculosis, deformity should be exceptional where the surgeon had had control of the case from early in the disease. L. A. WEIGEL (Rochester, N. Y.) said that so far as the operative treatment of tuberculous foci was concerned, he had not seen any immediate or permanent remote good results follow its use, and was not an advocate of the procedure, except in exceptional cases. Many cases that on clinical inspection seem admirably adapted to operative treatment upon incision, are found to be so extensive as to make entire removal of the tuberculous foci impossible. It is not possible to say after operative treatment of a case that all foci of disease have been removed. He wished, too, to urge a word of caution in regard to the use of the röntgen ray. Nothing in the way of a favorable influence had ever been demonstrated in these conditions, and he thought it unjustifiable to subject those already debilitated to the influence of a dangerous agent, uncertain in results and profound in its action. He thought it better to adopt conservative methods of treatment, and as to the operative treatment shortening the time, he did not believe, even if such were the case, it should be considered of very great consequence. The value of time to a child is not great, and the decision as to the methods to be adopted should rest upon the results obtained. HENRY LING TAYLOR (New York) called attention to the uncertainty of the interpretation of röntgen-ray pictures and the likelihood of error when relying upon such evidence for determining the question of operation. He mentioned one case that he had seen where the röntgen ray showed conditions favorable to excision. This was attempted, and the bone found to be honey-combed with the disease, making removal of all the foci impossible. The result of this error was bad. He thought the röntgen ray should be considered of value only as confirmation of clinical findings. The early removal of foci might effect a cure in some cases, but the number suitable to such treatment must be very small. G. G. DAVIS (Philadelphia) said that his experience inclined him toward the side of conservative methods. The difficulty of locating the focus in such conditions was great; frequently there was much mutilation of the structures in the attempt to make such discovery, and operation did not obviate the necessity for prolonged after-treatment. In the treatment of mild cases where erasion might seem to be indicated, and even in those more advanced cases with attendant suppuration, conservative methods had in his hands effected a cure. Many of those cures ascribed to operative interference were often due to the conservative measures of treatment adopted in the management of the case after operation. He had treated cases with severe acute symptoms by trephining the bone with an eighth inch trephine in from five to eight places. This afforded drainage and relieved the acute symptoms, but did not affect a cure. The procedure had been repeated in some cases after a renewal of acute symptoms. In prolonged cases with sinus formation, he believed in opening the sinus down to the bone, curetment and the use of iodoform. He thought the operation advocated by Bartow to be an ideal one in those cases when it was possible to make a positive diagnosis of the condition. H. P. H. GALLOWAY (Toronto) stated that he had seen two cases similar to those reported by Bartow in whom equally good results had been obtained by conservative methods. He believed that in the future, operative methods would be resorted to less and less in such conditions. J. E. GOLDTHWAIT (Boston) said that the preceding series of papers, as well as recent writings, indicated that there was no didactic treatment for tuberculous bone and joint disease, and that we are coming more and more to study the pathology and plan the treatment upon the pathology. Tuberculosis in bones and joints represents an infection, and as in other infectious diseases, may be mild or severe, and of slight or extensive involvement. Our function should be to save life with as little mutilation as possible in any given case. Mild cases need not be subjected to prolonged operation. In some cases radical operations are necessary. The operation selected will depend upon the extent of the disease. Amputation is necessary in some cases. Definite principles of treatment underlie any given case, and these principles of treatment are to be reached by obtaining a more correct understanding of the pathology. E. H. BRADFORD (Boston) agreed with Goldthwait, and said that American surgeons who had made the great advances in the study and treatment of these conditions had for some years been passing through a period of inquiry and investigation. He thought that now was a period for critical judgment upon what had already been done. A part of the subject had been pretty well threshed out. He referred to the splendid results obtained by C. F. Taylor, who had based his treatment not upon the pathology, but upon experience, which demonstrated that in hip cases, for instance, the bruising, damage and destruction of the joint were to be prevented by pulling the head of the femur away from the acetabulum. He further said that he did not believe in the good effects of attempted excision of diseased areas in nearly all cases, for reasons already given, and asked how it would be possible in a hip case to excise diseased areas in the acetabulum, and if this is not done how can it be spoken of as excision? Painter, Bartow, Peckham, and R. T. Taylor closed the discussion.

The Practical Importance of Correct Foot Postures.—HENRY LING TAYLOR, in a paper of this title said that the support of body-weight is the master function of the foot. When acting as a support, it is of vital importance that the foot posture should be such as to furnish stability and good control of movements, and avoid overstrain. The direction of the foot should usually coincide with the direction in which the body tends to fall, which is forward as a rule, and under ordinary conditions. Weight should be frequently shifted from one side to the other to avoid undue strain. Typic walking should be with forward directed feet, and typic standing, with the weight over the straight forward foot. Conventional military and gymnastic postures of attention with everted feet are unsuited to prolonged standing, or as a normal in gymnastic or military exercises. It has a malign influence on the general posture because of the improper distortion of parts above. The straight foot is naturally used by children, primitive people, mountaineers, guides, and strong enduring walkers and runners. Out toeing is typical of the weak and broken down foot, and is stiff, awkward and fatiguing. A slight degree of divergence of the feet in symmetric standing is usual and probably not harmful. This matter is of such practical importance, that a more serious effort should be made to influence the community in favor of the strong posture in standing and walking. The effects of foot postures in standing and walking were summarized as follows: Toeing out throws weight on the heels, increases pronation, diminishes stability and control, consequently weakens the foot, causes stiff or awkward gait, bad general posture and fatigue. Toeing straight protects the foot, favors efficiency, gives correct general posture and diminishes fatigue. Toeing in protects the arch, inner ankle and inner knee. All prolonged standing is harmful. It is least harmful when the base is frequently shifted from one foot to the other. The supporting foot should be straight (in the strong posture), that is, point in the direction in which the body-weight tends to fall, which is usually forward. When standing with the weight equally on both feet they should not be markedly turned out.

Discussion.—E. H. BRADFORD (Boston) said that as a result of investigations made several years ago, with reference to foot positions, he had found exactly the same conditions as set forth in the paper. In Holland he had noted that the straight foot position was used, while in London the inhabitants toed out. As a result of changes made in the past few years, the United States marines now march and stand in the straight foot position. Public schools in Boston have not yet been induced to teach the straight foot position. C. W. WILSON (Montreal) said that English troops have recently adopted the straight foot position. L. A. WEIGEL (Buffalo), as a result of investigations carried on among the native barefooted population of Jamaica, where it is customary for large loads to be carried upon the head, said that he had found the straight foot position used. He exhibited a number of photographs taken of natural positions in standing and walking without the knowledge of the subjects, showing the straight foot position. R. H. SAYRE (New York) said that as was well known, practical trainers instruct runners to use the straight foot position, since this is the only position in which great speed may be attained. TAYLOR, in closing, called attention to two drawings made by a celebrated artist at his request, one a drawing of a noted statue where the sculptor had used the straight foot position, and the other showing the great changes that would be wrought by an out toe position. He called attention to the loss of the pleasing lines of the figure, and said that the strong position is the useful position, and also the beautiful position as exemplified by the best art in sculpture and painting.

Skiagraphic Revelations in Rachitic Deformities of the Legs.—WALLACE BLANCHARD (Chicago) in his paper said that the correction of over 700 cases of genu valgum and genu varum by rapid osteocalcis furnished opportunities for many skiagraphic comparisons before and after obliteration of the deformities. Corrected knock-knee tibias have uncovered bow-leg femurs, thus producing bow-legs; conversely, corrected bow-leg femurs have disclosed knock-knee tibias, creating knock-knees. These have been designated "transition cases." Unsuspected unilateral coxa vara has been uncovered by correction of unilateral knock-knee. Coxa vara is a frequent deformity, but covered by more apparent deformities. A weak epiphyseal attachment caused one epiphysiolysis in the use of the Grattan osteoclast. This was the only case occurring in over 300 supracondyloid osteocalces. Skiagrams of osteocalces revealed an acute angle at the fracture point, and in osteokampsis a longitudinal line between overstretched and impacted sides. A dark shadow marked the extent and degree of impaction. Skiagrams frequently showed only the slightest shadows after extensive fracturing and redressement. The cases presented were skiagraphic studies representing the varying types of rachitic deformities of the legs.

[*To be continued.*]

ORIGINAL ARTICLES

APPARENTLY UNAVOIDABLE ERRORS IN THE DIAGNOSIS OF PSOAS ABSCESS.*

BY

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Psoas abscess should be considered as a condition requiring diagnostic skill independent of that necessary to the diagnosis of tuberculous caries of the spine, from which it must always have its origin. While generally considered, and properly so, one of the symptoms of tuberculous caries, it occurs very frequently in patients in whom there is no spinal deformity and is often detected years after the disease of the spine has subsided.

The statistics of Townsend,[1] Ketch,[2] and Dollinger[3] show that abscess formation was detected in 21% of 1,155 cases of spinal caries. Mohr, Nebel, Bouvier, and Lannelongue discovered abscess formation in 281 cases out of 354 autopsies performed upon those having suffered from Pott's disease.[4] This, Whitman observes, amounts to nearly 80% and would indicate that a large percentage of abscesses are not recognized during the life of the individual, or else that only the very severe cases come to autopsy.

The very small amount of space given in textbooks to the consideration of the symptoms and diagnosis of psoas abscess would lead one to infer that there was not likely to be any difficulty encountered in ascertaining the presence of a psoas abscess. In reality, experience teaches us that there is often very great difficulty in differentiating psoas abscess from a large number and variety of conditions, among which may be mentioned femoral hernia, hematoma, perinephritic abscess, sacro-iliac and hip disease. The consideration of some of the difficult problems encountered in the diagnosis of these varied conditions is the object of this paper.

We are all prone to report our successes and leave in oblivion those experiences which do not redound to our credit. Since we learn most from our failures, why should we not have the opportunity of learning from the failures of others? I shall omit the names of those physicians who were, or were said to have been, connected with the cases to which I shall refer in this paper. I do this in justice to those physicians whose statements may have been misquoted by the patients.

In determining the presence or absence of psoas abscess it is necessary to determine the condition of the spinal column, whether kyphosis is present, and its location. When kyphosis is present and is located between the middorsal and last lumbar vertebras, we may expect to find either unilateral or bilateral psoas. In the absence of kyphosis, the presence of marked rigidity of the spine may indicate the existence of healed Pott's disease which has gone on to recovery without sufficient destruction of the bodies of the vertebra to produce a posterior angular curvature. So, too, rigidity of the spine may be the result of other conditions, as osteitis deformans, healed fractures of the spine, congenital anomalies, and several other diseases. The presence, therefore, of such rigidity associated with a swelling in the region occupied by psoas abscess is not to be construed as certainly indicating that condition.

In psoas abscess the thigh early assumes a characteristic position. The thigh first becomes flexed on the abdomen and then adducted and rotated outward. Differentiation from hip disease is made by ascertaining the character of attempted normal function. In psoas abscess the hip can be easily moved in all directions excepting only such limitation of motion as is produced by contracture of the psoas muscle. The thigh can be easily flexed, but cannot be extended. It can be adducted, but cannot be abducted. It can be rotated inward, but cannot be rotated outward. In hip disease the hip is equally fixed in all directions. While in the incipiency of hip disease the muscular tension around the joint makes equal resistance in all directions, when the hip becomes ankylosed as a result of the disease, the characteristic position and condition are not always maintained.

The employment of an anesthetic is invariably reprehensible in the incipiency of hip disease, because the fixation of the joint is produced by muscular action only, and anesthesia removes this safeguard, leaving the joint free for excessive motion and the traumatism therewith associated. In the diagnosis of ankylosed joints, anesthesia is of the greatest value if used prudently in determining the kind and extent of the ankylosis. In psoas abscess simulating hip disease, anesthesia will sometimes be of value in showing that the hip-joint is entirely free. The possibility of anesthesia proving a source of error must not be overlooked. Often when it is found that the hip is free from involvement the physician is prone to overlook the real cause of trouble in the existing psoas abscess.

So common is the error of overlooking psoas abscess when the thigh is in the characteristic position produced by psoas contracture that too great stress cannot be placed on the importance of this sign. I am constantly seeing patients who have been kept in bed for months with Buck's extension applied, with no symptom of hip disease present except the posture characteristic of psoas contracture. The normal action of the psoas muscle may be ascertained in a relaxed abdomen by placing the hand firmly upon the belly of that muscle and requesting the patient to flex the thigh. Normal contraction will be clearly perceptible to the hand and by this means departures from normal action can be readily recognized. Since in psoas contracture the muscle is in a state of contraction, further flexion of the leg does not produce additional enlargement of that muscle. The contrast with the corresponding muscle will be a guide.

When a psoas abscess shows itself as a small tumor just below Poupart's ligament, the superficial resemblance to a femoral hernia is very great. If, added to this, there is present impulse on coughing, there seems to be sufficient evidence of hernia to warrant the use of a truss. I have removed very many trusses from psoas abscesses, and once, by invitation, witnessed a surgeon attempt a radical cure for femoral hernia upon a patient who had worn a truss for several years. To the astonishment of those who were present the incision through the skin revealed a protruberance not at all resembling a hernial sac. The evacuation of the large amount of tuberculous pus, fibrous and bony detritus, demonstrated the tuberculous character of the supposed hernia. Subsequent investigation showed middorsal spinal rigidity and helped to determine the diagnosis of Pott's disease with psoas abscess. There is one point in the differentiation of psoas abscess from hernia that is invaluable, and I believe that Dr. J. T. Rugh, of Philadelphia, deserves the credit of establishing its importance. In psoas abscess the accumulated mass can be distinctly felt above Poupart's ligament and fluctuation detected by bimanual palpation. It is also important to observe that in psoas abscess impulse on coughing while present in the upright position is not present in recumbency because the tumor disappears by force of gravity unless the sac is very tense. In hernia, impulse on coughing is present in the erect, and sometimes also in the recumbent position. In psoas abscess resembling hernia we again fall back upon the determination of the existence of a spinal condition as a further means of diagnosis. The presence of kyphosis sometimes leads us astray in assuming that a condition resembling a psoas abscess must be a psoas abscess because of the existence of a kyphosis.

* Read by invitation before the Luzerne County Medical Society, May 24, 1905.

A distinguished neurologist and myself were in consultation over a hysteric girl, who had a midlumbar kyphosis. Suitable jackets were employed. After about a year the patient called attention to a mass in the right abdomen. The pronounced type of the hysteric manifestations and the gross exaggeration of every symptom caused us to place little reliance upon her statements until the appearance of the mass became conspicuous. Feeling sure that it could only be a psoas abscess, the real problem seemed to be the possibility of evacuation and whether the condition of the patient's nervous system was such as to withstand the operation. Another neurologist and also one of America's most distinguished surgeons were called in. Both concurred in the diagnosis, and the next day was set for the operation.

The patient had presented no temperature changes other than those usually associated with tuberculous disease of bones. She was fairly well nourished. I made an incision through the skin on the right side of the abdomen just above the brim of the pelvis, and quickly reached an enormous sac, which did not present the usual appearance of a psoas abscess. A conference was held with the neurologist and surgeon, both of whom were present at the operation, and the determination reached to make an incision an inch in length in the sac. This was done, and there exuded a mass of black blood clot. It was promptly agreed among us that this enormous hematoma must be removed and an effort made to control the hemorrhage into the sac. The incision was enlarged. More than a horse bucket full of black blood clot was quickly removed from the sac, which was the sac of the former psoas abscess. There was no evidence of fresh blood, and search for bleeding points failed to reveal any. In the search, however, we encountered caries of the lumbar vertebras. The patient showed considerable shock, and we determined to pack the cavity with sterile gauze. Ether was discontinued, strychnin given hypodermically, and oxygen inhalations given. The patient reacted fairly well, and conversed rationally. The pulse and respirations improved steadily. The neurologist and the surgeon left the house, while I remained behind to collect my instruments. One hour after the patient was removed from the operating table she suddenly collapsed. Necropsy was not permitted.

It would be futile to attempt any excuse or explanation of this failure to recognize a hematoma of the vast size of this one. The belief was present in the minds of all that with the kyphosis, the associated symptoms of caries of the lumbar spine, that such a mass occupying the usual site of a psoas abscess could be nothing else but a psoas abscess. None of those present had ever seen or heard of a similar case.

A boy of 16 presented a severe degree of anteroposterior angular deformity of the spine. He was active and robust. I had seen him when 8, and had recognized the presence of a psoas abscess at that time, which was not evacuated because it was already tending toward a spontaneous cure. In six months it could be no longer detected. After this time I examined him about once a year, always watching for a reaccumulation, but this was never found. When the boy was 16 the family physician informed me that he had detected a large mass in the right side of his abdomen. Temperature 102°. The distance was such that I could not personally examine the boy, but I telephoned the family physician that I supposed the condition to be one of psoas abscess, with a reaccumulation in the old sac. Two weeks later the abscess was aspirated, and an intensely foul-smelling pus evacuated. This was subjected to pathologic examination and the colon bacillus found in large numbers. Subsequent to the aspiration free incisions were made to permit of drainage, but septicemia ensued and caused death in a few days.

In this case the temperature was the only indication of the presence of an acute process, since this abscess filled the sheath of the psoas muscle just exactly as a cold abscess would have done. The symptoms and signs, excepting only the temperature, were exactly those of a typic psoas abscess. The boy had twice been ill with influenza, with a temperature at times running to 104°, and the recent elevation of temperature was thought to be an indication of another attack of grip. My statement that the mass in the abdomen was in all probability a psoas abscess influenced those in charge of the patient to postpone evacuation.

The temperature possesses real diagnostic value in connection with psoas abscess, but the diagnosis must rest upon the symptom-complex, and not upon any particular symptom. There are oftentimes coincidental diseases that in themselves give rise to elevations of temperature, and this may cause confusion in the diagnosis.

I have seen many patients having more or less kyphosis, in some of whom there have been tuberculous abscess accumulations developing coincidentally with inflammatory diseases. In some cases the abscesses had been previously evacuated, and in others spontaneous absorption had taken place. With the early development of pneumonia, scarlet fever, diphtheria, etc., and the accompanying high temperature, the first thought has invariably been that there was some involvement depending upon the spinal caries with the development of acute abscess accumulation. Only after the symptoms of the inflammatory disease became pronounced was it possible to make a differentiation.

A man of 45, with a rigid lower dorsal spine, had typic girdle pains and localized pain in the region of his right kidney. There was an evening rise of temperature to 103° and 104°. The abdomen was very tense. The hips moved freely with apparently normal voluntary control. Three surgeons and I decided that the temperature contraindicated the presence of psoas abscess and that there was probably an acute abscess in the region of the right kidney. It was determined to anesthetize the patient for a more satisfactory examination of the abdomen than was possible in its rigid state. Under profound anesthesia the abdomen was completely relaxed, permitting of free palpation of the spine, kidneys, and abdominal organs. No abnormalities could be detected by any of us. The day following our clinical study under anesthesia the temperature rose to 104°. Preliminary examination made before the administration of the anesthetic had shown some involvement of the lungs. Later a critical study was made and tuberculous cavities discovered in both apices. The pain in the right kidney region continuing, it was decided to make an exploratory incision, with the result that a large psoas abscess was evacuated.

It is impossible to give any satisfactory explanation of the failure to detect this large mass with the opportunity afforded to palpate a completely relaxed abdomen. The presence of distinct dorsal ankylosis without angular curvature, the presence of tuberculous cavities in the lungs, the absence of the leg symptoms usually associated with psoas abscess, produced a group of symptoms that was confusing.

A child, aged 2, was noticed to limp. Rheumatism was ascribed as the cause. The supposed rheumatism did not get better, and after a month a diagnosis of hip-joint disease was made. A surgeon examined the child and stated that he could find nothing wrong with the hip. The child suffered intense pain around the right hip, which was kept flexed and rigid. No attempt was made to walk at the end of another month. Another physician was consulted, who kept the child in bed with no improvement whatever. Under ether both hips were found to be perfectly free. Five months after the onset of the disease I saw the child, who was much emaciated. Any movement of the right leg was severely painful. The thigh was flexed, adducted, and rotated externally in the typic position produced by psoas contracture. The lower spine was rigid, the abdomen tense, and the superficial vessels just above Poupart's ligament were engorged. Even in recumbency the abdomen was too tense to permit of palpation. Pain seemed to be severe. Anesthesia by ethyl bromid produced complete relaxation of the abdomen and a large mass was detected filling in the right side of the pelvis and extending upward like a narrow band alongside of the spine. After catheterization of the bladder the mass could be distinctly felt in all its contour. It seemed to be soft, but fluctuation was doubtful. The surgeon who had studied the case three months previously was fortunately present, and we agreed that it presented all the characteristics of a psoas abscess, with the exception of the engorgement of the superficial veins in the lower abdomen, which did not, of course, accord with such a condition. It was decided to make an exploratory incision, and this was done two days later in the presence of the members of the surgical staff of the hospital. An incision two inches in length was made parallel with and just above Poupart's ligament. The mass was quickly reached and since its superficial aspect did not resemble that of a psoas abscess, a trocar was introduced. A thick, gummy substance and some blood clot were removed, showing the mass to be sarcomatous. The incision was closed without further interference. Pathologic examination of material removed by trocar demonstrated the growth to be a round-cell sarcoma.

I have notes of a case occurring in a man of sedentary occupation, who went to a dispensary on account of a swelling on the outside of his right ankle. This was found to be a cold abscess about the size of an orange. Under ether, an incision was made and about three pints of tuberculous pus removed. So large an amount coming from a tumor of this size caused further investigation to be made. A long probe was inserted and readily passed upward until the point was felt in the popliteal space, where another incision was made. The probe was again inserted, passing upward as before until the point was felt just above Poupart's ligament, where a third incision was made, demonstrating the presence of a psoas abscess that had pointed at the ankle. In this case there was no angular defor-

mity of the spine, but there was rigidity of the entire dorsal vertebras. It is not difficult to trace anatomically the course of this psoas abscess ever seeking the points of least resistance. Assisted by gravity, it took a downward course until its progress was arrested with the consequent bulging at the external malleolus. There was a history of hernia that was said to have been cured by the wearing of a truss. This supposed hernia was doubtless a psoas abscess, bulging out just below Poupart's ligament, and the supposed cure was due to the gravitation of the mass down through the thigh, with the disappearance of the bulging.

Dr. Joseph M. Spellisy, in delivering the annual address before the Philadelphia Academy of Surgery in 1903, spoke of "Abscesses in the Right Iliac Region, and other Lesions not of Gynecologic or Appendiceal Origin Mistaken for Appendicitis." He cites three cases in which such mistakes were made. One was a psoas abscess without spinal deformity. One was an abscess arising from a sacroiliac joint. One was purulent osteitis of the hip-joint, with perforation of the acetabulum. In all three of these patients, the diagnosis before operation was appendicitis, for the relief of which the operation was performed. The appendix was found to be normal, and the corrected diagnosis made.

The Philadelphia Obstetrical Society devoted the meeting of November 7, 1902, to a symposium on "Pus in the Female Pelvis." I was assigned the subject of "Pus in the Pelvis as a Result of Bone or Joint Necrosis: Diagnosis and Treatment."[5] I emphasized the following points as a part of my paper: "Abscess formation in Pott's disease not infrequently exists for years after the original bone lesion has healed, and not infrequently when there is no spinal deformity to direct attention to the site of its previous invasion. A psoas or lumbar abscess has no well-defined direction of advance, but its vagaries cause it to be confused with other conditions. Reliance must be placed upon the evidence of the old bone disease. In the absence of wellmarked angular kyphosis or of a slight angular curvature, faulty mechanical function of the spine will be observed, due to bony ankylosis of two or more vertebras. Often the most careful analysis will fail to detect such ankyloses in those cases in which a perfect recovery has taken place."

The possible medicolegal aspect of such errors in diagnosis as I have cited in this paper was made the subject of an address before the Medicolegal Society of Philadelphia, April 30, 1901, the title of which was, "A Medicolegal Aspect of Tuberculous Joint Disease."[6] I then stated that "Courts of justice have many times repeated the decision that a physician could not be held responsible for unsatisfactory results when it was proved that the said physician had done the best he could. It was not necessary that he should do the best that anyone could do." A large number of court decisions were quoted from "The Law in its Relations to Physicians" by Arthur N. Taylor.

More than enough instances have been cited to show that the diagnosis of psoas abscess is not always easy, and that each case is worthy of the most careful study in every phase presented. The presence of wellmarked evidence of spinal caries is sometimes misleading. Great spinal deformity is often present long after the activity of the bone disease has subsided. When conditions more or less closely resembling psoas abscess are also present, the preponderance of evidence is often in favor of psoas abscess when in reality some other disease or condition is present. The knowledge that these errors in diagnosis have occurred under the most critical inspection and elaborate study is convincing that while they are not always avoidable, they should be guarded against so far as possible.

I append a list of conditions that may so closely resemble psoas abscess as to be mistaken for it. This list made up from my personal experience can doubtless be extended from the experience of others:

Tuberculous hip disease.
Hematoma in the abdomen.
Sarcoma of the pelvis.
Abscesses due to the colon bacillus.
Perinephritic abscess.
Appendiceal abscess.
Ovarian and tubal disease.
Hernia.
Tuberculous disease of the bladder.
Enlarged glands of the groin.
Hysteric affections.

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THE TREATMENT OF SOME NEURALGIAS BY THE RÖNTGEN RAY.[1]

BY

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Although the exact physiologic action of the röntgen ray has not been determined, there are certain results in altered metabolism and changes in the vitality of tissues upon which it has been locally applied that are definitely known.

Among these actions, the production of analgesia is one that has been marked and almost constant in its application in malignant disease. When this analgesic effect is wanting, there is either an invasion or injury of the substance of the nerve involved in the disease, or the proper quality of röntgen ray or appropriate dose has not been employed.

The appropriate quality and quantity which forms the dose is a factor that is difficult to measure, except in terms of the operator's experience. The methods of measurement are becoming much more accurate, and dose is a more practical term, and yet it is hardly more than a year since it has been known that the therapeutic activity of the röntgen rays varies so widely with the quality, *i. e.*, the penetrating power of the rays.

The cases to which this paper is intended to call attention, point to what has been accomplished in relieving intolerable conditions of pain. They form, however, only an indication of what may be accomplished under favorable conditions, and not a definite measure of an agent with which a measured dose can be applied to accomplish the same result. Each patient and his or her disease, modified by the reaction to the röntgen ray, must form the individual basis for treatment in each case. So far, no generalizations can be made, nor can definite results be promised. They depend upon the reaction of the patient and the adaptation to each case of the quality of ray necessary to it.

So far, results have not been produced when destruction in the nerves has taken place, and yet regenerative effects are not improbable. The best results have been attained when there has been an alteration, though often of very chronic character, in the metabolism of the nerve.

The first patient on whom I employed this agent had acute infraorbital and supraorbital neuralgia following an attack of influenza. The pain had not yielded to medication nor local applications. The first treatment of three minutes relieved the pain and four more such treatments cured it permanently.

In the next case it was applied with the purpose of producing absorption in a scar that resulted from the removal of a cyst from the motor area of the brain some five years previously. When first seen the patient had complete paresis of the right arm, with glazed skin on the fingers and absence of wrinkles. The arm could not be raised voluntarily and was placed in a sling by the other hand. There was also a certain amount of laming of the right leg. To a recent injury of the occiput was

[1] Read by invitation before the Philadelphia Neurological Society, March 28, 1905.

attributed a recurrence of slight epileptiform attacks at increasingly short intervals during the past two years.

The result obtained in this case cannot perhaps be attributed to röntgen treatment entirely, as the bromids were continued in an increased dose. The epileptiform attacks became less severe and frequent and the patient gradually gained control of the arm, and even of the hand, till finally, when he discontinued treatment, he could raise the hand to the head and mouth and could grasp and hold objects of moderate size in the hand. There was also decided improvement in the gait, and his speech, which had been halting, had been much improved. He received 12 treatments in 6 weeks, the rays being applied through the trephine opening in the skull. This was in 1903. He went home, and I have been unable to learn anything further of the case, as he lived at a distance.

The next patient was Mr. W., aged 38, who suffered from an intense neuralgia of both inferior and superior dental nerves. He had suffered for many years from various forms of facial neuralgia, the present attack having lasted seven months. The pain was so intense that he rinsed his mouth with Jamaica ginger to get relief that permitted sleep. His teeth were so loose that he could not close the jaws or chew solid food.

Five-minute applications were made on each side of the face on alternate days. Three such treatments sufficed to relieve the pain entirely, the teeth resumed their proper place, and at the end of eight treatments he was entirely well. He has remained so for the past two years.

The next patient was a lady of 32, married, with two children. During the previous ten years she had repeated and increasing attacks of migraine that became more severe and frequent. Courses of treatment at various sanatoriums with changes of climate and physicians had not affected their severity. She was having an attack every two weeks, precipitated by attacks of sick-headache. During the migraine attacks she was generally confined to bed. The pain was so severe that often the eyes were glazed.

The first effect of the treatment, directed to the frontal and temporal regions, where the pain was most intense, and where the congested and tortuous veins were visible during the attack, was to relieve her of the pain and lessen its intensity. The next effect noted by the patient was that, as she said, "the nerves wanted to ache, but could not." The course of treatment extended over three months, and after the neuralgic crises had been gotten under control it was necessary to prevent the sick-headache attacks. This was accomplished by careful regulation of the bowels and golf and outdoor exercise. The patient has now been free from attacks for over 15 months, and writes that she has never been in better health.

In one case of trigeminal neuralgia with headaches and constant pain in the eyebrow the result of treatment was not so successful. Although the pain was temporarily relieved, it was impossible to reach a point upon the occiput without endangering the hair. The patient discontinued treatment after four weeks, and has not been heard from since.

In another case of brachial neuralgia the patient discontinued treatment before enough treatments had been given to determine its efficiency.

The relief which this method of treatment may afford even in cases in which a cure cannot probably be expected, is illustrated by a case of neuritis of the facial nerve in which the evidence of degeneration was shown in areas of local anesthesia over its entire distribution. The point of most intense pain was, however, over the mastoid eminence and the posterior surface of the ear in the distribution of the posterior auricular nerve. However, at times it involved the whole distribution of the facial nerve. The patient had been the subject of intense steady boring pain for a number of years. The relief, though temporary, afforded by the rays, was much appreciated. The entire afternoon and part of the evening following treatment she was free from pain, which was sufficiently dulled to afford her a quiet sleep. There has, however, been no permanent relief, though the treatment has not been possibly of sufficient regularity to afford a definite conclusion. Some alteration in quality or dose may yet produce more permanent results, as any influence generally indicates the power of this agent to alter conditions if the proper dose can be determined.

A severe case of tic douloureux affords an instance of what may be accomplished when the dose and quality are adapted to the peculiar conditions of the individual case:

A gentleman of about 50, who had been suffering for six weeks with a severe attack of tic douloureux, with crises almost every five minutes, not having been able to sleep for some weeks, was sent to my office. His face was intensely red on the affected side from the rubbing which he gave it during the attacks with a silk handkerchief. The effect of the rays was immediate. After the treatment he grabbed the handkerchief and raised it, but there was no pain. He felt the prodrome, but had no attack. His wife told me the next day that he had slept well that night, and had had no attack of moment. The same report was made on the succeeding three days, when he was obliged to leave town after four treatments, promising to let me hear from him if he had further attacks, and to return for more treatment. His physician tells me that he has heard of no further attacks.

These cases are possibly too few and of too short standing to deduce from them any valuable conclusions. They, however, at least demonstrate that in certain conditions of intolerable pain this agent can relieve and produce apparent cures that persist for a considerable length of time. Although it cannot be stated definitely which particular classes of cases will be benefited, there is at least a prospect of temporary relief for all, and a probability that a further development of technic will increase the number of cases in which permanent results can be secured.

Neuralgias are not the only painful conditions that can be relieved by this agent, for articular pain, as seen in gout and rheumatism, even after deformity and stiffening has taken place, can in many cases be permanently relieved, while the pain can certainly be decreased.

FIBROMYOMA OF THE CORPUS UTERI COEXISTING WITH SQUAMOUS EPITHELIOMA OF THE CERVIX. A RARE COMBINATION.*

BY

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The unusual features in the following case make it worthy of record:

P. G., a mulatto, aged 41, was carried into the Polyclinic Hospital on January 28, 1905. She was a widow, with two children, the youngest aged 20. Five or six years ago the menstrual flow began to increase somewhat in quantity, but otherwise her health had been normal until two years ago, when she began to suffer pain in the right iliac and inguinal regions. About the same time she noticed "a hard lump" in the lower abdomen. A little later a period of "flooding" set in and continued many weeks in lessening amount. After that there were regular attacks of metrorrhagia, more or less severe, and during the preceding six months the hemorrhage had been almost constant. On several occasions, according to her statement, "a great gush of blood" was followed by syncope. The pain also increased, but remained in the same location. She was very anemic in appearance, emaciated and frail.

Dr. John T. Thornton, the chief resident, reported that a blood-examination estimated the hemoglobin at 20%.

Inspection and palpation of the abdominal wall revealed a nodular mass in the hypogastric region. The tumor was mobile in its upper portion, but fixed below in the pelvis. A diagnosis of uterine fibroid was at once made, and I was therefore surprised, and the correctness of the diagnosis questioned, when upon vaginal examination the cervix uteri was found to be greatly hypertrophied, roughened, fissured, and with other evidences of malignant change. On the right side at the cervicovaginal junction the tissues of the vagina were ulcerated and bleeding. The anterior vaginal wall from the cervix down was so infiltrated and indurated as to resemble to the touch nothing so much as sole leather. Indeed, the cervical mass gave the impression of a leather toughness rather than of the usual friable condition met in cancer of the vaginal portion, and, although I at once regarded the disease as malignant, I was in doubt as to its nature. I now changed my diagnosis of fibroid of the body of the uterus to that of probable sarcoma.

Altogether the case was a most unpromising one, and I did not view the management of it with comfort. I decided in the

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first place to try to rebuild the blood by forced feeding. She was fed on eggs and milk principally, and it was astonishing the amount of food she was able to digest. In addition to the regular meals, she finally took two quarts of milk and 16 eggs daily. The only drug given was iron carbonate in .32 gm. (5 gr.) doses three times a day. Almost from the beginning improvement was noticed in increased color of the mucous membranes and in the hemoglobin, which at the end of two weeks had increased to 47%.

I now decided to operate, and on February 14 the patient was etherized. Examination then showed the vagina so narrowed by the infiltration of the anterior wall and so rigid that the hope of removing the disease by vaginal hysterectomy was abandoned. The cervix was greatly enlarged, and tissues surrounding it so thickened and indurated as to render the parts immobile, and apparently to fill the pelvis entirely. Abdominal hysterectomy seemed too formidable under the circumstances. I therefore concluded to make high amputation of the cervix, only, at this time, and I was very glad afterward, for it took me almost an hour to remove the cervix. The dissection was rendered very difficult, because of the unyielding attachments. The raw surfaces were then thoroughly cooked and burned by the Paquelin instrument. The patient was in fair condition when the operation was concluded, and a few days afterward she was taking milk and eggs in increasing quantity. Two days after the operation, the hemoglobin had increased from 47% to 56%. The operation seemed to act as a tonic, for improvement was rapid after it. The cauterized surface had almost healed within ten days, and her general condition was so much better that she was placed in preparation for abdominal hysterectomy, which was done on February 28. As I anticipated, it proved to be probably the most difficult total extirpation that I have encountered, because of the firmness and fixation of the surrounding tissues which entirely prevented elevation of the parts. After the removal had been completed, the vaginal raw surfaces were thoroughly cauterized with the Paquelin cautery. Then the pelvis was closed by suturing the peritoneal edges with catgut. The toilet of the peritoneal cavity consisted in irrigation with normal salt solution and closure, with retention of all of the clear fluid that it would contain.

The recovery was uneventful, and the patient left the hospital on March 23 in remarkably good condition. I saw her a few days ago and found the vaginal surface cicatrized, the induration diminishing, and the general condition of the patient still further improved.

The specimen was sent to the pathologic laboratory, in charge of Dr. John C. Deal, to whom I am much indebted for the interest manifested in the microscopic examination, the report upon which is here inserted.

Studied macroscopically, one sees two distinct pathologic conditions in the specimen sent for examination. The first appears to be a well-circumscribed condition in the fundus, the other involving the cervix uteri only. Sections cut from the masses in the fundus, and stained in hematoxylin-eosin, show under the microscope a well-defined capsule enveloping the tumor mass. The capsule itself is composed of layer upon layer of fibrous tissue, and shows near its inner surface a tendency to detach itself except from the trabeculas extending into the tumor mass.

Within the capsule, the tumor is composed mostly of muscular tissue, with some fibrous tissue intermingling and surrounding it. The muscular tissue is arranged in large sharply-defined bands, enclosed by extensions from the fibrous capsule. Within these larger muscle bands can be seen well-defined smaller bundles of muscle fibers, each described by a lighter fibrous tissue. The muscle tissue contains long spindle cells with red, shaped nuclei. In places, the fibrous network surrounding the muscle bands is swollen and shows some edematous change. Bloodvessels are not especially prominent, nor do they show any engorgement. Several lymphatic vessels are to be seen with no change. The tumor shows no evidence of necrosis.

The sections from the cervix uteri are composed entirely of muscular tissue with an invading malignant change of the lining squamous epithelium. In no one place can the normal squamous epithelium lining the cervix be seen, but the extensions and finger-like growths from the epithelium into the muscular tissue are very prominent and by far the most striking condition in the section. The muscle bands have been loosened from one another, and in places are entirely replaced by the newgrowth. These tumor masses are composed of large epithelial cells, some cuboidal in shape, and contain large oval nuclei and a clear homogeneous intracellular substance. In some of the masses can be seen the often called pearly bodies, that is, a few large epithelial cells grouping themselves together and having a slightly hardened or glistening appearance.

Again, in many of the epithelial masses there is a central necrotic change going on, which tends to suggest a beginning cystic degeneration. A marked leukocytic infiltration is seen in many places throughout the section, and is particularly to be noticed near and surrounding many necrotic areas within the tumor mass. Bloodvessels are not common, and when found are rather small and have no hypertrophic change in their walls. An occasional extravasation of the red blood cells is found in the section, as well as some edema.

Diagnosis.—Fibromyoma of fundus uteri. Squamous epithelioma of cervix uteri.

The clinical history of this case shows again with shocking force the result which almost invariably follows a neglect to learn the significance of a metrorrhagia by physical examination, for doubtless the fibroid disease at least, and possibly the cancer, would have been found two or three years ago, and the treatment then would have been simple in comparison, the result in permanent eradication more promising, and further, two years of the greatest suffering might have been averted.

Quite apart, however, is the interest which attaches to the association of carcinoma of the cervix uteri with fibroma of the corpus. Fortunately this association must be very rare. In my own experience it is unique, for I have not met a similar case in a period of more than 25 years of active work, and this experience, I believe, agrees with that of other observers. Very few cases have been recorded so far as I have been able to learn, and in the few instances in which the subject has been studied it has been determined that the different pathologic conditions stand quite alone and independent of each other, so far as causative relation is concerned. Thus McDonald, for instance, who has recently made a careful microscopic study of 280 cases of fibroid uteri, records that he found two cases of squamous-celled carcinoma of the cervix coexisting, but he regards the association as purely "accidental."

TRAUMATIC CEREBRAL DIABETES.

BY

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Of all the great problems of modern medicine, there are perhaps none more important than those relative to disturbed metabolism, which is the basis of many diseases of obscure etiology. Unfortunately, with our limitations, we cannot establish more of the pathology of these diseases, nor cope with them rationally and successfully, until the physiologic processes associated with disturbed metabolism are better understood.

One of the most interesting of these problems is that of diabetes mellitus. The pathology of this disease has ever been one of the most elusive problems of medicine. Repeatedly during the last four decades medical science has been on the verge of important discoveries relating to diabetes, when, instead of dispelling uncertainties, other and more complicated problems have arisen. It is, of course, due to the obscurity of the physiologic processes involved in carbohydrate disposal that the pathology of diabetes mellitus remains uncertain.

Since this paper deals with a subject which is at the present time being investigated with remarkable activity, we feel that a report of this kind is, in a certain sense, out of date as soon as it has left the press. Within a few months, no doubt, valuable papers will appear, which would now be of great service in developing this subject. Nevertheless, we are certain that at any stage of progress a concise summary of knowledge tends to stimulate further research.

Pathology.—Thompson,[1] 16 years ago, pointed out that the muscular tissues are virtually the chief generators of animal heat, and that quite apart from their function of contraction and relaxation is their function of oxidation. This author asserted that the blood collected from the veins of a large muscle, like the gluteus, even though the muscle were at perfect rest, contained less

oxygen and more carbon dioxid than the blood of the right ventricle itself, as the latter was mixed with blood from the great glandular viscera where oxidation is less active than in muscle. This shows how much oxidation of blood contents occurs when the blood is coursing through muscular tissue, and points to the conclusion that, as the chief material for such oxidation consists of carbohydrates, some failure in this muscular function might bear direct relation to the pathologic failure of sugar oxidation in diabetes.

Cohnheim's[2] contribution to the physiology of carbohydrate metabolism is perhaps the most important paper that has appeared to date. It would seem that in the islands of Langerhans there is formed a substance which is like a ferment in constitution, as it is destroyed by heat. This substance, passing to the muscles through the blood stream, meets in the muscle cells another ferment or proferment, and between these a reaction occurs, resulting in the formation of an enzyme which has the power of rapidly destroying sugar. From this it would appear, then, that in pancreatic diabetes there is an absence or a deficiency of the specific secretion of the islands of Langerhans, which is necessary to make the glycolytic substance of the muscles (and perhaps in other tissues of the body) active where sugar is oxidized.

The unknown ferment that results from the action of pancreatic and muscular zymogens seems to be specific for dextrose, for in diabetes other forms of oxidation seem to be impaired but little, if any. The remarkable feature about this discovery is the idea that the combined action of pancreatic and muscular tissue is necessary.

Cohnheim's experiments afford a possible explanation why in some cases of diabetes mellitus we do not find lesions of the islands of Langerhans. These cases may prove that the muscles are at fault, and that the ferment which is supposed to be supplied by them is not produced, owing to some functional disturbance of the muscular tissue.

Under the name of hemachromatosis, von Recklinghausen,[3] in 1899, described an affection characterized by general pigmentation of organs and skin or localized pigmentation. These cases were associated with an enlarged, pigmented liver, and often an interstitial pancreatitis. In the advanced stage of the disease, when the islands of Langerhans are materially affected, glycosuria and diabetes develop.

Anschutz[4] collected 24 cases of diabetes, all in males, resulting from hypertrophic cirrhosis of the liver and cirrhosis of the pancreas. Of the 24, the liver showed the changes of pigmentary cirrhosis in 23. Of 22 cases 21 showed involvement of the pancreas. In 18 cases in which microscopic examination was made, pigment was discovered in various organs. Only a few cases occurred without diabetes.

Experiments of Blum and Herter[5] proved that the introduction of adrenal solution into the body, especially when injected intraperitoneally or applied directly to the pancreas produced glycosuria in animals. Herter produced it with other reducing substances.

Etiology.—Diabetes is due to disease of the pancreas in from 50% to 60% of all cases.

According to White,[6] diabetes should be classed among the neuroses. The disease obviously arises in the sympathetic chain which controls the secretory functions of the kidneys.

Diabetes also occurs frequently when there has been traumatism of the head, according to some statistics, in 20% of the cases, according to others, 1 in 30 cases. A large number of cases of traumatism of the head have been studied in great detail by Higgins and Ogden.[7] These observers give a review of 212 such cases admitted into the Boston City Hospital within 13 months. These were divided into five classes: 1. Wounds of the scalp. 2. Wounds with denudation of the bone. 3. Concussion, including cases with loss of consciousness, but without fracture. 4. Fracture of the vault. 5. Fracture of the base.

Of the first class, 84 cases; 5, or 6% presented glycosuria; of the second class, 43 cases; 4, or 9% presented glycosuria; of the third class, 40 cases; 1, or 2.5% presented glycosuria; of the fourth class, 24 cases; 5, or 20.8% presented glycosuria; of the fifth class, 21 cases; 5, or 23.8% presented glycosuria. In all, 212, 20 cases presented glycosuria.

From the examination of these cases the following conclusions were drawn: 1. Sugar may appear as early as 6 hours after a head injury and disappear within 24 hours; the average time for appearance, 8 to 12 hours; the average time for disappearance, 5 to 9 days. 2. A small proportion of cases exhibits a permanent glycosuria from date of head injury.

Bernstein-Kohan[8] reported 45 cases of diabetes mellitus, 25 of which followed traumatism of the head.

Since the time of Claude Bernard, we are aware of the fact that lesions of the floor of the fourth ventricle are particularly liable to give rise to diabetes. Several cases have been observed in man. Lesions in various parts of the encephalon may bring about the same result. It is extremely probable that syphilis is not a cause of diabetes, except through the influence of diffuse lesions of nerve centers.

In 27 cases, Saundby[9] examined the brain. The organ was normal in but five instances, the abnormalities consisting most frequently of edematous brains with thickenings of the membranes. Less frequently the organ was anemic or cystic, particularly in the frontal lobes, in the pons and in the medulla. Careful examination with the aid of the microscope failed to indicate any histologic changes, except in one instance in which the capillaries of the vagus nucleus seemed to be abnormally numerous and full of blood. Lorand[10] reports two fatal cases of diabetes, due to fright or psychic trauma.

Gibier's[11] experiments on dogs establish the psychic etiology of diabetes.

Diagnosis.—According to some authorities,[12] the only valid distinction between glycosuria and diabetes is that the presence in the urine of diacetic acid, shown by the ferrichlorid test, is generally indicative of confirmed diabetes. When glycosuria lasts more than a year it is safe to pronounce it diabetes. Time, in other words, and not the variability, either of the glycosuria or of any other accompaniments, is the best ground for diagnosis.

Mager[13] points to the following as an early symptom: "The pulse is slow in prone position; in assuming the sitting position, even passively, the pulse becomes weaker and more frequent."

Albuminuria exists in diabetes in at least a third of the cases, but in only a few cases is it symptomatic of Bright's disease. In 1,200 cases reported by Schmitz[14] albuminuria was present in 824. Jacobson[15] claims that this complication is more frequent in the traumatic than in the pancreatic form and most frequent when obesity is present. Replacement of sugar by albumin is considered by the author to be a grave sign.

According to Zaudy,[16] hydronephrosis is a rare complication. In Naunyris' monograph of 40 cases it was present in only one instance.

Optic atrophy, according to Osler, is common in diabetes.

Prognosis.—Pancreatic cases of diabetes are always grave. The younger the patient, the more serious the outlook. This points to diabetes as a deeply-seated constitutional disorder, and not a localized disease of any one organ. Heredity and greater liability of certain races would substantiate this view.

Mandel and Graham Lusk[17] claim that if a diabetic be put on a meat-fat diet and the 24-hour urine of the second day be properly collected, the discovery of 3.65 gm. of dextrose to 1 gm. of nitrogen signifies a complete intolerance for carbohydrates and probably a quickly

fatal outcome. This is the fatal ratio. A lower ratio between dextrose and nitrogen means some proteid sugar may be oxidized. Such a tolerance for sugar may be increased on a meat-fat diet, so that the dextrose-nitrogen ratio falls or the sugar in favorable cases may entirely disappear from the urine. The sooner sugar appears in the urine after the accident, the more favorable is the prognosis in traumatic cases.

Traumatic Cerebral Diabetes.—In the course of treatment of a patient with traumatic cerebral diabetes, an opportunity was offered for studying an unusually interesting phase of this subject. The data derived in a careful study of this case are so suggestive that, although the work is not yet complete, they may be of use to further research if the results are indicated at the present time.

E. M., aged 16, Hebrew, family and personal medical history excellent, a typic Chicago boy of good habits, energetic, high-spirited and rosy-cheeked, fell down a 12-foot elevator shaft on December 10, 1901, at 6 p.m. He struck the floor head-first, excoriating surfaces about two inches square over the right frontal and about an inch square over the right malar bones. The boy was unconscious for an hour. He was then taken home, where he remained in a stupefied state for 72 hours, during which time he was afflicted with hematuria, hematemesis and complete enteric inertia. He had no bowel movement until this was forcibly induced on the fourth day after receipt of injuries.

Examination on the day of injury showed all reflexes normal. The abrasions on the forehead and face were so slight they needed but little attention.

Owing to the presence of hematuria, I called for a specimen of urine and obtained about 4 oz., voided about 4 a.m., December 11 (less than 12 hours after the fall). Analysis showed: Specific gravity, 1,036; sugar, albumin and blood present. Daily urinalyses showed sugar present until December 21, when specific gravity was 1,030, but no sugar and minimal trace of albumin. From this time on there was a gradual decrease in specific gravity until on December 29, 1901, when it registered 1,020, with no more sugar nor albumin. Numerous tests since revealed sugar in quantities varying from a minimal trace to 7%.

On December 16, the patient complained of loss of sight in the right eye. My examination on that date could elicit no pupillary reaction. (It should be mentioned that there was at no time very much edema, not so much as in the ordinary "black eye.") An eye wash was given to alleviate the burning sensation and slight conjunctivitis.

Noting no improvement in sight, I called Dr. Henry Gradle in consultation, December 18. The specialist's findings were: "The right side swollen and excoriated, but no hemorrhage. Immobile pupil. Ophthalmoscopic findings negative." "January 10, 1902, beginning atrophy of optic nerve. February 8, distinct but incomplete atrophy of optic nerve. At present complete atrophy of optic nerve."

The patient recovered sufficiently, about 60 days after the accident, to take a light position as errand boy. He remained employed thus for almost two years.

On April 11, 1904, he called on Dr. Karl Herz, complaining of polyuria, debility, emaciation, and great depression. Dr. Herz has kindly supplied the following notes: Urinalysis at this time showed 7% sugar. Patient passed 7 to 30 pints of urine in 24 hours. Examination disclosed absence of pupillary and patellar reflexes; pulse was subnormal, 60 most of the time; no hyperesthesia, no anesthesia. Bulimia was marked, though replaced by anorexia at times. Furunculosis was distressful, especially on the posterior surface of the neck and on the lower maxilla. These furuncles would suppurate two to three weeks at a time, when there would be a persistent rise in temperature from 1° to 2°; otherwise the temperature was always normal.

The prognosis is gradually becoming graver.

Prophylaxis and Therapeusis.—The diet in diabetes should be adapted as much as possible to the individual case. An increase in fat may be as important as a diminution in starch. The weight and general condition of the patient are of more importance than the amount of sugar in the urine. Obesity should be treated on account of the danger to the heart.

The daily output of urea, as well as of sugar, should be tested. When the urea percentage is high, even with the disappearance of sugar, the patient should be treated accordingly. The free use of codliver oil with pepsin and bismuth is indicated in such cases.

Of the various forms of treatment, the dietetic is the most satisfactory. Mossé,[18] in 1892, found potato starch can be taken in larger quantity than is generally used, 16% to 24% starch, with marked amelioration of symptoms. He substantiates this view by his experiments at Johns Hopkins.

Von Noorden[19] emphasizes the fact that patients who have for a certain time been on a diet containing no carbohydrates often acquire a tolerance of these elements, and excrete much less sugar after a return to carbohydrates than they did before. This author[20] does not claim his oatmeal diet is a cure-all any more than the milk diet of Winternitz, or the potato diet of Mossé.

Hart[21] recommends the usual medicinal treatment in cerebrotraumatic cases of diabetes. In cases of hematoma, hydrocephalus, cerebral abscess, etc., surgical procedure is necessary. Moderate nerve strain, exercise short of fatigue, and change of climate are also favorable in therapeusis.

Thompson[22] states that before drowsiness begins, the urine often deposits an enormous number of peculiar-looking casts. To postpone the wellnigh inevitable death in these conditions, he relies on what he terms the most trustworthy diuretic we possess, namely, prolonged intestinal irrigation with hot normal saline solution by means of Kemp's rectal irrigator. Hypodermic injections of .45 gm. to .91 gm. (7 gr. to 14 gr.) of camphor in sterilized almond or olive oil answer best to sustain the failing heart, while diluted milk, holding all the sodium bicarbonate the patient can take, is, in his estimation, the only recourse left for food. Thompson believes some of the fatal poison could be washed out if we could bleed the patient freely and transfuse an equivalent amount of normal saline solution.

Considering that today we are merely at the beginning of knowledge concerning the pathologic processes associated with diabetes, and that we shall not obtain a clearer and more accurate pathologic picture of the disease until the physiology becomes more validly established, we cannot as yet formulate any definite and certain method of pathogenesis; hence, the therapeusis must remain chiefly empirical. We can do but little in the way of prevention. In considering the etiology of this disease, we can safely say that as human life in civilized regions tends to become more complex, the struggle for existence more severe, competition of all kinds, especially among brain-workers, more keen, we must recognize nerve over-strain as one of the predisposing causes of diabetes.

That traumatism, notably cerebral traumatism, may be an important factor in the etiology of diabetes, the independent experiments and careful observations of various investigators tend to prove. It is true that this source of diabetes is as yet little understood and scarcely recognized; but when we study the amount of evidence which is now generally being discussed in our journals, we are prone to lay great stress on traumatism as a factor in the etiology.

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FRACTURES AND DISLOCATIONS OF THE ULNA: A REVIEW, WITH REPORT OF CASES.

BY

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Fractures of the Ulna.—It is important to remember the following facts: The ulna, as it were, the continuation of the humerus, is small at the lower end; gradually increases in size toward its base; is only flexed and extended; has no rotation; has no lateral motion, except in early life; its lower epiphysis appears at the fourth year and unites with the shaft about the twentieth year; its base has no epiphysis; there is a small epiphysis which appears on the extremity of the olecranon at the tenth year and unites with this process about the sixteenth year; the ulna is more central than the radius, the latter being a movable bone, and the former being a fixed bone, in so far as their mutual relations are concerned; and, finally, that, when the ulna becomes a movable bone, the radius and ulna move as one bone, and then the fixed bone is the humerus. Fractures of the ulna are not so frequent as fractures of the radius. While the greater number of fractures of the radius are in the lower end of this bone, fractures of the ulna are quite equally distributed to the upper, lower, and middle thirds. Yet I am inclined to think that the ulna is more frequently broken in its middle third than at any other point. During a period of 15 years there were 53 cases of fracture of the ulna treated at the College Hospital; 10 were compound, 6 were comminuted, 4 were compound and comminuted; 16 were fractures of the olecranon. The youngest patient was aged 5; the oldest was 60. If we leave out the 16 cases of fracture of the olecranon, the remaining 37 cases were distributed in nearly equal proportion to the three thirds of the ulna—only the upper third, as well as the lower third, had fewer cases than the middle third. But if we count in the olecranon, the upper part of the ulna suffers more frequently from fracture than the lower part.

Hamilton says: "In an analysis of 36 cases, I find the shaft has been broken 11 times in its upper third, 14 times in its middle third, and 10 times in its lower third. All portions seem, therefore, to be about equally liable to fracture." During the time in which 53 patients with fracture of the ulna were treated in the College Hospital, there were treated in the same institution 143 patients with fracture of the radius. This was partly due to the greater number of fractures of the lower end of the radius, and to the fact that fractures of the radius are more frequent than those of the ulna, this bone being more exposed to injury.

Fractures of the entire ulna may be arranged under the following heads: (1) Fractures of the styloid process; (2) fractures of the shaft—lower, middle, and upper thirds; (3) fractures of the olecranon; (4) fractures of the coronoid process.

1. *Fractures of the Styloid Process of the Ulna.*—These fractures not infrequently exist in connection with fractures of the base of the radius. I have many times verified the existence of a fracture of the styloid process of the ulna by the röntgen rays in fracture of the lower end of the radius. Malgaigne, in his "Treatise on Fractures," gives a drawing of a case of fracture of the styloid process. Dr. Moore, of Rochester, as well as other surgeons, have seen and described cases of fracture of the styloid process of the ulna, in connection with Colles' fracture.

In these cases there is generally marked displacement of the lower fragment of the radius, as if the end of the styloid process of the ulna had been broken off by avulsion, on account of the severity of the injury. It is generally easy enough to find mobility of the end fragment of the ulna, and when motion is being made, crepitus, as a rule, will be detected; this will establish the diagnosis with reasonable certainty. A painful spot is found at the seat of fracture.

Of such practical importance is a fracture of the base of the radius that when a fracture of the styloid process of the ulna accompanies it, many surgeons quite ignore the little fracture of the ulna.

CASE I.—F. A., a builder, aged 43, fell on his left hand. I saw him a few hours after the accident, and took a röntgen-ray picture. (Plate 1.) As shown in the illustration, the styloid process of the ulna is broken off, and lies at a little distance from its original position. A separation at the radioulnar joint and a fracture at the base of the radius are also present. The treatment of this patient extended over a period of four weeks. The arm and hand were kept in a trough splint, padded so as to maintain the fragments of the radius in their proper relation after reduction. The styloid process never united to the ulna.

2. *Fracture of the Shaft of the Ulna.*—Abstracts of the clinical histories of a few cases of this injury will bring the points of importance more distinctly before the mind. A case of injury, like a case of litigation, is always pertinent, and will illustrate questions that may be raised in regard to causation, diagnosis, treatment, and prognosis.

CASE I.—G. K., painter, aged 27. Transverse fracture of the ulna about an inch above the wrist-joint; no material displacements. Forearm was put in a trough splint made of wire cloth, and placed so as to let the pressure come upon the inside of the hand and the elbow, in order not to push the broken ends of the fragments toward the radius. Patient made a good recovery.

CASE II.—E. G., a sailor, aged 49, fell a considerable distance and broke the right ulna transversely in the lower third, at the same time breaking both bones of his left forearm in the middle third. The broken ends of the ulnar fragments were displaced somewhat forward and outward. Bullas appeared on the arm and forearm, interfering to some extent with the retentive appliances. Subsequently abscesses formed and were opened. There was some delay in the formation of new bone, but the fragments were easily reduced, and kept reduced as long as the forearm was in an attitude of midrotation and right-angled flexion. Patient left the hospital improved.

CASE III.—A. A., a sailor, aged 43, received an injury confined to the lower end of the ulna; there was a transverse fracture an inch and a half above the styloid process. Crepitus and mobility were detected; the head of the ulna was bent backward about 25°, causing the hand to fall slightly inward. The patient declined treatment, and rubbed the injured part with liniment. Firm union took place, with the angular deformity described. There was no apparent loss of strength, nor were the motions of the hand and forearm much limited.

CASE IV.—A boy, aged 13, had nearly an inch of the lower end of the ulna bent backward about 25° from its normal position; the base of the adjacent radius had an impacted fracture. The reduction of the fragments of both radius and ulna was imperfect. A case of fracture of both bones of the forearm.

CASE V.—Girl, aged 18. She had injured her right wrist when two years old. Examination showed: 1. There had been a fracture of the ulna near the wrist-joint, resulting in permanent nonunion; the distal end of the upper fragment could be distinctly outlined; there was a new point of motion, and the lower fragment was attached to the carpus, as well as to the upper fragment, by a strong band of ligamentous tissue. 2. There had been a fracture of the internal condyle, for the forearm deviated inward to a considerable extent, and the condyloid end of the right humerus had a greater transverse diameter than that of the left. 3. The head of the right radius was dislocated somewhat forward, becoming more prominent when the forearm was extended.

CASE VI.—J. S., aged 7. Compound fracture of the upper part of the middle third of the left ulna. Marked inward angular displacement of the broken ends of the fragments. Head of the left radius dislocated backward and upward, and somewhat outward. The dislocated radius and the displaced ulnar fragments were reduced, and a double-angled splint was applied. Patient left the hospital improved.

CASE VII.—A male, aged 19. Compound fracture of the middle third of the left ulna, with laceration of the extensor carpi ulnaris, the flexor profundus digitorum, and the extensor secundi internodii pollicis. He had a comminuted fracture of the left humerus near its middle, and a lacerated wound of the corresponding axilla. There was some laceration of the ligaments of the radial humeral joint.

CASE VIII.—Boy, aged 13. Left ulna fractured near the middle, the broken ends of the fragments being driven outward toward the radius. Union took place in about four weeks, leaving slight deformity and no apparent disability.

CASE IX.—Boy, aged 14. Transverse fracture of the upper part of the middle third of the right ulna; head of the right radius had been torn from the capitellum and was projecting through the skin in front of the lower end of the humerus.

Diagnosis: Compound dislocation of the head of the radius forward, complicated by a fracture of the ulna. Under ether the reductions were made with considerable difficulty and the limb was put on a right-angled trough splint. Friends removed the patient from the hospital on the day of admission.

CASE X.—J. J., a sailor, aged 45. Simple fracture of the middle third of the right ulna, fracture of the base of the skull, fracture of the dorsal spine, fracture of the fourth and fifth ribs of the right side, and a fracture of the pelvis. The broken ends of the ulnar fragments were displaced forward and somewhat

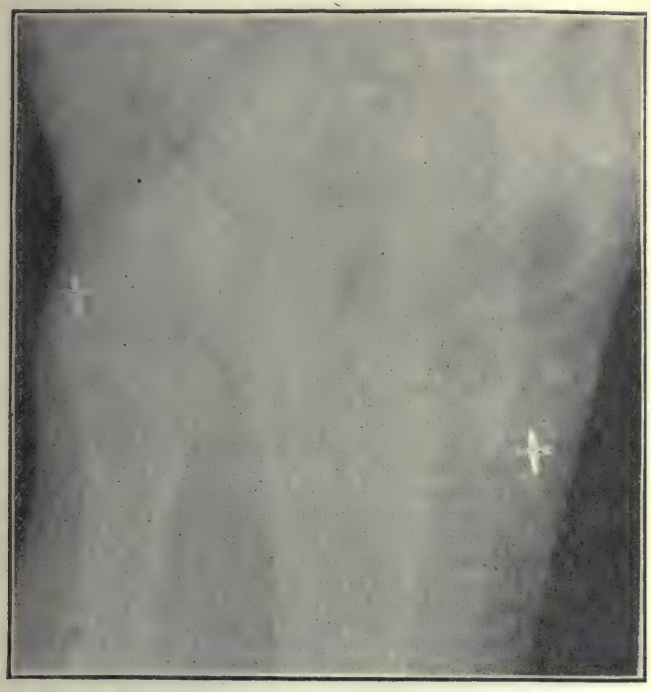


Plate I.

inward. The fracture was slightly oblique. This patient died at 10 o'clock in the forenoon of the day following the accident.

CASE XI.—A working woman, aged about 35. Transverse fracture of the upper third of the left ulna, accompanied by severe pain. The lower end of the upper fragment was displaced forward and the upper end of the lower fragment was displaced somewhat backward; there was apparent angular displacement forward. Lower fragment was more or less pronated, probably from the action of the pronator quadratus. Crepitus and mobility were easily detected at the seat of fracture. Traction on the hand, and pressure in every possible direction upon the broken ends of the fragments, utterly failed to make the reduction, and caused great pain. But on flexing the forearm and carrying it across the chest, so as to place the palm of the hand upon the opposite shoulder, relaxing the muscles which were interfering with the reduction, the fragments went into place spontaneously with the greatest facility, and remained there as long as the flexed position of the limb was maintained. I treated this patient with the forearm across the chest and the hand in front of the opposite shoulder, being careful to remove the bandage every two or three days, so as to make more and more extension until the union was such as to enable me to bring the forearm into complete extension without displacing the fragments. This patient made an excellent recovery.

CASE XII.—A laborer had his right ulna broken in its upper third. The forearm was flexed across the chest with the palm of the hand upon the opposite shoulder, with the result that the fragments, as it were, reduced themselves. The same treatment was carried out as in the previous case. The result was very satisfactory.

These cases illustrate the skill of the late Professor Wight in diagnosing obscure injuries long before the röntgen rays were used in medical practise.

The following cases are some that came under my observation in which I was able to take röntgen-ray pictures:

CASE XIII.—A laborer had his right forearm crushed. The ulnar fragments remained freely movable after four weeks' treatment when the patient was brought to my office and I took the röntgen-ray picture shown in Plate II. Reduction was effected after resection of the distal end of the proximal fragment. The forearm was supported on anterior and posterior plaster-of-paris splints. Plate III was taken three weeks later and shows some union of the fragments already taken place. The fracture of the ulna occurred an inch and a half from the lower end of that bone and the action of the pronator quadratus necessitated the suturing of the fascia in order to retain the fragments in apposition. The radius was fractured 4 in. above its base and suffered some comminution. The function of the forearm was almost fully restored.

CASE XIV.—T. F., aged 35. Forearm crushed. I saw him five weeks after the accident; condition as shown in Plate IV. There was marked deformity, mobility of fragments, and almost complete ankylosis of the elbow-joint flexed to an angle of 45°. The orbicular and oblique ligaments were torn in the dislocation of the radius and its proximal fragment was held out of position by the action of the biceps. I advised operation but the patient was unwilling to submit and I lost sight of him, so I have set this case down as one of permanent nonunion.

CASE XV.—J. P., contractor, aged 55. Injury of right wrist (Plate V), an oblique fracture three-quarters of an inch from the lower end of the ulna, a fracture of the scaphoid bone, a fracture of the semilunar bone, and a forward dislocation of the terminal phalanx of the middle finger. The dislocation was reduced, the arm was placed in an anterior splint, with the hand slightly adducted. The splint was removed at the end of 10 days, passive motion carefully started, and then the splint was replaced. This was repeated every five days to the end of four and a half weeks, when the splint was left off, and the patient was instructed to move and use the wrist.

Causes.—Direct violence is the more frequent cause of fracture of the ulna. The impact of a fall or a blow must be confined to the region of the ulna, in order that the radius may not be implicated and broken at the same time. The shaft of the ulna is sometimes broken by indirect violence. M. Voisan published an account of a fracture of the ulna caused by a fall upon the palm of the hand. Packard tells us that Lobatt saw a healthy



Plate II.

girl, who broke the lower third of her ulna, while engaged in wringing clothes. A fracture of both ulnas is very rare. The Museum of the Pennsylvania Hospital, however, contains such a specimen. Some authors state that the ulna is likely to be broken obliquely; it is difficult to admit this conclusion. When we remember that the ulna is generally broken by direct violence, and that direct violence is apt to cause a transverse fracture,

we may infer that fractures of the ulna are, for the most part, transverse. The greater number of the cases seen by me were transverse fractures, and I do not doubt that there are more transverse fractures of the ulna than oblique ones. In some cases, the fracture is transverse nearly across the ulna, and then for the rest of the way it becomes very oblique, leaving a sharp spike of bone derived from the compact tissue. It is not easy to say exactly how a case of fracture of the ulna, complicated by a dislocation of the head of the radius is caused. It is certain that the violence must be greater than that required for a fracture only, or for a dislocation of the head of the radius only. If we assume that direct violence is the cause, we may admit that the ulna is first broken, and that the head of the radius is dislocated in quick succession. But if we assume that indirect violence is the cause, it may happen—that the ulna breaks and the dislocation of the head of the radius follows; that the dislocation of the head of the radius takes place and the fracture of the ulna immediately occurs, or that the fracture and the dislocation are caused at the same moment. In this complicated injury the ulna is generally broken in its upper half, and the head of the radius is more frequently dislocated forward and upward at first, and then, perhaps, outward. Fragile bones and weak joints may contribute to the production of a fracture of the ulna and an accompanying dislocation of the head of the radius. In such a case the causation of the complex injury would require only a minimum of violence, either direct or indirect.

If the violence is direct, there is a swelling over the seat of fracture, and it does not involve the radial side of the forearm; if the radius and ulna are both broken, the swelling will extend all the way round the forearm. If the violence is indirect, the swelling will be at the seat of fracture, but there will not be the usual signs of contusion; the extravasated blood will come from the broken ends of the fragments and the soft parts around them, as far as they are injured.

The displacements of the fragments are not, as a rule, very marked; there cannot be overlapping when the fracture is transverse; nor can there be much longitudinal displacement when the fracture is oblique, since the unbroken radius will prevent it; the interosseous ligament will, as a rule, prevent any very marked lateral displacement, except when the forearm is extended, and then the lower end of the upper fragment will be displaced persistently forward, and the upper end of the lower fragment will be displaced as persistently backward. There may be a tendency of the upper end of the lower fragment to displacement in the direction of the radius. The angular displacement will, for the most part, be slightly inward and backward.

If the swelling is not very great, since the ulna is partly subcutaneous, the broken ends of the fragments can be readily reached by the thumbs and fingers of the surgeon, who can then move them to and fro, when crepitus and a new point of motion will be detected; the mobility will be slight, and the crepitus will be more of the nature of a "click." Let the forearm be flexed and carried across the chest, and then the muscles will be so relaxed that the surgeon, if there is any fracture, can find the point of mobility and detect the crepitus; this expedient ought not to be omitted in an examination for the evidence of this injury.

If a dislocation of the head of the radius accompanies a fracture of the ulna, the evidence will be distinctive, and ought to be clearly stated, since the attention might be confined exclusively to the dislocation, and then the fracture would be overlooked—as it has been known to be. The deformity will be greater than it is in a case of fracture of the ulna only; there will be more shortening of the forearm; the mobility of all the parts will be increased, except that the forearm cannot be fully flexed; there will be lateral motion of the hand when the forearm is extended; there will be a depression on the inside of the forearm at the seat of fracture; the lower fragment will not greatly change its relations to the radius; the lower end of the upper fragment will be displaced outward and perhaps forward, since it will follow the radius as it goes out of place; the ulnohumeral joint will have more motion than normal; and there will be a diastasis of the upper ends of the radius and the ulna; the hand and the forearm of the patient will be remarkably helpless.

The lower fragment of the ulna will, no doubt, in all cases, have a tendency to outward rotary displacement, on account of the action of the pronator quadratus; when the ulna is unbroken, this muscle inrotates the radius; but when the lower ulnar fragment has lost the stability given it by means of the ulnohumeral joint, it will rotate toward the radius, as may be easily understood. This tendency to outward rotation of the lower ulnar fragment exists even when the head of the radius is dislocated.

Diagnosis.—There are two conditions which may make the diagnosis difficult: 1. The swelling caused by the contusion may be so great as to conceal the seat of fracture and obscure the signs which may exist there; it may prevent the surgeon from feeling the broken ends of the fragments and any displacements that they may have. 2. The immobility of the fragments, which is sometimes remarkable, may prevent the surgeon from obtaining important and conclusive evidence of the existence of a fracture—and this point ought never to be overlooked in making an examination.

The lateral displacement, if we can find it, will prove the existence of a fracture; and if we add to this sign the general sign of mobility, there can be no reasonable doubt as to the existence of a fracture. We need not even find crepitus, but if, in making the reduction, we find crepitus, we are assured that we are not making any mistake. If in our examination, as sometimes occurs, from a fortunate manipulation, we get the characteristic "click," we need not delay the work of applying proper splints. If we find neither crepitus, mobility, nor displacement, supposing the forearm is extended, we may carry the hand upward across the chest, and then, a fracture being present, we can, in the majority, if not all cases, obtain sufficient evidence of its existence—both crepitus and mobility will be found. The evidence in a case of fracture complicated by a dislocation of the head of the radius, is so distinctive that there can be no great difficulty in making a diagnosis. The mistake that has been made, and may be made again, is in overlooking the fracture, on account of the prominent appearance of the dislocation. The evidence of the fracture is plain enough—only, the surgeon must look for it; and if he looks he will find it. So the precept is, in every case of dislocation of the head of the radius, look for fracture of the ulna, and if in doubt, consider the case one of fracture until it can be clearly shown that there is or that there is not a fracture by the use of the röntgen rays.

Treatment.—When the fracture is in the lower half of the ulna the displacements will not require much attention, since they will generally be removed with ease, and then the fragments can readily be kept in place. The best posture, or attitude, of the forearm will be that of midrotation and right-angled flexion. Either or both anterior and posterior splints, well-padded trough splint, should be applied to the forearm; this should have two practical points: 1. It should be so padded that the hand and the elbow will receive the greater part of the pressure from the ulnar side, in order to prevent the broken ends of the fragments from being displaced outward toward the radius. 2. The upper part of the splint should be so made that it can be fastened to the lower end of the arm, in order to prevent it from slipping downward. When the fracture is near the middle of the ulna, the surgeon may have to employ considerable skill to bring about the reduction of the fragments, and then it may tax his ingenuity to prevent them from get-

ting out of place again. The trough splint may still be used, but the double-angled splint will be best adapted to the performance of this work. In such a case great care will be required in the prevention of outward displacement of the broken ends of the fragments, and the surgeon will have to use much skill in order to prevent the splint from slipping downward on the forearm. Here also the attitude of the forearm may be that of midrotation and right-angled flexion.

When the fracture is in the upper half of the ulna, the reduction of the fragments may be greatly facilitated by flexing the forearm and placing the palm of the hand upon the opposite shoulder. In this position there need be no splint applied, since the radius and ulna will repose against the chest, and these two bones will be at a maximum distance apart; that is, the forearm will be in an attitude of midrotation. If considered necessary, a thin and lightly padded splint may be applied either to the anterior or posterior surface of the forearm, only it must not interfere with the retention of the fragments. Care must be taken to prevent the contracture of the flexor muscles by early passive motion; the forearm should be extended little by little as time goes on, so as not to displace the fragments and to prevent contracture of the muscles. The broken ends of the fragments may tend to move backward; the best way to prevent this is to apply a soft elastic pad over the seat of fracture, using much care to obviate ulceration, as well as delay in the repair of the broken bone on account of interference with the circulation. The retention will be facilitated by



Plate III.

removing the splint from time to time and then making a due degree of pressure upon the ends of the fragments, so as to bring them more and more into better place. We may except the case of a fracture in the upper third when the lower end of the upper fragment tends to move forward; even then it may be necessary to put a compress over the surface of the upper end of the lower fragment in order to keep it from backward displacement.

As a forward dislocation of the head of the radius and a fracture of the upper third of the ulna are so difficult to treat, what must be the difficulties to be met when both these injuries are combined in one case? In such a case the following points should be observed: First make every effort to reduce the dislocated radius; then reduce the displaced fragments of the ulna; after that apply a well-padded, double-angled splint to the injured limb. Continue the treatment until it is quite certain that the joint is repaired and the fragments united. If the radius cannot be reduced it must be left out of joint or some operation performed. It might be good practice to cut down upon the head of the radius and the external condyle of the humerus in such a way as to make reduction possible; and then, under aseptic conditions, obtain primary union. After the reduction of the radius, the surgeon might hope to treat the fracture with success.

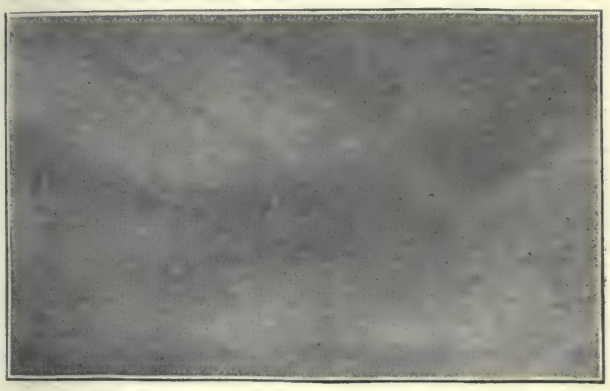


Plate IV.

Two of the very few cases of permanent nonunion that I have ever seen were in a case of fracture of the ulna, complicated by a forward dislocation of the head of the radius—the dislocation was permanent also, and in Case XIV, Plate IV, which was complicated by a fracture of the shaft and a dislocation of the head of the radius.

The upper end of the ulna is made up of three parts: The base, olecranon, coronoid process. The base of the ulna is all that portion of the bone extending from the surface articulating with the trochlea to a point about two inches downward. It is the upper part of the upper third of the ulna. In cases of fracture of the olecranon and the coronoid process, the elbow-joint is involved. Hence, we may trace the relations of the upper end of the ulna to the lower end of the humerus. It is, therefore, important to keep in mind the landmarks of the elbow; they are the internal condyle, the olecranon, the external condyle. In the normal elbow the olecranon is about midway between the condyles of the humerus. It moves backward and upward during extension of the forearm nearly two inches, and the same distance downward and forward during flexion of the forearm. In some instances the internal condyle is not very large, and the edge of the olecranon comes very near its apex. The sigmoid surface of the olecranon quite evenly grasps the trochlea, the contact being quite perfect in every position of the forearm. This relation prevents the olecranon from becoming a short lever, with a fulcrum in its continuity. For if the lower end of the humerus came in contact only with the middle of the sigmoid surface of the olecranon, this bony process would, no doubt, be liable to be broken by the force of the contracting triceps brachii. The insertion of the triceps is located at the posterior part of the upper surface of the olecranon, so that the hook-like process is grasped by the tendon of this muscle during marked flexion of the forearm, and during extension of the forearm it is free to penetrate the posterior condyloid fossa. A fact of importance is that there is great diversity in the size of the olecranon in different persons. In one it will be thick, heavy, and strong; and in another it will be small,

light, and weak. The olecranon is an inch or more in length. The short portion of it next to the base of the ulna is called its base. The extreme upper portion of the olecranon is called its apex; this constitutes the hook-like process. The remaining portion of the olecranon is called its body.

3. *Fractures of the Olecranon.*—For the purpose of illustrating practical points, the following cases of fracture of the olecranon, the histories of which are taken from Professor Wight's records, made at the time the patients came under his observation, are given:

CASE I.—V. L., a schoolboy, aged 11. Transverse fracture of the base of the olecranon, with considerable space between the olecranon and the base of the ulna. Crepitus could be detected when the two ulnar fragments were approximated and rubbed together. In addition, there was a fracture of the internal condyle of the humerus, beginning on the surface of the trochlea and going obliquely upward and inward. The injured limb was put on a right-angled trough splint, which appeared to answer the indications of treatment; it kept all the fragments in good place; and if ankylosis were to follow, the limb would be useful. The reasons for this position of the elbow will appear in another part of this work. The parents removed the patient from the hospital on the day of his admission.

CASE II.—A German sailor, aged 32. First seen five weeks after injury. The extremity of the olecranon had been broken off transversely, about a half inch, and there was a considerable transverse sulcus between the fragments. The condyles of the right humerus measured 2⅞ in. in width, and the condyles of the left humerus measured 3¼ in. in width. The left forearm deviated inward to some extent; while the internal condyle was enlarged. The motions of the left forearm were considerably limited. The fracturing force broke not only the olecranon, but also the internal condyle of the humerus. The result in this case was ligamentous union of both the olecranon and the internal condyle, with impaired motion of the forearm.

CASE III.—J. M., a laborer, aged 34. Complete ankylosis of the right elbow, with the limb in the straight position. Injury had been received six weeks before, and limb had been bandaged in the straight position, and kept in this position until I saw it. At this time the olecranon was considerably wider than the one on the sound side. I flexed the forearm a short distance, producing a compound fracture, causing intense pain, and giving rise to profuse hemorrhage. I then administered ether, brought the forearm up to the right-angled position, and applied two right-angled splints, the hemorrhage being controlled by pressure. The wound into which I could at first insert my finger, healed very rapidly, forming good firm scar tissue. I made passive motion as often as every other day for about three weeks, and then discharged my patient, with a rapidly improving limb. He finally recovered with a very useful elbow, there was some deformity, and some limitation of the motions of the forearm, but he could perform all his work nearly as well as he could before the accident, the disability being almost a minimum.

CASE IV.—Mr. U., a painter, aged 50. Transverse fracture of the olecranon quite firmly united by ligamentous tissue about ¼ in. in length. There was no swelling, and considerable sulcus between the fragments could be made out. The flexion of the forearm was good, but the extension was not perfect; while I could completely extend the forearm with my hands, the patient's voluntary efforts always stopped short of complete extension. In this case, there was some deformity, accompanied by considerable disability.

CASE V.—Mrs. A., aged about 45, fell on her left elbow, and was treated by her family physician, who kept her arm and forearm straight for about four weeks, and then had great difficulty in flexing her forearm to a right angle with the arm. The patient could flex the forearm only a short distance, and the constant tendency was toward ankylosis in the extended position. After five or six months, this patient came under my observation, when I found the left forearm deviated outward, as compared with the right, and I also found the left elbow considerably greater in width than the right. There had been a fracture of the external condyle as well as a fracture of the olecranon. This patient was suffering from very great disability, but declined to have anything done for her.

CASE VI.—E. H., a female, aged 60. Transverse fracture of the olecranon near its middle. When the forearm was flexed, there was a separation of nearly an inch between the fragments, and when the forearm was extended, the fragments came quite closely together. In this way I made the reduction of the fragments, and kept up retention by means of an anterior splint, extending from the wrist to the shoulder. The forearm was left undisturbed for a week, and then I began to flex it more and more every two or three days. A week later I could put the forearm in the position of right-angled flexion, without separating the fragments, the union being quite firm. The patient made a good recovery.

CASE VII.—M. A., a sailor, aged 22. Transverse fracture of the olecranon near its middle, with very little separation of its fragments. A straight anterior splint was applied, reaching from the wrist to the shoulder. Four days after admission to the hospital, slight passive motion was made, and this was repeated 7 and 12 days later. When the straight splint was removed, it was found that there was fibrous union, the band being about ⅜ in. in length. In the meantime the forearm was supported in a sling, but the strength of the uniting material did not increase. Dr. Atkinson applied a Spanish windlass and drew the fragments into better reduction. When this apparatus was removed, the union was still fibrous, nor had it been much shortened by the treatment. The patient was discharged with considerable disability.

CASE VIII.—A man of 28 received a penetrating wound at the inner side of the base of the right olecranon. A probe detected a fracture of the olecranon at its junction with the body of bone. There was a fracture of the condyles of the humerus; the lower end of the right humerus was considerably greater in width than that of the left, as was shown by comparative measurement. The head of the radius was dislocated forward about ½ in., and could be easily reduced. This patient was treated with the elbow in the right-angled position, an angular trough splint being used.

CASE IX.—A. S., aged 34, arm caught in machinery. Plate VI shows fractures through the apex and the body of the olecranon; a backward dislocation of both bones of the forearm at the elbow-joint with a fracture of the coronoid process; and fractures of both bones of the forearm at junction of upper and middle thirds. All attempts at primary reduction of the dislocation failed. At the end of five weeks' treatment on a right-angled splint, union of the fragments at the upper third of the forearm was fairly firm and the dislocation was reduced. Bony union at the apex of the olecranon never took place. The function of the elbow-joint remained imperfect with loss of power and limitation of motion.

Fractures of the olecranon are rare; it is probable that they do not constitute more than 3% of all fractures. They are much less frequent than fractures of the condyles of the humerus, although they are produced by similar causes. One surgeon will see a number of cases in a few years; another will see only one case in many years of an extensive practice. To verify this statement one need only read the opinions of the various surgeons who report cases. It may be that they are more common in one country than in another; they seem to be frequent in the United States, and perhaps they are more frequent in England than in our own country. In 30 years, 17 patients with fracture of the olecranon were treated in the College Hospital; in 11 years, 9 patients were treated in the Hotel Dieu; in 5 years, 11 patients were treated in the Pennsylvania Hospital; in 16 years, 76 patients were treated in the Middlesex Hospital.

Fractures of the olecranon are more frequent in males than in females; this may be due to the fact that males are more exposed to accidents. The proportion of females to males having this fracture, in one set of statistics, may be 1 to 8; in another, 1 to 4; in another, 1 to 3, or 1 to 2. The most we can say is that males are more liable to this injury.

The youngest patient coming under my care with fracture of the olecranon was 10; another was 11; many of my patients having this fracture have been adults. One patient under 5 was treated in the Middlesex Hospital for fracture of the olecranon. While I have seen this fracture a number of times in the young, in boys over 10, I believe it more frequent in adults, especially those who are engaged in the more dangerous occupations.

Seat of Fracture.—The olecranon may be broken at any point in its continuity. A fracture at or near the apex is the rarest; few surgeons have ever seen such an injury. A point just below the middle of the olecranon in its body is the most frequent seat of fracture; the greater number of my cases have been located there. It is probable that fractures of the base of the olecranon are more frequent than those of the apex, although they are quite infrequent. Malgaigne says:

> Fractures of the apex are the rarest of all; I can quote but two instances. They consist in a tearing off of the cortical layer, which receives the insertion of the triceps, and in both these cases were the result of muscular action. Fractures of the middle portion are the most common of all; they divide the process just where its articular cartilage ends, where the sigmoid cavity diminishes in size; their direction is nearly horizontal. Lastly, fractures of the base are such as, running very obliquely from above downward and from before backward, commence within

the articulation at the same level as the preceding, but descend backward so as to detach from the ulna the entire posterior and triangular face of the olecranon. I have twice seen this lesion in the living subject, and in one remarkable instance the fracture gave rise to luxation forward of the forearm.[1]

Across the anterior surface of the olecranon, from side to side, there is a kind of groove which, as it were, separates a facet on the hook-like process of the apex from a facet on the surface that terminates in the extremity of the coronoid process. These two facets articulate with the trochlea of the humerus; the groove, which is not made smooth and which does not immediately articulate with the humerus, is just below the middle of the body of the olecranon, and is at a point where the underlying cancellous tissue is weaker and less abundant than

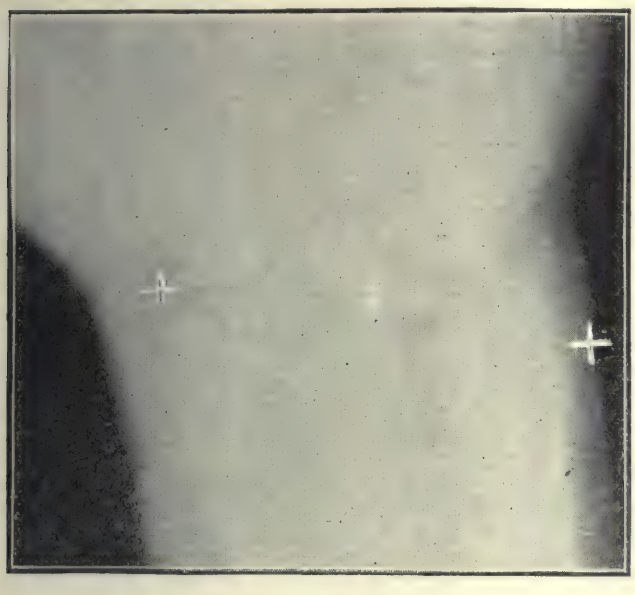


Plate V.

it is in other places. It appears to mark the point where the entire bone is the weakest, and it is at this point that the bone is broken most frequently. A section of the trochlea has a surface as nearly as possible like that of a circle; that is, it represents the segment of a circle. Here we may add: The olecranon fossa is just back of the coronoid fossa, there being a thin layer of bone between them, so that in extreme extension the apex of the olecranon is near the location of the apex of the coronoid process, in extreme flexion; hence, the circle of the trochlea is nearly complete. The questions relating to the groove in the trochlea are not now pertinent, they come under the head of dislocations of the ulna and the forearm.

I will now discuss the etiology of fractures of the olecranon. The greater sigmoid cavity of the ulna has a curve "sharper" than that of a circle; that is, the distance from the apex of the olecranon to the apex of the coronoid process, is less than the distance from the middle of this line to the lowest point in the sigmoid cavity. The groove in the bottom of the greater sigmoid cavity of the ulna is destitute of cartilage, and has foramens for the admission of bloodvessels to the structure of the bone; and the facets above and below are divided longitudinally by a ridge of bone, seemingly for preventing lateral displacement. When the facets are covered with cartilage, as in their normal state, it is evident that the trochlea will press more on the extremities of the olecranon and coronoid process than on the bottom of the sigmoid cavity; and this arrangement, as is evident, will bring the stress upon the horns of the sigmoid cavity; hence, it will happen, when external violence is applied to the back of the olecranon, it will be driven onto the trochlea, which will act like a wedge, and tend to break off the bone at its weakest point. That such a dynamic relation exists from time to time, there can be no good reason to doubt.

Assuming that the ulna is displaced laterally inward or outward to some extent, in an elbow accident, the effect will be to bring a larger part of the trochlea into a narrower part of the sigmoid cavity; undue pressure would result in bringing cross strain on the structure of the olecranon, affecting the weakest part of the bone—the neck of the olecranon. On the other hand, assuming that the sigmoid cavity is the side-curve of an ellipse, and that it is open enough to permit the trochlea to press more on the bottom of the surface of the sigmoid cavity, so that the olecranon rests upon the convexity of the trochlea, as if it were a lever of the first order; then it is very evident that a fall or a blow upon the extreme upper end of the olecranon would, under favorable conditions, make cross strain over the point of pressure and cause a transverse fracture of the bone at the neck, which is the weakest part of the process.

There are other considerations which bear upon the etiology of fractures of the olecranon. It happens sometimes that one bone, or even one part of a bone, is more fragile than the other bones of the same person, even the bones that are adjacent; for instance, those on one side of a joint may be more brittle than those on the other side. If this principle is true, the olecranon may be, at times, more fragile than the condyles or the lower end of the os humeri. Thus it might happen that external violence, sufficient to break the olecranon, might not break the lower end of the os humeri. It has been proved that this is just what takes place sometimes, though not very often. On the contrary the condyles of the os humeri are broken, one or both of them, without any fracture of the olecranon, and such an accident is met more frequently than one in which the olecranon is broken, without a fracture of the lower end of the humerus. In some cases I have seen the olecranon act

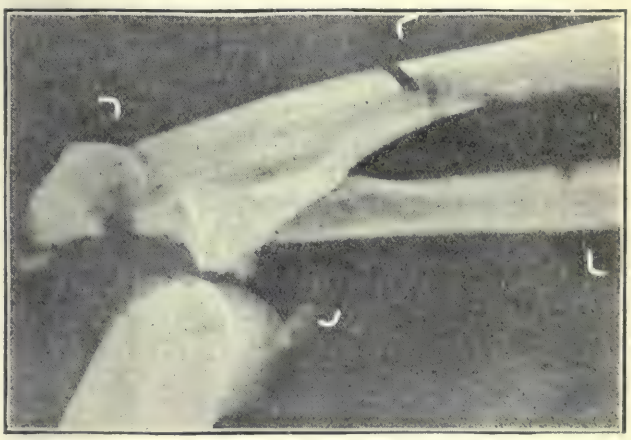


Plate VI.

as a wedge and simply split the lower end of the humerus, making an incomplete fracture, and I do not doubt that such injuries are more common than we have hitherto supposed. I have had cases of fracture of the olecranon, accompanied by fracture of the lower end of the humerus. In such a complex injury the violence was sufficient to break the lower end of the humerus after it had broken the olecranon.

To make the etiology of these fractures still more clear, let us assume that there is overextension of the forearm, so that the extremity of the olecranon comes violently in contact with the bottom of its fossa in the humerus; let the extending force continue to act with much energy, and it will be opposed by the brachialis

anticus and the anterior portion of the capsular ligament; and if the cross strain is great enough, the olecranon may be broken, either transversely or obliquely, downward and backward, implicating the base of the ulna. Again, if the distal portion of the forearm is suddenly arrested in its motion, as it is being forcibly extended, it is presumed that the triceps is in a rigid state of contraction, as it were, unyielding for the moment; at the same time the whole weight of the body acts through what is now a lever of the second order, and operates with so much effect as to cause a fracture of the olecranon. Such a case would be one in which the fracture is caused by muscular contraction, and is, in some respects, like one of the rare cases of avulsion fracture, in which the tendon of the triceps has torn a thin piece of bone from the extremity of the olecranon. Further, if the triceps and the brachialis are both in a state of contraction, as they might be when a patient is falling and trying to save himself, they act upon the olecranon, as if they were power and weight, and so would tend to produce cross strain of the neck of the bone; and if, during the continuance of this cross strain, the olecranon, at some point, comes in violent contact with a projecting body, the two fracturing forces would evidently cooperate, and the result would be a fracture, unless the bone was strong enough to make successful resistance.

Fractures of the olecranon are generally complete, although incomplete fractures sometimes occur, though rarely. Such fractures have come under my observation:

A workman fell upon his elbow, and, though suffering great pain, he continued to work. Four or five days later he came to consult me. On examination, I found a transverse sulcus in the back part of the olecranon, where I have located the neck; it did not extend all the way through the bone, for the space of separation was wedge-shaped, indicating that the fragments still held together on the anterior surface of the olecranon. I put the limb on a right-angled splint, and kept it there for four or five weeks, when the sulcus had disappeared, new bone having filled it up.

A sailor received a heavy blow upon the back of the base of the right ulna just below the elbow-joint. I detected an unusual angular displacement backward of the olecranon, the form being very different from that of the other side. I made a diagnosis of incomplete fracture of the base of the olecranon, involving the base of the ulna. The fracture was more vertical than oblique and reminded me of the two cases of Malgaigne, in which the base of the ulna and the head of the radius were dislocated forward, after complete fracture of the base of the olecranon. In this case, as in the previous one, reduction was impossible, but a few weeks' treatment of the limb in the right-angled position, restored it to a good degree of usefulness, although the deformity was permanent.

A young man had over-extended his left forearm, and the olecranon appeared to be bent backward. The part was very painful, and he had lost the use of his limb. After examination I came to the conclusion that there had been an incomplete fracture of the olecranon, the fragments being separated on the anterior surface of the bone, and being still unbroken on the posterior surface, the fracture being the reverse of the one previously noted. In this case the result was favorable after three or four weeks' treatment.

I have seen the fascia and the periosteum over the back of the olecranon separate transversely by coming in forcible contact with the blunt edge of a resisting body, and it may be that the superficial layer of bone was grooved, giving a kind of depressed fracture. In such an instance, we might conclude that the case was one of fracture of the olecranon and treat the patient accordingly.

A laborer fell upon his right elbow and received a severe bruise. On consulting a surgeon he was told that there was no fracture, and that he had better rest his limb a few days. In about a week he resumed his work and while he was making some effort his elbow suddenly "gave way." When I saw him he had a transverse fracture of the olecranon, the fragments being separated over half an inch. His fall had caused an incomplete fracture of the olecranon, and it was practically impossible to determine this fact by any ordinary examination. The contraction of the muscles, acting on the olecranon, completed the fracture.

Evidence.—The patient suffers pain in the joint; this is sometimes very severe. The power of flexion and extension is generally lost, although in some instances there is good command over the motions of the forearm, mostly for the reason that some of the fibers of the tendon of the triceps remain attached to the upper end of the lower fragment. The patient has a sense of insecurity in his injured limb, which may, perhaps, be best explained by saying that the coordinate action of the elbow-joint has been impaired or lost. This impairment is different in different persons. It would appear as if the coordinate circle of the joint function had been more or less broken into; this circle is made up of bone, nerve, and muscle. Therefore there should be no difficulty in understanding the disability which follows the break in the correlated bone.

In many cases the cause is direct violence, and there is considerable swelling of the soft parts over the posterior aspect of the elbow; in fact there is at times an effusion of blood sufficient to form a hematocele. In the event of there being a compound fracture, the extravasated blood will escape from the wound and there will be no special swelling. In one case the swelling will be great enough to obscure the displacements of the fragments so that they cannot surely be detected; in another, the entire upper fragment can be outlined and the displacements can be traced with accuracy and certainty. Sooner or later the swelling will subside, say, in about a week or ten days, and then the displacements will become manifest. In some instances the tension of the skin has been so great that I have drawn off the blood by aspiration and the operation has always done good; yet I can see how it might do harm unless it is done with antiseptic precautions. Indeed, such an operation might well prevent the formation of pus in the blood cavity, and then it might be necessary to make the fracture compound.

The displacements of the fragments are important in treatment. It is evident that lateral and rotary displacements cannot occur to any great extent; in fact, they are not of a nature to require any serious practical consideration; indeed, the relations of both fragments to the trochlea are such as to prevent them from rotating or moving sideways. The leading practical question is one relating to the longitudinal displacement—and the longitudinal displacement is one of separation—the fragments suffer diastasis, the upper one moves upward and the lower one moves downward. In one case it will be almost imperceptible in every position of the forearm from extreme extension to extreme flexion, because the periosteum is not torn all the way through, and because some of the fibers of the triceps tendon, as they go downward over the bone, are still uninjured; in another there will be slight separation of the fragments, and yet they will move together in the same relative position, through both flexion and extension; in still another there will be a sulcus into which you can lay your finger, especially when the forearm is considerably flexed, and in some instances the finger can easily trace the form of the trochlea. When the fragments are more completely separated, there are certain motions which can be impressed upon them; the lower fragment moves with the forearm as it is flexed and extended, so that the upper end of it revolves around the circle of the trochlea; the upper fragment can be made to follow this motion to some extent, by pushing upon it from above, and it can be moved laterally by seizing it with the thumb and fingers. It is clear, then, that in many cases we can detect mobility in the continuity of the olecranon, a fact of prime importance. And it is possible for us to bring the broken ends of the fragments together so that we can detect crepitus, and if the crepitus can be surely located in the continuity of the olecranon, the evidence is quite unimpeachable. However, it may be difficult to find a new point of motion, or to detect crepitus. When there is much swelling the surgeon cannot well apply his fingers so as to make the fragments move; the considerable quantity of extrav-

asated blood prevents this; and so it is difficult, and, perhaps, impossible to tell what it is that moves. When a little time has elapsed—say a day or two—the blood will form a firm clot on the ends of the fragments, and it may be sufficient to prevent the bony surfaces from coming into contact in such a way as to cause crepitus. This condition will also be found in cases of fractures of the condyles of the os humeri. The error of opinion may arise from the difficulty of saying whether the soft parts over the bone move or the fragments themselves, since there is no crepitus to aid in making a diagnosis.

That there may be a fracture of the olecranon from a fall on the elbow, without any displacement of the upper fragment, has been affirmed by various surgeons. I have given an account of such a case in a previous paragraph. This condition is due to the fact that the capsule of the elbow-joint holds the upper fragment from moving laterally, and the prolonged fibers of the triceps tendon, as well as the strong periosteum keep it from upward and backward displacement. The transverse sulcus of laceration of the soft parts over the olecranon must not be mistaken for the actual separation of bony fragments. The surgeon will not find it easy to differentiate the sulcus of an incomplete fracture from the separation of detached fragments.

Lastly, I quote the following from Malgaigne:

> In fractures toward the summit, the detached fragment being very thin, the shape of the elbow is scarcely altered; so that in one case, as has been said, a mere rupture of the tendon was diagnosed. In those of the middle portion the separation is more marked than in others, and sometimes allows the finger, the forearm being flexed, to reach the trochlea; or, the forearm being extended, to pass into the sigmoid cavity. Fractures of the base have a special character, owing to their obliquity; the upper fragment is pointed, and stretches the integument, while below it may be felt the ulna, beveled at the expense of its posterior face. Perhaps an attentive examination would detect some preternatural mobility in the articulation of the ulna with the humerus; but having only seen these fractures a long time after their occurrence, I put forth this idea as a mere conjecture, to be tested.[2]

Treatment.—Surgeons have not always been in accord as to the way the treatment of this injury should be carried out, and the difference has been somewhat radical. If possible, there should be a uniformity of practice. At one time it was the practice to put the forearm in the semiflexed position and have it carried in a sling while the fragments were uniting; by this, it was probably intended that the elbow should be bent to a right angle. Then it has been the practice to put a splint upon the front of the limb and apply a bandage so as to reduce and retain the upper fragment in place during the period of repair; the forearm not being completely extended, but somewhat flexed, in order to relieve the pain of tension. In later years wiring and suturing have given good results.

The object of the surgeon is to bring the broken ends of the fragments together, in apposition, and keep them there until they unite. Both fragments are movable; sometimes they move together, sometimes they move separately. Now the question is, in what position of the forearm can the reduction be best made, and the fragments kept more completely in place? As already indicated, there have been two methods: 1. The ancient method. 2. The modern method. Hippocrates was the reputed author of the ancient method—that of *semiflexion* of the forearm, in which the forearm is carried across the chest and supported in a sling bandage. Duverney was the author of the modern method—that of *extension* of the forearm, in which the forearm is kept more or less extended for a time, and then sooner or later flexed. One surgeon advises one method and another surgeon advocates another. It is evident that good results have followed from the application of both methods. A patient has a fracture of the olecranon and the fragments are not separated by semiflexion of the forearm; he has it treated by means of sling bandage, supporting the forearm across the chest; the treatment is followed by an almost perfect result. What could be better? Why should not surgeons advocate such treatment? Another patient has a fracture of the olecranon, with the fragments widely separated, as the forearm is flexed; the surgeon treats it by means of a sling bandage, the union is ligamentous, and the result is one of deformity and considerable disability. The surgeon declines to repeat such an experiment, even if he has followed the advice of reputable authority. Still another patient has a fracture of the olecranon and the fragments are kept in apposition—good reduction—by means of an anterior splint for a few weeks, resulting in firm union, and finally a useful limb, after some weeks of passive motion, followed by some months of voluntary motion. The surgeon begins to feel that he has found the way to treat fractures of the olecranon. Another patient has a fracture of the olecranon and the surgeon reduces the fragments by extending the forearm, and retains them in place by applying an anterior splint, and after weeks of special care, his patient has a disabled elbow. Will he think that the method of treatment is wrong? Why was not the result as good as it was in the previous case? In the last, the same treatment was followed as in the former, but one gave a good result and the other did not.

Do not these facts indicate most clearly that we cannot lay down an invariable rule for the treatment of fractures of the olecranon, any more than we can for the treatment of other fractures? It is evident that each case must, from its very nature, be treated according to the best judgment of the surgeon. The wisdom of this rule of practice must be apparent to every one.

While in certain cases I have followed the treatment advised by Hippocrates, I have generally employed and would recommend the following method:

> A straight splint, somewhat wider than the forearm, and having a padding in front of the elbow-joint thicker than that at either end, is applied upon the anterior surface of the limb, so as to reach from the wrist to the shoulder; the thicker padding in front of the elbow-joint permits slight flexion of the forearm, and so prevents the pain and spasm which may arise from the continuance of extreme extension; and when the bandage which holds on the splint approaches the elbow, it is carried around in the form of a figure-of-eight, in order to keep the upper fragment in a state of reduction. The lower fragment remains in place on account of the extension of the forearm. The patient should stay in bed, and have his injured limb rest upon a pillow. In a few days, say from four to seven or eight, the forearm can be flexed a little, being careful to push the upper fragment along with the lower one as the upper end of it moves downward. This kind of passive motion may be repeated every two or three days, and if necessary, in the judgment of the surgeon, the same splint may be reapplied, or if need be, provided the fragments do not separate, another splint, one which will allow more flexion of the forearm, may be employed. At the end of 10 or 15 days, I have been able to bring the forearm up to a right angle, and put on a right-angled splint in order to support the fragments and prevent any undue motion of the elbow-joint. In this way, we actually come back to the method of Hippocrates. I find patients are very glad to get off the straight splint, and are, as a rule, careful and obedient during the rest of the treatment, which does not generally extend beyond five or six weeks, although more time is required to make the bond of union strong enough to be of practical use to the patient.

This method is not original, but it embodies points and suggestions made by a number of leading surgeons.

To treat the swelling of the soft parts about the seat of the fracture, one of two ways may be followed: The surgeon may bring about absorption of the extravasated blood by means of evaporating lotions and pressure, or by means of aspiration. A dram of ammonia muriate in a pint of water, to which has been added 1 oz. of alcohol and 1 oz. of vinegar, makes a good lotion for the purpose of promoting absorption. Absorption is also promoted by the pressure of a layer of cotton wool kept on the parts by a well-applied bandage. It may take a week or 10 days to bring about sufficient absorption to permit the process of repair to go on without impediment. On the other hand, when there is a well-defined collection of blood between and around the broken ends

of the fragments, it may be deemed proper to remove it at once by aspiration, which must, of course, be done under careful antisepsis. As soon as the blood has been removed, the elbow must be bandaged, in order to prevent the further extravasation of blood. Successful aspiration of effused blood will be the means of shortening the period of repair.

Difficulty in the treatment has arisen in a few rare cases in which the fracture has taken place through the base of the olecranon and the base of the ulna, extending from above downward and backward, and leaving the lower posterior edge of the upper fragment somewhat sharp and perhaps pointed. As time goes on this projecting edge, on account of the tilting of the upper fragment, tends to penetrate the soft parts over the seat of fracture. This displacement does not seem to be of much account at first, or at the time of the accident, but in a few days serious harm may follow. Dr. Robert, in a discussion in the Société de Chirurgie, mentioned a case admitted to the Hôtel Dieu under the care of Dr. Dupuytren. Dr. Robert, as interne, detected a fracture of the base of the olecranon. He began to treat the injury with the forearm in the extended position. In a few days the splints were removed by Dr. Dupuytren, who did not find any displacements, and for some reason left the patient without further treatment. After the lapse of ten days the lower end of the upper fragment had penetrated the soft parts, making an opening on the back of the limb, and then the former treatment was resumed.

The importance of a good result in a case of fracture of the olecranon is very great on account of the necessity of having the function of the elbow restored. The obstacles to be overcome are found in the nature of the case and are at times insurmountable. I have tried to make adhesive plaster useful in the treatment of fracture of the olecranon, but I am not prepared to recommend it. I have tried to keep the upper fragment in place by putting on strips of adhesive plaster obliquely downward so that they would cross each other just above the apex of the olecranon, the lower ends of the strips being fastened upon the forearm in order to prevent them slipping upward. When they are first applied they meet the indication for retention in quite a satisfactory manner, but in a day or two they become loosened and permit the fragments to separate. The plaster slips along on the skin, and the skin moves along upon the subcutaneous tissue. In ununited fractures of the olecranon, wiring the fragments or suturing the fascia should be resorted to as well as in certain selected recent cases.[3]

Prognosis.—In this injury, the experience of any one surgeon is not sufficient to enable him to draw a definite conclusion in regard to the disability, nor as to the deformity. Nor have surgeons given us the statistical results of a sufficient number of cases to define with precision what the average extent of the disability is that we may expect. Hence, we must treat of the fact of disability in a broad general sense, instead of stating definite opinions dogmatically.

I have had cases in which the union was by bone, without any material change in the form and extent of the great sigmoid cavity, the deformity being so slight that it could not be detected, nor did it entail any perceptible disability. I believe such cases are not uncommon, and that they follow injuries in which there is never any material separation of the fragments. Unfortunately these fractures communicate with the elbow-joint, and all fractures that communicate with joints are more or less apt to have ligamentous union of the fragments, perhaps because the material involved is cancellous bone, or because the synovial fluid gets between the broken ends of the fragments. Further, the separation of the fragments tends to interfere with bony union, and disposes them to unite by means of scar tissue.

However, there is evidence to prove that bony union does take place when the newly-injured surfaces are in contact. For instance, in recent years, surgeons have wired the fragments of the fractured patella, and have obtained many cases of bony union, ligamentous union being the exception. The practical surgeon knows that firm bony union often occurs after impacted fracture of the neck of the femur. The broken surfaces, however, must be in close contact. The experiments of Sir Astley Cooper on dogs and rabbits prove this point. When the fragments of the olecranon were kept in close contact they grew together by bone, and when they were separated the bond of union was ligamentous. The bone was split from above downward, so that the fragments were not materially separated, and the union was by bone.

The motion of the forearm is also an important practical point. It is not probable that the rotation of the radius would be impaired in any case of fracture of the olecranon, hence any impairment of motion must be that of flexion and extension of the forearm, arising from deformity of the olecranon process itself. The deformity shows itself as follows: In separation of the fragments; in the angular displacement of the upper fragment; and in the nature of the union of the two fragments.

If the upper fragment is separated, displaced upward from the lower fragment, it is evident that the apex of the olecranon will come in contact with the os humeri above the olecranon fossa, in such a way as to arrest the extension of the forearm. This limitation of extension, which may be considerable, will impair the usefulness of the forearm, even if the disability, for general purposes, is not very great. All ordinary work can be performed, but the extension of the forearm will be imperfect. If there is angular displacement forward of the apex of the upper fragment, with or without separation, there may be impairment of motion in two ways: If the apex of the olecranon occupies its fossa, the extension of the forearm will be limited; if it comes in contact with the os humeri above this fossa, there will be greater limitation of the extension of the forearm. When there is ligamentous union of the fragments, there will be a point of motion in the continuity of the olecranon, and the general effect will be to limit the extension of the forearm.

When a joint is injured to any serious extent, there will follow a visible atrophy of the muscles which span and move it. This atrophy will begin in a few days, say 10 or 15, after the injury, and will be caused by the disuse of the muscles, and also by the derangement of the neuromuscular apparatus of the joint. The nerves and muscles of a joint cooperate in moving it, and if anything disturbs their relation, let us call it dynamic, the muscles will become weaker. One of the causes of this disturbance, as mentioned before, is a fracture of the olecranon. In some instances of fractures involving joints, the moving muscles part with some of their power, and never become as strong as they were before the accident. After a repaired fracture of the olecranon, it is possible to have complete restoration of the strength of the muscles of the limb, and in some cases it is possible to have a permanent impairment of muscular strength. If there is bony union without displacement of the fragments, we would expect the muscles to become as strong as they were before the injury. If there is ligamentous union of more than ordinary extent, we may expect some impairment of the muscular strength of the limb. If the power of the muscles returns in any of the less favorable cases, it will be only after the lapse of many months. For purposes of general use, the disability in any case may not be very material.

[*To be continued.*]

Suspect the Milk Supply.—The Board of Health has appointed Dr. L. L. Sharp, township physician, and Fred Blackburn, secretary of the board, a committee to investigate the milk supply of Palmyra, N. J. Dr. Sharp said that the increasing number of intestinal disorders among nursing babies had led him to suspect that there was something radically wrong with the milk. The committee will visit the farms from which the supply is obtained and make a careful investigation of sanitary conditions.

THE PREMONITORY SYMPTOMATOLOGY OF LARYNGEAL TUBERCULOSIS, WITH ESPECIAL REFERENCE TO TUBERCULOUS SUBLARYNGOTRACHEITIS.

BY

ROSS HALL SKILLERN, M.D.,

of Philadelphia.

It is only during the past decade that the very early symptoms of laryngeal tuberculosis have been noted with any degree of precision. Prior to this time the symptoms were often attributed to the lung condition (assuming that a concomitant disease of the lungs existed) whereas in reality the larynx itself was at fault. The insidiousness of the early symptoms, both objectively (laryngoscopically) and so far as the patient is concerned, are in themselves because of triviality, sufficient to be almost wholly ignored, not only by the physician, but by the patient as well, the attention of both being directed elsewhere. Of course, the disease here is accounted as a sequence; primary inflammation though undoubtedly existing, being of such rarity that it is excluded. Almost every patient suffering with pulmonary tuberculosis complains more or less of vague throat symptoms referable to the neighborhood of the suprasternal notch, saying, "the cough comes from there." I believe there nearly always coexists, a tuberculous sublaryngeal tracheitis, not, it is true, of the precise character of a tuberculous laryngitis, *i. e.*, of an infiltration, but more of a chronic edematous process which in severe cases will break down and ulcerate; infection resulting from the constant contact with the sputum superimposed by the strain on the trachea from coughing, and the lowered vitality of the individual. In a large number of patients at the Rush Hospital, I have noted severe paroxysms of coughing, which had resisted every remedy taken by the mouth, almost immediately checked by interlaryngeal injections of 3.75 cc. (1 dr.) of a mixture of menthol, guaiacol, and olive oil. In the early stages this condition may be easily remedied to the great satisfaction of the physician and the greater satisfaction of the patient. The symptomatology of the beginning throat infection in comparison to that which already exists in the lungs is so slight, that in the majority of instances, it is entirely overlooked and as the tracheitis is practically always subsequently associated with the disease of the larynx, it would be wellnigh impossible to describe one without at least some allusion being made to the other.

I do not doubt that various authors have noted this, as McKinney in describing the earlier symptoms of laryngeal tuberculosis calls attention to a "peculiar sticking sensation below the region of the larynx." Chappell, in a paper recently read before the American Medical Association, spoke of a premonitory or pretuberculous stage of laryngeal tuberculosis, and stated that tracheal tuberculosis is more often present than is generally supposed, and that he has many times found a tracheal lesion which had not been suspected. Lake asserts that "subglottic swelling is common to malignant disease, syphilis, and tuberculosis." Horne speaks of "precatarrhal stage of laryngeal tuberculosis without naked eye manifestations." Briggs says: "The great majority of these (tuberculous) subjects have a subacute or chronic laryngitis which does not differ in laryngoscopic appearance from a laryngitis of diathetic or climatic cause." This being the case, why should the tuberculous process omit the comparatively long stretch of trachea, the structure being almost identical with that of the larynx, and if anything more richly supplied with lymphatics, and attacked only the larynges? J. Solis Cohen states: "Many of the chronic cases begin with a subacute catarrh which cannot be distinguished as peculiarly precursory to laryngeal tuberculosis either by subjective symptoms or by laryngoscopic inspection." It appears to me that this subacute catarrh is really an extension upward of the tuberculous process, and if it were possible to examine the mucous membrane of the trachea, we would find the identical condition, probably of a more advanced type; also, as the catarrh is always followed by the true tuberculous laryngitis, it would be well, to my mind, practically so to consider it and prepare accordingly.

A most important sign, and one which I think will bear me out in the foregoing, is that of Cybulski. When the ear is held close to the open mouth of the patient, crepitation is heard in the larynx, the sound resembling that of the scratching of a pen. The laryngeal crepitation persists during the entire course of the tuberculosis, and when very pronounced, can be heard by an experienced ear at a distance, when the subject is speaking.

It is a good means of establishing diagnosis in the early stages. The crepitation differs from that noted in bronchitis, pneumonia, etc., by the absence of sonorous and sibilant rales, and by its persistence. This crepitation does not emanate from the immediate proximity of the vocal cords, as I have often demonstrated to my own satisfaction, though I have yet to hear of the patient who presents this symptom and does not sooner or later show a wellmarked case of laryngeal tuberculosis.

The premonitory symptoms of laryngeal tuberculosis included those enumerated above, are the following, which for convenience may be divided as follows:

Subjective: (1) Sensations of throat; (2) peculiar cough; (3) intermittent or recurrent dyspnea; (4) huskiness or vocal inequalities; (5) ear symptoms.

Objective: (1) Constitutional; (2) expectoration—change in character; (3) Cybulski's sign; (4) hemorrhage from larynx.

Laryngoscopic: (1) Gross appearance of larynx; (2) arytenoids—Santorini and Wrisberg; (3) paresis, pallor and redness of one or both vocal cords; (4) ventricular bands; (5) laryngorrhea.

SUBJECTIVE.

Sensations of Throat.—(*a*) Oppressive or swollen; (*b*) scratching and tickling; (*c*) burning; (*d*) actual pain.

(*a*) Oppressive or swollen: This condition (sensation of foreign body in the throat) is apt to occur in the very earliest stages of the disease, and is due either to beginning infiltration or subglottic tumefaction. More often the laryngoscope will be of little service here, as the lesions are well below the cords.

(*b*) Scratching and tickling: These sensations may be due to the same causes or a slight break in the continuity of the mucous membrane as a beginning ulceration, exposing terminal nerve filaments which are aggravated by coughing and the passage of expectoration.

(*c*) Dry or burning: Frequently one of the earliest symptoms and followed by difficult deglutition.

(*d*) Actual pain: This is rare in the early stages, but when occurring, may be either sharp and evanescent or dull and constant. When the tracheal mucous membrane becomes ulcerated, there appears a burning pain below the region of the larynx which is fairly constant.

Peculiar Cough.—The cough in sublaryngotracheitis differs (except when ulceration of the trachea becomes apparent) with that emanating from the lungs, in that it is not of such a violent suffocating nature, being more strained and almost wholly under the control of the patient; moreover, it is practically unproductive and when sputum is raised, it is of a thick, glairy, tenacious character, quite unlike the product of a decomposing lung. On the other hand, when a thick mass of sputum has become agglutinated to the inferior surface of the vocal cords, or in the ventricles of Morgagni, the cough may be very intense and of a strangling nature, with violent clearing of the throat between the short intervals of the paroxysms and continue for many minutes without abatement, only ceasing when a small particle of sputum perhaps no larger than a pea is dislodged.

As the trachea becomes affected and the tuberculous process extends nearer the larynx, the cough becomes strident, assuming a metallic character, and is aggravated on attempts at phonation. The recumbent position seems also to particularly aggravate this condition.

Intermittent and Recurrent Dyspnea.—This may be due to the following causes: (*a*) Agglutination of tenacious secretion either below the cords or in the ventricles of Morgagni (noted particularly in the pretuberculous stage); (*b*) to peripheral nerve irritation affecting the tension of the cords; (*c*) intermittent spasm of the cords due to tumefaction, beginning infiltration or strain from coughing; (*d*) beginning growth obstructing the free passage of air through the larynx.

Huskiness and Vocal Inequalities.—Failure of the voice is one of the chief premonitory symptoms, and may occur when the larynx is perfectly normal from a laryngoscopic point of view. It may range from a mere intermittent huskiness to complete aphonia, with no apparent cause. In the later stages of this disease a cause may be readily found, but in the premonitory stage, theory must of a necessity play an important role.

Impairment of the voice then, in the early stages, may be due to: 1. Local lesion. 2. Insufficient thoracic power.

1. (*a*) By a passive hyperemia or tumefaction (not infiltration) of the arytenoids or cords themselves; (*b*) beginning infiltration of the arytenoidal commissure, partially affecting the tension of the cords; (*c*) depression of the vasomotor stimulants of the laryngeal nerves due to the pressure of an enlarged lymphatic, or the cachectic condition of the individual; (*d*) congestion, due to the paroxysms of coughing, affecting particularly the vocal processes; (*e*) lodgment of secretion on the inferior surface of one or both cords (diphonia); (*f*) a growing subglottic tuberculous neoplasm.

2. Insufficient thoracic power may be due to the condition of the lungs or some interference with the approximation of the cords, causing phonatory waste. Even if there be no symptoms referable to the larynx in a tuberculous subject, once vocal fatigue is complained of, one must ultimately expect tuberculous involvement of the larynx.

Ear Symptoms.—Lancinating pain shooting to one or both ears is by no means an infrequent symptom of early laryngeal involvement.

OBJECTIVE.

Constitutional symptoms may manifest themselves in a number of ways, either singly or collectively: (*a*) Change in the usual temperature curves, that of the morning 1° to 2° below normal. (*b*) Languor, lassitude, lessening endurance, persistent rapid pulse, and nervous tire. General debility in excess of that which would be expected from the lung complication alone.

Local (external): Swelling and tenderness of the thyroid plates on palpation, even though the emaciation of the patient becomes more pronounced.

Expectoration: Change in the Character.—That this does occur when the trachea and larynx become infected, I am now convinced. While the lungs alone are infected, mucopurulent or purulent expectoration is the rule; on the autoinfection of the middle air passages a thick, transparent, glairy, tenacious substance becomes intermingled. This is exceedingly difficult to dislodge, and when raised appears to be somewhat separate from that emanating from the lung. That the paroxysms of coughing are less frequent, though more severe (as far as the actual pain is concerned), when the disease first includes the trachea and larynx, is no doubt due to this cause as well as the pain induced by the exertion.

Cybulski's sign (previously referred to).

Hemorrhage from the larynx is very rare in the earlier stages of the disease. It has occurred from the rupture of a thrombotic vessel, as reported by Lake.

LARYNGOSCOPIC.

Examination of the larynx by means of the laryngoscope will rarely show the full extent of the lesion, for even in the later stages one would be surprised to find at the necropsy the extent of the infiltration or ulceration that he had been accustomed to examine through the laryngeal mirror. As far as the actual invasion of the larynx is concerned, it has been pretty generally conceded that the acute cases primarily show hyperemia, while the chronic present the characteristic anemia.

To define this distinction more clearly, the gross laryngoscopic appearance may be divided into premonitory symptoms, actual symptoms:

Premonitory Symptoms.—(*a*) Diffuse hyperemia of the entire larynx; (*b*) anemia which may be limited to the ventricular bands or mucous membrane covering the arytenoids; (*c*) untoward conspicuity of superficial bloodvessels of mucosa; (*d*) the apparently healthy larynx bathed in a gray, ropy, transparent secretion. In these conditions I believe the trachea already has been infected, and the symptoms referable to the larynx are merely an extension upward of the disease with increasing severity.

Actual Symptoms.—(*a*) Uniform thickening of mucosa; (*b*) gray or yellowish-gray spots appearing beneath the translucent submucous membrane, particularly in the arytenoid region; (*c*) small nodular eminences ranging from a mere speck to the size of a pin head. (Characteristic of primary tuberculosis.) That cases of acute or chronic idiopathic laryngitis may occur in tuberculous subjects was well pointed out by Cohen some years ago, but I believe the majority of these cases is more or less dependent upon the pulmonary disease through involvement of the trachea.

Arytenoids (Santorini and Wrisberg).—(*a*) Hyperemia or tumefaction (recurrent); (*b*) translucence of epithelium covering the arytenoids; (*c*) peculiar cone-shaped appearance of the cartilages of Santorini and Wrisberg; (*d*) the development of pale, unhealthy papillomatous projections upon the anterior surface of the interarytenoidal fold; (*e*) the appearance of a distinct neoplasm in the interarytenoid commissure.

Conditions Affecting the Cords.—(*a*) Some interference with the motility of the cords, resulting from pressure upon the recurrent nerves exerted by an enlarged lymphatic gland, the disturbance being usually unilateral; (*b*) persistent congestion of one cord, presenting a slightly swollen appearance, the vascularity of the mucous membrane of the entire cord being marked; (*c*) unnatural pallor of one or both cords; (*d*) mechanical interference with the mobility of one or both cords, due either to passive tumefaction of the arytenoids or beginning muscular infiltration; (*e*) cords sluggish in response to vibratory movements or electric stimulus (peripheral nerve irritation); (*f*) presence of thin, transparent, tenacious secretion, which becomes ropy when the cords are adducted.

Ventricular Bands.—These appear to take on the general appearance of the larynx with the exception of occasionally presenting an irregular thickening and hyperplasia of a reddish hue, the remaining portions being anemic. Tumefaction may occur and presumably respond to treatment, though it occurs later at more frequent intervals until the laryngeal involvement is complete.

Laryngorrhea may be frequently seen in the earlier stages, and usually persists during the entire course of the disease. It appears to be more common in males.

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THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 1, 1905. [Vol. XLV, No. 1.]

1. The Treatment of Burns and Skin Grafting. HALDOR SNEVE.
2. Radium Treatment of Cancer of the Esophagus. MAX EINHORN.
3. Wandering or Aberrant Uterine Fibromyomas. VAN BUREN KNOTT.
4. The Treatment of Tetanus by Intraneural and Intraspinal Injections of Antitoxin. JOHN ROGERS.
5. Newer Aids to Diagnosis in Diseases of the Urinary Tract. M. L. HARRIS.
6. Neurasthenia. J. THOMAS WRIGHT.
7. Appendicitis in Trained Nurses. I. N. HALL.
8. The Relief of Uremic Hemiplegia and Other Uremic States by Lowering Intracranial Pressure. Ten cases. ROBERT N. WILLSON.
9. Movable Kidney: Is It a Surgical Lesion? If so, How is It Best Corrected? CHARLES C. ALLISON.
10. Esophagotomy for the Removal of False Teeth: With Some Remarks on Colon Alimentation. JOHN A. WYETH.
11. The Submucous Resection of Deflected Nasal Septums: The So-called Killian Operation. Report of Cases. FRANCIS W. ALTER.
12. Insanity at Puberty. CHARLES W. BURR.
13. Lipoma of the Pretibial Triangle of the Knee. EDWIN W. RYERSON.

1.—The Open Treatment of Burns.—H. Sneve advocates the open method in the treatment of burns, that is, the disuse of occlusive dressings and reliance on strict cleanliness and perfect drainage for the healing of the injured surfaces. The dangers in extensive burns are (1) from shock; (2) from toxemia; (3) from loss of function of absent skin covering, and (4) from exhaustion. For shock, the first indication is to combat the vasomotor paresis, and the only drug at present to be recommended for this is adrenalin, cautiously administered; whisky, morphin, strychnin, etc., are warned against as poisons to the susceptible and already overburdened nervous system. The symptomatic treatment of the resulting conditions is far better. To drive the blood out of the abdomen, he gives drinks and enemas of cold normal saline solution, which add volume to the circulating medium; chafes the hands and feet, and applies local warmth to the extremities and especially to the nape of the neck. To meet the fall in body temperature, he uses the hot bath and maintains a high temperature in the room. Finally, to give the heart more fluid to work on, he uses saline infusion or hypodermoclysis. Toxemia, he believes, is directly favored by occlusive dressings, which retain the discharges and prevent perfect drainage. The dangers of air infection are, Sneve considers, negligible, the surface is at first well sterilized by heat, and later, the granulations and crusts protect against invasion. It is to toxemia that he attributes the sudden deaths occurring after severe burns, and the importance of insuring free escape of the secretions is emphasized. The functional activity of the uninjured skin is also of the greatest importance and for this reason the continuous full bath of Hebra is not the best treatment of burns. Cold spongings and frictions are perhaps the best stimulants to skin function, and should be frequently practised in treating burns. Supplying artificial heat is an important indication, especially during the first few weeks of a severe burn. Exhaustion from constant discharges from burned surfaces is best met by grafting skin as soon as possible in those that have suffered a burn of third degree. He remarks on the slight amount of pain in cases treated by the open method. Another astonishing feature of the open treatment is the favorable character of the cicatrices, which are smooth, flexible and skin-like.

2.—Radium Treatment of Esophageal Cancer.—Max Einhorn describes his method of treating cancer of the esophagus with radium and gives its results. He introduces the radium vial inclosed in a hard rubber capsule which is screwed on to the end of a flexible rubber tube inclosing a stylet to guide it, which is removed when the stricture is reached. The capsule is allowed to remain in contact with the stricture from a half hour to an hour, according to the needs of the case. The instrument is easily cleaned and disinfected and can be employed also in gastric cancer. No mechanical force is employed in the seven cases in which he has used it—so mechanical dilation may be excluded, but the results have been very satisfactory. Einhorn believes that in the methodic application of radium we have a means of favorably indicating the course and seat of the disease and retarding its progress even if at present we are not able entirely to remove it. He believes the method has a future and deserves thorough and more extensive trial in this hitherto intractable condition.

3.—Wandering or Aberrant Uterine Fibromyomas.—Van Buren Knott gives the histories of two cases of detached or wandering tumors on which he operated, and a brief review of the literature of like cases which he has found rather scanty and unsatisfactory. The mode of their occurrence is explained by him substantially as follows: Originating as subserous fibromyomas, they grow in the direction of least resistance and frequently become pedunculated. With the elongation and attenuation of the pedicle they acquire an increased range of motion and form "traumatic adhesions" to other abdominal viscera, acquiring a new source of nutrition, sufficient for their needs when that through their pedicle is cut off by rupture or atrophy. A tumor entirely loose in the abdomen, Knott thinks, could not long survive, and such as have been reported, he is inclined to believe, have been attached by the examinations to which the patients had been subjected. With their increased mobility, their interference with the functions of important organs to which they become attached, and their tendency to inflammation, they are more formidable than ordinary uterine fibromyomas. The treatment consists in removal when they are detected unless there are contraindications to operation.

4.—How to Use Antitoxin in Tetanus.—J. Rogers. Prophylaxis is the most effectual treatment. This means cleansing and thorough disinfection of the wound, and if the bacillus is found, immediate use of antitoxin continued daily for at least two weeks from the time of injury. As only that part of the toxin can be neutralized which is in the blood and tissues outside the nerves, the antitoxin should be injected directly into the veins and into the tissues surrounding the wound. Rogers advises the injection under proper precautions of 10 cc. to 20 cc. directly into the median basilic vein. Too little is more dangerous than too much. Next, the motor nerves supplying the infected region should be exposed as near the cord as possible, and each injected by a fine hypodermic syringe with 5 m. to 20 m. He would pass a ligature around each nerve (except, perhaps, in case of the obturator) and leave it in place for the purpose of future injections as required. In addition to this blocking of the nerves he would go still further and block the spinal cord itself. If the injection is made into the cauda equina by lumbar puncture assurance must be had by twitchings, etc., that one or more of the nerves in the cauda are injected. When symptoms are urgent he would inject the cord itself at the level of the sixth or seventh cervical vertebra, taking the risk of even a hemorrhage of the cord as a lesser evil than the spread of tetanus infection. Local treatment of the wound is left to the last on account of the danger of multiple infection. It is imperative to destroy all the tetanus bacilli in or about the wound and the cleansing and disinfection must be most thorough. In extensive laceration of contused wounds this is impossible and the only logical recourse is amputation of the member as near to the body as possible. Indeed Rogers thinks this measure should be seriously considered, even with slighter wounds. After thorough local disinfection the surrounding tissues must be thoroughly injected with antitoxin and only then can the patient be put to bed. The whole process, including the anesthesia, blocking of the nerves, etc., should be repeated every day until the symptoms subside. The patient's strength should be kept up by the usual remedies of quiet, nutrition and antispasmodics, of which the best seem to be chloral, morphin and the bromids. In view of recent reported cases, Rogers suggests an experimental study of the antidotal properties of cocain and curare.

5.—See *American Medicine*, Vol. IX, No. 2, p. 52.

6.—Neurasthenia.—J. T. Wright considers neurasthenia a disorder of general disturbed metabolism, especially involving the nutrition of the nerve cells, and, through them, affecting the functions of various organs of the body. Its principal causes are overstrenuous living, excesses, overwork, and worry. It may be due also to various exhausting diseases, and heredity is often an important factor. There is a close relationship, he states, between neurasthenia and the sexual function; and disorders of the female genital apparatus are sometimes its cause. It occurs usually between the ages of 15 and 45. While often difficult to treat, the prognosis in nonhereditary cases is generally good.

The treatment must first be directed to the cause and must be moral as well as medical. Graduated exercise, open air and sunlight, correction of habits when necessary, withdrawal from overstimulating surroundings or modes of life, sleep and plenty of it, and at the beginning of the treatment, absolute rest, are all advised. The judicious use of massage and electricity and hydrotherapeutics is also of value. In the severer cases, the Weir Mitchell rest cure may be employed. As hypernutrition is an end to be sought, frequent feeding with easily digested liquid foods is advised, and the eliminating organs must be kept active by appropriate remedies. A mild but invigorating climate and change of scene are often of utility. Among drugs, Wright has found calcium glycerophosphate in 3 gr. doses, and strychnin nitrate the best builders, with compound syrup of the hypophosphites a good second. Soda salicylate may be given when uric acid symptoms are present or to relieve pain. Hypnotics may be sometimes required. He has found the sulfocarbolates and creasote useful for the fermentation and diarrhea incident to the disease. Patience and perseverance are necessary in the treatment and it is one disease in which tactful suggestive methods often give most brilliant results. The patient's own cooperation is most important for the successful treatment.

7.—Appendicitis in Trained Nurses.—J. N. Hall remarks on the frequent occurrence of appendicitis in the trained nurses at the Denver City and County Hospital, where he is a member of the medical staff. Excluding mild nonoperative cases, he has records of 18 patients operated on among the pupils of five Denver training-schools, the total number of nurses during the time under consideration being 296. Thus 6.08% were operated on, while a considerable additional number had mild attacks of the disease. Thirteen were operated on at the beginning of an attack and 5 were interval operations; the average age of the patients was 23½ years, the average duration of training at the time of operation was about 14 months. Every patient recovered with a practically perfect result. While he can only theorize as to the causes of this frequency, he suggests the unaccustomed requirements in many cases of standing and walking, constipation and trauma from action of the psoas muscle in working in the stooping position so often necessitated in the nurse's occupation, as worthy of consideration. The greatest single factor, however, he thinks is the prompt recognition of the condition, leading to an early and successful operation. If all cases could be managed as well, he believes the mortality of appendicitis could be practically wiped out.

8.—Relieving Uremic Hemiplegia by Lowering Intracranial Pressure.—Robert N. Willson believes the following conclusions warranted by the study of these cases: 1. The belief is reaffirmed that various toxins are influential in producing uremic symptoms. The most important of these is probably one originating in an abnormal digestive tract and resembling adrenalin in its physiologic action. 2. Resulting from or coinciding with toxic action, intracranial tension due to accumulated cerebrospinal fluid may and usually does cause most of the classic uremic symptoms and is often the dominant influence. 3. Spinal drainage may, and often does relieve the symptoms of uremia. 4. Occasionally, however, when intracranial pressure has been relieved the toxin alone may cause the uremic symptoms. 5. Uremic manifestations (other than coma), due to intracranial pressure, may be general or localized, including unilateral convulsions, monoplegia, hemiplegia, etc. The toxic influence where it seemed independent of pressure caused only general manifestations, usually of an irritative and seldom or never of a paralytic nature. 6. Uremic hemiplegia and other uremic paralyses are usually due to direct pressure on or edematous infiltration of cerebral motor centers, and are usually relieved by withdrawal of cerebrospinal fluid. 7. The frequent absence of general edema with an excess of intracranial fluid is suggestive. His most successful cases showed no edema of the external body, but always a high intravascular or intracranial tension. 8. Lumbar drainage should be used as a routine measure, together with the other known means of reducing hypertension. 9. The ultimate cause of arterial hypertension of uremia is yet unknown. It seems not impossible that the fluid pressure is due to toxic inflammatory exudate producing intracranial hypertension and favoring similar condition throughout the system; and that the symptom-complex of uremia is due to such a sequence of causes. Probably uremia cannot occur in the presence of low intravascular and intracerebral tension. 10. It would seem from experimental evidence that the toxic principle of uremia is not found in the cerebrospinal fluid. The experiments of Hughes and Carter in 1893 seemed to show that it may possibly be found in small quantities in the normal blood-serum. 11. While lumbar puncture is not infallible or free from slight risk, it should be employed early and repeatedly in uremia if necessary to relieve hypertension. It may be life-saving and will often dissipate uremia for the time being. 12. Transfusion of normal or other salt solution is harmful in uremia by increasing hypertension and favoring some of the conditions of uremic seizure.

9.—Movable Kidney.—C. C. Allison combats a recent proposition by Treves that movable kidney, if it exists as a morbid condition, can be relieved by a delicate double spring truss. He holds that the anatomic surroundings of the kidney in some persons favor its wide displacement and that when so displaced its presence sets up contiguous inflammatory changes, especially peritoneal adhesions, for the treatment of which abdominal support is impotent and even pernicious. There are wide variations in the firmness and strength of the peritoneum and in its susceptibility to irritations and morbid changes. In some of these conditions the wandering of the kidney from its normal position may cause serious results. Treatment must be according to the individual case. Many cases do not call for surgery, hygienic and dietary measures will be sufficient. In others the latter, with occasional protracted rest, will suffice. Still more serious cases exist requiring careful separation of adhesions and making replacement and refixation a difficult surgical operation. He mentions among these a condition which he has not seen elsewhere described, viz., displacement downward and fixation of the kidney to a point opposite the last dorsal vertebra. In all these severe cases with their dense adhesions and all their other pathologic changes and with their reflex disturbances he is convinced that no delicately adjusted truss will accomplish a cure.

10.—Esophagotomy: Colon Alimentation.—J. A. Wyeth reports a case of esophagotomy for the extraction of a swallowed dental plate that had been lodged for six weeks behind the upper portion of the manubrium. The patient was fed exclusively by the rectum for the first four days after the operation, then by the esophageal tube for two days, and afterward by the natural way. The wound healed entirely in 12 days. Wyeth adds some remarks on colon alimentation to his account of the case. He gives the following directions: When milk is given and the bowel is irritable the warm process should be employed. Put a gill of cold water and the peptonizing powder into a clean quart bottle and shake thoroughly; add a pint of cold fresh milk and shake again; then place the bottle in warm water—about 115° F.—and keep it at that temperature for 30 or 40 minutes, or longer if a greater degree of predigestion is desired, and then put away on ice. When used, shake the bottle, pour out the amount needed and warm it to blood heat. Avoid hasty heating and overheating. The amount to be given varies, 4 oz., 6 oz., 8 oz. or 12 oz., according to the needs of nutrition and the tolerance of the bowel. It is important not to overload the colon to irritation. When the bowel is not irritable, the milk may be put on ice without the prolonged warming of the above process and used in the same way. When eggs are given, he advises the following formula: Dissolve the white of an egg in three times its bulk of warm water; add to this the contents of one of the peptonizing tubes, stir well, and inject at once. The water should be just warm enough for the injection, but not enough to coagulate the albumen. Or the white and yolk of the egg can be beaten well together, with a pint of milk, adding a gill of water in which the contents of peptonizing tube have been dissolved, and employed either cold or with warm water as in the preceding formula. In using beef for rectal feeding, use four tablespoonfuls of cold water to one of minced lean beef and gradually heat to boiling. Strain through a fine sieve or colander. When lukewarm, add the contents of a peptonizing tube and the preparation is ready for injection. Wyeth has used Fairchild's panopepton in rectal feeding and likes it.

It should be diluted in two or three parts of lukewarm water or preferably, normal salt solution. They can be combined with panopepton at times as follows: Put a pint of cold fresh milk in a clean saucepan and heat it to not over 100°. Add two tablespoonfuls of essence of peppermint and stir just enough to mix. Let it stand till firmly jellied, then beat with a fork till it is finely divided and strain. Warm to proper temperature and inject without dilution. Panopepton and whey may be combined, three parts of whey to one of panopepton. Peptonized milk prepared by the warm process may also be added to panopepton in the same proportion, and mixed when required for use.

11.—The Submucous Resection of Deflected Nasal Septums.—F. W. Alter says this operation consists essentially in a dissection away, from before backward, of the mucous membrane on both sides of the septum, perichondrium, etc., and resection of the deflected portion, excepting the upper part, from the roof of the nose. This is important, as the retention of this part of the septum is considered by Hajek as essential for the symmetry of the nose. In one of his cases, Alter purposely left small islands of cartilage to stiffen the new septum, and he thinks with advantage. One of the three cases he reports is of interest, in that a prior Asch operation had been done with negative result and had left a slight perforation. Alter summarizes the advantages of this operation substantially as follows: It can be performed under local anesthesia with comparatively little pain, and gives the most certain results in deflections of either the cartilage or bony septum, or both. The sagging back into the old pathologic position that often follows other operations cannot occur. Its doing away with the use of splints is a very great step in advance. The after-treatment is cut down from four or six weeks to two at the most. It is painless, less liable to sepsis, and, with care, perforation can be avoided. The length of time it requires cannot be justly charged against it. It gives the most certain and enduring results, is not so hard to perform as it looks, and requires no special instruments beyond what are usually found in a rhinologist's armamentarium, except a Killian long-blade nasal speculum.

12.—Insanity at Puberty.—C. W. Burr states that he considers everybody somewhat unbalanced at the age of puberty, but that only the weaklings develop mental disease. What is probably the most common type of this period is seldom seen in asylums and has been but little studied. It consists in a mild general impairment—dementia is too severe a word, but it seriously affects the future life of the individual. In another type, there is gross moral aberration in addition to the mental deficiency (which may be slight). Many of the criminal class are of this type. Another form, which begins at puberty or early adolescence is the socalled original paranoia. In all these types, the prodromal symptoms appear at puberty, the disease reaching its height in adult life. Acute insanity also appears at puberty, and though rare, is sufficiently frequent to be of interest. It may follow acute infectious disease or mental shock, and illustrative cases are reported by the author. Kraepelin's dementia præcox is mentioned as a rather comprehensive term, but one that may be convenient in grouping certain classes of cases. A case of apparent stuporous insanity is described in this connection. Juvenile paresis is recognized as occurring in hereditary syphilis. The influence of other organic disease, Burr claims, has been studied but little. Acute insanity is not uncommon in imbeciles, and usually occurs about the adolescent period. Hysteria may give trouble in its diagnosis from dementia præcox and here the study of the visual field is of value. Hysteria is not followed by dementia. Its chief significance is as a sign of trouble in later life. The treatment of insanity at puberty is largely preventive, such as proper education, avoidance of mental strain, teaching of self-control and clean morals. With more wisdom of parents insanity would decrease.

13.—Lipoma of the Pretibial Triangle of the Knee.—E. W. Ryerson describes this condition as an overgrowth of the adipose pad behind the patellar ligament, due to traumatisms, etc., and causing sometime serious interference with flexion and extension of the joint. It is diagnosed from capsular effusion by its nonextension above the middle of the patella and lack of fluctuation and floating of the patella; from tuberculous joint disease by lack of spasm of the hamstring muscles, which is always present in tuberculosis; from villous proliferation of the lower border of the capsule by the absence of the peculiar feeling of the villi and by the limits of the growth. A chronic bursitis of the small bursa under the insertion of the patellar ligament offers the greatest difficulties in diagnosis of any condition unless fluctuation can be clearly elicited. The condition is more common than is generally believed; its growth is slow, the disability being gradually developed in the course of five or six years. The radical operation is safe and simple, consisting of an incision two inches long just on the outer side of the patellar ligament, carried down through the strong fascia lata expansion, the socalled patellar ligament. The fatty mass bulges out of the wound and is seized with strong artery forceps and twisted out bit by bit, twisting being better than excision, as it avoids annoying hemorrhage. The whole space can be reached by the finger and forceps and no incision need be made on the inner side of the tendon. With the incision on the outer side of the tendon there will be no tendency to the condition known as "slipping patella," which practically always occurs outward. After the fat has been removed and bleeding arrested the fascia is carefully sewed up with chromicized catgut in a separate layer and the skin sewed with a subcuticular stitch of silkwormgut or wire. No drainage should be used, a sterile gauze dressing covered by a thick pad of nonabsorbent cotton is applied. A long posterior splint is applied and is kept on for ten days to allow the fascia to unite firmly, though the patient may be allowed to walk two days after the operation.

Boston Medical and Surgical Journal.

June 29, 1905. [Vol. CLII, No. 26.]

1. The Frequency, Prognosis and Treatment of Lobar Pneumonia in Infants and Children. HENRY KOPLIK.
2. Acetonuria in Nondiabetic Surgical Cases. JOSHUA C. HUBBARD.
3. A Case of Toxic Degeneration of the Lower Neurons. JOHN E. DONLEY.

1.—Lobar Pneumonia in Infants and Children.—H. Koplik finds double pneumonia and also the affection of more than one lobe rarer in children than adults. In certain epidemics with apical involvement meningeal symptoms predominate. Below the age of four, purulent pleurisy is more apt to follow than the pleurisy with effusion of the adult. In 839 cases seen by the writer, 69% occurred before two. The younger the child, the greater the danger. Mortality is greatest in winter. Even in the writer's fatal cases there was marked leukocytosis; its absence, however is a grave prognostic sign. Hydrotherapy is the sheet anchor in the treatment of temperature. Digitalis, whisky, and nitroglycerin may be used to support the heart. Strychnin should be given with caution. Cough and pain may be relieved with the milder preparations of opium and tympanites with calomel. [H.M.]

2.—Acetonuria in Nondiabetic Surgical Cases.—J. C. Hubbard reports the result of examining 110 patients for acetone and diacetic acid, 35 for acetone alone and 5 for diacetic acid alone before operation. Among these, acetone was found in 9, in 4 of which it was associated with diacetic acid. A study of his own cases and those of others lead him to the conclusion that acetonuria is more frequent than is thought. Its presence without symptoms has no effect on operative treatment or prognosis; with moderate symptoms, it is of only slight importance; with severe symptoms, it is of the gravest prognostic value. The most marked symptom was vomiting without apparent cause. The odor of acetone was noticed in the breath several times. The treatment used was sodium bicarbonate, 30 gr. three times daily. [H.M.]

3.—Toxic Degeneration of the Lower Neurons.—J. E. Donley, after reviewing the clinical and pathologic findings in the cases under description thinks the following conclusions have at least a tentative justification: 1. Toxic degeneration of the lower neurons, acute anterior poliomyelitis, peripheral neuritis, and Landry's paralysis are essentially degenerative conditions of nervous elements. 2. The exciting cause is a toxemia which may be the result of bacteria, autotoxins, or poisons introduced from without. 3. The whole neuron, both

cell and fiber, suffers in every case, the clinical symptoms, however, depending upon the intensity, the duration, and the anatomic situation of the morbid process. [H.M.]

Medical Record.

July 1, 1905. [Vol. 68, No. 1.]

1. The Correction of Nasal Deformities by Subcutaneous Operations. A Further Contribution. JOHN O. ROE.
2. Actinomycosis of the Lung. E. FLETCHER INGALS.
3. Poisoning by Wood Alcohol: A Case of Complete Blindness (Transitory), with Recovery of Vision. CARL KOLLER.
4. Some Aspects of the Cancer Problem. G. BETTON MASSEY.
5. The Treatment of Spastic Constipation. A. ALBU.
6. Inebriate Manias: A Medicolegal Study. T. D. CROTHERS.
7. Advanced Scholarships and Morbid Mental Conditions: Some Clinical Cases. WILLIAM LEE HOWARD.

1.—The Correction of Nasal Deformities by Subcutaneous Operations.—J. O. Roe presents this paper, which contains a description of the operative technic employed in correcting seven cases of extreme or unusual deformity of the nose, due to disease or accidents of various sorts. The steps employed in the different cases are too complex to permit of description in brief, but the underlying principle of the author's methods consists in doing as much of the work as possible subcutaneously, so as to avoid scarring of the skin, and he has been able to develop this plan to a remarkable degree. The "before and after" appearance of the patients is illustrated by a series of 21 photographs. The author points out the importance to the individual of having such deformities corrected, and his results show that by the exercise of sufficient ingenuity and the most careful attention to detail, it is possible to relieve patients of a lifelong disfigurement which forms a source of embarrassment to them, often amounting to positive torture.

2.—Actinomycosis of the Lung.—E. F. Ingals says this disease, though rare, is frequent enough that general practitioners, especially in the country, should be on the lookout for it. A case of his own is described in which the etiology is obscure, as the patient had not come into contact with diseased cattle. On incising a swelling in the right interscapular space, a quantity of grayish pus escaped, which on examination was found to contain actinomycosis fungi. The general symptoms were indefinite as well as the pulmonary signs in the region of the abscess. The author says that the disease in its earlier stages may be divided into pleuropneumonic or bronchopneumonic varieties, while later on the lesions are so complex that it is often impossible to classify them. In pleuropneumonic actinomycosis the invasion occurs from without, but sooner or later the two forms run into each other, the pleuropneumonic extending inward, until the bronchi are involved or the bronchopneumonic progressing until the pleura is affected. The author states that his case was of the pleuropneumonic type, and that the question arises whether the infection could have occurred through some forgotten scratch or pimple or through the unbroken skin. The disease is likely to be mistaken for pulmonary tuberculosis, gangrene, malignant disease, syphilis, and hydatid cysts. The differential diagnosis and prognosis are discussed, and treatment with potassium iodid in large doses combined with general tonic measures is said to offer the best chances of cure, though there is but little hope when secondary infection with pus cocci occurs.

3.—Poisoning by Wood Alcohol.—C. Koller describes the case of a man of 42, who presented himself at the clinic for nervous diseases of the Mount Sinai Dispensary, suffering from acute total blindness. Investigation of the history showed that the loss of sight had come on during the second night after taking about 2 oz. of whisky, a quantity which subsequent analysis showed contained about 20 cc. of wood alcohol. The visual disturbance rapidly progressed, until about 36 hours later he was completely blind. Other symptoms which had accompanied the development of the eye condition were nausea, vomiting, weakness, chilly feelings and cold extremities. On ophthalmoscopic examination the optic nerves presented the picture of a neuroretinitis of moderate intensity and in the macular regions were dispersed numerous, yellowish, bright, shining spots similar to the picture described as choroiditis guttata. Potassium iodid, hot baths, and good nourishment were prescribed, and six months later the right eye showed complete recovery of function, except a moderate diminution of visual acuity, and the left eye presented marked though moderate concentric contraction of the field, considerable diminution of central vision and absence of perception for green. The author reviews the subject of wood alcohol poisoning in general, and its ocular manifestations, among which complete bilateral blindness, dilated pupils with lost reaction, and, ultimately, atrophy of the optic nerve and retina are prominent. Sweating by hot bath or pilocarpin, potassium iodid internally, and sufficient diuresis, perhaps by milk diet, are rational and sometimes successful measures of treatment. The matter of prophylaxis is of the greatest importance, and the public must be enlightened as to the poisonous nature of the substance.

4.—Some Aspects of the Cancer Problem.—G. B. Massey thinks that the belief that pain is an invariable accompaniment of beginning cancer, and that there is any danger of spread of the disease by any of the ordinary means of infection must be combated. Nearly 100% of external and semiexternal growths can be positively cured in their early stage by destruction or removal of the original nidus of the disease. While wide-sweeping knife operations may be curative in effect, the attitude that neglects the value of cauterization, particularly the electrochemic methods of destructive sterilization, and clings to the knife as a panacea, is anything but scientific. If more judicious use were made of the cataphoric or electrochemic methods in these early or small growths, a large percentage would be permanently cured, while the exercise of discretion in the choice of remedies would invite earlier resort to treatment by the patients.

5.—The Treatment of Spastic Constipation.—A. Albu says that while it is true that in most cases of constipation the older view that the condition is due to atony of the intestine holds good, it has of late years been recognized that there is another type of the disease depending upon an exactly opposite state of affairs, in which the gut is in a state of spastic contraction. The proportion of such cases is not small, and the author estimates that at least 25% of the cases of constipation in women belong to this variety. It is important to recognize it, as the treatment of constipation due to spasm is naturally very different from that of constipation dependent on atony, but the diagnosis is often difficult or impossible. The patients are usually neurasthenic or hysteric individuals, who may exhibit spasm in other regions of the body, such as cardiospasm, pharyngeal spasm, etc. The intestinal spasm is not continuous, and gives rise to sensations that may range merely from a feeling of discomfort to positive colics. The contracted knots of the intestine may be palpable as tender sausage-shaped masses, and rectal examination may reveal a spastic condition of the sphincters. The feces sometimes assume the characteristic ribbon or lead-pencil shape. The treatment comprises the avoidance of all irritation of the intestine, especially massage, and the use of soothing and relaxing measures, such as warm baths, hot applications to the abdomen, warm oil enemas, belladonna, nonirritating, gruel-like diet, and rectal bougies.

6.—Inebriate Manias.—T. D. Crothers cites numerous instances in which men who had for years been moderate drinkers developed delusions of various sorts which prompted them to commit or attempt murder, suicide, and other crimes. Suspicions of marital infidelity and delusions of persecution of various forms are common evidences of the neuronic degeneration occurring in such persons. Many of the unexplainable alcoholic homicides start from alcoholic degenerations of the brain centers, and are veritable psychoses of the most dangerous character requiring prompt, active treatment, and suitable measures must be taken to render it impossible for the patient to injure himself or those about him. In conclusion, the author says that he wishes to emphasize, spirits in active life is cultivating a soil for the growth and development of distinct psychoses, which may break out at any time. 1. One of the most common of these symptoms is delusions of infidelity. They are practically symptomatic of the particular cause, alcohol. 2. Delusions of persecution and delusions of grandeur, together with manias of various kinds, are natural sequels of alcoholic degeneration and should receive the most careful

study. 3. All such persons are irresponsible, to what degree the facts of each case will determine. The medical man should recognize this condition and be emphatic in his statements, and never minimize or neglect to recognize the gravity of these states.

7.—Advanced Scholarship and Morbid Mental Conditions: Some Clinical Cases.—W. L. Howard says that by advanced scholarship he means the position attained by men who have followed a postgraduate course, taken their doctorate degree of philosophy, and are either holding professorships or trying to continue further their special work of investigation. In view of his experience with such men he believes that certain predispositions toward particular lines of study are the symptoms of a neurotic state, that is, it appears as though it were the psychopathic conditions that direct some individuals to work hard along the lines of their least mental resistance. He describes in detail the histories of four such men who exhibited various forms of unbalanced mentality, combined in three instances with dipsomania. Three of the patients were restored to mental poise and usefulness by suggestion and eliminative treatment, etc., but the fourth, in whom alcoholism was a prominent feature, went steadily downward, and finally disappeared.

New York Medical Journal.

June 24, 1905. [Vol. LXXXI, No. 25.]

1. Two Cases of Rare Congenital Malformation. HERMANN FISCHER.
2. The Demonstration of the Flagella of Motile Bacteria and a Simple Method of Making Photomicrographs. EDWARD W. DUCKWALL.
3. Clinical Experience with Antitoxin, and the Advantages of Large Doses (Concluded). LOUIS FISCHER.
4. The Treatment of Disease with the Röntgen Rays. W. P. GOFF.
5. Anesthesia in Throat Surgery. HENRY WALLACE.

1.—Malformations.—Hermann Fischer reports two interesting cases. The first is that of meningoencephalocele of unusual size in an infant. It takes up the whole upper portion of the skull and is almost twice as large as the face. The second case is one of pterobrachius and pterodactylism in a man of 62. Both humeri are well developed. There is a complete bony ankylosis of both elbow-joints. On the right side, the ulna is developed only to about two-thirds of its upper portion. The radius of this side is much thicker than normal and much shorter. The carpal bones are only two in number. The thumb and index finger are perfectly shaped, whereas the other three fingers are missing. On the left side, the defect of the ulna is more pronounced than on the right. The radius of the left arm is shorter and thicker than that of the right. On this side the condition of pterodactylism is combined with syndactylism. [C.A.O.]

3.—Antitoxin in Large Doses.—Louis Fischer gives some clinical experiences with antitoxin, and advocates the use of large doses. He says the proper dose is that which will inhibit the extension of the pseudomembrane, subdue the fever, and check the progress of the disease in general. For a mild case of diphtheria from 2,500 to 5,000 units should be given. If there is no improvement noted in 12 hours, and the exudate, pulse, and temperature remain the same, then another dose of 2,500 to 5,000 units should be given. If there is a large exudate on the tonsils and pharynx, and the cervical glands are enlarged, then it is safer to inject 5,000 to 10,000 units on the first day of illness. If no improvement is noted, repeat this dose in 12 hours. The same dose should be repeated from day to day until all visible exudate has disappeared, the glandular swelling subsided, and the fever, if present, reduced to normal. The condition and not the age of the child should be the guide as to the dosage. As a rule the temperature falls after the required dose of antitoxin has been administered. [C.A.O.]

5.—Anesthesia in Throat Surgery.—Henry Wallace reviews this subject and states that he believes that for the operator of average skill, the gas ether sequence, with narcosis pushed well to palatal relaxation, the patient being in the dorsal position with moderately lowered head, secures the best results as regards least danger to the patient and the greatest facility of operative technics. [C.A.O.]

Medical News.

July 1, 1905. [Vol. 87, No. 1.]

1. National Association for the Study and Prevention of Tuberculosis —President's Address. EDWARD L. TRUDEAU.
2. The Educational Treatment of "Tics." B. SACHS.
3. Lavage of the Renal Pelves in the Treatment of Bright's Disease. WINFIELD AYRES.
4. Fetal Manifestations of the Toxemia of Pregnancy. WILLIAM S. STONE.
5. What Advice Should be Given to Women with Malpositions of the Uterus? CHARLES G. CHILD, JR.
6. Carbolic Acid Gangrene. JUSTIN HEROLD.
7. The Medical Profession in its Relation to the Elimination of Communicable Diseases. EDWARD N. LIELL.

1.—See *American Medicine*, Vol. IX, No. 21, p. 849.

2.—Educational Treatment of Tics.—B. Sachs believes there are no reflex motor neuroses in the physiologic sense. A spasm is a muscular contraction rather than a movement. Tic is a coordinated movement with a definite object in view, but when firmly established is not intentional. The power of control is not so strong as the motor impulse, and it is a struggle of no mean order to check it. It is often the first expression of mental degeneracy, and if not seriously dealt with will lead to disastrous results. The pedagogic or educational treatment is based on the idea that psychic and motor functions must be disciplined in various ways. The patient at regular periods must be made to stop the movement and perform movements opposed to those involved in the tic. At the first sitting, immobility must be preserved for one, two, or three seconds, increasing the time little by little. The exercises should be performed before a mirror so that his attention is riveted upon them. To be successful the treatment should be in a hospital or in isolation with a competent nurse. [H.M.]

3.—Lavage of the Renal Pelves in Bright's Disease.—W. Ayres thinks that many cases of renal disease ascribed to unknown irritants are due to a preexisting pyelitis. Almost all injurious influences act on the parenchyma first. There are more cases of chronic nephritis in men than in women, because gonorrhea is more frequently followed by cystitis in the male. He considers degenerated epithelium from the tubules on repeated examination to indicate a beginning nephritis. In 46 cases of parenchymatous degeneration treated by lavage, the tubule cells and albumin have disappeared in all but 8 in from one treatment to 11 weeks. In chronic interstitial nephritis with contraction, lavage is contraindicated. The improvement seems to be due to cleansing away the products of inflammation, to better drainage from the kidney, and counterirritation. After the first few treatments, a feeling of malaise lasts about an hour, followed by a feeling of well-being, which lasts two or three days. The writer uses various silver solutions. He describes the technic. One not properly trained in this may do much harm. [H.M.]

4.—Fetal Manifestations of the Toxemia of Pregnancy.—W. S. Stone presents some of the literature of the subject, and his own experience. A study of the fetal lesions must establish their identity with those associated with the poison in the mother, though they are perhaps less intense. Congestion and hemorrhages may be more uniformly present in the fetus, but no more than in some maternal cases. Destruction and necrosis of cells are not so uniformly present. The prognosis for the fetus depends more on the duration of the disease than its intensity. The finding of leucin in one of Dienst's cases offers hope that further search may furnish a guide to treatment. The occurrence of grave forms of the disease early in pregnancy makes the possibility of a fetal origin of the poison seem incredible. [H.M.]

5.—Carbolic Acid Gangrene.—J. Herold cautions against the careless use of weak solutions of carbolic acid by physicians, pharmacists, and the general public. Constitutional disturbances and even death have resulted from external use and in some cases gangrene has occurred in the part to which it has been applied. Strong solutions form a scab preventing penetration into the deeper tissues. When evaporation of a 1% or 2% solution is prevented the skin becomes macerated, a numbness follows from the toxic effect on the nerves, the acid is absorbed into the deeper tissues coagulating the albumin, the vasomotor nerves are first irritated and then paralyzed, and there may be the same effect on the sensitive and trophic

nerves. In treating the injury an alcoholic dressing may be tried with the hope that it may destroy any acid remaining in the partially dead tissue. When the disorganization is hopeless amputation is the only measure. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Pentoses: Their Chemic Composition.—The subject of pentosuria has been discussed at intervals during the past few years in some of the leading European medical journals, and the present state of our knowledge of this recently-conquered territory of the chemistry of pathology has been recently examined with critical skill by M. Sarvonat,[1] of Lyons. The pentoses are saccharin compounds, containing five carbon atoms, and possessed of reducing properties. Their formation in plants has given origin to two hypotheses: Chalmot and Fischer believe that they are produced at the expense of the hexoses, while Cross, Bevan, and Smith explain their origin by synthetic processes taking place under the influence of light and chlorophyll. Their presence in the animal organism may be due to the ingestion of certain vegetable products, or to the chemic transformation of nucleoalbumins. But two representatives of the series have hitherto been found in the human body, the *arabinoses* and *xyloses*. There are two varieties of each, a dextrorotatory and a levorotatory. The investigations of Fischer have determined the chemic constitution and the more important physical properties of the principal pentoses. The following are his findings regarding the items whose names we have mentioned:

		Rotary power.	Melting point of the osazone.
Arabinose (d)	$CH_2OH-\underset{OH}{C}-\underset{OH}{C}-\underset{H}{C}-C.OH$ (H H OH)	−105°	159°–160°
Arabinose (l)	$CH_2OH-\underset{H}{C}-\underset{H}{C}-\underset{OH}{C}-C.OH$ (OH OH H)	+105°	158°–160°
Xylose (d)	$CH_2OH-\underset{H}{C}-\underset{OH}{C}-\underset{H}{C}-C.OH$ (OH H OH)		
Xylose (l)	$CH_2OH-\underset{OH}{C}-\underset{H}{C}-\underset{OH}{C}-C.OH$ (H OH H)	+20°	150°–154°

Pentoses: Their Characteristic Chemic Reactions.—In an alkaline medium, the pentoses reduce metallic oxids, Fehling's solution, bismuth subnitrate, silver ammonionitrate, etc., as do the hexoses. But they are distinguished from the latter by characteristic properties. They are nonfermentable, so that the action of yeast fails to produce any alcohol. Bertrand's reaction is produced by distillation with a strong mineral acid, which yields a much larger quantity of furfurol than in case of the hexoses. This product is easily recognized by using paper impregnated with acetate of anilin or of xylidin, which is colored red in their presence. The reaction of Tollens is obtained by adding to the liquid subjected to examination, first, an equal volume of hydrochloric acid, then 25 mg. to 30 mg. of phloroglucin, and heating gently. A bright cherry-red color is produced, and the spectroscope displays an absorption band between the D and E lines. This reaction has been modified in the following manner by Salkowski: To 5 cc. or 6 cc. of warm hydrochloric acid is added a little more phloroglucin than it is able to dissolve; this reagent is divided into two equal parts, to one of which is added .5 cc. of the urine to be tested, and to the other, .5 cc. of normal urine of the same tint. The two liquids are then heated together in a bath, when the pentosuric specimen will soon be found to yield a bright red froth, from which the color gradually diffuses itself through the whole fluid. Bertrand's reaction is obtained by mingling a small quantity of urine with two volumes of fuming hydrochloric acid, and a little orcin; on boiling, the pentoses give a bluish-green coloration, and show in the spectroscope two bands between the C and D lines. Brat recommends that in this experiment the temperature should not be raised above 90° C. to 95° C. Bial employs the following test reaction: Hydrochloric acid (30%) 500 cc.; orcin, 1 gm.; perchlorid of iron (10% solution), 15 drops. A little of this reagent is heated to boiling, when a few drops are let fall into the urine. The formation of a green tint indicates the presence of a pentose. (In conducting these tests, it is necessary to remember that the use of paper filters may lead to the presence of pentosanes, which confuse the results; accordingly, it has been recommended to substitute filters formed of wool of asbestos or glass.) Finally, all the pentoses form with phenylhydrazin crystalline compounds, of which the form and the melting-point are characteristic in each case.

Pentosuria.—The occurrence of pentoses in human urine has been observed under various circumstances, which may be arranged in three groups (classes). These are (1) alimentary, or the result of their ingestion; (2) an accompaniment of glycosuria in diabetic patients; and (3) "essential" pentosuria. With regard to alimentary pentosuria, it is known that pentoses are extremely abundant in vegetables and in certain animal tissues. But the animal pentoses are combined with nucleins, from which they are separated only by the influence of powerful reagents, so that the mere ingestion of meat never causes the appearance of pentoses in the urine, and it has even been found by Lüthje[1] that the pentoses may be given to a diabetic patient by the mouth without the production of pentosuria; also, both he and Dr. Schwenkenhecher have experimented on themselves by ingestion of pancreas with an entirely negative result. On the other hand, the pentoses of vegetable origin easily pass into the urine. Bendix[2] found that nearly all the patients in his hospital wards displayed pentosuria after partaking of turnips. Barszczecwski and Ebstein have demonstrated the production of pentosuria by the ingestion of various kinds of fruit. Indeed, the latter has shown that human urine in the physiologic state includes traces of pentoses sufficient to give a slight tinge of the characteristic coloration with orcin and phloroglucin. With regard to diabetic pentosuria, Külz and Vogel have ascertained a positive coincidence in four cases out of 80 examined. In 12 others there was a doubtful pentosuric reaction superadded to the glycosuric. Salkowski and Blumenthal vainly sought for pentosuria among a long series of diabetic patients. But, on the other hand, Rosin and Alfthan have found that the urine of most diabetic subjects contains, in addition to glucose, traces of the carbohydrate compounds, and especially of other pentoses. Luigi d'Amato has published a case of diabetes associated with pentosuria. Of "essential pentosuria," 15 cases have up to the present been

[1] Gazette des Hôpitaux, 1 et 3 Quin, 1905.

[1] Zeitschrift für klinische Medicin, 1900, xxxix, p. 397.
[2] Die Pentosuria, 1903.

placed on record. Its occurrence is a pathologic enigma, which still awaits its Edipus. Starting from the fact that the tissue of the pancreas yields a pentose among the products of its chemic change, Salkowski advanced the hypothesis that the destruction of the nucleoalbumins of that organ would account for the occurrence of pentosuria. But, on the other hand, Külz and Vogel have shown that dogs which had been rendered diabetic by extirpation of the pancreas excreted a small proportion of pentoses in the urine. Accordingly, they expanded the theory of Salkowski and referred the origin of the pentoses to the various nucleins of the whole organism. But even this suggestion has failed to lighten the pathologic darkness of pentosuria. All nucleins do not yield pentoses; and the sum total of the pentoses contained in the organism hardly represents what appears in the urine of a pentosuric patient during a single day. Furthermore, the elimination of pentoses is never accompanied in the urine by an increase of the quantity of phosphates and bodies of the purin group; an increase which should surely accompany destruction of the nucleins. The researches of Neuberg have furnished a still more destructive argument; he found that the pentose furnished by the nucleins of the organism is xylose levorotatory, while that found in the urine was arabinose *r*. Suggestions of a renal origin have also fallen to the ground; and Bial and Blumenthal have demonstrated the presence of arabinose in the blood of a pentosuric patient; and the conclusion at which Dr. Saroonat has arrived after the most careful consideration is, that essential pentosuria must be regarded as "un trouble de l'évolution des hydrates de carbone"; and, in the uncomplicated cases at least, a physiologic malformation rather than a disease.

REVIEW OF LITERATURE

Examination of the Blood in Pulmonary Tuberculosis and during the Tuberculin Treatment.—In making blood-examinations of a large number of tuberculous patients, J. Arneth[1] concerned himself chiefly with the neutrophilic leukocytes. In four cases of miliary tuberculosis he found that, while the number of leukocytes remained either normal or even subnormal, the neutrophilic leukocytes diminished more and more as the fatal termination approached. This he considers due (1) to the toxins of the tubercle bacillus circulating in the blood and attacking the neutrophilic leukocytes, the protective power of the organism, more than the other cells; (2) to the large number of neutrophilic leukocytes necessary to fight each miliary focus; (3) to the bacteria of mixed infection, which also flood the blood. The same changes, taking a greater amount of time, however, for their development, were observed in a case of subacute tuberculosis. The red corpuscles were but little affected in any of the cases examined. In afebrile chronic cases it was found that a prognosis could be made much more accurately from the blood picture than from the general state of the health; in some instances, approaching deterioration could be foretold from it, in others, even though according to the general health patients considered themselves cured, the blood picture still retaining the grave changes, indicated the continuance of the disease. In addition to the destruction of the cells by the factors mentioned above, many are required to furnish the pus cells of the sputum, this in itself taxing the leukocyte making organs. The number of leukocytes in these cases is usually below 10,000, and it may be said that the smaller the number of leukocytes and the graver the neutrophilic leukocytic changes, the more unfavorable is the prognosis of the case. In febrile cases the number of leukocytes is usually above 10,000, but otherwise the blood picture does not differ in the least. During tuberculin injections one of three changes was usually observed in the blood picture: (1) It improved during the course of the treatment; (2) it did not improve during the course, but after its termination; (3) no improvement was noted at all, but further deterioration was checked. In marked reactions grave changes occurred, to disappear later; in slight reactions but few changes were noted in the picture. The blood picture therefore is an indication as to whether tuberculin should be pushed or not, and whether it is doing good, etc.; in cases with a disturbed state of the blood, tuberculin injections for purposes of diagnosis should be performed very cautiously for fear of giving an increased reaction where no tuberculosis exists. From all this it can be seen that it is the physician's duty to enhance the strength of the neutrophilic leukocytes, and this is done best, according to Arneth, by tuberculin in cautious doses, next by cinnamic acid, and lastly, by many stimulants, of which he mentions a number. [E.L.]

[1] Münchener medicinische Wochenschrift, 1905, lii, Nos. 12, 542.

Angina Pectoris and Pseudoangina.—Sir W. H. Broadbent[1] says that the distinctive character of true angina is that it is induced by exertion. During the paroxysms, the one constant circulatory disturbance is a contraction of the peripheral arterioles. The most acceptable theory of angina pectoris ascribes it to a cramp of the cardiac muscle, due to ischemia, produced by disease of the coronary arteries or occlusion of their mouths. Some degeneration of the heart muscle is also indispensable. The false angina of hysteria can usually be readily recognized. Paroxysmal pain in the cardiac region may be due to a variety of causes, but is easily distinguished from true angina if it comes on during repose, if it is accompanied by palpation, and if it usually comes on during the night. The cases most closely simulating true angina are those due to dilated stomach with an accompanying high arterial tension. True angina pectoris is associated with aortic valvular disease, aortitis, dilation of the aorta, atheromatous disease of that vessel, or fatty degeneration of the heart. Angina is established when the coronary arteries are implicated. In acute aortitis, anginoid attacks may come on during repose, if the mouths of the coronary arteries become blocked by a swelling of the aortic intima. Otherwise the attacks are always induced by exertion, at least in the earlier stages. In most cases there is a marked degree of arteriosclerosis, and the aorta is often dilated. The prognosis is most unfavorable in those cases giving negative physical signs. The treatment resolves itself into that of high arterial tension, and consists in the simplification of diet, regulation of the daily life, promotion of elimination, and the administration of mild mercurial aperients and iodids. The nitrites, nitroglycerin, etc., are more valuable during attacks than in the intervals. [B.K.]

Bacteriologic Examination of Preserved Meats.—E. Pfuhl[2] calls attention to the fact that preserved meats should be free from living bacteria to keep while being in the cans and that this is not the case in all instances. Of 106 specimens examined by him, 29 contained germs. The usual signs of spoiled meats (swelling of the cans, change in the appearance, odor and taste of the preserves) are not so certain in determining this change as is bacteriologic examination. Of the 29, only 6 showed these external changes after having been in the oven for from 8 to 14 days. The variety of bacteria is not important, but all cans containing bacteria should be discarded. He describes his method of examining such ware bacteriologically and also the method which should be employed to sterilize them. After sterilization, the cans should be closed carefully, so no bad seams should remain to permit bacteria to enter. Every canning establishment should, in his opinion, have connected with it a trained bacteriologist, as he can save the firm from large losses through this source by supervising the cleanliness of the apparatus, the temperatures of the fires, etc. [E.L.]

Nitrobenzol (Mirban Oil) Poisoning.—Winternitz[3] reported to the Society of Physicians at Halle a case of nitrobenzol poisoning through the drinking of mirban oil, demonstrating to them the spectroscopic behavior of the blood gained through venesection of the patient. The case was that of a woman of 24, who to produce an abortion on herself took 10 drops of mirban oil on a piece of sugar. Seven hours later she was brought to the hospital. Her mind then was perfectly clear and she related the happenings accurately. The bottle which had contained the nitrobenzol (10 gm.) was still half full. She complained of marked weakness and faintness, also

[1] The Lancet, May 27, 1905.
[2] Zeitschrift für Hygiene, 1904, xlviii, 121.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 12, 574.

intense burning along the pharynx; her face was a grayish-blue, her lips markedly cyanosed. The expired air smelled strongly after bitter almonds, but gastric lavage produced a perfectly odorless liquid. The stomach was perfectly empty, as shortly after taking the oil she had vomited. It was not until an hour later that she lost consciousness, this appearing rather quickly with jactitation and very marked cyanosis; the pulse became very frequent and small, the extremities were the seat of violent cramps and the mimic muscles of the face were markedly convulsed. She gave the impression of being in a dying condition. An infusion of normal salt solution followed by venesection improved the patient somewhat. The blood was almost black in color. Later she was given another infusion and then purgatives; she improved quickly. The urine was voided freely and contained ¾% sugar; it was dark-brown in color. Methemoglobin was seen spectroscopically in the blood; it could also be discovered by other tests. [E.L.]

Hepatogenous Levulosuria.—E. Sehrt[1] has tried the powers of the various organs to produce levulolysis, his method consisting in the employment of the dried powdered organ with solutions of levulose. For purposes of comparison, he first tried the effects of the various organs on grape sugar or dextrose, and found that the pancreas was the only organ which alone could decompose this substance. A mixture of pancreas and muscle powder was especially active. When it came to levulose, however, he found that it was not decomposed by muscle, pancreas, thyroid, or suprarenal gland, either alone or in combination. The only glands that were found to have levulolytic powers were the liver and the salivary glands. [B.K.]

Diabetes Insipidus and Other Polyurias.—By diabetes insipidus E. Meyer[2] understands a primary polyuria, caused by the inability of the kidneys to secrete a urine of normal concentration. As a result of this disturbance the patient with diabetes insipidus requires more water than normal for the removal of those end-products of metabolism that are ordinarily excreted in the urine. Since the patient cannot react to changes in nutrition by corresponding changes in the concentration of the urine, the quantity of the latter undergoes variations in order to maintain the specific gravity of the bodily juices. Diabetes insipidus is distinguished from primary polydipsia by the behavior of the kidneys toward increased ingestion of salts; in the latter condition the kidneys retain their normal powers of concentration. Diabetes insipidus shares with interstitial nephritis and pyelitis the inability of the kidneys to produce a concentrated urine, but it differs from these conditions in the greater constancy of the urinary concentration and the more prompt and regular excretion of the soluble constituents. Theocin in diabetes insipidus produces an increase in the concentration without increasing the quantity of urine. The phosphoric acid of sodium acid phosphate is excreted without increase of the quantity of urine, both in normal persons and in diabetes insipidus. [B.K.]

Malaria in the Tropics.—W. Schubert[3] discusses malaria in the tropics. Concerning immunity against it, he quotes Koch's and Plehn's views. The former says natives acquire immunity at a very early age by having malaria during their infancy, without receiving specific treatment for it. In bad malarial regions he found malarial organisms in the blood of 100% of the native children; immunity is acquired by them very gradually, and adult natives are immune to the greater part. Plehn's view is that even the natives possess no absolute immunity against the disease, but only a relative one, and this in many instances congenital. He found malarial parasites in the blood of at least 50% of the adult natives and is, therefore, firm in his belief that adult natives suffer as much from the disease as native children. In Schubert's experience, this immunity, whether absolute or relative, seems to protect only against one form of malaria, namely, the tertian type; it does not protect against the quartan and the malignant varieties. This would explain why immune natives at home may become afflicted with the disease when away from home. Through specific treatment the process of immunization is interrupted, and even the acquired degree of immunity is lost. Europeans, therefore, if they wish to become immunized against the disease, the rare cases of congenital immunity excepted, must refrain from all treatment for the disease, and wait patiently to see whether they will die or not; this being the only possible way of becoming immunized, the author is certain that but few Europeans will insist on becoming immunized. A perfect acclimatization of Europeans in tropic fever regions, therefore, is impossible. To be able to live for some time in such regions depends more upon the individual's constitution and his manner of living; individuals capable of spending the greater part of the day in a healthy locality, will be able to live in the tropics for a long time; the same may be said of men able to go to hospital stations during the bad part of the year. European children cannot develop normally in the tropics without resorting to the latter device. With hygienic rules of living, the noxious influences of the tropics can easily be withstood. Frequent trips to Europe are suitable from the standpoint of recreation, but it is possible that the partial immunity acquired is lost by them. Natives of Southern Europe, especially Spaniards and Portuguese, tolerate the climate of the tropics much better than do the Germanic races; children of Europeans and natives occupy a midpoint between the two classes of individuals in reference to acclimatization. Whether or not quinin prophylaxis will permit Europeans to live in the tropics permanently, whether it will be able to do away with the enormous infantile mortality, or whether it will continue to be impossible for Europeans in tropic regions to live beyond the third generation, are questions left for the future to solve. [E.L.]

[1] Zeitschrift für klinische Medicin, Bd. lvi, p. 509.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 1.
[3] Inaugural Dissertation, Strasburg, 1904.

Pneumococcal Sore Throat.—Pneumococcal angina has not heretofore received the attention it deserves. W. Pasteur[1] reports a case in a boy, who was seized suddenly with sore throat, great pain on deglutition and high fever. The glands at the angle of the jaw were moderately swollen. There was no cutaneous eruption. The uvula, soft palate, tonsils, and fauces were somewhat swollen and intensely red and glazed, but there was no exudate. Swab cultures yielded numerous micrococci, but no baccilli. Later the throat became gangrenous, bronchopneumonia developed, and the patient died on the twenty-second day of the disease. Cultures taken postmortem from the throat and lungs showed a predominance of the pneumococcus. The local signs of pneumococcal pharyngitis are in no way distinctive, and diagnosis is often difficult. The sudden onset resembles that of true pneumonia, and is often accompanied by chills. This case is distinctive in its fatal termination and the occurrence of gangrene, both of which are rare in this form of angina. The disease usually runs a course of two to five days. [B.K.]

The Varieties of Typhoid Bacilli and Their Influence on the Widal Reaction.—According to the investigations of W. Falta and C. J. Noeggerath,[2] those cases of typhoid fever that do not give the Widal reaction, or give it very late, can be accounted for by the fact that cultures of bacilli are used which are agglutinated with difficulty by the serum in question. This source of error can be avoided by testing the blood with several varieties of typhoid bacilli or with a mixed bouillon culture. The differences in the relative agglutinability of various typhoid races occur especially with serums which require a low dilution to give the reaction. As the agglutinating power of the serums increases and higher dilutions are employed, these differences usually vanish. Bodies which prevent agglutination appear frequently both in human and in animal serums; they often appear first toward the end of the disease, or increase at that time. They are not identical with Eisenberg's and Volk's proagglutinoids, but probably represent disintegration products of Joos' thermolabile agglutinin that have arisen in the body. If they are present in considerable quantity, they may produce a deceptive negative reaction. This source of error may be avoided by the use of a very dense bouillon culture, especially a mixed culture. [B.K.]

Report on Enteric Fever.—H. H. Johnston[3] reports that during five months when Nordtmeyer-Berkefeld filters were used for the drinking water, 31 cases of enteric fever were con-

[1] The Lancet, May 27, 1905.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 150.
[3] Journal of the Royal Army Medical Corps, April, 1905.

tracted among the personnel of his hospital in the South African campaign, whereas during the next 26 months, when Pasteur-Chamberland filters were in use, only 8 cases occurred. During the first period it was three times more prevalent among the personnel in other parts of the hospital than it was among the personnel employed in the enteric fever wards. During the second period 5 of the 8 cases were among those employed in the enteric fever wards, in which the disease may have been contracted. The writer conducted experiments showing that after 2 to 10 days' continuous filtration the Nordtmeyer-Berkefeld filter allowed microorganisms to pass through and a few days later the number of organisms present in filtered water was often enormously greater than in the unfiltered water, the filter forming a breeding ground, whereas with the Pasteur-Chamberland filter the water was completely sterilized during 6 weeks' continuous filtration under pressure ranging between 13 and 46 pounds to the square inch. If Nordtmeyer-Berkefeld filters are used, they should be sterilized by boiling in water for at least an hour every second day. On field service this is impracticable and their use is a source of danger. [H.M.]

Enterogenous Cyanosis.—Under this title a new symptom-complex has been described by several authors within recent years. It consists of a cyanosis of the skin, supposedly due to the formation of methemoglobin as a result of the absorption of certain toxic substances from the intestinal tract. A. A. Hijmans v. d. Bergh[1] reports two additional cases of this rare affection. The first case was that of a boy, in whom a urethro-rectal fistula had developed as a result of anal stenosis. The passage of urine into the intestinal tract had caused an enteritis, causing putrefactive as well as ammoniacal fermentations, both in the feces and in the urine. A marked cyanosis of the skin and mucous membranes developed which was found to be due to a darkened condition of the blood, not caused by polycythemia. The dark blood was at first supposed to be due to methemoglobin; but spectroscopic examination revealed a spectrum that differed somewhat from that of methemoglobin, but corresponded exactly with that of blood subjected to the action of hydrogen sulfid. Stools from the patient were found to have the same effect on blood outside the body. The conclusion was therefore reached that the cyanosis was due to the formation of sulfhemoglobin, and treatment directed toward the elimination of hydrogen sulfid from the stools produced an amelioration of the condition. The author's second case, however, was one of true methemoglobinemia, in which the actual cause of the condition could not be determined. The patient had a nephritis with alkaline, nitrite-containing urine, which might have accounted for it. The intestinal disturbances were very slight. An absolute milk diet caused a disappearance of the cyanosis, while meat caused its reappearance. [B.K.]

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

EDITORIAL COMMENT

Rachistovainisation is one of the established features of the pioneer surgery of the present period. MM. Kendirdjy and Bertaux contributed to *La Presse Médicale* of October 16, 1904, an article bearing the title: "L'anesthésie chirurgicale par injection sous—arachnoïdienne de stovaïne." The issue of the same periodical of May 31, 1905, contains another communication dealing with the same subject by MM. Kendirdjy and Burgaud. The former paper summarized the experiences of 64 cases, the latter of 140. Throughout the whole series there was not a single failure, so that the value of the procedure may be regarded as a well-established fact. The spinal injection of stovain as an anesthetic preparatory to operation in this latter series of 140 cases responded successfully to the tests requisite for such a varied range of items as circumcision, amputation of the penis, removal of hemorrhoids, castration, epididymectomy, radical cures of inguinal hernia, of hypospadias, and of hydrocele, internal urethrotomy, operation on anal and urethral fistulas, etc. These observers consider that for operations of which the site does not reach above the level of the inguinal region, a 5 cg. dose may be regarded as a maximum; their own usual dose being 4 cg. For operations of short duration fully satisfactory results were often obtained by 3 cg. lumbar injections; of such they mention circumcision as a conspicuous example, and their recent series included 67 cases. If any failures or untoward results ever occur they must be, in the opinion of these observers, due to defective technic, and not at all to individual idiosyncrasy. A peculiar feature is the persistence of local anesthesia when the more general effect has disappeared. A youth of 18 had had his tunica vaginalis injected with tincture of iodin as a radical treatment of hydrocele. Several hours after, when cutaneous sensibility and voluntary power of muscular movements were fully reestablished, he felt no pain in the scrotum, although the inflammatory redness and tumefaction had become very marked. In no single case was there appreciable modification of pulse or respiration produced by the lumbar injection of stovain. In two instances there was some troublesome vomiting; in three others relaxation of the sphincters occurred; in one there was a "transpiration abondante." In some cases (12 in all) there was headache, of varying persistence of duration, noted after operation. No explanation was forthcoming, however, for a "ponction evacuatrice" made some hours after the injection, or even on the following day, showed no modification whatever of the cephalorachidian fluid. With such a series of unvarying successes it would indeed seem—as these observers profess to anticipate, and as Sonnenburg had already prophesied—that the lumbar injection of stovain is a procedure which is destined to "revolutionize the question of anesthesia."

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 86.

REVIEW OF LITERATURE

Anatomic Points Connected with Prostatectomy.—F. S. Watson[1] prefers Gouley's rapid finger enucleation of the prostate when the lobes are definitely separable from the outer sheath. In specimens a wellmarked interval can be seen between the surface of the gland and the inner aspect of the outer sheath. These also show that the level of the lower border of the urethral aspect of each lateral lobe is a little above that of the floor of the prostatic urethra, consequently, also above the level of the ejaculatory ducts, and any operation which does not injure the floor of the urethra, does not injure these ducts. As to criticism with regard to the blindness of procedure, the sense of touch is a safer guide than sight in the performance of this operation. The presence of blood interferes with seeing. In enucleating, the pulp of the finger-tip is held upward and pressure is made upward and outward when separating the posterior surface; when the front and upper surfaces are being detached the pressure is made laterally; at no time should it be directed downward toward the rectum. When the union between sheath and gland is intimate, removal by morcellement is best. The ejaculatory ducts may be saved even through the median perineal urethrotomy incision. The outer fibrous sheath and bladder wall covering the intravesical parts of the enlarged gland are nowhere injured. The best way to determine whether a case is suitable for perineal operation is by an exploratory incision through the posterior urethra which will supply additional drainage should suprapubic operation be found necessary. [H.M.]

Has the Catheter a Place in the Treatment of Chronic Prostatic Hypertrophy?—P. Thorndike[1] believes that there are some cases better off with proper palliation than radical operation. This includes not only those unfit to endure the shock of radical procedure, but others comparatively young and vigorous, with bladders overdistended for so many months or years that they have reached a point of atonic degeneracy

[1] Annals of Surgery, April, 1905.

from which they may never recover. These should use the catheter at such intervals as to prevent overdistention until the bladder shall rejuvenate itself to a degree which will enable it to empty itself after the obstruction is removed. If the amount of retained urine is only an ounce or two, it is usually possible to palliate symptoms, and the routine use of the catheter is unwise, if an occasional visit to the surgeon can be made. We are not justified in prostatectomy in such a case. If the residual urine exceeds three or four ounces, the patient must be taught to empty the bladder one or more times daily; or if ignorant and poor, operation is the better treatment. When the patient can be kept in perfect comfort by using the catheter once or twice daily, the writer advocates its use. [H.M.]

Operation of Jejunostomy.—According to A. W. Mayo Robson,[1] this operation is indicated (1) in advanced carcinoma of the stomach, in which no operation can be performed on that organ; and (2) in general cicatricial contraction of the stomach. He performs the operation by taking a loop of the beginning of the jejunum, just long enough to reach the surface; the two arms of the loop are "short-circuited" about 3 in. or 4 in. from the surface by means of sutures around a decalcified bone bobbin. A small incision is made in the top of the loop, a No. 12 catheter is passed for 3 in. down the distal arm of the loop, and is fixed to the margin of the intestinal incision. The top of the tube is fixed to the skin and the wound is closed. This operation permits the onward passage of bile and pancreatic juice from above, and also allows the introduction of food without regurgitation. [B.K.]

Decapsulation of the Kidneys.—F. D. Boyd and J. M. Beattie[2] find that cases of chronic nephritis on the down grade show benefit from the operation. The marked diuresis, diminution in albumin, and rise in urea excretion may be explained in two ways: (1) Operation may improve mechanical conditions by relieving tension. In a number of cases, however, there was no evidence of increased tension; (2) operation may stimulate the sympathetic centers. Either explanation would point to the simple operation of incision of the kidney being preferable to decapsulation. A dense new capsule forms, and if conditions of tension were originally present, they are liable to be accentuated, together with increased connective-tissue formation and contraction. Incision of the kidney may be desirable in acute nephritis with anuria. In chronic parenchymatous nephritis increased diuresis from incision may tide the patient over a critical time. Neither decapsulation nor incision may be expected to cure chronic nephritis. In chronic interstitial nephritis the kidney changes are but part of a general condition. Operation may relieve symptoms; it cannot cure the disease. [H.M.]

Prostatism without Enlargement of the Prostate.—C. H. Chetwood[3] includes urgency and frequency of urination, pain during and after the act, and partial or complete retention of urine among the symptoms of prostatism. These are also characteristic of contracture of the neck of the bladder from fibroid stenosis. This is inflammatory in character, the cause of the stenosis being previous chronic inflammation in front of or behind the sphincter, generally from gonorrhea. There may be no symptoms from an enlarged prostate if there is no coexistent contracture of the neck of the bladder. Failure to recognize this stenosis explains the failure to relieve symptoms after certain prostatectomies. In using a Thompson searcher the contracture may be recognized by turning the beak of the instrument towards the *bas fond*, making gentle traction while rotating it from side to side. Simple incision may cause severe hemorrhage. The writer uses the galvanocautery through a perineal incision. [H.M.]

Ligation of the Aorta, Its Physiologic and Therapeutic Significance.—M. Katzenstein[4] finds that, after ligation of the aorta above the bifurcation, new blood paths are immediately instituted for the nutrition of the peripheral parts of the body. The blood-pressure at once falls in the femoral artery and the pulse disappears, but gradually reappears again. At the end of the first day, about a third the normal quantity of blood passes through the collateral circulation. The blood-pressure in the carotids rises and in a few days exceeds the normal. This is owing to an increase in the cardiac activity, brought about by the increased resistance. As the pressure in the femorals rises, showing that the circulation is being restored, the cardiac activity again falls to normal. At first there is a dilation of the heart, succeeded by a hypertrophy of the left ventricle. A paralysis of the hind extremities and bladder is caused by ligation of the aorta. This paralysis is peripheral in origin and is not permanent. Ligation of the abdominal aorta for peripheral aneurysm has been performed 14 times, and has always been without result. This is on account of the immediate institution of collateral circulation. The procedure places a great strain on the heart, which undergoes a marked hypertrophy. [B.K.]

Zittman's Treatment for Syphilis.—G. H. Sylvester and C. B. Crisp[1] report diaphoresis, diuresis, and slight diarrhea, the poison evidently being thus eliminated. The number of cases treated was 23 with good results in 7, some improvement in 3, and in 3 practically no result. Destruction of tissue was rapidly checked, weight increased, the rash entirely disappeared, ulcers and gummas dried up, and pains in the joints became less severe. The Zittman treatment seems to have more effect upon skin and connective-tissue lesions and in improving general health and weight than it has upon joint pains. [H.M.]

Suprapubic Prostatectomy without Ether or Chloroform.—J. Wiener, Jr.,[2] states that by removing the gland through a suprapubic incision under nitrous oxid, in a few minutes we are enabled to cure many otherwise incurable cases. Neither nephritis, cystitis, diabetes, nor advanced age, are contraindications. He has removed a small, hard, firmly adherent prostate in nine minutes. He has lost no case, and has never seen a severe hemorrhage, a bad infection, nor any shock follow the operation. It is not true that more cases are impotent after suprapubic than after perineal operation. The cystoscope is not only unnecessary, but a dangerous instrument in marked hypertrophy. He avoids even passing a catheter before operation. [H.M.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Typhoid Fever in Pregnancy.—H. T. Hicks and H. French[3] report a case of typhoid fever beginning in a woman seven and a half months pregnant. On the eighth day she was spontaneously delivered of a live fetus, which died in three-quarters of an hour. The mother died on the twenty-fourth day of the disease. The fetus revealed no pathologic changes, and yielded negative cultures. The mother's blood at the time of labor gave a positive Widal reaction, but that of the fetus was negative. The authors have collected previously reported cases, 30 in number, and find that in half of them the fetal blood has contained typhoid bacilli, delivery having occurred late in the fever in all cases. Agglutination has occurred with fetal serum in seven cases. It is doubtful if the reaction can occur with fetuses in which no bacilli are found, and it is most probable that the agglutinins result from the action of the bacilli on fetal tissues. It would seem possible that the agglutinin could be transmitted from mother to fetus, but it is difficult to see why this transmission should be delayed, as no fetus has given the reaction prior to the third week. Pregnancy does not affect the prognosis in the mother, but the fetus is usually destroyed or dies soon after premature delivery. [B.K.]

Abdominal Hysterectomies for Fibromyomas.—F. W. N. Haultain[4] states that the risk to life from operation in competent hands has been so reduced as to cause little anxiety. The alternative methods are so uncertain as to seem unworthy of adoption. With judicious conservation of the ovaries, the after-effects are all that can be desired. In some cases of pedunculated tumors and solitary tumors, myomectomy is,

[1] The Lancet, June 3, 1905.
[2] Edinburgh Medical Journal, April, 1905.
[3] Annals of Surgery, April, 1905.
[4] Archiv für klinische Chirurgie, Bd. lxxvi, p. 581.

[1] Journal of the Royal Army Medical Corps, April, 1905.
[2] Annals of Surgery, April, 1905.
[3] The Lancet, June 3, 1905.
[4] Scottish Medical and Surgical Journal, April, 1905.

perhaps, preferable to hysterectomy, but these cases are few and far between. The return to health, bodily and mental, is the most encouraging indication for its adoption. To operate simply on account of the presence of a fibromyomatous growth is absolutely reprehensible, but to condemn a woman to years of invalidism waiting on the menopause, is infinitely more so, as the best years of her life are wasted. It is the absence of pain which predisposes to postponement. The mythic idea of being unsexed is also strong. [H.M.]

Pseudoascites in Ovarian Tumors.—K. Hoermann[1] reports the case of a very cachectic woman of 40, who a year before operation had an attack of peritonitis and since then her abdomen had been gradually enlarging, the result of two large masses and ascites. The mass being nodular, a diagnosis of malignant ovarian tumor, with metastases in the peritoneum and ascites, was made. The operation revealed a benign cystic adenoma, which had ruptured and caused the attack of peritonitis, the orifice remaining open. Through this opening the mucinous secretion had entered the peritoneal cavity, giving rise to pseudoascites as well as a large number of irregular masses palpable through the vagina. Perforations similar to this do not occur very often, and when occurring, they usually heal soon after. A second similar case is spoken of briefly: The opening in the cyst was much smaller, the abdomen containing 10 liters of clear fluid. These cases teach the necessity of exploratory laparotomy in all cases, even though the case seems absolutely inoperable. Both patients recovered and would not have done so without operation. [E.L.]

Uterine Myoma.—A. W. Russel's[2] experience has convinced him that surgical interference should take place sooner. The day of drug treatment is almost over, and electricity and Pincus' method of applying steam may be put in the same category. By early operation we avoid deterioration in health, and the essential cardiac disorder, the complication of size, degeneration of the growth, and disease in adjacent organs. Operations that aim at checking growth by lessening the nutrition of the tumor are too uncertain to be relied on. Only interstitial fibroids are likely to be influenced, and besides it is not always possible to separate and ligature both sets of appendages. Sometimes, however, such an operation is the only one available, and is sometimes effective. The writer has usually done an abdominal hysterectomy by the supravaginal method, but is now inclined to excise the little stump of cervix in the way recommended by Bland-Sutton. He describes a distinct myomatous cachexia, indicated especially by cardiac hypertrophy, blood changes, and consequent physical weakness, which lessen the power of recovery, and therefore add considerably to the risk of operation. [H.M.]

Toxemia of Pregnancy.—H. C. McIlwraith[3] bases his paper on observations made on 23 cases. Convulsions occurred in 19, the other 4 being included to illustrate prophylaxis. To every pregnant woman who engages him for confinement, he states his fee, and explains that it includes all usual consultations during pregnancy, and urges her to report at frequent intervals for urine and general examination. In this way he believes several cases of eclampsia have been avoided. Hospital cases are given calomel 0.3 gm. (5 gr.), washed down with saturated solution magnesium sulfate 60 cc. (2 oz.). The patient is then anesthetized and 500 cc. (1 pt.) of physiologic salt solution introduced beneath each breast. At the same time a high enema of magnesium sulfate, saturated solution, 30 cc. (1 oz.), glycerin, 60 cc. (2 oz.), water, 90 cc. (3 oz.) is given. When anesthesia has ceased, morphin, 0.033 gm. (½ gr.), is given hypodermically. Then half this dose is alternated every two hours with chloral, 1.0 gm. (3 gr.) by the rectum. For unconscious patients, the same, except medicines cannot be given by mouth. [A.G.E.]

Heredity in Ovarian Cystoma.—A. R. Simpson[4] points out that while in cancer there is a possibility of descent along both the male and female line in ovarian cystoma, it can attach only to maternal predispositions. The germinal glands themselves are the seat of disease, and their degeneration involves lessened power of reproduction. Married women are barren in the proportion of 1 in 3 or 4, instead of 1 in 8 or 9, as in the general community. The very development of the disease thus lessens the chances of its descent to another generation. [H.M.]

[1] Münchener medicinische Wochenschrift, 1905, lii, No. 12, 554.
[2] Glasgow Medical Journal, April, 1905.
[3] Canadian Practitioner and Review, May, 1905.
[4] Scottish Medical and Surgical Journal, April, 1905.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Causes and Treatment of Edema.—According to J. D. Mann,[1] cardiac edema is essentially hydrodynamic in its origin. It is to a limited extent due to the back pressure of blood, the chief factor being an increased permeability of the vessel walls, due to lack of oxygen and of nutrition. Renal edema is less readily explained; among other causes are changes in vascular endothelium, produced by waste products in the blood, and the defective elimination of water by the kidneys. Within recent years attention has been called to the close relation between the retention of sodium chlorid and the occurrence of edema. When the heart alone is at fault in the production of edema, physiologic rest is of prime importance in its treatment. Among drugs, digitalis is by far the most efficacious, the more active preparations being Nativelle's granules of digitalin and Cloetta's digalen. In renal incompetence the purin derivatives, caffein, theobromin, and theocin are of great value. Caffein is the most active cardiac stimulant of the three, and theocin is the most powerful renal stimulant. Diuretin is a double salt of sodium salicylate and theobromin. Digitalis may have to be combined with the latter drugs to produce diuresis. When the kidneys fail to respond, the skin must be stimulated to the elimination of water by the use of heat. Cathartics are of little use. In renal edema the diet is of great importance. A moderate amount of solid food, low in proteids, may be allowed. Sodium chlorid should be restricted. When the volume of urine is ample, the intake of liquids needs no restriction; but when the urine is scanty, the liquids should be regulated by the daily weight of the patient, an increase of weight calling for their restriction. [B.K.]

Cold to the Precordium in Typhoid Fever.—M. Leduc[2] points out that the majority of the patients who die in the course of typhoid fever succumb to paralysis of the heart. This paralysis, which is generally attributed to alterations in the nerve centers, he believes is due to an alteration in the cardiac fibers as a result of prolonged fever. To combat this fever an ice-bag may be applied to the precordium in place of using general baths. When the temperature remains at about 102° F., and especially when the pulse is about 120, the constant application of an ice-bag surrounded by one or two layers of flannel will cause the pulse to fall to 100 and the temperature to 100° F. The other subjective and objective symptoms ameliorate as they do after a general bath, but with less fatigue to the patient. [L.F.A.]

Sodium Chlorid Abstinence in Epilepsy.—In L. J. J. Muskens'[3] experience during the last three years the withdrawal of sodium chlorid from the diet of epileptics has a favorable influence upon the action of the bromids and the development of acne, which is retarded. He rarely gave larger doses than 45 gr. to 60 gr. of the bromids. Men resisted the treatment more than women. Women stand the treatment better and show, in general, fewer unpleasant symptoms. Age has very little influence. This form of treatment influences petit mal attacks to a greater extent than it does the grand mal. When the salt-free diet is poorly borne, the patient complains of dizziness, headache, weakness of the legs, constipation in the old and diarrhea in the young, pronounced loss of memory, and edema. The breath frequently becomes foul. In a number of cases a trigeminal neuralgia appeared shortly after the reduction of the salt. In many of the old cases an alteration in the disposition was observed. In the younger individuals great irritability was observed, and in a small percentage of cases

[1] British Medical Journal, May 20, 1905.
[2] Bulletin Général de Thérapeutique, Vol. cxlviii, No. 11, 1904, p. 424.
[3] Neurologisches Centralblatt, March 1, 1905, p. 208.

indolent individuals became energetic. In many cases somnolence was marked, and upon awakening in the morning, or after a nap in the afternoon, the patients complained of more fatigue than formerly. This was, however, only occasionally so pronounced as to interfere with the working capacity of the patient. In cases of senile epilepsy there was striking improvement in the melancholic symptoms. There were no special contraindications as far as the age, psychic, or intellectual conditions were concerned. As a rule, there was an increase in the weight during the first week of treatment, although later there was diminution in weight, probably due to the loss of appetite that ensued. Menstruation is in the beginning delayed, while later it is uninfluenced by this form of treatment. [J.H.W.R.]

Treatment of Purulent Cavities.—The principle of drainage, so successful in the treatment of soft tissue abscesses, has always been regarded as a prime factor in the cure of abscesses within fixed walls. R. H. Woods[1] attempts to show that simple drainage is of small value in such cases. In dealing with abscesses in soft tissues, if the surrounding tissues are firm and the abscess cavity of small size, healing will occur without drainage. In a case such as empyema, healing can only take place by obliteration of the cavity. To accomplish his with a fixed parietal wall, it would be necessary for the lung to expand against negative pressure, or for the cavity to be filled up slowly with granulation tissue. To avoid the latter alternative, the author conceives the idea of keeping the lung expanded by means of suction applied to the pleural cavity. He describes an apparatus for this purpose, and the method of using it. In the case of rigid cavities, like the antrum of Highmore and the frontal sinuses, mere drainage can never accomplish a cure and may often be dispensed with. It cannot be expected that the cavity will fill up with granulation tissue. The most rational method of treatment is to keep the cavity thoroughly cleansed and promote a restoration of the lining mucous membrane. The latter may sometimes be accomplished by cureting, followed by grafting. [B.K.]

Treatment of Laryngismus Stridulus.—Comby[2] recommends in these sudden paroxysms that a hot compress shall be applied to the anterior part of the neck and an emetic administered internally. The application of a mustard plaster to the neck also gives good results, although care must be exercised that discoloration of the skin does not result. The child should be confined to the house ; he should also be given hot drinks, and expectorant and antispasmodic remedies, as follows :

Potassium bromid	0.50 cg.	(7 gr.)
Syrup of belladonna (French codex)	10 gm.	(2½ dr.)
Syrup of orange peel	30 gm.	(1 oz.)

To be taken in teaspoonful doses during the day. In serious cases the amount of bromid may be increased to 2 gm. or 4 gm. (30 gr. to 60 gr.) daily.

Or:

Chloroform	10 drops
Glycerin	5 gm. (1 dr.)
Syrup of tolu	20 gm. (5 dr.)
Water	60 gm. (2 oz.)

To be taken at the time of onset in doses of 1 teaspoonful every half hour.

If asphyxia is imminent, before performing intubation or tracheotomy, rhythmic traction of the tongue should be tried. The prophylaxis of laryngismus stridulus consists in removing vegetations of the nasal fossas, adenoids, and enlarged tonsils. [L.F.A.]

Cerebral Syphilis and Injections of Hermophenyl.—Roque and Corneloup[3] report four cases treated with injections of hermophenyl, a new mercurial salt, whose merits have been advanced by Lumière, Hallopeau and others. Two cases presented focal symptoms that were completely removed by the administration of 1.52 gm. hermophenyl in 13 injections, this quantity being equal to 0.6 gm. mercury. The third case presented symptoms of general paralysis that were greatly ameliorated after the same course of treatment. The fourth case was not so successful, but autopsy showed a tumor of the cerebellum of nonsyphilitic nature. These injections are almost invariably attended by no unfavorable symptoms, and may even be carried out in the presence of stomatitis from the previous use of other mercurial preparations. [B.K.]

Alkaline Draught in Treatment of Pneumonia.—Sajous,[1] basing himself on observations of Lazarus-Barlow and J. Loeb as to the diminished alkalinity of blood in fevers and its significance as an index of lowered resistance, urges prompt alkalinization in all infections, and especially pneumonia. For this purpose he recommends oral administration of the saline mixture advocated by J. B. Todd, of Syracuse, whose formula follows:

Sodium chlorid	320 gr.
Potassium bicarbonate	160 gr.
Aromatic fluid extract (U. S. P.)	30 m.
Water enough to make	4 oz.

Dose.—Teaspoonful in 6 oz. to 8 oz. of water, with a teaspoon of lemon juice, every two hours. [X.]

Treatment of Seasickness.—J. M. Sharpe[2] believes seasickness to be a nervous phenomenon, due to a reflex action arising from the ocular apparatus. He proposes to overcome the tendency to this disorder by paralyzing the accommodation of one eye by daily instillation of two or three drops of a solution of atropin (4 gr. to the oz.). When the patient objects to this, one eye may be merely bandaged. He has collected reports on 50 cases so treated, with good results in 65%. [B.K.]

FORMULAS, ORIGINAL AND SELECTED.

For the Relief of Fetid Mouth.[3]—

Saccharin, Sodium bicarbonate	of each 1.0 gm. (15 gr.)
Salicylic acid	2.0 gm. (30 gr.)
Alcohol	100.0 gm. (3⅓ oz.)

A few drops in a glass of water to be used as a gargle. [L.F.A.]

Treatment of Gastric Disturbances and Diarrhea in Tuberculosis.—A. Robin[4] recommends the following means of combating anorexia in tuberculosis:

Sodium metavanadate	0.03 gm. (½ gr.)
Distilled water	150 gm. (5 oz.)

One teaspoonful a half hour before meals. If, at the end of six days, the appetite does not return, stop it and administer one of the following preparations:

Sodium persulfate	2 gm. (30 gr.)
Distilled water	300 gm. (10 oz.)

One dessertspoonful a half hour before meals. Stop it when the appetite returns. Do not continue the drug if no action is produced after a few days.

Infusion of quassia, made by macerating 2 gm. (30 gr.) of quassia chips in a glass of water, may be taken upon arising.

For the vomiting, 10 to 30 drops of tincture of lichen are recommended before meals. The following potion is very useful:

Picrotoxin, Morphin hydrochlorate	of each 0.05 gm. (1 gr.)
Atropin sulfate	0.01 gm. (⅙ gr.)
Ergotin	1.0 gm. (15 gr.)
Cherry-laurel water	10 gm. (2½ dr.)

Five to eight drops ten minutes before meals.

For the diarrhea, bismuth and diascordium may be used as follows:

Diascordium, Bismuth subnitrate	of each 4 gm. (1 dr.)

This may be placed in 16 cachets and taken during the day. [L.F.A.]

A Mixture to Lubricate Urethral Sounds.—M. Casper[5] uses the following preparation to lubricate urethral sounds. It is very unctuous, is easily washed off, and its antiseptic action lasts for a long time:

Mercury oxycyanid	0.246 gm. (4 gr.)
Gum tragacanth	3.0 gm. (45 gr.)
Chemically pure glycerin	20 gm. (5 dr.)
Distilled water	200 gm. (6½ oz.)

[L.F.A.]

[1] British Medical Journal, May 20, 1905.
[2] La Quinzaine Therapeutique, Vol. xvi, No. 6, 1905, p. 140.
[3] Lyon Médical, May 21, 1905.

[1] Monthly Cyclopedia, June, 1905.
[2] British Medical Journal, May 20, 1905.
[3] Bulletin Général de Thérapeutique, Vol. cxiix, No. 19, 1905, p. 752.
[4] Journal des Praticiens, Vol. xix, No. 21, 1905, p. 328.
[5] Bulletin Général de Thérapeutique, Vol. cxlix, No. 19, 1905, p. 751.

American Medicine

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Counting Up the Cost.—The annual toll paid on the Fourth of July by the barbaric spirit misnamed patriotism is now being reckoned in maimings and death. All over the country the old story was retold, here and there with a bettering due to local efforts to regulate the use of explosives, but nevertheless with a total exceeding in deaths any year since 1899, and with only one larger record of injuries. It is true, perhaps as is claimed by one advocate of a "glorious" Fourth, that any one day may have a total of occupational accidents of over 3,200, including an immediate death-list of over 60, but the claim is open to grave doubt. Each year the *Chicago Tribune* collects and tabulates the casualties directly due to celebration of Independence Day. This year comparison of the returns to noon on July 6 shows a general increase over former records, causing fear that the only hope for a safer and saner observance of the national holiday lies in the gradual elimination of the stupid and careless. The totals, beginning in 1899, have been as follows:

	Dead	Injured
1899	33	1,740
1900	59	2,767
1901	25	1,803
1902	31	2,796
1903	52	3,665
1904	52	3,049
1905	63	3,157

The injuries are classified as follows: By fireworks, 1,258; by cannon, 294; by firearms, 446; by gunpowder, 706; by toy pistol, 373; by runaways caused by explosions, 80.

The harvest of death, however, is not yet complete, since tetanus often proves fatal at a somewhat remote period. Thus, according to the *Chicago Tribune*, statistics on January 1 last showed that 468 persons had died from injuries received on the Fourth of July preceding, most of them from tetanus. Within two weeks after the Fourth, 181 had died of lockjaw resulting from injuries received on that occasion. So it is certain that the figures given out now will be terribly increased. If the careless, the stupid, and the barbarous did but injure and slay themselves, one might wait with patience the gradual "elimination of the unfit," seeking what quiet is possible during the process. But the roll of death too often embraces women, infants, the uncounted sick whose death is hastened by shock of noise and concussion, and nonparticipants generally. Are not these figures of disaster, culled from "100 leading cities of the country" sufficient to cause those cities at least make and enforce laws for the protection of their quiet and orderly citizens?

Overoperation.—Professor Schweninger, whose position as the medical adviser of Prince Bismarck secures for his pronouncements a cosmopolitan audience, has caused some commotion in the surgical circles of the metropolitan communities of civilization by an attack on indiscriminate surgical operation. He says that the physician of the opening years of the twentieth century is in danger of being progressively, and even permanently shunted by the operating surgeon—to the great detriment of the general public, who suffer so much and who understand so little. The charge is by way of retort to the accusation that too few operations were being performed in the hospital which is under his charge. It must indeed be conceded that a multitudinous output of operations is an undeniable admission of the failure of medicine, and, from the point of view of the practitioner of medicine, the greater physician of two is not he who can cut off a leg, but he who can keep it on. On the other hand, the methods and the results of surgery appeal very forcibly to the man in the street—who is not himself an actual or prospective patient. The surgeon's handicraft is of such a nature that the most skilled and uneducated can follow and appreciate its traces; it makes the crooked straight, and the halt whole, in the sight of everyone who cares to see. The surgeon binds up broken limbs, lops off shattered members, removes unsightly and unhealthy swellings, and excises undesirable or superfluous internal organs with ease and expediency. Accordingly, to the disinterested and the unemployed citizen he is the *deus ex machina* in all desperate and painful conditions—especially the emergencies—in which human life is at stake. His occupation is more showy than is the practice of internal medicine, and his art accordingly appears to superficial minds as the superior one.

An Enviable Record.—We have several times commented favorably on the work accomplished by Commissioner Reynolds of the Chicago Health Department. In the bulletin of the department for June 24, Dr. Reynolds gives a brief summary of the work during

the past 12 years as a farewell on retiring from the position he has held during that time. His energetic and enthusiastic administration has produced results to which he points with pardonable pride and for which the people of Chicago should make known their appreciation in no uncertain manner. The mortality during 1893 was 212, in 1904, 136 in every 10,000 of population, a reduction of 36%. The reduction in infant mortality has been 50%, of children from 1 to 5, 64%. The "expectation of life" for every man, woman and child in Chicago has increased 9¾ years. Smallpox, diphtheria, tuberculosis, typhoid fever, scarlet fever, and diarrheal diseases show the effect of persistent efforts in their treatment and prevention. Improvement in the milk supply is shown by the reduction of samples below grade from 45 to 7 in the hundred, accounting largely for the lowered deathrate in children. Dr. Reynolds regards two points as worthy of special mention: 1. The beneficent effect of the activity and influence of the women of Chicago in advancing the standard of personal hygiene and public sanitation. 2. The cooperation and assistance of the medical profession. Outweighing these, however, is the educational work of the department by which, through the medium of bulletins, circulars, leaflets and the daily press, Chicago citizens have become more intelligent regarding the preservation of health than are those of any other city in the country. This point cannot be made too emphatic. We congratulate Dr. Reynolds on the splendid results of his humanitarian efforts, and his successor on the well-organized department over which he assumes control.

The Children's Seashore House at Atlantic City, opened in 1872 as the first institution of its kind in the United States, has grown from a small cottage into accommodations for 380 mothers and children. It fills a distinct want during the summer months by caring for children of the poorer classes who suffer from noncontagious diseases, or for hospital convalescents from various surgical and medical affections. Healthy children of mothers with sick infants are also cared for, a small cottage room being given over to each family. Eventually it is hoped to carry on the work during the entire year. The report for 1904 shows that nearly 3,100 mothers and children were cared for during periods of a few days to many weeks. Some needed only a change of air, others medical care and nursing. There was a gratifying increase in the number of children sent from Philadelphia hospitals in large groups; the desire of the managers is to afford at least a short visit to the seashore every summer for each delicate child in every Philadelphia institution. The expense of the House is $26,000 annually, dependent entirely on donations, and more could profitably be expended. The objects and the work of this institution are in every way commendable. Contributions now made to many of our struggling, but unneeded, city hospitals, would accomplish far more if diverted to this or similar enterprises.

The Health of the School Child.—The following are copies of the cards used by the medical officers of the schools in New York City:

36K—1905 913, '05, 25,000 (P)

"This notice does NOT exclude this child from school."

DEPARTMENT OF HEALTH,
THE CITY OF NEW YORK.

. 190

The parent or guardian of . . . . . of . . . . . is hereby informed that a physical examination of this child seems to show an abnormal condition of the . . . . . .

Remarks: . . . . . .

Take this child to your family physician for treatment and advice. Take this card with you to the family physician.

THOMAS DARLINGTON, M.D.,
Commissioner of Health.

HERMANN M. BIGGS, M.D.,
General Medical Officer.

37K—1905 913, '05, 25,000 (P)

PHYSICAL RECORD.

P.S. . . . . Class . . . . . Date . . . . . .
Name . . . . . Age . . . Address . . . . . .

1. Nutr.	G.B.	10. Def. Nas. Breath	Y. N.
2. Enl. Cerv. Gl.	Y. N. / A. P.	11. Teeth	G. B.
3. Chorea	Y. N.	12. Deform. Palat.	Y. N.
4. Card. Dis.	Y. N.	13. Hyper. Tons.	Y. N.
5. Pul. Dis.	Y. N.	14. P. Nas. Growth	Y. N.
6. Skin Dis.	Y. N.	15. Mentality	G. B.
7. Def. Spine	Y. N.	16. Treat. necessary	Y. N.
Chest	Y. N.	17. Nationality:	
Extrem.	Y. N.	Remarks:	
8. Def. Vis. Subj. Obj.	Y. N.		
9. Def. Hear.	Y. N.		

Med. Ins.

The Economic Value of Goat Milk.—The goat, except as a troublesome pet and the perennial subject of stale jokes, is in this country but little known. During the past year, however, a number of pure bred milch goats have been imported and made the nuclei of several herds. Requests for information regarding the milk of these animals have been sufficiently numerous to lead the United States Department of Agriculture to issue a bulletin[1] upon the subject. Therein MR. G. F. Thompson supplies facts regarding European countries and asserts in a very convincing manner that from both a financial and a dietetic standpoint, the people of this country are heavy losers by not keeping goats, an industry worth annually to Germany alone $39,000,000. Attention is directed chiefly to two points: 1. The superior nutritive value, especially for children and sick people, of goat's milk as compared with cow's milk. 2. The greater ease with which goats are obtained and kept, a point of particular interest to the poorer classes. Foreign writers are quoted at length as to the value of goat's milk for children and invalids, and in cooking. The flavor and odor of the milk, which the average American regards as once and for all settling the question, is said to be almost wholly under control by the exercise of care in feeding and milking the animals; there is a special flavor, as in the case of milk of other animals, but the objectionable "goat" attributes are entirely avoidable. A very weighty argument in favor of the goat is its comparative immunity to tuberculosis, this disease being extremely uncommon; the statement of some writers that immunity is complete, is not supported by facts. The bulletin may be summarized as a very strong argu-

[1] Bureau of Animal Industry, Bulletin No. 68, 1905.

ment for the goat, and should be consulted by all those who care to know more about what promises to be an increasing industry that possesses important medical and sociologic features.

"The Nature Cure" is the title of a breezy contribution to the May issue of *Pearson's Magazine*, from the pen of Marcus Woodward. As the writer truly observes: "'Back to nature' is a good little phrase." Commentators may, however, take the liberty of noting that experimental results summed up by discriminating judges, can alone prove whether the "good"-ness lies in the hope or the imagination of the descriptive author, or in the speculation or invention of the inventor, or in the demonstrable advantages of the actual practice. Mr. Woodward tells his readers that:

So far, a true return to nature has only been achieved by those who have undergone a thorough course of what is known as "the nature cure." For the world and his wife waited until they were utterly broken down in health before they determined at last to test the most obvious and simple of all remedies—the life rational. Some day it may happen that this rational life, now only regarded as a "cure," may be recognized as a preventive of all illnesses, but at present, to study the idea, to see people taking daily sun baths and air baths, paddling in dew, and sleeping in the open, as a matter of course, one must go to a nature-cure institute. . . . Medicine, it is claimed, has killed more than war, pestilence, and famine combined—it has slain multitudes to cure a few. That there is a natural cure for every ill, is the whole law and the doctrine of the nature-cure preachers.

A specimen sample of what the summer diary would have to record in such an institution is, of course, given:

10 p.m. to 7 a.m.: Sleep (this may be in tent, roofless hut, or the unfurnished canopy of the sky); 7 a.m., bath or douche, the latter mild for the neurasthenic beginner; 7.30 a.m., dew-paddling (fancy it! for a quarter hour barefoot on the wringing wet grass of the Hydro's tennis lawn, "every one amiably conversing, what time they hold up their petticoats or trousers, flirt their ankles, and wriggle their toes"); 8 a.m. to 8.15 a.m., physical drill ("the system of Swedish exercise is generally followed"); 8.15 a.m., breathing exercise; 8.30 a.m. to 10 a.m., breakfast and rest ("we must observe the diet that the doctor has prescribed for our special case"); 10 a.m. to 12 m., treatment ("water, scientifically applied, is the predominant factor in the new nature cure"); 12.30 p.m. to 12.45 p.m., drill; 1 p.m., dinner; 2 p.m. to 4 p.m., air, sun baths, walking exercise, or rest. ("For all kinds of nervous breakdowns, air baths constitute the chief remedy. Just as crushing earth under foot is a new joy in life to the jaded, so air bathing is a novel delight. We feel somewhat chilly at first, and perhaps a trifle self-conscious, but this soon passes as we harden to the process. The men, while air bathing, smoke, converse, and read under the trees of their division of the grounds; the ladies have their sewing and their gossip to amuse themselves with—and the hour or two spent in air and sun soon passes"); 4 p.m. to 6.30 p.m., tea, rest and recreation; 6.30 p.m. to 6.45 p.m., drill and breathing exercise; 7 p.m., supper. In summarizing, the writer points out that "the nature cure is like the kindergarten system of teaching—work in play." The program varies, of course, with special cases, and still more necessarily, with the seasons.

We have now placed before our readers in rather full outline the practice of the first nature-cure establishment opened in England, at Burgess Hill, in Sussex. Richly decorated as it is, with the appropriate appeals to the weak and the emotional, which the professional exploiters of clap-trap and faddism know how to utilize to such pecuniary advantage, it contains a substratum of sound observation (although distorted) and practical fact which should be present in the mind of the practitioner. Mr. Woodward lays bare the "scientific" substructure in the following sentences:

Water, scientifically applied, is the predominant factor in the new nature cure, and remembering that two-thirds of the human organism consists of water, there is good ground for this. Water, properly applied, has a cooling, relieving, loosening and stimulating effect on the skin, and soon brings a skin that has not been working properly for years into a state of healthful activity, so that harmful secretions are discharged through the reopened pores.

Although these sentences contain a large percentage of statements antipodally removed from the facts of anatomy and physiology and therapeutics, the central statement of the great value of the judicious application of water to the human organism, both internally and externally, can hardly be overestimated.

Journal of the Outdoor Life.—Volume II of this publication begins with the pages changed to standard magazine size and "Journal of" prefixed to the former name. The issued numbers of this volume show decided improvement upon the first, and are as virile, newsy, and instructive as one could wish. Published at Saranac Lake, the stronghold of sanatorium treatment of tuberculosis, its aim "to be helpful to persons seeking health by an outdoor life, and particularly to disseminate reliable information looking to the prevention and cure of tuberculosis," is most appropriate, and surely cannot fail of accomplishment. This journal is at the present of great value to the profession and to the laity who are enlisted in the ever-growing movement against tuberculosis. In this work it will prove far superior to many more pretentious journals devoted to the subject. For convalescent tuberculous patients it will prove an effective aid in keeping up the fight against the disease. The journal should be widely known and read.

Another Profit-sharing Scheme.—Bulging pockets, into which in common, dip the hands of drug manufacturer and physician, are still held alluringly open to those who for a few ill-gotten dollars are willing to sell their birthright in man's noblest profession. We have been handed a circular from a drug firm disclosing the details of a scheme whereby they propose to share the opulence gained by the patronage of the medical profession. Enclosed is a "dividend voucher," originally devised for their "physician stockholders," but the privileges of which they now extend "to a few physicians outside." The voucher has 50 blank spaces, each of which is to be filled with the date of a prescription calling for a bottle of their preparation, with the name of the druggist by whom the prescription is filled. When 50 bottles have been prescribed, the voucher is exchangeable for $10, and "as many more vouchers" as the physician may desire. The firm states they could give this 20-cent-a-bottle deal to druggists, who are good counter prescribers, but they prefer to work it through the proper channels. Who their physician stockholders are the deponents do not say, but an accompanying list of testimonials, "by permission," contains the names of 37 physicians, and professors said to belong to the profession, who have used or prescribed the drug. Are

they stockholders in the oleaginous concern, or are they "physicians outside," who were fortunate enough to receive yellow vouchers? Possibly some are neither; we trust this charitable supposition is true, as the list includes the names of physicians of national, if not international reputation.

The death of Dr. Hagenman, as the obituary writers say, leaves his community in profound sorrow and sore straits. The press report says that "Dr." Joseph H. Hagenman, of Reading, Pa., aged 73 years, the famous "witch doctor," whose charms and incantations have been sought for many sickly infants and ailing farm animals, died here today. Even the redoubtable talisman of his own trade failed to cure him of bilious fever, from which he had been suffering for six weeks. "Doctor" Hagenman enjoyed an immense practice in the peculiar arts which made him one of the celebrities of Reading. People came from miles around to be "powwowed" or to seek cures for members of their families. As a result he leaves a good-sized fortune. He dealt in charms which were calculated to cure the diseases of man and beast. He enjoyed the confidence and good will of his patrons, and hundreds of people were always willing to come forward whenever he was attacked and testify to the efficacy of his treatment. If the law-makers, and the executive officers of the great State of Pennsylvania had been asked by the nonacting medical practitioners to request this gentleman to secure the degree of M.D., and to pass the examination of the State Board, what would have happened?

The Sanatorium Business and Dividends.—In establishing an institution for the treatment of tuberculosis, the promoters offer physicians the following terms:

This stock will be preferred to this extent: That one physician will be allowed to purchase two shares, paying therefor $50 in cash and signing the enclosed subscription blank for the additional $50. Upon receipt of order for the two shares, accompanied with $50 in cash, one share will be issued and upon payment of the additional $50, two months later, the other share will be issued, with the further proviso that such physician who purchases two shares of stock in the sanatorium will be paid 10% commission on all business sent to the institution until he has received, or had returned to him, the full amount invested in stock, viz., $100. When this has occurred, his stock becomes common stock, like all the balance. These shares, however, are entitled to their part of the dividends from the date of issuance. When the institution has 15 to 20 patients, it will pay from 20% to 25% on the investment. Patients pay $100 per month for single month's treatment, which includes medical services, nursing, medicine, etc., or where a patient pays three months in advance, we admit them for $250. We pay in salaries $270 per month. Add to this the groceries, feed and other incidentals and you can readily see the profit with 15 to 20 patients.

There are the names of six physicians at the head of the circular. Are they members of the American Medical Association? If so, why?

Combating Race Suicide.—Following Huddersfield's example, the Glasgow Corporation has agreed that the medical officer of health be empowered to give a fee of a shilling to the first person who gives him notification within 48 hours of a birth in certain districts of the city. At present births must be registered within three weeks. It is intended that at the earliest possible moment the notification be followed by a visit from one of the women sanitary inspectors. The infantile mortality is very high.

AMERICAN NEWS AND NOTES

GENERAL.

Personal.—Reginald Heber Fitz, for 35 years a teacher of pathologic anatomy and of the theory and practice of physic, skilful and acute diagnostician, much trusted consulted physician, sagacious contributor to the progress of medicine, was made Doctor of Laws at the recent commencement of Harvard University.—**M. W. Blackman, Ph.D.,** has been made instructor in comparative anatomy and embryology in the medical department of Western Reserve University.—**Robert D. McIlwaine,** one of the most prominent physicians and surgeons in Petersburg, Va., was stricken with paralysis at his home last week, and his condition is extremely critical.

Prohibition on Army Transports.—The prohibitive character of the army transport is emphasized in some orders which were recently issued by General H. C. Corbin, at Manila, who informs the war department that he has been obliged to send out explicit instructions on the subject. The officers and crew of, and civilians employed on any interisland transport, are forbidden to have or keep any alcoholic drink in their rooms or any other place on board the transports. They are also forbidden to partake of any alcoholic drink on board the transports unless the same shall have been prescribed by the transport surgeon and issued, to meet the particular prescription, from the medical supplies on board said transport. It is made the duty of the transport quartermaster to see that this order is strictly enforced; and he is further required to report in writing to the chief quartermaster of the division any and every violation of this order, with names of offenders, that disciplinary measures may be at once applied.—[*Army and Navy Register.*]

Health Conditions in the Bahamas.—Sanitation in the Bahama Islands is discussed in the first monograph recently published by the Geographical Society of Baltimore. The yellow fever mosquito was found in the islands, thus making a properly screened quarantine desirable at Nassau. The absence of malaria is accounted for by the fact that anopheles mosquitos do not exist among the local insects. The sanitary conditions in the islands were not considered by the investigators to be all that could be desired. A mixed population occupies the island of New Providence, on which Nassau is situated. Some of the islands have white inhabitants only; others, notably Andros, are populated almost exclusively by negroes. Degeneration from intermarriage is observable in the islands peopled by whites, even when the original stock was good. For example, in one family of eight children there were five idiots. Except at Nassau, cases of leprosy, not uncommon in the Bahamas, are not isolated.

Health before Canal Work at Panama.—Governor Magoon, desiring to profit by the present propitious conditions and stamp out yellow fever, has issued orders to the superintendents of the engineering, sanitary, and other departments to devote their energies to the rapid completion of all work in their respective departments connected with the sanitation of the Isthmus. Several hundred men have been added to the force employed in perfecting the drainage and water-supply of Panama, in building comfortable headquarters for the canal employes, erecting hospitals, filling in swamps, and cutting the underbrush about Colon and all the camps in the zone. Conditions on the Isthmus are to be made healthful before the real work of digging the canal begins, according to an announcement made by Chairman Shonts of the Canal Commission, who said: "Our first duty is to create sound underlying conditions. This is now vastly more important than the removal of earth. The men must have suitable houses in healthful surroundings; they must have wholesome food at reasonable cost; they must have suitable transportation facilities to and from their work, and they must have opportunity for recreation. It will be the policy of the commission to provide these essentials as quickly as possible."

EASTERN STATES.

For East Boston Hospital.—By a unanimous vote the Boston aldermen have adopted the mayor's loan order of $30,000 for a relief hospital in East Boston, and accepted also, at the mayor's behest and in the same order, the Ann Taggard bequest of real estate in East Boston for hospital purposes. The estate is expected to net $11,000, making a total of $41,000, and the vote marks one of the final moves in the burial of the Taylor bill, an order for a relief hospital expenditure of $100,000.

May Establish Leper Colony.—The members of the Massachusetts State Board of Charity have visited on several occasions the island of Penikese which is situated near New Bedford, and it is announced that they are considering the establishment of a leper colony upon it. The question, however, has not been definitely passed upon. The State Board originally planned to open the colony on the mainland near Brewster, on Cape Cod, but this plan was given up on account of the general remonstrance on the part of the residents of the cape district.

NEW YORK AND VICINITY.

One Week's Food Inspection in New York.—Health Commissioner Darlington reported last week that 1,091,291 pounds of adulterated food was detected and condemned by his inspectors in New York City during the single week beginning June 18. This amount, he said, equalled a fifth of all the adulterated food discovered in the year of 1904. He attributes this increase mainly to higher efficiency of the food inspectors.

The German Hospital and Dispensary, of New York City, received bequests amounting to $16,986.80 during the last year, and three new beds were endowed. The number of patients treated was 3,832, and 1,854 surgical operations were performed. The cured and improved patients were 85.67%, while 9.07% died. Since 1866 the bequests have amounted to $478,008.26. Last year was the first in which the hospital and dispensary were managed under the new charter and by-laws, with the board of trustees in complete charge.

Resignation of Dr. Pryor.—Dr. John H. Pryor has resigned the superintendency of the New York State Hospital for Incipient Tuberculosis. He states that he resigned because of too much red tape, and because, while he was responsible, the power was really centralized in the fiscal supervisor at Albany. Necessary appropriations have been cut, so that while there is room for 175 patients, they can care for only 100. The resignation was originally sent on March 1, but no action was taken. Recently he insisted on its acceptance.

The Mortality of Influenza in New York.—Grip was reported as a cause of death on 267 returns out of 5,500 in March; 150 in April, and 68 in May. It perhaps may be estimated as having contributed 500 to the mortality of the month. Pneumonia caused about 1,800 deaths in each of the first three months of the year, 1,600 in April, and 1,200 in May. Other acute respiratory diseases which have caused 450 deaths in each of the preceding months are now reduced to 300. The current epidemic of grip might be estimated as having contributed to 5,000 deaths since January 1.

PHILADELPHIA, PENNSYLVANIA, ETC.

Will Spare Health of Philadelphians—The Town Council of Norristown has adopted an important resolution affecting Philadelphia's health, by looking to the cessation of the pollution of Stony creek, a tributary of the Schuylkill river, to which attention has been called by the Board of Health.

Adjudication of the Wilstach Fund.—In adjudicating the estate of Anna H. Wilstach, the Orphan's Court of Philadelphia has made these awards to charities from the balance of the annuity fund: Hospital of Protestant Episcopal Church, $6,624.42; Protestant Episcopal City Mission for use of Home for Consumptives, $6,624 43; the Pennsylvania Hospital, $6,000; Howard Hospital, $624.43.

A Surfeit of Applicants.—Samuel G. Dixon, State health commissioner, announces that there are 1,000 applicants for the 10 positions of district health officers. The position pays $2,500 a year, and the law requires the assistants to have been practitioners for five years. Doctor Dixon's idea is to defer the organization of this branch of the department until the statistical feature of the new law shall have been attended to.

Baltimore & Ohio Surgeons Elect Officers.—President, Dr. J. F. Thompson, Garrett, Ind.; first vice-president, Dr. E. S. Montgomery, Pittsburg; second vice-president, Dr. John E. Russell, Mount Vernon, O.; secretary and treasurer, Dr. J. H. Kennedy, Aberdeen, Md.; assistant secretary and treasurer, Dr. S. A. Richardson, Philadelphia. It was decided to hold the next annual meeting of the association at Philadelphia.

Murderers in Insane Asylum.—Nineteen murderers are undergoing treatment at the State Hospital for the Insane at Norristown, Pa. They were committed to the institution by the courts in the counties comprising the southeastern district. There are 2,427 patients in the hospital, more than 400 of whom are sleeping on cots in the corridors, due to the overcrowded condition. From Philadelphia alone there are 755 patients. The number of patients with suicidal mania is 30.

Clean Bill of Health.—The health of Philadelphia is exceptionally good, reports of physicians to the Bureau of Health in the week which ended at noon July 1 showing a marked decrease not only in contagious diseases, but also in the number of deaths as compared with those reported the previous week. The decrease in deaths is particularly large, the total number from all causes this week being 441, as compared with 551 reported last week and 533 in the corresponding period of last year. There was a pronounced falling off in typhoid fever, 82 new cases being reported, in comparison with 146 the previous week. The majority of the new cases was reported from the Nineteenth, Twenty-fifth, Thirty-first and Thirty-third wards, which receive a water-supply from the Delaware river direct. No cases occurred in the Twenty-first and Twenty-second wards, which receive filtered water. The decrease in new cases of typhoid fever continued the following week, when only sixty-seven cases were reported.

"Four-day Fever" in Panther Creek Valley.—The strange malady which has been named "four-day fever" is spreading throughout the Panther Creek Valley, at an alarming rate. Hundreds have been affected in Coaldale, Lansford, and Nesquehoning, and physicians are much concerned. In many cases whole families have been stricken with the disease. No fatalities have occurred. The first symptoms are a violent sick-headache, followed by a high fever, which continues four days. In some cases the skin is covered with red blotches. It resembles cerebrospinal meningitis at the inception, but does not affect the spine or neck.

A Hospital on Wheels.—A hospital car fully equipped with modern surgical appliances, and in charge of a doctor and his assistant, has been built for the Lackawanna Coal Company and is having its first month of service. The hospital car of the Lackawanna is the only one in the anthracite regions, but the other railroad companies who own mines will probably follow suit. Many of the mines are long distances from a hospital, while they are all situated on or near railway tracks, where a hospital car can be conveyed without delay or inconvenience. The car left the builders' hands some months ago. It has gone the rounds of the Lackawanna mines, visiting each colliery, where Dr. Lake has given personal instruction to many miners and mine attendants on first aid to the injured.

Children in Insane Hospital.—The Executive Committee of the Board of Trustees of the State Hospital for the Insane at Norristown has adopted a resolution to be sent to Doctor Martin, director of the Department of Health and Charities, Philadelphia, objecting to the reception of any more feeble-minded children from the Philadelphia Almshouse or elsewhere, on the ground that the institution, with its adult population is not a proper place for children; that facilities are lacking for their treatment, and that the hospital is already overcrowded. Several months ago about a score of children were brought to the hospital from the Philadelphia Almshouse. When the Appropriation Committee of the last Legislature passed through the hospital on a visit of inspection and saw them, they were of the opinion that they should never have been admitted.

No Hospital for Carlisle, Pa., Indian School.—The Carlisle Indian School, though badly in need of a new hospital building, will have to get along with the existing one until an appropriation can be secured from Congress. Commissioner of Indian Affairs Leupp found that it would be throwing money away to attempt putting the present hospital building in good condition. He laid the matter before the Comptroller of the Treasury to see if it would not be permissible to take $10,000 from the general fund of $150,000 and add it to the special fund for repair, thus securing $20,000 to build a new hospital. The Comptroller ruled that no part of the general fund could be diverted to use on the hospital, and Commissioner Leupp will try at the next session of Congress to secure an appropriation for a new hospital building.

Bars New York Doctors.—The New Jersey State Board of Medical Examiners has decided to cease indorsing New York medical licenses for the present. This is retaliation against New York. At the annual meeting of the State Board of Medical Examiners of New Jersey, held at Long Branch, N. J., July 5, the following resolution was adopted:

WHEREAS, The educational and examining standards for the medical license of New Jersey are at least equal in all respects to those of New York, and in some respects higher, and

WHEREAS, The degree of unreasonableness in the matter of interstate endorsement on the part of New York cannot be further ignored, therefore be it

Resolved, That on and after October 16, the date of the next regular meeting of this Board, the endorsement of medical licenses issued by New York will be suspended until further notice.

The following officers were elected: President, Dr. Edward Hill Baldwin, Newark; secretary, Dr. E. L. B. Godfrey, Camden; treasurer, Dr. Charles A. Groves, East Orange. The medical license of New Jersey will be indorsed by Maine, Vermont, Delaware, Virginia, Illinois, Michigan, Minnesota, Kansas, Colorado and other States.

Homeopaths Demand Inquiry in Substitution of Questions at State Board Examination.—The State Medical Council will, it is expected, consider the action of Dr. Henry Beates, president of the State Board of Medical Examiners, in changing the terms of a set of questions submitted to old-school candidates for licenses to practise medicine. A determined purpose to push the matter to a conclusion is shown by many homeopaths and eclectics. The State Medical Council is composed of the Lieutenant-Governor, the Secretary of Internal Affairs, the Superintendent of Public Instruction, the Attorney-General, and the president of each of the three boards of medical examiners. When the questions for the examinations are prepared, three sets of 10 are presented to the council, one from each of the examining boards. From 30, 10 are selected. Under the law, after their adoption by the council, no one has a right to alter them, to substitute a different question for any one of them, or to explain them to anyone outside of the council. The actual charge in the present case is that Dr. Beates altered the questions for the chemistry examination after they had been agreed upon by the Medical Council, and did so without giving notice to the council. This is in violation of Section 10 of the law governing the various medical boards.

Railroad Medical Examiners will Aid State Commissioner of Health.—All medical examiners in the Pennsylvania Railroad Voluntary Relief Department, and also all connected with the Philadelphia & Reading Railway Relief Association, have been appointed special medical inspectors for the two railroads by Dr. Dixon, State Commissioner of Health. These appointments carry with them no salaries from the State, but the cooperation between the health department and the railroads has been shown to be very advantageous in the prompt and effectual handling of cases of contagious diseases that occur on trains, in the car works, or in the railroad stations. Chief Medical Examiner Dr. Samuel W. Latta, of the Pennsylvania, informed Dr. Dixon that following every case of contagious disease that was discovered on any Pennsylvania Railroad train, the car was taken off the line, thoroughly fumigated, washed down with mercuric chlorid solution, then left standing open for 12 hours before it was put in use again. Dr. Casper Morris, Chief Medical Examiner of the Reading, assured Dr. Dixon that every care was also taken on his road thoroughly to disinfect all trains following the discovery of a contagious case and that vaccination was carried out on a large and thorough scale among not only the employes of the road, but in many cases among the families of the employes.

WESTERN STATES.

Fever in Wisconsin Hospital.—Typhoid fever again has made its appearance at the State Hospital at Mendota, Wis. The disease is supposed to be due to contaminated water-supply, in spite of the fact that arrangements were made last year to keep the water pure. Four deaths have resulted from the disease.

Cocain Sold to School Children.—A system by means of which cocain has been sold secretly to many boys and girls was unearthed in the Juvenile Court at Chicago last week. The probation officer declared that many boys in the neighborhood rapidly were becoming addicted to the use of cocain. He said school girls also were becoming victims of the habit. The court attorney explained that investigation proved that the manufacturers of a kind of cocain sustained an agent who sold the drug to the boys and girls in the district.

Physicians in Train Wreck.—Thirty persons were injured, one seriously, in the wreck of the Great Northern's westbound flyer at Spring Brook, N. D., July 5. Seven cars were burned by a fire caused by the explosion of a gas tank under the smoking car. A special car containing Dr. Frank Billings and Dr. Bevan, of Chicago, and a party of physicians going to Portland, did not leave the rails and was unharmed by the flames. Dr. Billings and the physicians in his party at once took charge of the injured and dressed their wounds.

FOREIGN NEWS AND NOTES

GENERAL.

Personal.—Paul Ehrlich, of Frankfort-on-Main, and Ramón y Cajal, of Madrid, have been elected foreign associates of the Paris Academy of Medicine.

Surgeon Fined for Fatal Negligence.—Dr. Joseph Fort, a surgeon, was tried at Paris, France, last week for causing the death of a patient through negligence by leaving a broken probe in the body after an operation. The judge inflicted a fine of 50 francs for the surgeon's omission to inform the patient or the latter's physician of the accident, which occurred during the operation, the result of which was that the patient died after 18 months of suffering.

The Origin of Cerebrospinal Meningitis.—Professor Wettenhöffer, who was sent by the government to Silesia to study the genesis of cerebrospinal meningitis and the best method of treating it, has issued his official report. He comes to the conclusion that it is undoubtedly one of the diseases caused by inhalation, which first attacks the tonsils, and is conveyed thus through glands to the brain. It only attacks where the glands have become weakened. In all the cases examined by him the tonsils showed hypertrophy, and are increased in size by inflammation. The professor is of opinion that the root of the disease is to be found in the insanitary condition of dwellings, and certainly not in the schools.

Egg Membranes in Surgery.—At a recent session of the Therapeutical Association of Paris, Dr. Amat stated that he has observed for some time the good results of placing egg membranes upon the surface of wounds, and reports two new cases, that of a young girl suffering from a burn on her foot, and a man of 40, with a large ulcer on his leg. Both wounds were in process of healing, and were covered with healthy granulations. He overspread them with six or eight pieces of the membrane of eggs, which was covered with tin foil and fastened with dry antiseptic bandages. After four days the bandages and tin foil were removed, and it was shown that the membrane of the egg had partly grown into the tissues and had caused the growing of a good skin. That the egg membrane had contributed much to the healing process was demonstrated in the further course of treatment. It seems, however, that the membrane does not always adhere. The process of cicatrization is not only hastened, but the wound heals exceptionally well and leaves but few perceptible traces.—[*Army and Navy Register.*]

To Aid the Wounded.—It frequently happens that a soldier wounded in battle has not sufficient strength to call out and attract attention, and to remedy this, Dr. Matignon, a French doctor in the Japanese red cross service, has invented a whistle, which, with a very slight exertion, gives a loud sound, and which may be used also in place of the soldier's ordinary identification plate.

Relapsing Fever.—The consular sanitary reports, according to the *Public Health Reports*, from St. Petersburg, Moscow and Odessa, Russia, indicate the continuance of relapsing fever in those cities. During the fortnight ending May 13, 88 cases, with 5 deaths from the disease, occurred in Moscow and 81 cases, with 1 death, at Odessa. At St. Petersburg there were in the week ending May 6, 19 cases and 4 deaths. The disease has been well recognized in Russia for 50 years, and it is noteworthy that the malady has not been introduced into the United States since 1869, notwithstanding the considerable immigration. Immigrants from the British Isles brought the disease to America in the past, but relapsing fever never moved far from the initial focus nor showed a tendency to become endemic where introduced in this country. Certain epidemics in Ireland and Scotland in the early half of the eighteenth century appear to be the oldest known references to the disease.

OBITUARIES.

Benjamin J. Day, aged 83, of Evansville, Ind., June 29, from senile debility, at the Evansville Sanitarium. He was a graduate of the Pennsylvania Medical College, Philadelphia, in 1856. He is said to have been the oldest practitioner in southern Indiana, and was professor of surgical pathology in the Evansville Medical College for many years.

Stephen G. Hubbard, aged 88, June 30, from senile debility, at his home in New Haven, Conn. He was a graduate of Dartmouth Medical School, Hanover, N. H., in 1848. He was formerly a member of the faculty of Yale Medical School, New Haven, and secretary of the American Medical Association in 1859–1860.

Walter Bryan, aged 38, June 26, from heart disease, in his apartments in New York City. He was a graduate of New York University, New York City, in 1900. He was professor of physiology and toxicology and assistant professor of materia medica and pharmacology in the Brooklyn College of Pharmacy.

H. Mortimer Anderson, aged 82, July 5, at the home of his son-in-law at Raleigh, N. C. He was a graduate of Columbia College, New York. During the Civil war he served as surgeon in various hospitals in the South and was aid-de-camp to General Loring and General Stephenson.

George J. A. Ahern, aged 34, of New York City, July 4, at St. Francis Hospital. He was a graduate of New York University Medical College in 1895. He was house surgeon of the St. Francis Hospital and an ex-member of the staff of the Manhattan Eye and Ear Hospital.

Charles W. Robbins, aged 70, July 4, at his home in Philadelphia. He was a graduate of Penn Medical University in 1859, and had practised for 45 years in the northeast section of Philadelphia. In 1876 he served as surgeon in the United States army at Fort Riley, Kansas.

Hiram R. Fish, aged 71, June 19, at his home in Gravois Mills, Mo. He was a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, in 1870. He was postmaster at Gravois for many years.

George M. Schweib, aged 63, July 5, at his home in New York City. He was a graduate of Bellevue Hospital Medical College in 1872, and was in the service of the Board of Health for many years.

John F. Guilluly, aged 26, June 21, at his home in Central Falls, R. I. He was a graduate of the University of Georgetown, medical department, Washington, D. C., in 1903.

Joseph A. McKenzie, aged 65, June 25, as the result of an accident, at his home in Eldora, Kan. He was a graduate of the Kentucky School of Medicine, Louisville, in 1879.

Isaac J. Hopper, aged 45, June 25, from tuberculosis, at his home in Blue River Township, Crawford county, Ind. He was graduated in Cincinnati, Ohio, in 1885.

H. Murray Stokes, aged 41, July 8, committed suicide at his home in Philadelphia. He was a graduate of Hahnemann Medical College, Philadelphia, in 1884.

William McBryar, aged 84, June 25, from heart disease, at his home in Apollo, Pa. He was a graduate of the York University, New York City, in 1853.

Franklin B. Nice, aged 75, June 29, from cerebral hemorrhage, at his home in Hamburg, Pa. He was a graduate of Jefferson Medical College in 1851.

W. C. Jacobs, aged 66, July 8, from blood poisoning caused by a pin scratch inflicted while setting a broken arm, at his home in Akron, Ohio. He was a graduate of the Medical College of Ohio in 1862. He was a Civil war veteran.

Willis A. Hammond, aged 52, June 21, at his home in Madison, N. Y. He was a graduate of Columbus (Ohio) Medical College in 1881.

J. J. Claverie, aged 73 July 3, at his home in Donaldsonville, La.

FOREIGN.—**Hermann Nothnagel,** aged 64, July 7, at his home in Vienna. He was educated in Berlin and was graduated in medicine in 1864. He taught at Königsberg, Berlin, Breslau and Jena. In 1882 he was elected professor of clinical medicine in Vienna. He was the author of Pathology of the Nerves, Use of Drugs, Diagnosis of Brain Diseases, Handbook of Medicine and Researches in the Physiology and Pathology of the Intestines.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 7, 1905:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Illinois:	Chicago	June 17-July 1	37	4
Massachusetts:	Lowell	June 17-July 1	5	
Montana:	Butte	June 18-25	1	
Ohio:	Toledo	June 17-24	1	
Pennsylvania:	York	June 24-July 1	2	
South Carolina:	Greenville	June 17-24	2	
Wisconsin:	Milwaukee	June 17-24	6	
	SMALLPOX—FOREIGN.			
Argentina:	Buenos Ayres	Mar. 1-31		54
China:	Shanghai	May 24	Present	
France:	Lyons	May 27-June 3	1	
Great Britain:	Birmingham	June 3-17	10	
	Cardiff	June 3-17	2	
India:	Bombay	May 23-June 6		43
	Karachi	May 21-June 6	9	2
	Madras	May 20-26		5
Italy:	Catania Province	June 8-15	17	
	Cosenza Province	June 8-15	5	
	Lecce Province	June 8-15	6	
	Messina	June 3-10	3	
	Palermo	June 3-10	4	
Mexico:	City of Mexico	June 3-10	4	4
Russia:	Moscow	May 27-June 3	28	10
	Odessa	May 27-June 3	9	3
	YELLOW FEVER.			
British Honduras:	Belize	June 15-22		1
Guatemala:	Livingston	June 10-22	5	4
Panama:	Colon	June 16-21	6	2
	Corozal	June 16-21	2	
	Empire	June 16-21	1	
	La Boca	June 16-21	2	
	Panama	June 16-21	10	1
Venezuela:	Maracaibo	June 16	Present	
	CHOLERA.			
India:	Bombay	May 23-30		1
	PLAGUE—INSULAR.			
Hawaii:	Honolulu	July 5		1
	Olaa	June 30		1
	PLAGUE—FOREIGN.			
Egypt:	General	May 20-June 3	17	12
India:	General	May 13-20	41,213	35,492
	Bombay	May 23-June 6		708
	Karachi	May 21-June 6	183	166
	Madras	May 20-26		3
Japan:	Chiba, Ken	May 29		1
	Tokio	Apr. 18-May 30	8	6
Peru:	Callao	June 11	1	
	Payta	June 12	Present	

Changes in the Medical Corps of the U. S. Army for the week ended July 8, 1905:

GARDNER, FLETCHER, contract surgeon, now on duty with the Twenty-third Infantry, will continue on duty with that regiment en route to station at Madison Barracks, and upon completion of this duty will avail himself of the leave granted by orders, Philippines Division, March 29.

O'CONNOR, First Lieutenant RODERIC P., assistant surgeon, is granted leave for twenty days.

In view of the fact that the army transport Thomas has been placed in the hands of the contractors for extensive repairs, the medical officer and the members of the hospital corps now on duty on that vessel are, upon the recommendation of the chief surgeon of the department, disposed of as follows:

RICH, First Lieutenant EDWIN L., assistant surgeon, will proceed to the depot of recruits and casuals, Angel Island, Cal., for temporary duty.

MEADE, HARRY, sergeant first class, will report for temporary duty in the office of the chief surgeon, with station in San Francisco, Cal.

Upon the return to Fort Preble, R. I., of First Lieutenant A. W. Williams, assistant surgeon, from the Army and Navy joint exercises, Contract Surgeon Robert Lemmon will proceed to Fort Preble for temporary duty during the absence of First Lieutenant Percy L. Jones. Upon the return of Lieutenant Jones, Contract Surgeon Lemmon will return to his station—Fort McKinley.

LEMMON, ROBERT, contract surgeon, is granted leave for one month, to take effect after his relief from temporary duty at Fort Preble.

GIBSON, Major ROBERT J., surgeon, is granted leave for one month, with permission to apply for an extension of three months.

STEER, Captain SAMUEL L., assistant surgeon, is relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., and will proceed to Fort Assinniboine for duty. Leave for two months is granted on surgeon's certificate.

The following changes in the stations and duties of officers are ordered:

COX, Captain WALTER, assistant surgeon, is relieved from duty at Fort Banks, Mass., to take effect at such time as will enable him to comply with this order, and will proceed to Fort Reno not later than July 25, for duty to relieve Captain Joseph H. Ford, assistant surgeon. Captain Ford will proceed to San Francisco, Cal., and take transport sailing from that place about September 30 for the Philippine Islands, where he will report for duty. Captain Ford is authorized upon his arrival at San Francisco, Cal., to enter the Army and Navy General Hospital at the Presidio for observation and treatment.

LYSTER, First Lieutenant WILLIAM J. L., assistant surgeon, is relieved from further duty at the Presidio of San Francisco, and with Company B, to take effect upon the completion of his examination for advancement, and will then proceed to Fort McIntosh for duty.

WEBBER, Captain HENRY A., assistant surgeon, is relieved from duty at Fort Walla Walla to take effect upon his return to that post from temporary duty at Fort Stevens and will then proceed to Fort Banks for duty.

JONES, Captain PERCY L., assistant surgeon, upon reporting for duty at Fort Preble, will assume also the duty of examiner of recruits and attending surgeon to the recruiting party at Portland.

LITTLE, First Lieutenant WILLIAM L., assistant surgeon, is granted leave for two months from about August 7, provided his services can be spared at that time.

JONES, GEORGE H., contract surgeon, is granted leave for three months and fifteen days, to take effect when in the opinion of the commanding general, department of the Gulf, his services can be spared.

CLAYTON, GEORGE R., contract surgeon, will proceed from Columbus Barracks to Fort Michie for temporary duty, and upon the completion of repairs to the cable between Fort Trumbull and Fort Michie and the establishment of telegraphic communication between those two posts will return to his proper station.

LAMAR, LEGARE J., sergeant first class, now at Milledgeville, Ga., is relieved from further duty in the Philippines Division, and on or before expiration of furlough will report at Fort Dade to relieve Sergeant First Class Louis Steinel. Sergeant Steinel will be sent to Fort Monroe for duty.

REYNOLDS, Major FREDERICK P., surgeon, will proceed at once to Vancouver Barracks and report to the commanding general, department of the Columbia, for duty as acting chief surgeon of that department during the absence of Major Rudolph G. Ebert, surgeon, upon whose return to duty Major Reynolds will comply with his orders heretofore issued.

GIBSON, Major ROBERT J., surgeon, leave granted June 22, is extended three months.

MCCALL, JAMES H., contract surgeon, is granted leave for two months, to take effect when in the opinion of the commanding general, department of the Gulf, his services can be spared.

BYARS, CASPAR R., contract surgeon, will proceed to Fort McIntosh for temporary duty during the absence on leave of Contract Surgeon Roger Post Ames. On the return of Contract Surgeon Ames, Contract Surgeon Byars will return to his proper station, Fort Sam Houston.

COX, SHELBY G., sergeant first class, Fort Crook, will be sent to Fort Banks to relieve Sergeant First Class Andrew S. Donnan. Sergeant First Class Donnan will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him on the transport leaving San Francisco, about July 31, to Manila, P. I., for assignment to duty.

DOUGHERTY, JAMES C., contract surgeon, will proceed to Fort Monroe for temporary duty during the absence of Contract Surgeon C. H. Stearns. Upon the return to duty of Contract Surgeon Stearns Contract Surgeon Dougherty will return to his proper station, Fort Slocum.

Changes in the Medical Corps of the U. S. Navy for the week ended July 8, 1905:

GARTON, W. M., passed assistant surgeon, ordered to the Naval Hospital, Washington, D. C., for duty—June 30.

MURPHY, J. F., assistant surgeon, ordered to duty at the Marine Recruiting Station, Buffalo, N. Y.—July 1.

SHAW, H., assistant surgeon, ordered to the Naval Recruiting Station, Boston, Mass.—July 6.

Changes in the Public Health and Marine-Hospital Service for the week ended July 5, 1905:

BLUE, RUPERT, passed assistant surgeon, granted extension of leave of absence for seven days—July 5.

CURRIE, D. H., passed assistant surgeon, granted leave of absence for two months from July 6—July 1.

BEAN, L. C., acting assistant surgeon, granted leave of absence for twenty days from July 1—July 3.

SMYTH, F. R., acting assistant surgeon, granted leave of absence for twenty days from July 10—June 29.

THOMAS, J. G., acting assistant surgeon, granted leave of absence for thirty days from July 1—July 1.

SOCIETY REPORTS

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Philadelphia, June 1, 2 and 3, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 53.*]

The Mental Symptoms of Cerebral Tumor.—PHILIP COOMBS KNAPP (Boston) had made a study of the mental symptoms in 104 cases of tumor of the brain with autopsy, observed at the Boston City Hospital. Mental disturbances were noted in 79 cases. Forty cases, however, were excluded on account of complicating diseases and for other reasons. In the remaining 64 cases mental symptoms were noted 58 times, and the writer believed that such disturbances were far more frequent than had been previously stated. The mental symptoms were observed early in the progress of the disease in 28 cases. The nature of the mental disturbance varied. The largest number of cases, 31 in all, showed simple mental failure and dulness, 7 cases showed marked mental confusion, and 15 cases actual delirium. One case was simply neurasthenic, 2 cases had delusions of persecution, 1 case was depressed, another case showed symptoms of general paralysis. The special *Witzelsucht* so often described was not observed. The states of delirium were more apt to be noted in the later stages of the disease. The writer found that a tumor on the left side of the brain was not more apt to produce mental symptoms than on the right. In regard to the location of the growth, in the only case of a tumor of the cerebrum in which mental symptoms were not noted the tumor was in the frontal lobe. The writer, however, believed that the frontal and temporal lobes were more especially to be regarded as presiding over the higher psychic functions. The mental symptoms seemed less probably the result of a lesion in a definite portion of the brain than the result of general processes, such as pressure and the formation of toxins. The nature of the mental disturbances suggested a toxic origin, and in one case they developed after an attempt at removal of the tumor had relieved the intracranial pressure.

Carcinoma of the Nervous System.—SPILLER and WEISENBURG (Philadelphia) called attention to the lack of information upon this subject, and made a classification, basing this upon a study of the literature and of their eight cases, six of which were with necropsy. The following subdivisions were made: 1. Those cases in which metastasis to the nervous system occurs. 2. Those in which there are alterations, not distinctly cancerous, in the substance of the spinal cord and brain. 3. Those in which the peripheral nerves are diseased either with or without involvement of the brain and cord. 4. Those in which no macroscopic lesions are found, and the symptoms are supposedly toxic. Metastasis to the brain may be in the form of cancer nodules, or may be a carcinomatous meningitis. Metastasis to the spinal cord is rare, but vertebral metastasis is more common. The alterations in the nervous system may be in the form of diffuse sclerosis, and more rarely may involve definite tracts. The toxic symptoms are various, and no microscopic lesions may be found to explain them. It is not unusual to find alterations in the nerve cells in different parts of the brain and cord. Of the eight cases studied by Spiller and Weisenburg, one was a case of carcinoma of the optic chiasm, one was a case of degeneration of cranial nerves, one was a case of carcinoma intoxication after operation, one was a case with bulbar symptoms, and four were cases of vertebral carcinoma.

Palates of the Feeble-minded.—WALTER CHANNING (Brookline, Mass.) and CLARK WISSLER (New York) reported upon the measurements of the palates of feeble-minded and normal individuals which he has been making for a number of years past. All of his work has been done with plaster casts of the palate. He has made casts of the palates of 1,010 feeble-minded persons, and 614 normal individuals. By comparing the two classes, very little difference is found, and this difference is principally in respect to variability. The absolute size of the palate is the same in both classes. Channing thinks that the results of this work are conclusive, and will dispose of the question finally.

Paraplegia from Fracture of the First, Second, and Third Dorsal Vertebras.—GUY HINSDALE (Philadelphia) said the patient, a young lady, was injured in 1901 by the explosion of an acetylene gas generator. She suffered fracture of the first, second, and third dorsal vertebras and seven other fractures. There was paraplegia below a line 2 in. below the nipple. There was no deformity of the vertebras and no crepitus, but great tenderness. Upon consultation, laminectomy was decided upon and performed. There was no loss of consciousness at any time as a result of the accident. The Crosby bed was used, and appeared to be indispensable. Bed sores developed. Although it required three years for restoration of the functions of the bladder and rectum, and catheterization was performed during all this time, cystitis did not occur. A glass catheter was used and always by the same nurse. Spastic paraplegia came on, accompanied by contractures requiring division of achilles tendons, adductors of the thigh and the hamstrings. Dissociation symptoms were prominent, and resembled those of syringomyelia. The patient can now sit up, stand alone, take long drives, can walk by the aid of two nurses, and is fairly comfortable and happy. Good muscular tone was maintained throughout by massage. Convulsive movements in the parts not paralyzed occurred after the laminectomy. The same phenomenon was observed in a patient upon which Edward Martin performed laminectomy at the University Hospital. E. W. TAYLOR (Boston) asked how far Hinsdale considered the improvement due to operation. Hinsdale, in closing, said that without operation the patient would not be living today. There is no danger in laminectomy.

A Case of Brown-Séquard Paralysis, Due to a Fall upon the Head: Operation; Autopsy.—WM. C. KRAUSS (Buffalo) said the patient, a colored boy, aged 22, on July 7, 1904, fell from a hay loft, a height of 20 feet, striking his head on the ground. He was rendered unconscious and taken to the Buffalo General Hospital. Examination soon after his entrance showed the following condition. He complained of severe pain in his neck, which was swollen and sensitive about the fourth and fifth cervical vertebras, and in the left arm and leg which were helpless. There was no fracture or dislocation of the vertebras and only a slight scar over the right ear. The patient's condition was diagnosed as hysteria. On July 26, 1904, the writer was called to see the patient and found the head and special senses normal; pain and sensitiveness over the fourth cervical vertebra. On the right side sensation was interfered with, beginning two inches below the clavicle and extending caudad affecting the arm, the right half of the trunk and the leg; complete anesthesia analgesia and thermoanesthesia were present over the area. Motion of the arm and leg and tendon and muscle reflexes normal. On the left side there was hyperesthesia below a level two inches caudad of clavicle; paralysis of the arm, leg and side of chest and paresis of the abdomen on this side. Patellar reflexes were exaggerated. Ankle-clonus and Babinski sign were present. The condition was diagnosed as a Brown-Séquard paralysis, the lesion being located at the fourth cervical segment of the cord, caused by splintering of the lamina. Operation was done on July 29, 1904. The left half of the cord was softened, but no fracture of the body of the vertebra was found. The patient apparently improved for two weeks, then bed sores developed, bladder and rectal disturbances followed and the respirations grew more shallow and weaker. The patient died on August 19, 1904. Autopsy showed a spicule of bone cutting the cord at the level of the fourth cervical vertebra, and there were adhesions of the dura. Microscopic examination of the thoracic cord showed degeneration of the tracts of Gowers and Goll. The author gave a review of 60 cases of Brown-Séquard's paralysis, and called attention to the danger of lesions at the fourth and fifth cervical segments, because of involvement of the phrenic and the long thoracic nerve. So far he has been unable to find any case reported in which an operation has been performed for this condition, and it is the only case reported where the injury to the cord was caused by a splintering of the lamina of the vertebra without fracture of the body. The majority of cases are due to a syphilitic meningomyelitis, or to a stab wound. The prognosis is good, as 75% of the author's cases were improved or cured by treatment.

Hypesthesia or Hypalgesia and Their Significance in Functional Nervous Disturbances.—EDWARD B. ANGELL (Rochester) presented this communication. He spoke of the importance of the skin as a sensory organ of the nervous system, and called attention to the common origin in the ovum of the skin and the central nervous system. In peripheral anesthesia muscular and pain sense are lost before the tactile sense, while in central anesthesia the reverse is true. He called attention to the recent discovery of Head of two sets of cutaneous nerves, one for pain and one for touch.

AMERICAN ORTHOPEDIC ASSOCIATION.

Nineteenth Annual Meeting Held in Boston, June 6, 7, and 8, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 54.*]

Spontaneous Fracture, with Rickets.—HENRY O. FEISS (Cleveland), by invitation, reported a case of rickets with spontaneous fracture occurring in a child of four, presenting all the characteristics of marked rickets. For the purposes of investigation röntgen-ray pictures were taken and three fractures discovered in the arms. There was no history of injury and the bone fragments were in complete alignment, although the breaks were complete. Reviewing the literature, he called attention to a report made by M. John, who saw similar fractures combined with rickets. The latter writer considered the condition as an individual disease, because the ordinary rachitic fracture is usually of the green-stick variety.

Discussion.—R. T. TAYLOR (Baltimore) said that in such a case the question of rickets associated with osteomalacia should be considered. He had under observation a child which presented evidences of both conditions. The radius and ulna of one forearm, both femorals, and both tibias had been fractured. Another case which he saw had had no less than 19 fractures.

There were evidences of rickets present in the case. R. H. SAYRE (New York) recalled a case of rickets where the bones were so easily broken that even careful handling resulted in fractures. PHIL HOFFMAN thought that very likely the case reported in the paper was not one of pure rickets, but a combination of rickets and osteomalacia. He had seen a case under observation for nine years which at first had been regarded as rickets that later was regarded as one of osteomalacia. The condition occurred in a female, among whom he thought osteomalacia more frequent. C. W. WILSON (Montreal) said that in a case of knock-knees brought to him for correction, in whom the bones could be bent with the greatest ease, he thought it likely that in a similar case fractures might occur very easily. FEISS, in closing, said that the case was regarded as one of pure rickets, because of the typic rachitic pathology presented upon gross and microscopic study. Osteomalacia would have presented an entirely different pathology, according to writers upon that condition.

Congenital Luxation of the Head of the Radius.—E. E. BLODGETT (Detroit), by invitation, in his paper reported a case of bilateral anterior luxation of the head of the radius occurring in a girl, aged 15. Decreased function was first noted when patient was an infant, by her inability to hold a lump of sugar in the palm of the hand. Chief complaint at the time of examination by the author was a partial disability in either arm, shown by an inability to grasp objects with the thumb on the upper surface. At one time she had sudden pain in the left elbow upon flexion, which gradually disappeared. The forearms were fixed, in respect to rotary motion, in full pronation. Flexion and extension were free. Hyperextension beyond straight, 16° on left and 20° on the right. The space usually occupied by the head of the radius was vacant. Another case occurred in a boy of 6. Since birth the forearms had been fixed in pronation and extension. Skiagraphs showed bilateral anterior luxation of radial heads. Owing to fixation, the disability was great. The upper end of the radius on each side was excised, and the result showed some improvement 18 months after operation, but the patient still grasps objects with the thumb underneath.

Discussion.—L. A. WEIGEL (Buffalo) said that one cannot tell in what plane the radius lies with a flat picture, therefore it was impossible to tell whether the radius was in an anterior or posterior position. The only positive sure way is to resolve the picture into different planes in order to determine what the actual condition is. BLODGETT in reply stated that his reasons for believing the case to be one of anterior dislocation aside from the evidence afforded by the röntgen ray were: (1) The head was plainly felt in an anterior position; (2) the position which it would normally occupy was vacant; (3) the case conformed as a whole to other reported cases; and (4) the case was analogous in both the general examination and radiographic appearances to other cases in which visual demonstration of anterior luxation of the head was afforded.

A Study of Bow-legs.—JOHN DANE (Boston) presented a paper in which he said that the deformity in bow-legs had always been regarded as an outward bowing, and that he wished to question the accuracy of this belief. The question of outward or inward bowing he regarded as a question of what is the proper base line from which to measure. If a vertebral line down the shaft of the femur is taken, then the tibia is bowed inward. This bowing is probably caused by the cross-legged position assumed by the child before it begins to stand. The action of muscles could not produce such a bowing, because before producing such a condition they must of necessity produce an equinovarus. After the tibias once curved, the altered status leads to abduction of the femurs, and this predisposes to anterior bowing of the shaft and coxa vara.

Discussion.—H. AUGUSTUS WILSON (Philadelphia) said that he would like some expression of opinion with reference to the question of whether or not bow-legs is a condition which may be outgrown. Personally, his experience had been that while a compensating curve might arise which would remove the external evidences of the deformity, the distortion of the bone was, in reality, increased. R. H. SAYRE (New York) said that he had for several years observed that the curve in bow-legs most often occurred at about the point of crossing of the legs, but that he had not before thought of this fact in connection with the etiology. Also, he had observed that in cases of anterior bow the curve occurred at the point on the legs where they projected beyond the lap of the mother, and thought this one of the causes. He reported one case where there was a spontaneous recovery from bow-legs, but thought such cases rare. In the correction of such deformities, his preference laid with the use of the osteoclast, except in those cases where the curve was close to the joint, when he considered the open operation and chisel better, because the osteoclast in such cases produced the break too far away from the joint. B. E. MCKENZIE (Toronto) said that it had been his custom in cases of bow-legs under 3 to instruct the parents in massage and manipulations, and that 90% of such cases recovered without further treatment. HENRY LING TAYLOR (New York) called attention to the inward rotation in bow-legs, and urged that after osteocalcis, outward rotation should be made to overcome this tendency. JOHN RIDLON (Chicago) said that in his experience it was unnecessary to cut the tendo-achillis in cases of anterior curvature and by manual effort had always been able to correct the deformity after the bones were broken. In exceptional cases there might be some tendency to outgrow the deformity, but certainly it was very rare. PHIL. HOFFMAN (St. Louis) reported the findings of a number of radiographs taken of cases of knock-knees. He had always found a bowing in of the upper end of the tibia and occasionally of the lower end of the femur. FRANK E. PECKHAM (Providence) thought that spontaneous cures had taken place in a number of cases that he had seen. Some of the cases were of severe type. He did not believe it necessary to do a tenotomy of the tendo-achillis in cases of anterior curvature. BLANCHARD in closing said that he believed that the question of a tenotomy in anterior curvature depended somewhat on the strength of the operator. Aside from that, however, he thought the foot could be held in a better position after tenotomy. In early cases spontaneous recovery might take place there unless there was eburnation of bone when recovery would be impossible. Manipulation and massage by the mothers were largely responsible for many of the socalled spontaneous cures. In over 1,000 cases he had not seen one of nonunion. It practically never occurred in this country. Another point he wished to make was that in the abduction of the femur there was a change in the position and direction of the neck not necessarily coxa vara. The neck of the femur might be nearly horizontal when the femur was abducted, but when the femora are parallel, the necks would be found normal. This might be called simulated coxa vara. True coxa vara is associated with bow-legs in some cases, but less frequently, he thought, than has been indicated. DANE believed that there were natural corrective tendencies in some cases and had observed a number that did make recoveries without formal treatment. He emphasized his belief that bow-legs should be considered as essentially an inward and not an outward bowing.

Conclusions Drawn from a Comparative Study of the Feet of Barefooted and Shoe-wearing Peoples.—PHIL. HOFFMAN (St. Louis) presented a lengthy paper giving the results of a study of the feet of 186 primitive people, for the most part Filipinos and native Africans, also, a study of the feet of shoe-wearing negroes and Caucasians. As a result of this study he reached the following conclusions: The relative lengths of the foot and its component parts are the same in barefooted and shoe-wearing races. Its form and functions are the same up to the time of shoe wearing, after which characteristic deformation and inhibition of function ensue. These acquired characteristics are not transmitted to progeny. The naked foot presents peculiar plantar and dorsal skin markings, due to function. The height and shape of the longitudinal arch have no bearing on the strength or usefulness of the foot, unless existent lowness in an individual is a transition from an original higher state. There is no exclusive type of arch, as the normal, which includes the high, medium, and low. There is no relationship between the height of the arch and the character of the gait. While the straight position of the foot is the one generally found among primitive people, the everted position is also found. The normal position of the great toe is one in which a prolongation of its axis passes through the center of the heel. A few years of shoe wearing, as shown by certain African tribes who adopted shoes after the Boer war, suffice to induce deformity. Such compression of the feet as is necessary to produce deformity may be entirely painless.

Discussion.—T. HALSTED MYERS (New York) thought that the statement made that the height of the arch and general shape of the foot was not a measure of symptoms was equally true as applied to civilized races. JOHN RIDLON (Chicago) wished to say that all painful conditions of the foot relieved by the use of an arch supporter could not properly be regarded as cases of flat-foot. Such symptoms might arise from a lack of normal dorsal flexion due to a shortening of the calf muscles or what has been called a nondeforming club-foot. Discussion also by H. F. TAYLOR (New York) and A. H. FRIEBERG (Cincinnati).

Congenital Absence of the Tibia.—T. HALSTED MYERS (New York) reported the case of a boy, aged 2, in whom there was an entire absence of the tibia. The head of the fibula articulated loosely with the upper and posterior part of the external condyle of the femur, with the foot in a position of marked equinovarus. The leg was habitually flexed and adducted, with slight power of flexion and extension. The child was unable to walk and went about on its knees. A number of procedures was instituted for the relief of the condition, which had previously been subjected to plaster splints and tenotomy of the tendo-achillis without any good resulting. The fibula was transplanted, necessitating certain interference with the soft structures around the joint and arthrodesis performed at the ankle. After one year the boy could flex his leg 90° and almost fully extend it. His power increased rapidly and he walked about all day. A review of the literature on the subject by the author showed congenital absence of the tibia to be the rarest of congenital defects. Only 46 cases of partial or entire absence of this bone were found. In older children, he said, it had been regarded as an almost hopeless condition. Usually amputation has been done on account of the great instability of the joint and the progressive shortening. The author appended a bibliography of 40 references to writings upon this subject.

The Desirability of Replacing Congenital Hip Dislocations in Infancy.—BERNARD BARTOW (Buffalo) presented this paper, and stated that the ease of reduction and the per-

centage of anatomic cures increase as the operation is performed more closely to the age when the child should walk. The present lower age limit is arbitrarily placed between the second and third years. Objection to further approximation of the reduction maneuver to the infantile age is based on the difficulty of maintaining cleanliness of the retention dressings. Sufficient importance is not attached to changes occurring in the hard and soft parts during the two or three years following birth. These are elements which increase resistance to reduction, and diminish security of replacement and opportunity for anatomic restoration, compared with the lesser pathologic changes present at the walking age. The difficulty of caring for a child at the walking age is not a barrier to lowering the age limit. A shorter period of splint retention is necessary, and there is probably an increased percentage of anatomic restorations. The cast may be extensively cut away on the lateral and posterior thigh portions, leaving a bridge about three inches wide connecting the pelvic girdle with a girdle encasing the lower third of the thigh. No deficiency of support seems to follow. Several cases were reported showing a period of splint restraint shorter by three or four months than could be safely contemplated at the age of 2 or 2½. In five unilateral cases where treatment was begun prior to the second year, anatomic cure was obtained in all. Four of these cases were 16 months or younger.

A Study of the Anatomy of Congenital Dislocation of the Hip after Manipulative Reduction. — NATHANIEL ALLISON (St. Louis), by invitation, presented a study of a typic case of double congenital dislocation of the hip, occurring in a girl of 7, reduced by the Lorenz method. Four months after operation the child died of tuberculous meningitis and the pelvis was obtained at autopsy. The specimen was carefully studied as to the condition of the muscles, nerves, joint capsule, acetabulum and head of the femur. The iliofemoral band was short and abnormally strong and would have offered an absolute resistance to a return of the thigh to a normal position. Forcing extension would have resulted in dislocation. The head of the bone was conical and the neck abnormal. The acetabulum was shallow, triangular in shape, with the base posterior. The anatomic conditions found in this case were compared with those found in the cases so far reported.

Discussion.—JOHN RIDLON (Chicago) said that while theoretically he might agree with Bartow, practically he could not. He had operated upon a case 17 months old and his experience had been so unsatisfactory that he would not again operate upon so young a case. He believed it to be the experience of those who had operated upon cases under 2 that while reduction might be more easily accomplished, it was more difficult to retain the head in position. The older cases offering serious difficulties to reduction, oftentimes when once reduced stay in position securely. He did not believe that the older cases required as long a period of immobilization. In the younger cases after 8 or 10 months in plaster the head still slips out of the acetabulum. He thought it likely that other muscles beside the adductors acted as stays to keep the head in place, and that such retentive force, whatever it may be, is absent in young children. We do not know yet what factors lead up to a perfect anatomic result. H. AUGUSTUS WILSON (Philadelphia) said that while on the surface it might appear that early replacement was desirable, the fact remained that in the inability of the child to walk, an important factor in the production of good final results was lost. No two cases are alike and the procedure adopted should depend upon a study of the individual characteristics of each case. He had used a solution of rubber to coat the cast and make it waterproof, as recommended by Hoffa, and had found it a satisfactory adjunct. BARTOW, in closing, said that his cases were too few in number to establish a precedent. His experience, however, had not led him to conclusions which coincided with those of Ridlon.

E. H. BRADFORD (Boston) gave a clinical demonstration at the Children's Hospital, of the **pathology and methods of treatment of congenital dislocation of the hip,** with exhibition and demonstration of a machine for use in reducing congenital dislocation of the hip by Mr. R. W. Bartlett, of Boston.

Demonstration and Exhibition by Lantern Slides of Lesions in Chronic Nontuberculous Arthritis.—E. H. NICHOLS (Boston), by invitation gave a demonstration of the changes undergone by the joints in chronic conditions showing processes of thickening, erosion, fibrillation, ossification and the formation of joint mice and osteophytes. He suggested that a classification of the various chronic joint conditions must be a pathologic one, since the clinical aspects presented by these various different processes are not sufficiently distinct to make clinical classification possible.

[*To be continued.*]

Origin of Sleeping-sickness.—It is reported that Robert Koch, who is at Iringa, German Southwest Africa, has found the origin of sleeping-sickness in trypanosomes in the body of the tsetse fly. The discovery leads to the hope that means will be found to combat the disease, which in one form is particularly fatal to cattle. He expects to remain in Africa for some time. He found the breeding ground of the fly, and says that the fly can be rendered harmless through simple means. He further discovered that relapsing fever is transferred to men through a small sand tick.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

NOTE ON THE MECHANICAL IRRITABILITY OF THE FACIAL NERVE IN DEMENTIA PRÆCOX.

BY

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In 1902, in a report of a case of dementia præcox, published in the *American Journal of Medical Sciences*, Vol. xxxiii, p. 109, I mentioned among other symptoms that the patient showed marked mechanical irritability of the facial nerve. Later in the same year in a paper entitled, "Some Points in the Diagnosis of Dementia Præcox," published synchronously in *American Medicine* and in the *American Journal of Insanity*, I drew attention to the diagnostic importance of this symptom. I stated, "As yet I do not feel that I have investigated this phenomenon sufficiently to make any very positive assertions concerning it. It is not present in all cases, and sometimes when I have most expected to find it, it has been absent. It seems to be most pronounced in the later stages and unless pretty constantly present as an early symptom will not prove of much value from a diagnostic standpoint. So far I have been able to obtain it in most, but not in all early cases. Later I hope to obtain more conclusive data, and meanwhile I should be very glad if others would investigate this phenomenon and would publish their results, or communicate the same to me."

Not long after this, in conversation with Dr. D. J. McCarthy, he drew my attention to the fact that this symptom was often found in patients who had indulged in the excessive use of tobacco or alcohol, and he therefore believed it to be frequently toxic in origin. I was subsequently able to confirm this opinion and from further observations I believe that in my paper I gave undue prominence to this symptom, and that it must simply be considered in connection with the exaggeration of other reflexes and the hypertonic condition of the muscles as probably a toxic condition. It must be remembered that the physical signs of dementia præcox are multiform and it is usually a mistake to give undue prominence to any one symptom, which mistake I believe I made in my paper. The general hypertonus of the muscles as shown by the exaggerated tendon reflexes and resistance to passive movements like the mechanical irritability of the facial, are probably all indications of a toxic condition which is the cause of the dementing process. That dementia præcox is the result of a toxic condition has been the opinion of several writers for a number of years.

It was my intention to publish this note earlier, but as no one seemed to attach any special importance to the diagnostic value of the mechanical irritability of the facial nerve but myself, I allowed the matter to rest. However, a few days ago I noted that Dr. Daniel R. Brower, in a paper in the *Alienist and Neurologist* for May, 1905, mentioned this symptom, quoting me, so that I have thought best to give my later opinion on this point.

THE CORRECT SPELLING OF SPIROCHÆTA.

BY

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To the Editor of American Medicine:—Knowing the great interest in the writing of scientific names, I would call attention to the fact that nearly all journals at present and nearly all authors are using *spirochæte.* I have recently traced this name. It was proposed by Ehrenberg in 1834. The original spelling was *spirochæta.* It appears to have been changed to *spirochæte* by Cohn in 1872. It is sometimes written *spirochæta,* this spelling being traced to Dujardin, 1841. I thought that this point of original orthography would be of interest in connection with the parasite recently described in syphilis; so I take the liberty of calling your attention to it, so that those desiring to use the original spelling may do so.

ORIGINAL ARTICLES

GALL SPIDER CASES.[1]

BY

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of New York.

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There are cobwebs in the attic of the abdomen.

There are hieroglyphics on the peritoneum of Darkest Abdomen, and physicians are to read them during the next decade with as great avidity as they read the hieroglyphics of appendicitis, once the key characters had been discovered.

Anatomists have noted that web-like adhesions were found in the bile tract region so frequently that they seemed to be almost a normal characteristic of the region. We used to feel the same way about adhesions in the cecal region. Byron Robinson called attention to the fact that adhesions were found in the bile tract region more frequently than elsewhere in the peritoneal cavity excepting in the pelvis in women; and that the cecal region stood third in order of abundance of adhesions.

We cleared up the history of pelvic adhesions first. Then we all turned our attention toward cecal adhesions, after the appendicitis paper of Fitz appeared in 1886.

Now we must all get to work upon the subject of bile tract adhesions.

The subject is one that has been full of surprises to me during the past two years. It is said that one finds whatever he is looking for in surgery. We have not been looking for the facts which are grouped about the cobwebs in the attic of the abdomen, any more than we looked for facts that were associated with cecal adhesions, previous to the year 1886.

How do we explain the presence of adhesions in special peritoneal areas?

In the pelvic cavity in women the presence of adhesions is explained by the fact of open oviducts which allow ascending infection to spread over contiguous peritoneum.

In the cecal region we have a rudimentary organ which has lost some of its power of self-protection during the process of degeneration. When the inner coats of the appendix try to swell within the tight and narrow outer sheath, they become anemic by compression. We all know what happens to the anemic tissues that are vulnerable to the attacks of bowel bacteria, and the explanation for the presence of cecal adhesions belongs to history that is now several years old.

It remains for us then to explain the presence of abundant adhesions in the bile tract region.

Lartigau has shown us that bowel bacteria are carried to the liver by the afferent vessels of the portal system, and that on the way back to the bowel again they excite various infections of the bile tract mucosa. Some of the infections are readily diagnosticated when acute and violent manifestations attract attention to the region, but by far the greater number of cases get on with the humble diagnosis of "stomachache," or with a wrong diagnosis altogether. The acute disturbances associated with infections of the bile tract mucosa do not belong to the present subject for discussion. I mention the matter merely to bring in an explanation for the presence of the cobwebs which follow the work of the gall spiders. My feeling is that the thinness of the walls of the bile ducts and gallbladder furnishes an important point. When there is infection on the mucosa side of the thin-walled structures, toxins penetrate the walls in sufficient force to cause toxic desquamation of endothelium on the peritoneal side. Endothelial cells are shed, plastic lymph exudes, coagulates, and is replaced by connective tissue. That seems to me to be a good enough explanation for the adhesions of the bile tract region. Webs of adhesion are spun from the gallbladder to the liver, from the gallbladder and ducts to the pylorus, from the gallbladder and ducts to the colon, from the gallbladder and ducts to the peritoneum over the solar plexus. All of these webs pull upon structures that are normally free, and the result is that the disturbances in gall spider cases lead to as many kinds of diagnosis as we used to make in cases of appendicitis and its complications, or in loose kidney and its complications, or in gastric ulcer and its complications.

It is interesting to note the facility with which physicians make the diagnosis in gall spider cases, once their attention has been directed toward the subject. Before coming to Detroit today, I wrote Dr. Longyear, asking him to pick out a gall spider case for operation, so that we might have a clinical demonstration at the hospital. He answered that he was not sure of being able to make the diagnosis, but would try. The case that he selected was a typic one, as all of you observed at the operation. The patient gave a history of "stomach disorder since childhood." The diagnoses of "tapeworm" and of "malaria" had been made in the case, and the patient had been treated on the basis of wrong diagnosis for years. Dr. Longyear made the diagnosis of "gall spiders" and hit the bull's-eye. A few days ago a physician who came as a patient made a diagnosis of the same sort in his own case, after reading a reference to the subject. He had suffered for years, and had had expert advice, without getting a diagnosis that was right, but his own final diagnosis was perfectly correct, as we proved by operation. Adhesions had bound the gallbladder to the liver so firmly in his case that the gallbladder had become partly imbedded in the liver, and there was an area of chronic local hepatitis in the vicinity.

Some of the diagnoses that had been made in gall spider cases in which I have operated recently were these: Torpid liver, gallstones, cancer of the gallbladder, cancer of the stomach, nervous dyspepsia, gastralgia, ulcer of the stomach, chronic dyspepsia, chronic gastroenteritis, intestinal indigestion, tapeworm, malarial hepatitis. Some of the complications in these cases had been treated as diagnostic entities, notably, dilation of the stomach, mucous or membranous colitis, and chronic constipation.

Very many cases of obscure stomach or bowel disturbance that have been the subjects of unsatisfactory diagnosis by experts in the past will soon be readily classed among the gall spider cases. A great many of these cases must have escaped correct diagnosis in my own practice during the past 20 years. The patients must have gone on their way suffering, and holding me, and perhaps the profession generally, in light esteem.

Are there people who do not suffer much discomfort from the presence of cobwebs in the attic of the abdomen? It must be so, because the cases in which adhesions are present make up such a large part of the whole community. I think that we can fairly make comparison on this point with cases of adhesion of the omentum to the site of midline incisions of the abdominal wall. Some patients are absolutely miserable on account of such adhesions, others have a little discomfort, and others still are not aware of the presence of omental adhesions at all. Then, again, there are a number of abdominal operations in which we seek to obtain peritoneal adhesions. We blow hot and we blow cold with peritoneal adhesions. Assuming that there are people who do not respond to the irritation caused by bile tract adhesions, we must, nevertheless, be sharply on guard to note the cases in which people are life-long invalids on account of such adhesions. The reason why there should be a greater proportion of sufferers from bile tract adhesions than from omental adhesions, is because

[1] A paper read at the meeting of the Wayne County Medical Society, Detroit, Michigan, May 1, 1905.

more important structures are pulled upon by the bile tract adhesions, and because there are very many more cases of bile tract adhesions than there are of omental adhesions.

Webs from the gallbladder to the liver seem to cause the least degree of disturbance. Webs from the gallbladder to the pylorus cause nervous dyspepsia, gastralgia, and intestinal indigestion commonly. I have operated in two cases in which they had caused dilation of the stomach. Constipation is a characteristic symptom in this pyloric group of webs, and it is in this group that we find cases simulating cancer of the stomach and ulcer of the stomach, but on the whole, we are to look for the lesser gastric annoyances rather than the grave gastric disasters among the gall spider cases that are seen in everyday office practice.

Webs extending between the gallbladder and the colon are a frequent cause for chronic constipation. Webs from the gallbladder to the peritoneum over the solar plexus cause the most confusing group of symptoms, and in this group of cases the integrity of the heart is often called into question. In the solar plexus group of cases we have a most uncomfortable lot of patients, and general neurasthenia is common, aside from the nervous dyspepsia, mucous colic, and other evidences of profound and persistent disturbance of the great sympathetic ganglions.

There seems to be a characteristic pulse in gall spider cases, and one feels that he gets to recognize it without being able to describe it in terms of words.

A characteristic temperature in these cases seems to be one which fluctuates half a degree on either side of normal, so that during the day one will get a saw tooth chart that is rather symmetrical, with the temperature ranging between 99° F. and 98° F. I take it that this is due to direct mechanical irritation of the sympathetic ganglions. In working out our diagnosis in gall spider cases there is a pair of points of definite importance, and I wish you all to work out the testimony offered by this pair of points in patients who come into the office tomorrow. Each point is situated about an inch from the navel, on either side of the navel, and near the spinal column. I refer to the lumbar ganglions, the tenderness of which gives testimony of diagnostic value on finger point pressure. The pair of points will serve to help us separate the gall spider cases from four other common sorts of cases in which stomach and bowel disturbance make demonstration. I refer to (1) eyestrain; (2) normal involution of the appendix;[1] (3) loose kidney, synecdoche for enteroptosis; (4) pelvic irritations.

In making use of our pair of points, deep finger pressure is made upon the abdominal wall, about an inch on either side of the navel, and the patient will easily tell whether one or both of the lumbar ganglions are hypersensitive or not. In typic cases we get the following testimony: 1. In gall spider cases, neither one of the lumbar ganglions is hypersensitive. 2. In eyestrain cases, neither one of the lumbar ganglions is hypersensitive. 3. In normal involution of the appendix cases, the right lumbar ganglion is very sensitive. 4. In loose kidney cases, the right lumbar ganglion is very sensitive. 5. In pelvic irritation cases, both lumbar ganglions are very sensitive. If you work out the value of my pair of points tomorrow in the office, the lesson will probably be one never to be forgotten.

[1] Toward middle life the vermiform appendix is prone to undergo normal involution changes, with gradual replacement of the lymphoid and mucous layers by connective tissue. This contracts, and in contracting irritates terminal filaments of sensory and sympathetic nerves which are engaged. The irritation of the sensory filaments causes more or less persistent discomfort in the appendix region. The irritation of the sympathetic filaments leads to disorders of function of the intimate ganglions of the bowel wall, Auerbach's and Meissner's plexuses, so that this group of normal appendix involution cases forms one of the commonest class of cases that come into the office with intestinal indigestion. It also furnishes the cases in which one is "not quite sure whether the appendix is involved or not." There is no active infective invasion of the appendix, and yet the patients are conscious of some irritation there most of the time, and on palpation one finds the appendix firmer and more resistant than normal.

One becomes impressed by the fact that the stomach specialist must be first an ophthalmologist, then an operating abdominal surgeon, and last of all a medical or dietetic therapeutist. I would not minimize the importance of the great work that has been done by gastroenterologists during the past few years, but when we know, for instance, that hyperchlorhydria may be present one week and absent the next, it is time to look to the spinal centers, and when we get as far as that it becomes time to find out what disturbs the spinal centers, and to remove easily and definitely removable causes for the disturbance.

Many kinds of therapeutic treatment, aside from operation, will relieve for awhile the symptoms caused by bile tract adhesions, and hydrotherapy is by no means appreciated as it should be in this class of cases.

Aside from the value of the pair of points in a diagnostic way, we can get pretty good testimony sometimes from another feature, the feature of protective muscular spasm of the abdominal wall muscles. The rectus, oblique, and transversalis muscles are firmer than normal while making protective spasm, and we read the testimony thus: (1) In gall spider cases there is transitory protective spasm; (2) in eyestrain cases there is no protective spasm; (3) with normal involution of the appendix there is persistent protective spasm of moderate degree; (4) with loose kidney there is marked persistent protective spasm, excepting in cases of general enteroptosis with flabby muscles or diastasis; (5) with pelvic irritation there is no protective spasm.

One diagnostic feature of gall spider cases is a pretty persistent sense of discomfort "at the pit of the stomach." Sometimes it will disappear for a few days at a time, but generally the discomfort is present most of the time. Just as the normal involution appendix cases form the class in which we are "not quite sure whether the appendix is involved or not," so the gall spider cases form the class in which we are "not quite sure whether gallstones are present or not." Many times an involution appendix has been removed; the surgeon feared that he had removed a normal appendix, and yet the patient went on to make a remarkable gain in general health afterward. Many a surgeon has been nonplussed by operating for gallstone; finding no gallstone, and yet having the patient make a remarkable gain in general health; the fact that adhesions were separated incidentally having been overlooked as a factor.

Another diagnostic point in gall spider cases is the persistent tenderness on pressure over the bile tract area. Sometimes it almost disappears while the patient is on medical or dietetic treatment, but it reappears pretty promptly when the patient gets ready to change doctors on account of the irksomeness of treatment.

In gall spider cases there is more or less chronic cholecystitis, and Musser is the first physician to take a radical stand and to say that these cases should be turned over to the surgeon for removal of the gallbladder, on the ground that the gallbladder, like the appendix, "once infected is always infected." Removal of the gallbladder takes away the chief focus of infection, but subsequent infective invasions of the common and the cystic bile ducts may lead to further web formation. Separation of the adhesions is, however, the main resource for relief in our gall spider cases.

Three of our remnants, or rudimentary organs, appendix, gallbladder, and wisdom tooth, certainly make more trouble for us than any three normal organs in the body. The appendix has mechanical weakness, the gallbladder has such thin walls that toxins penetrate to the endothelial coat, and the wisdom tooth is deficient in calcification. In the surgical treatment of gall spider cases I first remove the gallbladder, snapping a pair of forceps on the cystic duct, ligating the duct proximally from the forceps, and then dividing the duct at a point midway between the ligature and the forceps. Adhesions are then separated from all neighboring peritoneum, and

prevention of recurrence of adhesions is accomplished in one of two ways. The first way is one that I described some years ago, and consists in making a lymph-aristol coagulum cover all separated points. The second method, which I took up recently after making a series of experiments on rabbits, consists in covering separated areas with sterilized peritoneum from the ox (Cargile membrane). I am not sure as yet which method is best. Both are very satisfactory. Patients only a few hours out of ether, and with the disturbance caused by operation still present, will often say that they have a sense of comfort in the bile tract region that they have not felt for months or for years previously. The subject is one toward which the whole profession may turn, in the expectation of finding a new and interesting field for diagnosis, and for giving relief to a class of sufferers who go the rounds of the profession with various undiagnosticated stomach and bowel troubles.

BLOOD-PRESSURE OBSERVATIONS FOR THE PRACTISING PHYSICIAN.*

BY

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So great has become the interest in blood-pressure and so extensive the literature on the subject in the past few years, that it will be impossible to cover in a short time all of the work that has been done along that line. The first stimulus to clinical investigation of blood-pressures under pathologic conditions was given by v. Basch,[1] in 1881, by the introduction of an instrument which was simple and yet gave fairly accurate clinical determinations of the maximum or systolic blood-pressure. His method, in brief, was to exert pressure upon an artery until no further pulsations could be felt distal to the point of compression—the pressure exerted being read from a manometer. This is known as Vierordt's method, or by the better term suggested by Erlanger,[2] the method of obliteration. For many years v. Basch's was practically the only instrument used, but all who worked with it recognized the fact that it was open to criticism and was not scientifically accurate, because the method was a subjective one. In 1890, Roy and Adami[3] brought forward the first instrument by which the blood-pressure in man could be ascertained from a graphic record. They considered that the point at which the maximum pulsations were recorded by their instrument showed the minimum or diastolic blood-pressure, while the pressure in the instrument at which no further pulsations were recorded, indicated the maximum or systolic blood-pressure. It has since been shown experimentally[4] that the point at which the maximum pulsations are recorded really indicates very accurately the minimum blood-pressure, while the point of obliteration of recorded pulsations bears no definite relation to systolic pressure—being invariably very much too high. Since 1890 many new blood-pressure instruments have been devised—the development being along two different lines. One set of investigators has aimed to produce a simple and accurate instrument with which to record graphically the blood-pressure—thereby eliminating the subjective error and making the results more reliable. The other workers have merely developed into better shape the principle of v. Basch's instrument by which systolic pressures alone may be measured. To the former school belong Roy and Adami, Marey, Mosso, Hürthle, v. Recklinghausen, Hill and Barnard, Erlanger, and others. To the latter belong v. Basch, Riva-Rocci, Gaertner, Cook, and many more.

* Read before the one-hundred-and-seventh annual meeting of the Maryland Medical and Chirurgical Faculty, on April 27, 1905, at Baltimore, Md.

To v. Recklinghausen[5] we are indebted for two important contributions to our knowledge of accurate blood-pressure determinations. First, in regard to the width of the encircling cuff for the arm, v. Recklinghausen showed that readings varied inversely with the width of the cuff. In the narrow 5 cm. or 6 cm. cuff, such as is ordinarily used on the Riva-Rocci type of sphygmomanometer, the error is 20 mm. to 30 mm. Hg.—the readings being that much too high. As the width of the cuff was increased, the apparent height of the blood-pressure fell until, with cuffs of varying widths from 12 cm. to 17 cm., the difference in the readings was so small as to be negligible. Other men working along this same line have arrived at practically the same conclusions. Erlanger, in experimental work, showed that the error may reach 50 mm. of mercury. On his apparatus he now uses a cuff of 12 cm. Similar results have been obtained by Groedel and Kisch,[6] Stanton,[7] and Morris and Edmunds.[8] This point has not been sufficiently emphasized in the past, and has undoubtedly contributed in part to the conflicting statements which have been made by different writers as to the blood-pressures in different pathologic conditions. Since the differences in blood-pressure readings obtained with cuffs of different widths above 12 cm. are not greater than the working error of the Riva-Rocci type of sphygmomanometer, it would seem well to adopt as the standard a cuff of that width—especially as that is the width that has been adopted by Erlanger for his apparatus, which is undoubtedly the most scientific and accurate sphygmomanometer in use today. At any rate, it is most important that cuffs at least 12 cm. wide be employed, so that in future, results may be capable of comparison. Also, every man working on blood-pressures should, in reporting his results, state the width of the cuff used by him. As practically all of the figures given by different workers with the Riva-Rocci have been compiled from readings made with a narrow cuff, it might not be out of place to give the results obtained with a 12 cm. cuff from a series of patients in the wards of the Johns Hopkins Hospital. In selecting these patients I tried so far as possible to use only normal men—that is, those who were in on the surgical side, without any wasting disease, and who showed no arteriosclerosis, the criterion of arteriosclerosis for this work being palpably thickened arteries. In this series of cases, I found that the average systolic blood-pressure, taken by the method of obliteration, was 112 mm. Hg. Strassburger[9] reports 106 mm. Hg. as the average obtained by him.

The other important observation of v. Recklinghausen is concerned with the graphic recording of systolic blood-pressures. He observed that if, with an apparatus connected with a recording instrument, one starts with an external pressure in the cuff well above the systolic blood-pressures and then lets the pressure in the cuff gradually but steadily fall, while the pulsations are being recorded on a moving drum, there will be a point at which there is a sudden and marked increase in the amplitude of the recorded pulsation. This he considered to indicate the point at which the blood again flowed through the artery, and consequently should be just below systolic pressure. Erlanger[2] has shown experimentally that this sudden increase in amplitude of the recorded pulsation does coincide almost exactly with the absolute systolic blood-pressure and usually occurs when the pressure in the cuff is 10 mm. to 15 mm. Hg. higher than that at which the pulse can again be felt at the wrist. Consequently, our readings, as ordinarily made, are 10 mm. to 15 mm. Hg. too low. Whether this error would be constant under varying conditions of sclerosis, thickness of soft parts, etc., cannot now be said, but it would always be constant for the same individual. At the present time there is no doubt that the instrument most commonly used is the Riva-Rocci, or some one of the modifications of it. There are two objections

to it. In the first place, the data obtained by it are by no means complete, for, as it is ordinarily used, it gives only the systolic pressure, and it is very doubtful if that is the more important. Consequently, our results tell us but a very small part of the story of the changes taking place in the cardiovascular system. It has been stated by its supporters, with no experimental basis for the statement, however, that the probability is that when any cardiovascular changes occur, they affect both diastolic and systolic pressures about equally; so that the systolic pressure by itself is an index of what is happening in the general arterial tension. It has been shown experimentally,[4] however, that under varying physiologic conditions and after hemorrhage—the only pathologic condition that could be brought about in the dog—the two pressures may vary independently of each other. Therefore, it is fair to assume that under pathologic conditions we may get the systolic and diastolic pressures affected equally, unequally or independently, and therefore neither pressure by itself gives a true indication of the state of the patient's cardiovascular tension. This has been well shown by Erlanger in a patient with Stokes Adams' disease, in whom, with a slow pulse of 18 per minute, the systolic pressure was very high. When the pulse-rate rose to 44 per minute, the systolic pressure fell, but the diastolic pressure rose. Had either pressure been taken alone, the result would have been misleading. The other objection to the Riva-Rocci is that it is a subjective method.

Just as it is true that the Riva-Rocci type is the most commonly used sphygmomanometer at present, so is it equally true that the most scientific and most accurate instrument is that devised by Erlanger,[2] in which both systolic and diastolic blood-pressures are graphically recorded. While admirably adapted to investigations in a hospital ward, it, too, has its drawback in that it is certainly too cumbersome for a practitioner to carry about with him, and too expensive for the average practitioner to make a part of his office equipment. What, then, is the practitioner to do to obtain his diastolic pressures, for most of the apparatus so far devised has been too cumbersome? It has been suggested[10] that, by using fairly stiff tubing on the Riva-Rocci, one could read the amplitude of the pulsations recorded by the column of mercury in the manometer. This, while simple enough, is inaccurate, and will give results which are very misleading, for it has been shown that the mercury manometer is not sufficiently sensitive to respond to the full force of the pulse beat, and one may get no reading which he can definitely say is the maximum. Indeed, if the pulse be small and rapid, one may get practically the same sized pulsation recorded over a series of observations in which the changes in external pressure have varied by over 50 mm. Hg., or more. Strassburger[9] has recently suggested that one may determine the diastolic pressure with a Riva-Rocci instrument by gradually increasing the pressure in the cuff, while palpating the radial artery, and noting the point at which there is a definite diminution in the volume of the pulse. Then the systolic pressure is determined as usual by the method of obliteration. In this way, with the simple Riva-Rocci type of sphygmomanometer one can get both systolic and diastolic pressures, and hence the difference between the two—the pulse-pressure, which Erlanger and Hooker[11] have shown to be the most important point in blood-pressures. The method sounds crude, but Strassburger verified his observations in some cases by the usual method of maximal oscillations, and found that the diastolic pressure determined by his method and that determined by maximal oscillations were practically the same. A little practice will convince one that no more delicate touch is necessary to determine a change in the volume of the pulse than to tell the exact point at which the last feeble pulse-beats disappear in taking systolic blood-pressure by the method of obliteration. In a series of cases which I have followed recently, I took the diastolic pressure first by Strassburger's method, and then followed it with Erlanger's apparatus. The first reading varied from 5 mm. to 7 mm. Hg. higher than those taken on Erlanger's apparatus. This error is certainly no greater than that made in taking systolic pressures by the usual method. The average normal diastolic pressure is about 80 mm. Hg.

Strassburger also suggests that instead of expressing our results in actual millimeters of mercury for the two pressures, we use what he calls the "blood-pressure quotient," which is obtained by dividing the pulse-pressure—the difference between systolic and diastolic pressure—by the systolic pressure. In normal individuals this gives, on the average, the figure .25, and Strassburger believes that it is useful in interpreting cardiovascular conditions to determine this quotient, as he believes it gives a better lead as to whether the change is due to increased or decreased force of heart beats, or increased or decreased peripheral resistance. In his article he shows how one should interpret his results with the varying conditions of normal, decreased or increased quotient with normal, decreased or increased systolic pressures.

In what conditions, then, is it of importance for the practising physician to take blood-pressures? Of what value are they in diagnosis or prognosis? In the great majority of cases, blood-pressure observations are of no practical value, but they are of very great assistance in certain cases, and it is for them that they should be used. As an aid in diagnosis they are useful in cases of increased intracranial pressure, some cases of aneurysm, and, probably, in cases of typhoid perforation. The chief value of blood-pressure observations lies in the lead that they give us in our treatment—especially when we are using drugs with which we hope either to increase or decrease the blood-pressure. In all cases, however, *both the systolic and the diastolic pressures* should be taken, for the drugs may affect one or the other or both, and may not always show the same effect in different cases.

Of the acute diseases, typhoid fever gives the most useful field for blood-pressure observations. Both systolic and diastolic pressures are usually slightly below normal on admission to the hospital, and, unless stimulants are given, they continue to fall very gradually during the period of pyrexia—the total fall usually being 20 mm. to 30 mm. Hg. Then there is usually a gradual return to normal by the fifteenth to twentieth day of apyrexia. By taking blood-pressures at frequent intervals, one can easily follow the effects of the stimulants. More important than that, however, is the information it may give in regard to perforation—if the patient is not too toxic. Both Crile[12] and Briggs[13] have reported a case in which, with the onset of perforation, there was a sudden rise in systolic blood-pressure. Diastolic blood-pressures were not taken. Briggs[13] also reports a case in which most of the signs and symptoms of perforation were present, but there was no change in blood-pressure. The patient was explored, but no perforation existed. Cold baths and sponges increase the blood-pressure from 10 mm. to 20 mm. Hg. The effect does not last more than 30 minutes as a rule.

In acute nephritis the blood-pressure may or may not increase. In a recent paper, Morris and Edmunds[8] report two cases, one of which showed a high blood-pressure, while the other showed no change. In two cases which I have followed, the systolic pressure was high, and increased as uremic symptoms became marked. In chronic nephritis, blood-pressure observations are of great value in giving a good indication of the effect of treatment. Probably the diastolic pressure will prove to be of more value than the systolic pressure in these cases, for usually some vasodilatant treatment is employed.

In cardiac cases the systolic pressure is usually high, but may be low, and here, again, the blood-pressure

chart is of great value in watching the treatment. The patients with broken compensation with high pressure almost invariably improve as the pressure is diminished, and the patients with low pressure improve as their pressure rises.

Neurasthenia is a condition in which we sometimes see very low blood-pressures, and in those cases with marked vasorelaxation, an improvement in general condition often is seen, as the blood-pressure is increased by ergotin or some other drug causing a rise in blood-pressure.

The condition in which the highest blood-pressures are obtained, is increased intracranial pressure, whether from neoplasm or cerebral hemorrhage, but especially from the latter. Cook and Briggs[14] report a case with a pressure of nearly 400 mm. Hg. In these cases, blood-pressure observations are of diagnostic value, but they by no means call for any blood-pressure lowering treatment.

In conclusion I would say:

1. Both systolic and diastolic pressures should be taken, if any are taken, the method of Strassburger being sufficiently accurate for any but scientific investigations.

2. The cuff on the instrument should be at least 12 cm. wide.

3. With the wide cuff, the normal systolic blood-pressure for the healthy adult male is nearer to 110 mm. than it is to 130 mm. Hg.—this representing the normal in a patient who has been in bed for 24 hours or more.

4. The chief value of blood-pressure observations lies in the lead they give in regard to indications for and results of treatment.

5. In a few conditions they are of diagnostic value.

6. In many conditions, blood-pressure observations are of no practical value.

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FRACTURES AND DISLOCATIONS OF THE ULNA: A REVIEW, WITH REPORT OF CASES.

BY

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[*Concluded from page 70.*]

4. *Fractures of the Coronoid Process of the Ulna.*—This injury is rare and happens most frequently as a complication of dislocations of the ulna backward. A number of specimens have been found which tend to prove this conclusion. This process is therefore, for the most part, broken off by indirect violence, but it is occasionally broken off by direct violence.

A man, as related in the chapter on fractures of the olecranon, fell upon his right elbow, split his condyles, and broke the base of the olecranon by some penetrating body, which at the same time fractured the coronoid process, as made out by a probe passed into the wound on the inner aspect of the base of the ulna. Dr. Lotzbeck saw a soldier who was struck in the elbow by a piece of shell. Two months afterward a hard body was found in front of the elbow. It was thought to be the coronoid process, because it could not be penetrated by a needle and because it made a creaking sound when pressed down and rubbed against the ulna. The same author mentions the case of a boy of 14, whose coronoid process was broken off by extreme flexion of the forearm; and he adds that he fractured the coronoid process by forcible flexion of the forearm in order to facilitate the operation of exsection of the elbow.*

In July, 1891, a laborer, about 35, was treated for fracture of the external condyle of the os humeri, accompanied by backward dislocation of the ulna, the injuries being caused by a fall upon the hand. After the swelling had subsided, a firm, and somewhat movable body was found in front of the elbow, in the location of the coronoid process. This body was supposed to be the coronoid process, which had been broken off at the time of the accident. When the patient left the hospital, in November of the same year, the relations of this movable body had not materially changed. Case IX, Plate 6, shows this fracture.

Insofar as experiments on the dead body can illustrate the action of external violence upon the living body, we may conclude that a fracture of the coronoid process is more apt to follow a dislocation of the forearm during moderate flexion. This seems to show that complete extension of the forearm has a tendency to lift the coronoid process backward over the trochlea, during the production of a backward dislocation of the ulna.

The brachialis anticus is inserted into the anterior aspect of the base of the coronoid process, as well as the surface of the ulna beyond; the extremity of the coronoid process is more or less free in the cavity of the elbow-joint—that is, it is intracapsular. However, the coronoid process has the capsular ligament and the synovial membrane attached along its lateral margins, and is covered in front by the general connective tissue of the joint, so that, when it is completely broken off, it still has some vascular connection with the adjacent structures. Hence we can see why it is not subject to necrosis after it has been separated from the base of the ulna by a fracture. Indeed, if this process did not have such vascular connection, it would suffer necrosis, in case of fracture, and would have to be removed by an operation.

SPECIMEN No. 1.—In a specimen, found in the dissecting room, preserved in the Museum of St. Thomas' Hospital, and mentioned by Sir Astley Cooper, the broken-off coronoid process had united by ligament, allowing the ulna to move freely in a backward direction. The external condyle had been broken off, and had united by a ligament, a result of much practical importance, and one to which I desire to draw attention.

SPECIMEN No. 2.—Dr. Bryant, in his work on surgery, has a drawing of a specimen, taken from the upper limb of a woman of 70, who fell upon her elbow and broke off the coronoid process of the ulna, as well as the anterior third of the radial head. This would be a case of fracture of both bones of the forearm, but it affords an example of a fracture of the coronoid process.[4] In Holmes' "System of Surgery" we are told that a man fell from the roof of the hospital and was killed; and that he had both forearms dislocated backward, breaking off both coronoid processes, and splitting both radial heads longitudinally. In this case we have not only a fracture of both bones of both forearms, but also a simultaneous fracture of both coronoid processes. There was fracture of the heads of both radii, which occurred simultaneously.[5]

SPECIMEN No. 3.—In 1834 a man fell from the second story of a building and was killed. Both bones of the forearm were dislocated backward, and their reduction produced crepitus. A fracture of the coronoid process of the ulna, accompanied by a fracture of the anterior third of the radial head was demonstrated by a postmortem examination. This is another instance of a fracture of the upper ends of both bones of the forearm.

SPECIMEN No. 4.—Velpeau says that he saw a man of 50 who had suffered from a backward dislocation of the forearm for six weeks, and that he failed to make reduction of the bones. Soon after, the patient died from an attack of erysipelas, when an autopsy disclosed the fact that there was a fracture of the coronoid process of the ulna, as well as a fracture of the anterior third of the radial head. This is another example of the same injury as the one noted in the case of the previous specimen.[6]

SPECIMEN No. 5.—Samuel Cooper describes a specimen, contained in the University College Museum: "The ulna is

*Stimson on Fractures, p. 431.

broken at the elbow, the posterior fragment being displaced backward by the action of the triceps; the coronoid process is broken off; the upper head of the radius is also dislocated from the lesser sigmoid cavity of the ulna, and drawn upward by the action of the biceps."

SPECIMEN No. 6.—Dr. Hodges reports the case of a man of 40 who received a compound fracture of the elbow. The coronoid process of the ulna was broken off; there was a fracture of the olecranon; and there was an incomplete longitudinal fracture of the head of the radius.[7]

SPECIMEN No. 7.—I once made a dissection of the elbow of a patient who fell from a height and received such injuries as to cause his death the next day. The coronoid process was broken off at its base; the olecranon was broken near its middle quite transversely; the head of the radius had been broken into several pieces; the base of the ulna had been fissured, and the condyles of the humerus had been comminuted.

Deferring commentary on these specimens, which throw much light upon the subject under consideration, I give the clinical history of a few cases, in which there was a diagnosis of fracture of the coronoid process. While the diagnosis may be difficult, and perhaps uncertain, the facts of the foregoing specimens would appear to strengthen conviction of the correctness of the diagnosis.

CASE I.—J. McP., aged 51, had a firm, hard body in front of the injured elbow; this body could be moved to and fro, and was no doubt the coronoid process of the ulna, which had been broken off 13 years before, and had remained without bony union. In this case the ulna could be moved upward and downward on the lower end of the humerus a considerable distance, which would hardly have been possible if the coronoid process had not been broken off. This patient also had a fracture of the internal condyle; the fragment had been displaced upward and inward, and it had been united by bone.

CASE II.—A laborer, aged 28, fell on the dorsum of his right ulna just below the condyles of the humerus, causing a severe and penetrating wound near the inner side of the base of the olecranon. The pointed object, which had penetrated the soft parts, had gone obliquely upward, outward, and forward, as could be determined by the probe, and fractured the coronoid process of the ulna. This process was more prominent in front of the elbow-joint than the one on the opposite side. In fact, there was a compound fracture of the elbow-joint.

CASE III.—J. B., aged 17, had a contused wound of the right elbow, which penetrated to broken bone; a fracture of the coronoid process of the ulna; a fracture of both condyles of the os humeri. There was a general displacement of the bony fragments, as well as the bones of the forearm, from the lower end of the humeral diaphysis. As good a reduction of the fragments as possible, under the circumstances, was made, and the limb was laid on a well-padded right-angled splint made of wire cloth, bent into the form of a trough. The wound healed in a few days, but the reduction of the fragments was maintained with very great difficulty, and only in an imperfect manner, the ulna tending constantly to slip upward and backward. Passive motion was begun about two weeks after receipt of the injury, and was repeated every other day so long as the patient remained in the hospital. From time to time the fragments were molded into place by means of the fingers. This patient was discharged improved, but he still had considerable disability.

CASE IV.—J. McC., about 8, dislocated his right forearm backward. His physician reduced the dislocated bones, and felt crepitus as they went into place. Redislocation could not altogether be prevented, and the forearm constantly tended to assume the position of extension. I saw this patient in consultation with his physician, and made the following observations: The left condyles, as measured by the callipers, were 1¾ in. in width, while the width of the right condyles was fully 2 in. The right external condyle was at a higher level than the left, and the right olecranon was displaced somewhat upward and backward, while in front of the elbow-joint there was a firm, hard piece of tissue, that could be moved in various directions, when seized by the fingers. As I made an attempt to flex the forearm, this piece of tissue soon obstructed the motion, as if it were a foreign substance in the way. I made a diagnosis of backward dislocation of the forearm, complicated by a fracture of the coronoid process of the ulna and a fracture of the external condyle. By persistent effort, with the patient under ether, I succeeded in bringing the forearm upward to the right-angled position—and subsequent passive motion produced a useful and not very much disabled limb.

CASE V.—A girl about 10 dislocated her left forearm backward. She was seen by her family physician, who, as he was reducing the dislocated bones, felt crepitus. It was found impossible to maintain the reduction; the forearm tended constantly to displacement backward. A few days after the accident I saw this patient, and found a fracture of the coronoid process of the ulna, there being a firm, hard, movable body in front of the elbow; there was also a fracture of the external condyle of the os humeri. The bones of the forearm had a marked tendency to be displaced backward; this fact was explained by the fracture of the external condyle and the fracture of the coronoid process. In this case the same treatment was advised as in the previous case.

The specimens mentioned afford quite positive evidence in regard to the nature of fracture of the coronoid process of the ulna; and if we add to that the evidence of even the few cases we have related, we may conclude:

1. Fracture of the coronoid process of the ulna is rare. It is probable that some of the cases of this injury remain undetected.

2. A backward dislocation of the forearm may be accompanied by a fracture of the coronoid process of the ulna. The dislocating force drives the coronoid process against the trochlea, and the coronoid process is broken off instead of being carried over the trochlea behind the lower end of the os humeri. The dislocating force, in addition to a fracture of the coronoid process of the ulna, not infrequently fractures the anterior part of the head of the radius. This double lesion was shown by the cases from which the specimens were taken; yet in a case of fracture of the coronoid process of the ulna, it would be difficult to detect a fracture of the head of the radius. Sometimes the external condyle is broken off and the bones of the forearm are dislocated backward, while the coronoid process is torn from the ulna and left behind, the condyloid fragment accompanying the head of the radius.

3. In all the specimens there is found some complicating lesion: In two there was a fracture of the external condyle, in one there was a dislocation of the radial head forward, in three there was a fracture of the anterior third of the radial head, in three there was a longitudinal fracture of the radial head, in two there was a fracture of the olecranon, in two the fracture was compound, in the majority of instances there was a dislocation of the forearm; sometimes there was a fall upon the elbow; more frequently there was a fall on the hand. In all the cases described there was some complicating lesion. In one there was a dislocation of the radial head, a fracture of the internal condyle, and a backward dislocation of the ulna; in one there was a partial dislocation of the radial head and a fracture between the condyles, in one there was a compound fracture of the condyles, accompanied by an incomplete dislocation of the forearm; in two the external condyle had been broken off and displaced, being accompanied by the radial head.

Causes.—The coronoid process of the ulna is broken both by direct and by indirect violence. It is probable that indirect violence is the more frequent cause. The patient falls upon the hand, and transmits the force to the elbow; the external condyle may break, or the radial head may split, or both of these injuries may occur, and at the same time the coronoid process of the ulna is broken off and the upper end of the ulna is driven backward and upward. It would seem as if the fracture of the coronoid process of the ulna is only a secondary and complicating injury. The patient may also fall upon the elbow, or be struck upon the elbow by a penetrating or crushing body, and among other injuries of the elbow-joint receive a fracture of the coronoid process of the ulna.

Incomplete fractures of the coronoid process of the ulna have been shown to have occurred, by postmortem dissections: A specimen described and pictured by Gurlt appears to have been an incomplete fracture of the coronoid process.[8] I have not infrequently observed that a patient, having fallen on the hand, and not receiving a dislocation of the bones of the forearm, nor a fracture in the vicinity of the elbow-joint, insofar as such an injury could be detected, has subsequently had an unusual impairment of flexion and extension of the forearm, altogether disproportioned to the degree of inflammation that has been apparent during the process of repair. Can it be that such a patient has had an incomplete fracture of the coronoid process of the ulna?

Has there been an incomplete fracture of the humeral condyles? Or has there been some other obscure injury to the elbow-joint?

Signs.—In case of backward dislocation of the ulna, with or without backward dislocation of the head of the radius, there is some presumption that there has been a fracture of the coronoid process of the displaced ulna. This presumption is not strong, but the surgeon may be aware of it, in order that he may be able to meet in a practical manner a possible fracture of the coronoid process. When the bones of the forearm are reduced, the presumption of fracture of the coronoid process is made stronger if crepitus is detected. Of course, the crepitus may be at some other point, but it should claim the surgeon's attention, in order that he may locate it if possible.

More conclusive evidence of this injury is found in the presence of a hard body in front of the elbow; if the surgeon can move this body to and fro, and if he can detect crepitus while he moves it, he brings out the signs of most importance in proving the existence of a fracture, for he has detected crepitus, as well as mobility, in the continuity of the coronoid process of the ulna. If the surgeon does not see the injury until some time has elapsed after the accident, and there has been a fracture of the coronoid process, we shall have two conditions: (1) There will be an enlargement in front of the elbow; and (2) the flexion of the forearm will be limited. These signs are not pathognomonic. The enlargement must be differentiated from swellings due to other causes; the impairment of flexion must be differentiated from limited motion due to other injuries.

In certain cases it is almost impossible to find the signs of this fracture. So much is this true that sometimes we will be unable to make a diagnosis, even when the fracture exists.

Diagnosis.—If, with a fracture of the external condyle, or a fracture of the radial head, or a dislocation of the radius, we have a backward dislocation of the ulna, which readily gets out of place after reduction, producing crepitus during reduction and redisplacement, and which is accompanied by a firm and movable body in front of the elbow-joint, we are warranted in treating the case as one of fracture of the coronoid process of the ulna. If there is a compound fracture of the elbow, it may be possible to verify the existence of a fracture of the coronoid process by inspection or by means of the probe. If there is an incomplete fracture, there is no way of making a positive diagnosis at the time of the accident. Yet if disability of the elbow follows, we may suppose that there has been an incomplete fracture of the coronoid process. I am inclined to agree with Velpeau that fracture of the coronoid process of the ulna occurs more frequently than surgeons have supposed.

If we take into consideration clinical facts as well as those furnished by dissection and the röntgen rays, it is evident that the surgeon may find, in addition to a fracture of the coronoid process, the following injuries: A dislocation of the bones of the forearm; a fracture of the external condyle of the humerus; a fracture of the head of the radius. The presence of these injuries will doubtless obscure the diagnosis of fracture of the coronoid process, an injury which the surgeon may be led to overlook. Hence, the surgeon should search for a fracture of the coronoid process when he finds other serious injuries of the elbow. He may not detect the coronoid injury, even though it exists, yet if he tries to find it, applying the proper tests, he will have practised with more than ordinary skill, and any disability resulting cannot be set down to his negligence. It may be suggested that he might go further—he might treat the case as one of fracture of the coronoid process, even when he cannot make out such an injury, provided there is evidence to lead him to suppose that it exists.

Treatment.—From a careful consideration of the subject, I am prepared to advise the following plan of treatment: Reduce the dislocated ulna and bring it to a right angle with the humerus; reduce the radial head, if it is dislocated; reduce, so far as possible, any displaced fragments of the radial head or the external condyle; put the arm vertically by the side of the chest wall, and the forearm in a position of midrotation across the chest in front; apply a double-angled splint, well padded, to the inside of the bent upper limb, and retain it in place with a bandage; suspend the forearm and the splint by means of a sling bandage carried around the neck, and fasten the arm by a figure-of-eight bandage passed around it and the body. This is the apparatus employed in the case I have reported, in which there was a compound fracture of the elbow. The right-angled, as well the vertical position of the forearm, is advised, because, under the retention of proper apparatus, the muscles that span the elbow-joint and that act directly or indirectly upon the fragments, are put so much at rest as to prevent their playing the part of material displacing agents. In the meantime, it may be well to remember that two special points of practice may be carried out during the reduction: 1. The ulna should be drawn forward as far as possible, in order to prevent the lower end of the humerus from displacing the broken-off coronoid process. 2. The coronoid fragment may be manipulated and pushed into place, so far as possible, by means of the surgeon's fingers. But the sometimes considerable swelling may interfere with this practice, and it may be that the surgeon cannot always tell whether the reduction of the coronoid fragment is complete or not. In a few days, however, say five or six, the effused fluids will probably be absorbed, then the injured elbow must be reexamined, and the disarranged parts, if need be, gently and firmly pressed into shape by the surgeon's fingers. At the same time, careful passive motion should be made, after which the apparatus should be reapplied. Subsequently this process of work ought to be repeated every two or three days, so long as the patient requires the attention of the surgeon. Even after the apparatus has been laid aside, the tendency to ankylosis may be such as to require passive motion for a long time. This part of the treatment will, for the greater number of patients, be painful, and will demand all the physical courage of the patient, as well as the firmness and perseverance of the surgeon. Of course, if the patient will not permit the surgeon to make the necessary passive motion, he takes upon himself the responsibility for the result, and cannot justly blame his surgeon.

Prognosis.—The prognosis of fracture of the coronoid process of the ulna is modified by the complicating injuries. The disability will be greater, if there has been a fracture of the external condyle; if there has been a dislocation of the bones of the forearm; if there has been a fracture of the head of the radius. In any case, the detached fragment can, perhaps, never be completely reduced, and that will produce deformation of the ulnohumeral articulation, causing impairment of motion at the elbow-joint. In case the union is by ligament, there will result a condition making the ulna liable to backward dislocation; also, it may happen that the head of the radius will not have its normal stability. Adhesions may form and deposits of bone may take place in the joint, of such a nature as to impair permanently the motion of the forearm. In a case of incomplete fracture the fragments may unite and give a result without any disability.

The prognosis is to some extent dependent on the subsequent attention of the surgeon. The reason of this may be gathered from the points made under the head of treatment. If the patient interferes with and obstructs the necessary treatment, the surgeon is not responsible; yet he should advise such treatment as is necessary. Admit that this fracture is very rare, is that any reason why the surgeon should be excused for not keeping it in mind? To be sure, the surgeon may be

excused for making a mistake, after he has applied all reasonable and ordinary tests in making his diagnosis. But he should be informed as to the possibility of there being a fracture of the coronoid process in case of certain injuries of the elbow-joint, and he should be ready to give an opinion as to the possible results of such a fracture. He must not assume that the result will be favorable, for in spite of the most skilful treatment, the elbow-joint may be disabled.

Dislocation of the Ulna.—As it is not easy to apply external violence directly to the ulna this injury is rare. Falls upon the hand will act upon the radius and the effect upon the ulna will be transmitted through the radius; the injuries for the most part will be: A fracture of the lower end of the radius; a fracture of both radius and ulna; a dislocation of the bones of the forearm. Direct violence to the forearm will be apt to cause the following injuries: A fracture of both of its bones; a dislocation of these bones; a fracture of the radius; a fracture of the ulna. If it were easy to apply a dislocating force to the ulna, we might conclude that a dislocation would occur for the following reasons: The fibers of the interosseous ligament run in such a direction, that the upward movement of the ulna would tend to relax them; and if the radius is pronated, these fibers would be more relaxed, and for this reason there would not be any special obstruction. The oblique ligament and the orbicular ligament would perhaps be lacerated or ruptured in order to permit the dislocation of the ulna—but both of these ligaments are lacerated or ruptured in a dislocation of the head of the radius; hence there is no reason why they should prevent a dislocation of the ulna; yet it might happen that the ulna could swing backward and outward behind the head of the radius, without rupture of the orbicular ligament. It might be claimed that the coronoid process would obstruct the dislocation of the ulna; this is true, but it could not always prevent such an injury, for it may break off or override the lower end of the humerus, and then the forearm could be adducted to such an extent as to carry the base of the ulna upward far enough to produce a dislocation, even if the orbicular ligament caused it to swing backward and outward more or less behind the upper end of the radius.

It would seem to be nearly impossible for the ulna to be dislocated by the application of violence to its lower end, unless we take into account those cases in which there has been a fracture of the external condyle; in such a case the ulna is dislocated backward and upward, and is accompanied by the head of the radius and the broken-off external condyle. I recently examined a boy of 10, whose right arm presented this injury, and verified it with the röntgen rays. We note the clinical history of two cases—that of von Pitha, and that of Prof. J. S. Wight.

A girl of 6 and her little brother were engaged in a trial of strength, in which each one sought to move an open door against the other's opposition; the girl stood with her back against the wall and her outstretched hands against the door, the hinges being at her left side. Two other brothers came to the help of the first, and under their combined efforts the girl's left arm suddenly doubled up with an audible snap, and when von Pitha examined it half an hour later, he found "the most distinct picture of a dislocation of the ulna backward." The arm was almost in complete extension, the forearm being slightly inclined toward the ulnar side; the fold of the elbow was somewhat raised by the projecting trochlea; the olecranon was very prominent behind, but barely raised above its normal level; the elbow was notably thicker, but not broader; the head of the radius was in its place; pronation and supination were but slightly restricted, but the least movement of flexion was very painful. Reduction was easily accomplished by grasping with the left hand the humerus above the condyles, and with the right the forearm in such a way that the thumb and fingers especially compressed the ulna, and then supinating, abducting and extending until there was slight dorsal flexion; at this moment he distinctly felt the lifting of the coronoid process, and on increasing the traction it suddenly slipped back over the trochlea with a snap. Pain at once ceased, and the patient could flex the joint. (Von Pitha's case, quoted from Stimson.)

The following report of Professor J. S. Wight's case was read before the Medical Society of the State of New York, 1889:

Mr. P., a laborer, about 50, fell and struck upon his left elbow. In the afternoon of the following day I saw him with Drs. Ford and Welty, who where in attendance. The following facts were noted: The internal condyle and the trochlea were easily felt from behind under the skin and fascia, and their outline could even be seen. The olecranon and the base of the ulna were absent from their normal place; the head of the radius was in its normal relation with the external condyle, and the radius was not dislocated. The olecranon and the base of the ulna could be distinctly made out in front of the lower end of the humerus. The coronoid process of the ulna and the sigmoid notch could be traced under the soft parts in front of the elbow. When the forearm was moved the coronoid process and the olecranon also moved in their abnormal position, as they could be distinctly felt and traced. The forearm could be adducted to a very considerable extent. Flexion of the forearm was mostly absent. The rotation of the forearm was very much impaired. There was a vacuity in the normal location of the upper portion of the ulna, while there was a prominence in front.

It was evident that the upper end of the left ulna had been dislocated, and that it was in front of the internal condyle and the trochlea. That the dislocating force had been applied to the outer and posterior aspect of the upper end of the ulna, and that it had been driven inward, forward, and outward, around the internal condyle, so as to leave it in front of the lower end of the humerus, is shown by the facts enumerated, and is corroborated by the steps taken in the reduction. The internal condyles of this patient were very small, and much less prominent than the normal average. It is evident the injury described would be more apt to take place if the patient has a small internal condyle.

The steps of the reduction were as follows: The patient was on his back in bed, the limb being carried somewhat away from his side. The forearm was firmly supinated and then abducted well toward a right angle with the arm. This maneuver liberated the upper end of the ulna, which was moved inward and downward, the head of the radius being applied to the capitellum, that acted as a fulcrum. The olecranon was then carried backward by forcibly pronating the forearm so as to make the radius press on the ulna. This brought the greater sigmoid notch in such a position as to cause it to embrace the internal condyle and the trochlea. Then the forearm was flexed, and at the same time the upper end of the ulna was pushed downward and inward when the dislocated bone was reduced to its normal place; and when the forearm was extended the unusual deformity had disappeared.

The injured limb was put on a right-angled splint, and the forearm was supported in a sling. The inflammatory swelling was not very marked. Passive motion was made at the end of a week. The splint was kept on a few days longer. Then the patient was advised to begin some voluntary motion of the forearm. The use of the sling was continued about three weeks, when the injured limb had partially regained its strength. There was some disability left six months after the date of the accident.

In this case there was no doubt as to the diagnosis. Of course, the way the dislocation was caused had to be taken on the statement of the patient. Assuming that he fell upon his elbow, the mechanism of the dislocation must have been as we have described it.

In von Pitha's case, the evidence is that the ulna was caught between the wall and the door; we have no evidence as to the rotation of the forearm. We accept the diagnosis and say that the door acted upon the hand, through which the violence was transmitted to the ulna, and that the arm in some way against the wall, could not move backward; the result of this was that the ulna was driven backward and upward, after being avulsed from the upper end of the radius, which still kept its normal relations with the capitellum.

In the absence of more definite observation and information on the subject of dislocation of the ulna, we may reason as follows: In rare instances the coronoid process may be short and imperfectly developed; the radio-humeral connections may be very strong; external violence may be so applied to the hand and the lower end of the ulna as to act obliquely from without inward and upward on the osseous quadrangle of the forearm, as well as backward on the base of the ulna; this action, associated with and assisted by the pull of the triceps brachii, reinforced by the powerful muscles that span the forearm, may result in a dislocation of the ulna backward and upward, with adduction and more or less ex-

tension of the forearm. The coronoid process may be broken off, or may occupy the olecranon fossa of the humerus, causing severe pain, with marked deformity and much disability of the elbow-joint. The reduction may be accomplished by abduction, flexion, and traction on the forearm; or by abduction, and extension to lift and liberate the coronoid process, and then by traction combined with flexion of the forearm. When the reduction takes place, the treatment should be continued with the forearm in the right-angled position; the forearm must be supported in a sling; in a few days the surgeon must begin passive motion of the elbow-joint, and keep it up for a time sufficient to ensure the best result. In one case the passive motion may be required only a few days, and in another it must be continued for many weeks. If the injury to the elbow is very considerable, the right-angled splint will be required for a period of time much longer than the average.

In regard to the treatment, Sir Astley Cooper says:

> This dislocation is more easily reduced than that of both bones; and the best method is to bend the arm over the knee and to draw the forearm downward; the reduction will then be easy, as not only the brachialis muscle will act in resistance, but the radius, resting against the external condyle, will push the os humeri backward upon the ulna when the arm is bent.

That this mode of reduction will not always be successful, is shown by the following case:

> Mrs. L., aged 30, fell, striking with the whole weight of her body on her extended hand. I saw the patient a half hour after the accident occurred, there was no swelling to mask the lesion. The left elbow was flexed at a right angle, and all motions were attended with great pain. After etherization, the ulna was found to be dislocated directly backward at the elbow, shown by the unusual prominence of the olecranon, depressions on either side of the triceps tendon, and resistance to complete extension of the forearm, which was twisted and pronated. The head of the radius rotated in its normal position, and no other lesion, neither dislocation nor fracture, could be detected.
>
> Faithful trials of Sir Astley Cooper's method of bending the arm over the knee, and Mr. Skey's method of extending the forearm directly downward in a line with the upper arm, failed to produce any effect.
>
> I then succeeded in reducing the dislocation by bending the forearm backward beyond a straight line, when, without any extension downward, the ulna returned to its normal position with a slight shock. An internal angular splint was applied, and evaporating lotions recommended. In eight days the splint was removed, the patient allowed to carry the arm in a sling and to execute slight motions of the joint daily. It will be seen that this method of reduction is exactly the reverse of the process by which the bone becomes dislocated, although it returns by the same path by which it escaped; these two facts, it seems to me, should be borne in mind in the reduction of all dislocations, and the additional proof of this statement may be derived from a study of Professor Bigelow's system of reducing dislocations of the hip by manipulation, and of Dr. Crosby's method of reducing dislocations of the thumb.[9]

It would seem as if some mechanical facts could be quite well established in regard to the causation of this dislocation: Inrotation of the forearm is probably present; this attitude is accompanied by extension of the forearm—perhaps, hyperextension; then we may suppose that the forearm is strongly abducted; and finally, there may be marked adduction of the forearm. In Professor Wight's case, the patient stated that he fell upon his elbow, and the causation of the dislocation was explained upon that ground. Yet I see no objection to admitting that this patient pronated his forearm and then fell upon his hand, which carried the lower end of the ulna forcibly outward and backward immediately before he struck his elbow, the base of the ulna being liberated and moved inward, when the fall upon it impelled it into the position in front of the lower end of the humerus.

If the points we have introduced have the dignity of fact we may, perhaps, be warranted in coming to the following conclusions:

1. It is reasonably certain that the ulna is sometimes dislocated without a concomitant dislocation of the radius, even rejecting those cases in which there is an incomplete dislocation of the head of the radius.

2. In one case the forearm will be pronated and somewhat adducted, with the coronoid process lifted out of its socket, and then carried backward and upward, so as to rest upon the posterior surface of the trochlea.

3. In a more marked case, the coronoid process is moved upward until it occupies the fossa for the olecranon; this dislocation is more complete than the former; that is the incomplete form, and is said to be more frequent.

4. In another case, the base of the ulna is carried outward, as well as backward and upward, when it will occupy a position more or less behind the upper end of the radius; one can see how this position can be reached by the patient falling upon the inner side of the base of the ulna after it has been dislocated backward and upward.

5. It has been claimed by some surgeons that the upper end of the ulna is at times dislocated inward, while by other surgeons the existence of this variety of injury has been denied. I am convinced that the former opinion is correct, and that it is possible for us to have inward dislocation of the base of the ulna. This conclusion is corroborated by the facts of my case.

6. Lastly, my case proves that we may have the base of the ulna dislocated in front of the lower end of the humerus.

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CHOLEMIA IN NEURASTHENIA.

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The toxicity of bilirubin has not been the subject of much investigation. According to Bouchard, about two-thirds of the toxicity of bile is due to this cause, pointing to the possibility of a bilirubinemia producing definite symptoms such as are found in those diseases in which this condition exists. Further, there may be definite disease in which the primary pathologic condition is the presence of an excess of bilirubin in the blood.

Bilirubin has the composition $C_{32}H_{36}N_4O_6$, behaving like an acid, forming soluble compounds with metals of the potassium group and insoluble compounds with the metals of the calcium group. The amount of bilirubin in bile from the gallbladder is about 5%, while in bile from a fistula it is about 0.1%. The formation of bilirubin in 24 hours, though variable, will probably never exceed 5.0 gm. under normal conditions. Bilirubin is almost certainly a decomposition product of hemoglobin though the chemic constitution in the various stages of formation is not known. Croftan has produced bilirubin by the action of trypsin on hemoglobin in the presence of glycogen or glucose. Bilirubin is reduced by nascent hydrogen, also probably by bacteria in the intestine into hydrobilirubin, which is further reduced to stercobilin, in which form it is eliminated with the feces. A certain proportion of the hydrobilirubin is absorbed from the intestine and eliminated from the kidneys with further reduction to urobilin. Our present knowledge of these processes is very limited, but that urobilin is derived from bilirubin is almost certain.

The toxicity of bilirubin has not yet been proved by experiments on animals. Bouchard states that 6.0 cc. of bile per kilogram of animal causes death in convulsions,

and that if the bile is filtered through animal charcoal, removing the coloring matter, its toxicity is reduced two-thirds. This reduction in toxicity cannot be caused by the absence of bilirubin, as injections of pure bilirubin have in the experiments of R. Plaesterer produced little or no toxic effect. David Rywosch obtained slight disturbances immediately after the injection, the animals recovering in a few hours. The conditions existing in cholemia are very different from those produced by the injection of the pure substance in healthy animals; in the latter condition the bilirubin is partially reduced to hydrobilirubin and eliminated by the kidneys, but principally it is precipitated into the tissues and thus withdrawn from the circulation. In order to produce the toxic effects of cholemia it would be necessary to inject daily or more often a certain amount of bilirubin until the tissues become discolored and fail to absorb a further quantity.

René Frison has shown that injections of bilirubin produce a hyperexcitability of the muscles to electric stimulation which is antagonistic to the action of the bile salts, injections of the latter producing hypoexcitability to electric stimulation (small doses of the bile salts produce hyperexcitability). These experiments show that bilirubin is toxic and that failure of elimination with saturation of the tissues will produce a toxemia with hyperexcitability of the muscles, simulating the condition known as "nervousness."

The pathologic condition producing cholemia is due either to increased formation of bilirubin with failure of elimination, or to pathologic conditions in the liver causing the bilirubin to be absorbed instead of being eliminated with the bile into the intestine. Plugging of the bile capillaries, cirrhosis of the liver, and cellular insufficiency are probable causes. The pigmentation of the skin renders the diagnosis of cholemia fairly easy. The bile pigment is usually absent from the urine, or is only occasionally present, or there may be an excess of urobilin.

The qualitative examination of the blood for bilirubin is not difficult; the finger of the patient is punctured and about 2 cc. or 3 cc. of blood allowed to drop into a clean, dry cylinder, which is placed in a cool place for 24 hours without shaking, and allowed to clot, the serum drawn off and Gmelin's test applied. The albumin immediately clots from the action of the acid, but in a few minutes a slight blue ring appears just above the point of contact. Gmelin's reaction to bilirubin is positive in dilutions of 1 to 40,000; according to Hayem, the reaction is positive in normal serum; if the serum is diluted with two-thirds normal salt solution and the reaction is positive, cholemia exists. The clinical symptoms of cholemia are sufficiently marked to render the laboratory examination unnecessary except for the purpose of confirmation.

The patients usually complain of nervousness, with a feeling of fatigue, inability to work, with a nervous irritability accompanied by a despondency which may be so great as to become a delusional melancholia. The patient also complains of a form of dyspepsia which he describes as "bad digestion," characterized by a feeling of heaviness in the stomach after eating, followed in an hour or two by thirst with acid eructations; there may be pains in the region of the stomach immediately after eating, which cease after a few minutes, reappearing in three or four hours, and feeling as though they were moving toward the esophagus. There may also be sick stomach, but rarely any vomiting. The appetite remains normal, or may be capricious and exaggerated, rarely decreased, occasionally a true anorexia occurs. It must be borne in mind that a patient's account of what he eats is not reliable, the only way of finding out the condition of his appetite is to test the 24-hour urine for total nitrogen. Constipation is a marked symptom, often with occasional attacks of diarrhea without apparent cause, the stools being acid and burning, containing much bile, and perhaps blood and mucus; the diarrhea may commence with vomiting of bile. The stomach examination shows hyperchlorhydria with excess of organic acids, occasionally hypochlorhydria. The stomach contents are thick and viscid, there being a lack of fluid, and contain much very acid mucus. There is also excessive gas formation. Digestion appears to be rapid and complete.

The pulse is normal or slow, irregular and irritable, the mean blood-pressure is high in proportion to the maximum. There is hyperacidity of the saliva, with a bitter taste in the mouth and a fetid breath. A common symptom is a reversal of temperature, the maximum being at 7 a.m. and the minimum, which may be slightly below normal, at 7 p.m.; there may also be subjective temperature and rarely slight intermittent feverishness. Epistaxis is common, hematemesis rare, retinal hemorrhage may occur in old patients, purpura on the back of the hands is common, cerebral hemorrhage is not uncommon, menorrhagia is the rule.

The skin has a dirty yellowish hue, generally termed "bilious complexion." The discoloration is most marked on the back of the hands and dorsum of the foot; the skin over the knuckles may be of a normal shade or nearly so, while the skin between the joints is pigmented, varying from a dirty yellow to a dark brown; spots may also occur on the palms of the hand, soles of the feet, on the tibia, on the face, and various parts of the body. The whole skin is discolored with deeper coloration in patches in various parts.

The mental symptoms differ in each case and are of no value from a diagnostic standpoint. The prevailing condition is that of melancholia, a deep despondency, looking on the gloomy side of everything, exaggerating every trifle, a fear of some undefined danger, with a desire for death which may, though rarely, cause suicide. "Hearing voices" is also common; the patient may jump from the window to get away from the persecution, but without suicidal intent. From the worry and depression, there is a loss of weight, insomnia and headache, the latter being usually at the vertex or occiput. The mental symptoms develop slowly and insidiously, progressing to insanity.

Physical examination gives little information, the liver may be slightly decreased in size and the spleen enlarged, but these conditions are not constant. The etiology of the condition is not very clear; if it is conceded that bilirubin is only formed in the liver, then an imperfect elimination of bile must be the cause, and in a large number of cases this is undoubtedly the cause. The question whether bilirubin can be formed in other organs is not settled, though it is found in old blood clots and in the pigmented areas of the skin. A certain number of cases appear to be congenital, due probably to the action of maternal toxins upon the liver of the fetus.

In the newly born there is a physiologic cholemia, bilirubin or urobilin being found in large amounts in the plasma. Gilbert and Lereboullet have shown that under normal conditions the blood of the umbilical cord contains three times as much bilirubin as the maternal blood and that the blood of the newly born is a third richer in bile pigment than the blood in the cord; this physiologic fetal cholemia must produce a slight secondary cholemia in the mother. The urine of the newly born contains no bilirubin under normal conditions, and its presence denotes a pathologic cholemic condition.

In most cases there is a history of chronic constipation antedating the dyspeptic symptoms; the toxemia from the constipation and from the organic acids formed in the stomach is probably the cause of the hepatic insufficiency, which affects the bile capillaries, preventing free elimination of the bile, forcing it into the lymphatics; a portion of the liver may only be affected. Boix, Welch, and Friedenwald have shown that the products of gastric fermentation produce cirrhosis of the liver; a

slight angiocholitis from a weak infection may also be a cause. The glycosuric functions of the liver are usually normal, or nearly so. Interstitial nephritis is often associated with this condition; the cholemia may be due to the incapacity of the kidney to eliminate the excess of bilirubin in the blood, but, which is more probable, the presence of an excess of bilirubin in the blood produces the kidney lesion. The excessive formation of bilirubin and the increased destruction of erythrocytes are a cause of the pigmented skin in some cases of anemia, and especially in malaria and other infections, but in the cases under consideration there is no very marked anemia, though occasionally I have found methemoglobin.

In many cases Gmelin's test has been found to be positive in the cerebrospinal fluid in which bilirubin is normally absent. As the cerebrospinal is a special secretion from the ependyma of the ventricles, the vessels of the pia and the choroid plexus, following the perineural sheaths, some escaping from the neural lymphatics, the largest portion finding its exit from the cranium into the longitudinal sinus, acting as a lymph for the nervous system, it is probable that should bilirubin obtain entrance into this special circulation nervous symptoms would result.

The cases of neurasthenia or insanity associated with, and in my opinion, caused by cholemia, are difficult to treat. Mercury in small doses in combination with sodium glycocholate mass has a good effect upon the liver; at the same time the patient should drink large quantities of water containing the inorganic salts of the blood in their normal proportions, to which may be added high injections of artificial serum. The alkalies in full doses are also of benefit, as is also sodium salicylate.

The administration of hepatic stimulants is usually followed by marked physical improvement, the sodium glycocholate mass assisting to clear up the discoloration of the skin. The discoloratian of the skin is a barometer for the condition, the shade deepening usually a day or two before a relapse. In a very typic case at Mount Hope Retreat the patient became of a deep brown color a few days before a severe delusional attack occurred, and as the color of his skin improved so did the mental symptoms.

RECENT VIEWS REGARDING THE TREATMENT OF NEPHRITIS.*

BY

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It is not my intention to discuss all of the measures useful in combating the different forms of nephritis, but only to point out what modern students of metabolism consider radical errors in the generally accepted treatment. I have no new thought of my own to offer, and can only repeat what has already been told us by that master investigator, Prof. Carl von Noorden, and by his pupils; yet the knowledge that most of us still adhere to the time-honored teachings of our fathers, in this field, emboldens me to think an emphasis, in as brief a manner as possible, of Prof. von Noorden's teachings, will not be out of place.

I shall consider only two forms of nephritis, the acute and the chronic interstitial, holding with certain German authors[1] that what is generally discussed as chronic parenchymatous nephritis is really a subacute form of the disease, arising independently or following an acute attack, and passing, as it frequently does, into the chronic interstitial form.

Acute Nephritis.—In acute nephritis, our object has always been, and properly so, to spare the kidney—to put just as little work upon it as possible—and all treatment has been directed toward that end. The treatment usually followed is briefly this: Large quantities of water, generally some alkaline mineral water, are given with the idea of flushing the kidneys and thus forcing them to carry off an increased amount of those obscure poisons which cause uremia. Patients are not only encouraged to drink water, but frequently it is forced upon them in large quantities. Then, with the expectation of carrying off poisons through the skin, sweating is made use of. Next, a diet low in proteids being indicated, the patient is put upon milk alone, quarts of this article frequently being given daily. And lastly, my observation has been that many are accustomed to give diuretics of various kinds.

To discuss these several therapeutic measures in their order, we will consider first the administration of water. It has been shown that of the many substances irritating to the kidney, water is, in the early stages of acute nephritis, one of the most irritant and a substance which is excreted with greatest difficulty.[2] This intolerance of the acutely inflamed kidney to water, I wish to dwell upon with particular emphasis. We are familiar with the diminution and even temporary suppression of urine in acute nephritis, and with the accumulation of water in the tissues, all of which shows the difficulty the kidneys have in dealing with this water. A different state of affairs exists in chronic nephritis, but I shall come to that later.

As to the idea that in thus forcing more water through the disabled organ we are getting rid of an increased quantity of the products of metabolism, it can easily be seen that this is an error. L. Mohr and C. Dapper[3] have shown that while an increase of water administered may cause an increased secretion of urine, the specific gravity is less and the total amount of nitrogen eliminated remains practically the same. Conversely, a moderate diminution in the intake of water causes an increase of the specific gravity of the urine with an unchanged output of nitrogen.

The observers quoted find that with a total ingestion of fluids not exceeding three pints per day the relation between intake and output of water is most nearly even. With great diminution of the fluids administered, however, gradual accumulation of metabolic products does take place, which will be referred to below.

Acting upon these facts, certain clinicians,[1 2 3 4 5 6] chief among whom is von Noorden, limit the administration of fluids in acute nephritis. When the urine is lessened, but not alarmingly so, and edema is present, it is recommended that the total daily quantity of fluids allowed the patient be limited to about three pints. If there is increasing edema and suppression of urine is present or threatened, the smallest quantity of fluids of all kinds should be administered; and in the most obstinate cases it is well for a short while to allow only a little cracked ice. When improvement is indicated by the increased secretion of urine and disappearance of edema, larger quantities of water or other fluids may be allowed.

In those cases in which it is necessary to limit greatly the fluids for some time, drink days (Trinktage) may be inserted, in which for several hours larger quantities of water are given, in order to get rid of the accumulated metabolic products.

In regard to the therapeutic measure of sweating, von Noorden shows that in spite of many investigations no one has yet succeeded in showing that even in the most profuse sweats more than an infinitesimal amount of nitrogenous compounds is excreted through the skin. Sweating gets rid of large quantities of water and of sodium chlorid, but little else.[7 8] Consequently, we see in this measure an excellent treatment for edema, especially when we consider the recent investigations of Widal and Javal,[9] who consider sodium chlorid an important kidney irritant and a principal cause of edema. So we should cause sweat in order to relieve edema, but

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not otherwise; and in connection with these views of Widal and Javal, we can readily see how harmful saline transfusions in this disease must be.

Considering the diet in acute nephritis, it can be shown milk is not so harmless as is generally supposed. In the first place, in prescribing several pints or quarts of milk, as is usually done, we are administering just so much water, which must be taken care of by the sick kidney, and are, as we have seen, bringing in contact with that kidney a most powerful irritant.

Then, too, consider the protein content of the milk. Three quarts of whole milk, as is frequently given daily, contains about 100 gm. of protein, an amount slightly in excess of the protein content of a pound of lean roast beef.[10] Deduct from this the nitrogen excreted in the feces and that of other nitrogenous compounds passed in the urine, and we shall still have about 25 gm. to 30 gm. of urea for the sick kidneys to deal with, an amount greatly in excess of their capabilities. Such amounts of urea circulating in the blood are extremely irritating to these organs. It has been determined empirically that a strong, muscular individual can, without suffering detriment, live for two or three weeks on a diet containing only 60 gm. of protein per day. Yet in the three quarts of milk which we give our nephritic patient we impose upon him, in addition to the water, at least 100 gm. of protein.

Recognizing these facts, we now find many clinicians advising a more liberal diet. Von Noorden has devised a simple diet which meets all requirements in ordinary cases of acute nephritis. He gives daily three pints of whole milk to which one and a half pints of sterilized cream have been added. This mixture contains 50 gm. to 55 gm. of protein, and has a nutritive value of 2,000 calories to 2,100 calories, this being sufficient to nourish an ordinary patient remaining in bed. This diet must be changed to meet the varying requirements of each individual, being cut down in the worst cases, and as the patient improves, such articles as gruels and fruit juices being added.

Of diuretics I shall say nothing, since it is self-evident that to stimulate an inflamed organ already working under the most powerful natural stimulants is worse than folly—just as well administer urea by mouth, it being an excellent stimulant to renal activity.

Before leaving acute nephritis I want to say a word regarding alcohol. We recognize that it is, in certain quantities, an irritant to the kidney even in health, and especially so in disease. We are, however, as always, treating the patient and not the disease, and in those cases in which vomiting is excessive and no food is assimilated, a small quantity of alcohol may do a great deal of good by promoting digestion and thus furthering recovery. We should not forget that it is the total amount of alcohol brought into contact with the kidneys that regulates the harm done, and that no amount of dilution mitigates its action in the least; and in this connection those who prescribe large quantities of koumyss should estimate the total amount of alcohol taken in this way, and it will then be seen that a few teaspoonfuls of whisky are as nothing in comparison.

Chronic Interstitial Nephritis.—The usual treatment is, I believe, here again to give large quantities of water, to send the patient, perhaps, to some watering place to take the water cure. Also, all meats are interdicted, especially red meats, carbohydrates and fats given in quantity and milk recommended as the chief article of diet.

I have not the time to say anything in regard to the most important matter of regulating the patient's habits of life, but must pass on to the question of water. Here our premises are different, but we must come to the same conclusion. Water is excreted by the small, contracted kidney with greatest ease, and yet, in the amounts in which it is frequently taken, it is productive of much harm. In this disease we look to the heart, even more anxiously than to the kidney, for it is the condition of the former organ which largely decides the fate of the patient. If we would have our patients live out a moderately long and comfortable life, we must carefully regulate the work put upon the heart. And yet, think of the enormous amount of work done by that organ in handling the three to five quarts of water some of these patients are daily encouraged to drink. It would, no doubt, be well in most cases if we could forget the kidney entirely and remember only that we are treating a patient with an overworked heart. In this connection I would cite the following case:

A gentleman, H. H., aged 50, consulted me about two years ago because of shortness of breath. I recognized the symptom-complex of chronic interstitial nephritis, and noted considerable enlargement of the heart. He was immediately sent to a highly recommended watering resort, and advised to drink large quantities of lithia water. He soon returned, much worse, and promptly had an attack of cardiac dyspnea in which I feared he would die. Venesection relieved him and after a short while at home, he returned to work and to his former treatment of drinking large quantities of water and milk. The result was that another attack similar to the first came near carrying him away. Bloodletting again saved him, but this time I changed my advice to him, recommending a more liberal diet, and limiting the water taken. He has had no further attacks, the dyspnea is less than it has been in several years, and when I last saw him the cardiac hypertrophy had very appreciably diminished.

While, as I said before, the fluids must be limited to an amount which can be comfortably cared for by the heart—say 2½ pt. to 3 pt. daily—occasional periods of "flushing" may be allowed, without harm, but the constant administration of more than 2½ pt. to 3 pt. of fluids per day will, in these cases, certainly work a hardship upon the heart muscle.

As for digitalis and other diuretics which cause increased blood-pressure, I would quote Paul Edel,[11] who found in increased arterial tension an important contributing cause of nephritis and who concluded that factors which diminish blood-pressure greatly favor recovery in these diseases.

In considering the diet we must not forget that the patient must have nourishment of the proper kind and quantity. An all milk diet is unsuitable and harmful[1 12 13] because it is not sufficient to maintain a proper state of nutrition and because of the large quantities of water thus taken. Too much carbohydrates and fats cause corpulency, which we take for improvement; while in reality few things handicap the cardiopath more than an excess of body fat.

The important question is, how much proteid food must the man suffering with chronic contracted kidney take to preserve the proper nutritive equilibrium. By experiment[1] it has been found that, assuming he takes three glasses of milk, two eggs and the average amount of vegetables, he must still eat daily about a half pound of lean meat (weighed raw). And as far as we are concerned it does not make the least difference whether it be light or dark meat. I had best add, however, that these figures are German and that we Americans can possibly afford to cut them down a little.

A very useful measure, and one which I think is too often disregarded, is that of venesection. By the relief which it affords the heart, an urgent attack of cardiac dyspnea may frequently be tided over. A great deal upon blood-letting in nephritis has been written by the Italian observer Bacelli.[14] This author advises opening one of the veins of the dorsum of the foot, stating this to be more favorable in its effects upon the heart than the opening of a vein in the forearm.

In regard to alcohol, in occasional selected cases in which the patient has been accustomed to a little wine with his meals, it may still be allowed with benefit, but within very strict limits. The trouble here is that the disease will probably last through a number of years and the patient being less directly under his physician's eye, is liable to transgress his liberties.

In summing up, I would say, water in acute nephritis is extremely irritant to the kidney and capable of

much harm; and in chronic interstitial nephritis a certain amount of meat is necessary to a proper state of nutrition, while large quantities of fluids quickly wear out the heart, the organ upon which we must depend.

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SPECIAL ARTICLES

THE AMERICAN MEDICAL ASSOCIATION: ITS ORIGIN, PROGRESS, AND PURPOSE.[1]

BY

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When the American Medical Association was organized in 1846 it is doubtful if there were more than 25,000 physicians in the entire United States of America. It was organized as a representative body, composed of delegates from affiliated societies, colleges, and hospitals throughout the States. It was a body of delegates from all State, district, county, and other medical societies which adopted the code of ethics of the national Association. The apportionment of delegates was on a basis of one for every 10 members of the societies represented. For a number of years the delegate body thus constituted was not too large for the discussion of important subjects and the ready transaction of business.

With the rapid increase in population, the admission of new States to the union, and the settlement of new territories, came a vast increase of physicians, with a corresponding multiplication of State and county societies. Without change in the apportionment of delegates, the national Association developed into a body too large and unwieldy for the transaction of business. The general sessions brought together hundreds of delegates, forming a convention so large that thorough discussion of important questions and judicious action on the same became practically impossible. The delegates attending the annual sessions constituted a body annually changing in personnel. In consequence there could be neither that equal representation of all sections which must obtain in a national body, nor continuation of work from year to year along definite lines.

During these early years it was the steady improvement in the work of the sections which drew the best element of the profession to the annual sessions. Many leaders of the profession in the various States attended the sections in which they were interested, and took no part in the proceedings of the general meetings.

I repeat the recommendation of my distinguished predecessor in this chair, that the secretary of each section should be elected for a term of years. No national society can maintain its efficiency which changes its secretary annually. I would also suggest that the officers of the several sections meet together in conference as soon as practicable after the adjournment of the session at which they were elected, in order that definite plans may be formulated for the scientific work of the next annual session.

The volumes of *The Journal* mark the steady and continued growth of the Association, and likewise bear testimony to the fact that *The Journal* itself has been a potent factor in that growth. Under the judicious direction of the Board of Trustees *The Journal* has steadily advanced as a scientific publication. By the untiring daily services of the present able editor, it has leaped into the very front rank of scientific publications, and in all that a great weekly medical journal should be it has no superior in the world. The power exerted by such a publication as a medium of communication among the members of the Association is inestimable, to say nothing of the other more important functions performed by a great weekly journal.

Previous to the reorganization, the valuable scientific work of the sections constituted almost the sum total of the effective work accomplished by the Association. Matters appertaining to medical education, to the public health, to national legislation, and to the welfare of the profession received no deliberate consideration; and in consequence no decisive action was carried out. The very objects and aims for which the Association was organized were thwarted by the growth of the Association into an unwieldy delegate body. Under the reorganization, the house of delegates, in which the membership of the State societies is proportionately represented, now gives deliberate consideration to those important matters, already indicated, which under the former organization were neglected.

The influence of the revised plan of organization was immediately apparent in the increased attendance at the annual sessions, and the stimulus felt in every purpose of the Association. And each year this influence has grown, until some idea can now be formed of the great possibilities to come from organization on a definite and practical plan. The good results to accrue to the profession as a whole, and to every member as an individual, are so positive that no subject can deserve more careful consideration by this body than that of medical organization. Indeed, it is the fundamental question before us, and on its decision depend the results of all our other efforts in all directions.

If every physician worked alone, relied on his own unaided observation for his knowledge, never looking outside his own scope of view, ignorance would prevail and there would be no progress in medical science. Medicine is not an exact science, and it must from the nature of things continue to be a progressive science. Never before in the history of medicine has such marked progress in all its departments been made as during the present age. The advance of medical knowledge is to be observed first in our medical societies, and afterward in our scientific medical journals. In the medical societies innovations are subjected to criticism and discussion by those competent to judge the merits of scientific contributions. Moreover, there is a stimulus to study and investigation from association with workers in the same field; and one obtains a broader view of every subject so considered. The physician, more than any other professional man, is isolated by the conditions of his life, and to no profession is the educating influence of society work so essential and invaluable. This same condition of isolation is at the foundation, for the most part, of the jealousies and petty bickerings so prevalent in our profession. These troubles are, as a rule, the result of misunderstandings, and are both prevented and corrected by coming together in a society composed of physicians. The lonely worker in any calling is prone to become narrow, suspicious, and morbid. Our medical societies are the great postgraduate schools of the profession, where knowledge is increased and individual character developed.

The profession has a most essential and important duty in relation to the public health. Through no other agency can municipal, State and national health authorities formulate and secure recognition of laws to prevent and control disease. Another duty no less essential is so to regulate and to control medical education that the ignorant and unworthy shall not be admitted to the privileges of the profession, thereby preserving the time-honored standard of professional honor and scientific capability.

To illustrate the magnitude of this work, I mention that, under the stimulus of reorganization after the plan of the committee, the Michigan State Medical Association increased in membership in a year from 452 to about 2,100. Texas increased

[1] President's address, in abstract, at the fifty-sixth annual session of the American Medical Association, at Portland, Ore., July 11 to 14, 1905. Published synchronously with Journal of the American Medical Association, by courtesy of the editor.

the membership in the same time from 382 to 2,510, while several States quadrupled their membership. While these results are phenomenal, it will be realized how much remains to be done when it is considered that few of the States have over 50% of the eligible members of the profession enrolled as members of the society.

This Association was founded with the avowed and specific purpose of elevating the standard of medical education in this country. This subject has constantly received consideration from the Association throughout the years of its existence; and while no distinct and positive reform marks its action, the perpetual demand for improvement undoubtedly molded the public sentiment of the profession which ultimately stimulated action on the part of the medical colleges. The several national organizations and the many State boards which are now dealing with this important professional problem invest the changing conditions with peculiar interest. The present is a transition period in the advancement and reform of medical education in America.

The Council on Medical Education of the American Medical Association has taken up its work during the past year with exceptional energy and good judgment, and is directing its efforts along most practical lines. The first annual conference was held in Chicago, April 20. Representatives of many State examining and licensing boards of the American and Southern Medical College Associations and of the government medical services attended and participated in the discussions of the papers presented. By securing cooperation of the various State and national bodies engaged in this important work, recognizing the varied interests involved in the numerous States of the union, and fostering an intelligent public sentiment, so essential for every great reform, the influence of the Association will be of the most effective character.

The permanent Committee on Medical Legislation was appointed in 1903, and proceeded at once to organize the auxiliary committee provided in the by-laws. With the auxiliary committee, representing every State in the union, and the several medical departments of the government service, every representative of the people in Congress can be reached directly. The importance of this work is so apparent that I need only call attention to it at this time, and urge on all members of the Association the necessity of aiding and cooperating with the committee at all times.

The use of proprietary medicines in the treatment of diseases has become one of the most confusing and demoralizing questions of the day. All proprietary medicines must not be classed as secret nostrums, for there are many honestly made and ethically advertised proprietary preparations that have therapeutic value and that deserve the approval of the medical profession. But there are many preparations offered the profession, which are protected by copyright or trade-mark, with formulas more or less fictitious, and for which are made extravagant claims, which are in fact secret remedies. These preparations are so exploited by the manufacturer that the physician is persuaded to use them instead of writing a prescription; and since they usually bear popular names and plausible therapeutic claims, they appeal to the fancy of the laity. The field is enticing for commercial enterprise, since these preparations in many instances are simple mixtures and contain the most inexpensive drugs. The use of such remedies is both unscientific and unjust, alike to physician and to patient.

The separation of the legitimate pharmaceutic preparations from the class of fraudulent nostrums described is a most difficult undertaking. This perplexing problem forced itself from year to year on the attention of the Board of Trustees, in the effort of the board to keep the advertising pages of *The Journal* free from unethical advertisements. In order to have thorough protection and to make no unjust discrimination, the board has established the Council on Pharmacy and Chemistry to make the necessary investigations. The council is composed of pharmacists and chemists of national and international reputation. It will be the aim of the council to publish in book form a list of the preparations which are not official, yet which conform to the proper ethical standard. The work of the council will be similar to that of the Committee on Revision of the United States Pharmacopeia.

THE DELAY OF OLD AGE AND THE ALLEVIATION OF SENILITY.[1]

BY

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I ask your attention to the question of the practicability of keeping the various functions of the organism, of preserving the physical and intellectual powers, of delaying the onset of degeneration as much as may be, of developing a race less prone to early decay.

Beside this, I wish you to consider the feasibility of so managing the senile when once their degeneration has arrived, that many of their miseries may be avoided, and the remainder lessened in degree. According to our best standards, senile changes are always pathologic, and, therefore, the question of prematurity rests on some pathologic reason for cause, or else upon inherent weakness in human vitality. We are in the habit of speaking and thinking of senility as something separate and apart from disease; as a result, not sufficient attention has been given to the question of prevention of age.

On this subject one can not escape the bold work and bolder thought of Metschnikoff, who says: "In senile atrophy the same condition is always present; the atrophy of the higher and specific cells of the tissue and their replacement by hypertrophied connective tissue."

Obviously, real progress cannot be made without accumulating data from which to deduce positive conclusions. At present we lack information on such simple matter as the effect on the organism of diet, exercise, recreation and rest. There are many opinions, but they are largely theoretic. To begin with, we must know something about the material with which we have to deal—that is, the inheritance, the reserve powers, the internal resistance of the individual. In fact, we know very little concerning the inheritance of any one. All are more or less obscure in the matter of family history. There are courts of records in which are found descriptions of estates, but there are no archives in which are deposited accurate descriptions of the various members of the family itself. We are more particular in relation to our domestic animals especially in the introduction of a new strain. Inquiries are made as to the matter of endurance, longevity, powers of nutrition, good or bad qualities of mind or body, but concerning ourselves, there is an indifference to these important qualities of organic perfection. It would not seem to be altogether impossible to acquire some official record of the physical and intellectual qualities—in other words—strains in men. It is not improbable that if such records were known to exist, they would be not only consulted, but would gradually grow to have an influence on the formation of families. Love is said to know no barriers, but history fails to confirm this view. If a matter of class, of caste, or rank, has been sufficiently important to control the forming of marriage contracts, it is not impossible to conceive of a more intelligent public sentiment which would make an alliance with a family celebrated for physical, intellectual, and moral superiority, a thing greatly to be desired; and conversely, which would lead to the abhorrence of an alliance with a family in which freaks, degenerates and incompetents, or in which a tendency toward lowered nutrition, too early maturity, or premature senility were frequent events.

Naturally, this is not an affair of a generation, but it is unquestionably a doctrine which ought to be taught. The notion that acquired characteristics can have any transmitted influence on the character of the offspring, as formerly taught by the Lamarckians, is still doing great harm. Our young people should be instructed in the fact that the well-being of their posterity depends almost altogether on the native stamina of the germ plasm with which they are endowed. They should be taught to understand the responsibility implied in maternity and paternity, and should be made to recognize that the greatest influence which they can have on the well-being of their children is in the selection of the spouse. The sentiment should be encouraged that parentage is a matter which con-

[1] Abstract of the oration on medicine at the fifty-sixth annual session of the American Medical Association at Portland, Oregon, July 11 to 14, 1905, published by courtesy of the editor of the Journal of the American Medical Association.

cerns the public, and especially posterity, more than it does the parent; that the germ plasm of the race is of all questions the most important which concerns it. Measures could be adopted which would make it more possible than at present for individuals to inform themselves concerning the family characteristics of the contemplated fiancée. A bureau for the precise registration of disease and causes of death, together with the chief facts in family and personal history, might be established through legal enactments, reinforced and made active by a high social sentiment. Such a bureau would afford the needed information, and the special study of the material thus provided would result in the formation of guiding principles in human biology and race development.

I think it will be acknowledged that susceptibility toward tuberculosis, insanity, alcoholism, epilepsy, *et cetera*, is hereditary. Granting this, it follows that a stock could be developed which practically would be immune to those diseases. None but healthy parents shall be allowed to bear children. The brevity of middle age resides, first, in the inherited quality of the organized tissue; second, in the effects of its environal conditions on each organism. We physicians are making it our function to exterminate disease. Why should we be content with merely pointing out that certain disease tendencies are hereditary without taking some practical steps to prevent such disease transmission? As an illustration, it doubtless would be a hardship to the syphilitic to make procreation for him a penal offense. Nevertheless, such a course would be full of beneficence to the race. The amount of nervous and other disease in the innocent resulting from syphilis in progenitors is incalculable. The incompetence and misery which often overtake the unfortunate victim in middle life as the result of syphilis, one or two generations removed, must be considered. A man has not the moral right to beget disease. Notwithstanding that it usually comes through ignorance, it should not be allowed. The profession of medicine should make its convictions bear fruit, and should teach and should be expected to teach that the marriage of a large number of people whose nuptials they now help to celebrate, should either be prohibited or else made barren. It will be admitted that middle age could be considerably prolonged and the infirmities of old age largely mitigated if we could eliminate from the equation that faulty cell metabolism which arrives through inheritance.

Nothing counts more for the moral uplifting of the masses than the awakening of personal interest in all altruistic undertakings, but let me repeat, we must dismiss as untenable the views of the Neo-Lamarckians that acquired characteristics of the individual have any appreciable effect on the offspring. It is acknowledged that the natural tendency of defectives of all kinds is toward extermination. Left to themselves, many of these weak strains would disappear. In making it possible for these strains to continue to blend and to dilute the organic type of the race, we are unquestionably lowering the future standard of internal resistance and we are creating a threat to physical, intellectual and moral perfection.

We have learned that aside from the question of perfect nutrition and proper exercise of function, there is nothing which contributes so unquestionably toward the improvement of organic life as intelligent study of what is known as breeding; in other words, by the intelligent blending of the germ plasm of healthy, resisting, long-lived stock, so that there may result not inferior progeny, but offspring superior to the parental stock.

Are we not as an organic type suffering from an extreme application of individual rights? Are we not inflicting an injury on the race through permitting unwholesome privileges to the individual? Would it not be desirable to have an aristocracy of health? That is to say, to see developed a zeal for physical and intellectual perfection, and to have that zeal supported by public sentiment, so that there might be created something like a caste, the attributes of which should be mental and physical wholesomeness, and from which should be excluded those families which are shown by carefully studied data to come of degenerate or unfit stock? The principle involved does not seem to be any more unethical than the application of the quarantine laws which now operate injuriously to the individual, but make greatly for the public good.

Let us now consider what may be accomplished in the way of postponing age by the reasonable treatment of even the poor material that comes to us. One of these is the improvement in the nutrition of the aged as the result of good teeth. While all recognize the comfort and convenience which we owe to the dentists, it is doubtful if we fully appreciate how much they have contributed to good health and longevity. For another great advance we have to thank the oculists. Who can estimate the additional resources, both of usefulness and happiness, secured through the discovery of spectacles and the operation for cataract? Useful eyesight contributes much toward health and long life, for the reason that it permits of a continued interest in living which otherwise would be lost. It permits of a struggle for an ideal, and in this, real happiness consists. The ideal, of course, is never reached, but, as Montaigne says, the reward is not found in the victory, but in the conflict. Perhaps no one factor is so important in maintaining courage and health in old people as the creation and continuance of some keen interest in life, and this interest, even in the otherwise enfeebled, may be kept up by means of useful eyes. Now comes the time-worn but neglected subject of arterial disease.

Too often our attention is for the first time attracted to arteriosclerosis by the appearance of fibroid or fatty degeneration, exhibiting itself in the figure, form and viscera of the individual. Even after these later changes appear, measures may be adopted to stay the march of the process, but how much better it would be to anticipate it. For instance, by noting the high and rising blood-pressure and the physical signs of cardiac strain, by estimating the decline in urinary solids and the rise in the urotoxic unit, by measuring the decline in respiratory capacity, or by detecting the falling off in cutaneous secretion and the loss of the pliability and softness of the skin, we may make ourselves aware that vascular degeneration is progressing. Heedless of these earlier manifestations, we shall soon awake to the advent of the state which Sir James Paget has so marvelously described.

In the earlier steps of arteriosclerosis, if intelligent study be given to the individual, to his habits of life, to his excesses, and to his deficiencies, very much can be done, and, by thoughtful men, is done, to delay arterial changes and to restore functional activity.

May I trespass so far as to emphasize the importance of judging and correcting the disturbed balance between assimilation and waste—the anabolic and katabolic processes? The facts are so well understood that one hesitates to mention them, and yet just here there is so much neglect of precious opportunity. There are successful methods of lessening the extent of autointoxication and of widening the field for the play of nutritional processes. This is so commonplace that we neglect it. Middle age often brings luxury, and at the same period the contracting arteries narrow the field of physiologic activities. The circumstances of life and the taste of the man are for indulgence in appetite or for excess in undertakings, while the limitations of the organism are increased. There is abundant proof that even advanced arteriosclerosis may be so far modified as to delay the oncoming degeneration and to admit of happy usefulness, but the victim must be content with moderation, and not hope, like Mahomet, to cleave the moon in twain.

Advanced arteriosclerosis is too generally neglected, and intoxications of one kind or another are for the most part responsible for it. Our prophylactic and curative measures are readily understood. It is well known that the relatively great fatality of pneumonia and other acute diseases is explained by the greater toxemia which exists late in life. Beside this, the autointoxication increases the blood-pressure and induces prematurely the fatal events of cerebral, cardiac, and renal diseases. Almost as deplorable as these are the conditions of unnatural excitement, confusion, and depression from which many people unnecessarily suffer in early old age. Still further there may be found in vascular disease the source of much severe pain from which old people suffer. This pain is often referable to the aorta, at times to those forms of aortitis which Clifford Allbutt has described, and also to aortitis and periaortitis of the abdomen, recently so well set forth by Teissier, of Lyons. The latter has also shown that the pain can be amelio-

rated, the progress of the disease stayed, and even great improvement induced by rational treatment. Aortitis and periaortitis often greatly interfere with the flow of blood into the branches of the abdominal aorta, and as a result the organs supplied by these branches suffer special degeneration. In middle age and later life, intractable diseases of the stomach, intestine, kidneys, and other organs could be dealt with much more successfully, and comfortable longevity secured, if more attention were devoted to this pathology.

There remains for brief consideration the question of what can be done to make old age more tolerable; in other words, to remove it to a physiologic basis. We find on close consideration that most of the derangements from which the aged suffer can be classified as belonging distinctly to pathology, but I am afraid there exists a tendency among us to dismiss these matters as necessary corollaries of senility, without giving them that careful consideration which similar processes receive in younger patients. To a few the diseases of old age have a peculiar charm, and these few who give senile diseases special study seem to agree that the complaints of the aged arise for the most part from toxic causes. Even the threadbare question of arteriosclerosis falls to a large extent under this head. There is good reason for believing that this toxic state which underlies the decadence of senility takes its origin for the most part in the colon. Metschnikoff supports the view that mammals have developed a large colon for the purpose of storing the products of digestion, and that man has inherited an enormous colon at the expense of his longevity. This organ harbors an immense number of bacteria leading to fermentations, putrefactions and the production of alkaloids, fatty acids and toxins which man has to combat for the length of his mortal days. While vitality is young and vigorous, the combat is not so unequal, but with failing powers autointoxication prevails in the contest between the internal resisting powers of the organism and the toxic adversary made potent by inheritance. Unfortunately the degeneration of age first produces functional insufficiency of the organs of elimination, then their degeneration, and as a result we find the skin, kidneys, lungs, liver incompetent in each individual overtaken by years. It is somewhat remarkable that facts so well understood as these do not receive more attention.

There are few textbooks, there is little teaching devoted to the pathology and right management of senile disease, and yet experience teaches that few patients respond more satisfactorily than do the aged if their cases are approached with the principles in mind which are here set forth. It is not merely a question of dilation of the colon, nor of any special defect of the organ; even in the absence of these, the source of autointoxication exists and becomes important because of the failure of the skin and other emunctories which, earlier in life, are relatively sufficient. The indications are obvious. In addition to the usual measures for improving the general circulation, old people are benefited by systematic colonic lavage, stimulating baths with superficial massage, prescribed pulmonary gymnastics and an abundant drinking of pure water. It is the almost universal neglect of these matters which has made it seem to me a subject of sufficient importance to call to your attention in a general address. There is something inspiring about youth which gives an incentive to our care of the diseases of childhood and adolescence, but there is something benignant in studying the problems that lead to the postponement of age and to the alleviation of the trials of senility. Old age is repulsive when it is pathologic, but is beautiful when it is physiologic, and it would appear as a fitting theme for the consideration of this great body at its meeting in this new land of the setting sun.

Medical Attendance at Government Expense.—By a recent ruling of the Controller of the Treasury, retired officers of the army ranking as colonel or lieutenant-colonel on duty at educational institutions are entitled to medical attendance and medicines at the expense of the government as are authorized for a major on the active list. The regulations as to such medical attendance and medicines should in all respects be complied with by such officer. Officers on the retired list of the army above the rank of colonel are not entitled to the allowance.

THE SURGEON AND THE PATHOLOGIST: A PLEA FOR RECIPROCITY AS ILLUSTRATED BY THE CONSIDERATION OF THE CLASSIFICATION AND TREATMENT OF BENIGN TUMORS OF THE BREAST.[1]

BY

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SYNOPSIS.

1. INTRODUCTION: Subject of paper. Confusion of nomenclature. National and local differences. Differences between clinician and pathologist. Need of cooperation. Clearing house.
2. MATERIAL: 658 consecutive cases of chronic disease of breast in M. G. H., 100 cases from private practice (70 diagnoses in 199 cases of benign breast tumor in M. G. H.).
3. CLASSIFICATION: Normal anatomy of breast. Relation to tumors and diseases. Classification offered. Variation from other classifications.
4. CARCINOMA: 517 cases. Proportion to other tumors, 68% (70% M. G. H.), (58% J. C. W.). Varieties. Age incidence. Occurrence with or resulting from benign tumors and diseases, as involution, papillary cystadenoma, periductal fibroma, Paget's disease.
5. FIBROEPITHELIAL TUMORS: Fibrous group. Periductal tumors. Fibroma, myxoma, sarcoma. Frequency. Pathology. Clinical symptoms. Diagnosis. Course. Prognosis. Treatment.
6. FIBROEPITHELIAL TUMORS: Epithelial group. Cystadenoma. Fibrocystadenoma: Rare. Epithelial exaggeration of periductal fibroma. Pathologic symptoms. Treatment. Papillary cystadenoma: Pathology. Symptoms. Prognosis. Treatment.
7. HYPERPLASIA. DIFFUSE HYPERTROPHY: (2) Varieties. Rare. Relation to pregnancy and to genital abnormalities. Pathology. Symptoms, Treatment.
8. HYPERPLASIA. ABNORMAL INVOLUTION. "Chronic Cystic Disease." Historic. Synonyms. Pathology. Cystic and proliferative. Types of proliferation. Symptoms. Course untreated. Prognosis. Treatment.
9. CHRONIC INFLAMMATION: Chronic abscess. Ductal mastitis. Relation to lactation. Symptoms. Course. Pathology and treatment. Galactocele.
10. SINGLE RETENTION CYST: Mechanical origin. Rarity. Symptoms. Confusion with abnormal involution.
11. NONINDIGENOUS TUMORS OF BREAST: Sarcoma. "Solid sarcoma." Rare. No relation to breast. Symptoms. Diagnosis. Treatment. Lipoma. Retromammary. Symptoms and treatment. Lymphangioma.
12. SUPERNUMERARY BREASTS: Occurrence. Situation. Tendency to tumor formation.
13. TREATMENT of benign tumors of the breast. "Plastic resection." Indications. Method. Results.

In selecting a subject in a special department of medicine which should be of interest to the great body of members of this Association, it has occurred to me that the discussion of the diseases of the mammary gland would be appropriate, as the classification of the diseases of this organ is at present in a more or less unsettled state, and the operative treatment of many of the benign lesions of the breast is a subject which is still open to discussion.

The great impetus which laboratory work has received in recent years in the various medical centers of this country is evidence that the interest taken in the scientific side of medicine has progressed steadily since the awakening of modern pathology in the middle of the last century. American physicians have proved themselves apt pupils, and the beginnings of the generation which is now passing off the stage have already borne fruit which one cannot regard otherwise than with satisfaction. The time has already arrived when we in this country are no longer content to receive the dictums of science at second hand, but feel quite competent to take the initiative on ourselves, as our many substantial contributions to medical science amply show. Indeed, I feel convinced that the very practical side of our national character is a most valuable quality in enabling us to unravel some of the more complicated questions which have been left unsolved by the foreign scientists. The laboratory worker's range of vision, however, is often at best but microscopic, and it is no wonder that, unaided, he sometimes misinterprets the changes rung by nature on some simple theme. Without the laboratory worker's aid, however, the clinician becomes swamped in a mass of clinical detail from which alone he has again and again been unable to extricate himself. There can be little question that the com-

[1] Abstract of the oration on surgery at the fifty-sixth annual session of the American Medical Association, Portland, Ore., July 11 to 14, 1905. Published by courtesy of the editor of the Journal of the American Medical Association.

bination of energies which accomplishes most in surgical progress is that obtained by the cooperation of the laboratory investigator with the surgeon of clinical experience. Too long have these two departments of medicine conducted themselves independently, and, as I feel, greatly to the disadvantage of them both. The clinician and the laboratory man, however, in these days of specialism seem sometimes in danger of drifting even further apart, and we find some of the modern problems sadly in need of a pathologic "clearing house" to put things on a more practical basis. This, it seems to me, is the moral which must be read between the lines.

In no department of surgery has the classification of the diseases of an organ or the pathologic nomenclature been more confusing than in the case of the diseases of the mammary gland. Not only has the nomenclature of the diseases of the breast been subject to that continual revision to which all medical terms are liable with advancing knowledge, but in this case national and even local systems have added again to the confusion. The French school, the German, the English, and the American schools of medicine rarely agree in their description of any tumor of the breast other than carcinoma, and in the case of the inflammatory or involution changes of the breast the variations in nomenclature are notorious. In view of the always horrible possibility of cancer, however, no woman can regard a lump of any size, shape, or consistency in the breast with equanimity, and in no organ does the presence of disease in its earlier stages furnish fewer data for accurate diagnosis. The cry for aid and comfort is always an urgent one, and it behooves the surgeon, therefore, and the general practitioner as well, to be in a position to meet the demand for accurate information with an intelligent and harmonious reply. Such a statement can be furnished only by bringing the modern views of the pathology of these diseases into focus with the clinical pictures which they present. In the hope that I may pave the way for the clinician and the pathologist to "get together" and to put the classification of diseases of the breast on a more intelligible and practicable foundation, I have selected this field of surgery for your consideration.

The material which has served as a basis of this investigation includes, in all, 758 cases of diseases of the breast; 658 cases were taken from the records of the Massachusetts General Hospital. The diseases of the male breast were purposely omitted from this table of cases, and of the total number of cases of diseases of the female breast, 10 were omitted because of insufficient data to establish a diagnosis. Acute mammary abscess was also excluded from consideration. With these exceptions all cases of disease of the mammary gland are included which entered the Massachusetts General Hospital during the decade from 1895 to 1905. One hundred additional consecutive cases of disease of the breast have been obtained from my own private practice, making up the total of 758 cases of all varieties with which we have to deal. Pathologic reports were available in nearly every case, and in many instances the actual specimens could be obtained and were used for further study and for purposes of illustration. Four hundred and fifty-nine of the hospital cases and 58 of the cases in private practice were cancer of the breast. These were included for purposes of comparison, and in order better to establish the significant data for diagnosis. The greater part of the study, however, has been devoted to the benign diseases of the breast, 42 in private practice, 199 in the hospital series—a total of 241 cases of benign diseases of the breast. These are exclusive of reentries or of cases in which two diseases of different types occurred. As an instance of the confusion in nomenclature I might here state that in 199 cases of benign disease of the breast occurring in the Massachusetts General Hospital in 10 years, 70 different pathologic diagnoses appeared on the record books.

Before taking up the question of classification of the benign tumors of the breast, I would call attention to some anatomic peculiarities of the mammary gland which distinguish it from any other organ in the body. At no time during the various periods of its life history does it have an enduring type of anatomic structure. At birth the gland is represented by a series of radiating ducts with club-shaped extremities, but with no well-developed acini. The epithelium of these ducts is often in a state of active proliferation, causing swelling and tenderness of the gland, with ectasia of the ducts and supposed inflammation (acute mastitis of infants). Infection through the nipple may undoubtedly occur at this time, but in the vast majority of cases the swelling and tenderness are due entirely to the developmental activity of the gland. No material change in the gland takes place from this time until the age of puberty, when the development of the acini first really begins. An enlargement of the breast, with development of considerable tenderness, is often noticed at puberty in males as well as females. The epithelial structures are now beginning to make themselves prominent, but there is also a characteristic change in the tissue immediately around the ducts. The periductal connective tissue becomes transparent and rich in nuclei and presents a strong contrast to the interstitial tissue of the gland. This transparent periductal tissue is peculiar to the mammary gland. It gives the familiar consistency and shape to the virgin breast and enters largely into the newgrowths of the breast, which take origin at this stage of its life history.

At the time of pregnancy another great change takes place in the anatomy of the breast. Now the epithelial activity of the gland is at its height, the acini multiply enormously, the tree may be said to be in full leaf. Meanwhile the interstitial tissue becomes stretched and the periductal tissue becomes less prominent. After lactation many of the acini wither and disappear, the interstitial tissue is relaxed, and the breast becomes pendulous.

The declining period in the life history of the mammary gland may begin in middle life, and presents a condition which is of great interest to the surgeon. The breast, as it were, gradually dries up. Change is noticed especially in the acini and in the interstitial tissue. The epithelium is no longer in a state of active proliferation, but degenerative changes gradually gain the upper hand. Some ducts are choked with epithelial debris, while others are compressed by the contracting interstitial tissue of the gland, and the bloodvessels become thrombosed and disappear. Obstruction takes place here and there, and slight dilation of the small ducts and acini occurs, with induration of the surrounding tissues. If the breast in this condition is gently pressed against the thorax with the flat of the fingers it will be found to contain a large number of small, hard nodules. This condition I have described as the "cobblestone" feel of the breast. It is present in almost every breast at a certain stage of its decline, and should be regarded as a normal condition at this period of the life history of the gland. If the gland is incised these nodules will be found to be composed of fibrous tissue or of small cysts filled with a slightly discolored fluid, which derives its hue from solution of the old blood crystals and pigment from the thrombosed bloodvessels.

As the gland tissue is absorbed after lactation and with advancing years, a certain amount of adipose tissue takes its place, and in old age we find the mammary gland represented merely by a few ducts near the nipple and some small strands of fibrous stroma, the meshes of which are well filled with fat. Keeping in mind the anatomic peculiarities of the mammary gland, we find two distinct structures intimately associated with different periods of its life history. I refer to the periductal fibrous tissue so prominent in early life and to the epithelial elements which at certain later periods, as in lactation, attain the perfection of their development. These two structures are so intimately associated one with another that it is impossible for a neoplastic formation to develop without partaking somewhat of the characteristics of both tissues. The periductal fibrous tissue of the gland cannot form a tumor without involving, to a certain extent, the epithelium of the ducts. Nor can the epithelial elements grow entirely independent of their fibrous support without placing the growth at once in the category of carcinoma. A consistent classification of the tumors of the breast must, therefore, take into consideration both of these elements, and the term "fibroepithelial" tumors, suggested by Ribbert, best meets these indications.

Tumors are classified, however, either according to the nature of the tissue of their origin or the tissue which forms their most significant part. In these fibroepithelial tumors, therefore, certain subdivisions are possible and, indeed, important, according to the tissues which are most seriously involved. A ready distinction is suggested at once between the

tumors which are chiefly of a fibrous character and those in which the epithelium is more involved. This distinction, moreover, has an important clinical value, as there is a tendency of the fibrous group toward sarcomatous change and of the epithelial group toward carcinomatous degeneration. Under fibroepithelial tumors of a fibrous character we may thus distinguish three divisions—the periductal fibroma, periductal myxoma, and periductal sarcoma. Those of the epithelial group we can divide into the fibrocystadenoma and the papillary cystadenoma. In the tumors of the fibrous group the fibrous tissue is the predominant feature of the tumor, epithelium being present, but playing only a subordinate part. In the epithelial group the fibrous tissue is present also, but merely in sufficient quantity as to be regarded as a stroma, the growth of epithelium being the predominant feature of the tumor.

The term hyperplasia I have reserved for those diffuse changes which are characteristic of the breast at certain periods of its life history. From their very diffuse character, these cannot properly be placed within the category of tumor formation. They cover not only that common condition which we find so characteristic a feature of the involution stage of the normal breast and which has passed under the many terms of "chronic cystic mastitis," "cystic disease of the breast," etc., but also that rare diffuse hyperplastic growth of all the elements of the gland at the period of highest physical development—"diffuse hypertrophy." The chronic inflammatory processes of the mammary gland present no special difficulties in classification; but they, as well as the nonindigenous tumors of the breast, are included in the table to round out the classification of all lesions, with the exception of acute mammary abscess.

TABLE I.—CLASSIFICATION OF 758 CASES OF BREAST TUMOR.

	M.G.H.	Private cases.	Total.	Per cent.
CARCINOMA	459	58	517	68
Fibroepithelial Tumors			(86)	(11)
(1) Fibrous type			(70)	(9)
1. Periductal fibroma	48	6	54	7
2. Periductal myxoma	10	2	12	1.6
3. Periductal sarcoma	4	0	4	.5
(2) Epithelial type (Cystadenoma)			(16)	(2)
1. Fibrocystadenoma	3	1	4	.5
2. Papillary cystadenoma	9	3	12	1.6
Hyperplasia				
1. Diffuse hypertrophy	2	0	2	.2
2. Abnormal involution (Cystic, 59) (Proliferative, 56)	87	28	115	15
Chronic Inflammation			(28)	(3.7)
1. Eczema of nipple	2	0	2	.2
2. Chronic abscess	5	0	5	.6
3. Ductal mastitis	3	0	3	.3
4. Tuberculosis	13	0	13	1.7
5. Single retention cyst	5	0	5	.6
Nonindigenous tumors			(9)	(1.2)
1. Sarcoma	4	0	4	.5
2. Lipoma	3	1	4	.5
3. Lymphangioma	1	0	1	.1
Supernumerary breast		1	1	.1
	658	100	758	

The diagnosis of diseases of the breast is undoubtedly the first consideration, and it is for this reason that the cases of carcinoma have been included in the above list and must now receive a brief analysis.

Cancer occurred in 459, or 70%, of all tumors in the hospital cases and in 58, or 58%, of the cases in private practice. The proportion of cancer to other breast tumor was thus greater in hospital cases than in private practice. This is undoubtedly due to the fact that the milder cases of benign tumor are occasionally treated in the outpatient department of a hospital, and, therefore, do not enter into this number of cases, whereas in private practice all cases are included. The fact, however, is obvious that cancer forms the great majority of actual new-growths of the breast, and if the conditions known as abnormal involution are left out of consideration this predominance of cancer over other tumors becomes even more conspicuous.

Paget's disease of the nipple occurred in this number of cases six times in connection with cancer of one or another variety; and eczema of the nipple and areola, similar in every way to Paget's disease, but without evidence of malignancy, was found in two additional cases during this ten-year period.

The forms of cancer which have developed from other benign tumors or conditions of the breast are of special interest to us in this connection. During this period 13 cases occurred in the hospital and 4 in the cases of private practice, in which cancer resulted from, or was present in connection with benign diseases of the breast.

The involution changes of the breast are those which accompany or precede cancer more frequently than any other form of benign lesion, and by far the greatest number of cases of this character shows the picture of adenocarcinoma. Nine cases of adenocarcinoma and three of medullary carcinoma occurred with abnormal involution. Three cases of scirrhus cancer also occurred which presented the lesions of abnormal involution. In the hospital series also two cases of adenocarcinoma occurred in connection with tumors of the papillary cystadenoma type. The significance of these cases of cancer will be especially considered under the discussion of the benign tumors of the breast.

The age incidence of the different tumors and diseases of the breast is a matter of considerable importance in diagnosis. I have arranged Table II to show the number and percentage of cases of the different lesions occurring in each decade of life.

TABLE II.—INCIDENCE OF BREAST TUMORS BY AGE DECADES.

	No. of cases.	10-20 Yrs.	20-30 Yrs.	30-40 Yrs.	40-50 Yrs.	50-60 Yrs.	60-70 Yrs.	70-80 Yrs.	80 Yrs.
Carcinoma	459	.....	6 12%	67 60%	151 70%	130 85%	80 94%	24 100%	1 100%
Periductal sarcoma	4	.....	.....	.....	1 .4%	3 2%	.....	.....	.....
Periductal myxoma	10	.....	5 10%	1 1%	3 1.5%	1 .6%	.....	.....	.....
Periductal fibroma	48	4 45%	26 50%	13 11%	4 2%	1 .6%	.....	.....	.....
Fibrocystadenoma	3	.....	1 2%	2 2%	.....	.....	.....	.....	.....
Papillary cystadenoma	9	.....	.....	1 1%	3 1.5%	2 1%	3 3%	.....	.....
Diffuse hypertrophy	2	1 11%	.....	.....	1 .4%	.....	.....	.....	.....
Abnormal involution	87	.....	7 13%	20 18%	45 21%	13 3%	2 2%	.....	.....
Eczema of nipple.	2	.....	.....	.....	.....	2 1%	.....	.....	.....
Chronic abscess and ductal mastitis	8	.....	2 4%	2 2%	3 1.5%	1 .6%	.....	.....	.....
Single retention cyst	5	.....	2 4%	1 1%	2 1%	.....	.....	.....	.....
Tuberculosis	13	3 33%	3 6%	3 3%	4 2%	.....	.....	.....	.....
Nonindigenous sarcoma	4	.....	.....	2 2%	1 .4%	.....	1 1%	.....	.....
Other nonindigenous tumors	4	1 11%	1 2%	.....	.....	1 .6%	1 1%	.....	.....
Total cases	658	9	58	112	218	154	87	24	1

By this table it is to be seen that the proportion of cancer to other tumors of the breast is a constantly increasing one to the end of life. While between 20 and 30, cancer occurs in only 6% of all cases, after 70 the percentage is 100. All of the 25 tumors of the breast occurring in the Massachusetts General Hospital in 10 years, in women who were over 70, were cancer.

The periductal fibromas, on the other hand, are most numerous in the third decade from 20 to 30, and constitute 50% of all tumors occurring at this period. From this time they gradually diminish in frequency until the sixth decade, after which they disappear.

Of the cystadenomas, we find that tumor (fibrocystadenoma) which is most nearly related to the periductal fibromas appearing in the same decades, the third and fourth, with the majority of the latter, while the papillary cystadenoma, beginning in the

fourth decade, continues to the seventh, and therefore belongs to a distinctly later period of life.

Abnormal involution reaches high-water mark in the fifth decade, 40 to 50, with 21% of the tumors occurring in this period. This corresponds closely with the average age given for abnormal involution, which is from 42 to 45. The age incidence of other diseases is of less significance. The inflammatory processes, as might be expected, occur especially in the early decades, and tuberculosis, in this series of cases, appears to have affected the breasts of younger women than has generally been believed. The nonindigenous sarcomas of the breast, though few in number, occur rather in the middle period of life.

FIBROEPITHELIAL TUMORS.

The fibroepithelial tumors of the breast have been described under so many different names that even an enumeration of all their titles is impossible. Before the middle of the last century all tumors of the breast were regarded as cancer. When Cruveilhier first recognized the existence of benign tumors of the breast, a storm of opposition was raised in the French Academy of Medicine. Cruveilhier described a fibroma of the breast, but this name was not accepted, and a multitude of other names was used to describe the tumors of this character. Thus Johannes Müller adopted the term of cystosarcoma phyllodes; Brodie, serocystic sarcoma; Sir Astley Cooper hydatid tumor; Billroth, fibroma and cystosarcoma; Paget' chronic mammary and proliferous cysts. Adenocele, adenofibroma, fibroadenoma, cystadenoma proliferum and intracanalicular papillary fibroma are all terms which have been used at one time or another to apply to fibrous tumors of the fibroepithelial group. The reason for this diversity of nomenclature is readily found when the attempt is made to reduce the tumor to its component parts. In one case, fibrous tissue predominates, but in another the glandular structures play a more important part. Ribbert undoubtedly reaches the most satisfactory solution of this difficulty by grouping the tumors of this nature apart, not as fibroma or as adenoma, but as fibroepithelial tumors partaking of the character of both tissues. One fact, however, is apparent in the consideration of these cases; and, although long ago pointed out by Billroth, this fact has not received the attention of surgeons and pathologists which is its due. I refer to the fact that the chief constituent of the tumors of the fibrous type is the peculiar transparent periductal tissue of the female breast. This periductal tissue makes its appearance and develops during the period after puberty and before lactation, and it is at this period that the vast majority of tumors of the fibrous type occur. No one can deny that this periductal tissue is essentially a part of the glandular structure of the breast, and its close relation to the epithelium of the ducts and the interdependence of the two tissues make it practically impossible for the one to undergo the changes of tumor formation without the other participating in the process to a greater or less extent. For these reasons, I have recently adopted the term "periductal fibroma" as the most accurate name to apply to the tumors of this character, and this term I venture to offer in the hope that the name "adeno" may be reserved for the tumors in which the epithelial elements play a more important part. Cystic dilation of the ducts or of the characteristic clefts of the periductal fibroma may occur in certain instances, and is due in all probability to the obstruction of the preexisting ducts. The cysts are thus secondary in character and of relatively secondary importance. The clinical characteristics of the more cystic forms of periductal fibroma are as little to be distinguished as their pathologic ones, and although the attempt was made in this investigation to separate the cystic from the more solid tumors of this class, it was soon apparent that no data of value could be obtained. These tumors of the fibrous type may, however, be divided according to their richness in cells or the character of their fibrous tissue, into three groups, fibroma, myxoma, and sarcoma.

PERIDUCTAL FIBROMA.

Under this heading are included the true encapsulated fibroepithelial tumors arising from the periductal fibrous tissue and composed chiefly of this tissue with a certain admixture of epithelial elements. Of this type of tumor there were 48 cases in the hospital series and 6 in private practice, 7% of the whole number of diseases of the breast. They varied greatly in size, from a bean to a cocoanut, and in 15 cases were multiple tumors in one or both breasts. The average size was about that of an English walnut. These tumors presented themselves clinically as hard nodules, freely movable in the breast tissue and under the skin. In gross appearance they presented firm, encapsulated tumors of a whitish, glistening appearance on section, and traversed by many cleft-like cavities, which were rarely distended to such an extent as to justify the term of cysts. Microscopically they showed a firm, fibrous capsule limiting them from the rest of the breast substance, but while some were composed of dense tissue, others were looser in arrangement, and some had even a myxomatous appearance which was attributable to edema.

The clinical features of tumors of this group could be summarized as follows:

The greater number occurred in women of from 20 to 30. Unmarried women were most commonly affected. The tumors were of slow growth and painless, although in certain instances increased sensitiveness at the time of catamenia was recorded. The situation of the tumors in the breast was variable, but the upper outer quadrant was most commonly involved. Amputation was required three times on account of the size of the tumor; in the other cases excision or resection was the operation which was performed. Eight of the 48 cases showed cyst formation to a greater or less extent, but no clinical features served to distinguish them from the other cases. In one case the changes of abnormal involution were present in addition to the fibroma, and in one instance also carcinoma appeared to have originated in a tumor of this character.

PERIDUCTAL MYXOMA.

Ten cases occurred in the hospital series and two in private practice. The myxomas were obviously derived from the tumors of the periductal fibrous group, and differed from them only by their size, which was somewhat greater, and by the gross and microscopic appearance of myxomatous tissue on section of the tumor. It seems probable, as recorded by a number of other writers, that the myxomatous character was due for the most part to the edema of the fibrous tissue which is characteristic of the periductal fibromas of the breast. These tumors occurred later in life than the fibromas, and were of long duration. Rapid growth, however, was not unusual, and the tumors were generally of large size. They were all hard in consistency. Necrosis and ulceration of the skin occurred in two cases, and enlarged axillary glands were sometimes found. Adhesion to the skin was present in one case, in addition to the two which showed ulceration. The pathologic characteristics were those of a large lobulated, well-encapsulated tumor showing cyst cavities or clefts, and a homogeneous transparent stroma. Except for their size it is obvious that these tumors differed in no marked essentials from the tumors of the fibroma class.

PERIDUCTAL SARCOMA.

Four cases of periductal sarcoma occurred in this entire series. These were tumors of the fibrous group with a stroma so cellular as to demand classification as sarcoma. All, however, presented the combination of cellular fibrous tissue stroma and epithelial gland ducts. They were, as a rule, large hard tumors involving the whole breast, the size of a cocoanut or a child's head. They were lobulated and encapsulated, with a marked tendency to ulceration and to cyst formation. The skin above the tumors was as a rule reddened and contained dilated veins, but was not invariably adherent. Axillary glands, as a rule, were not involved. The tumors were of long duration and the patients of advanced age, 44, 51, 53, and 57 years. They were all married women. The growth of the tumor was slow at first, but in two cases had been more rapid within the last few months. Pain was insignificant. Amputation was done in every case.

Periductal sarcoma is thus seen to be merely an exaggeration of the periductal fibroma and myxoma, occurring somewhat later in life and presenting a tumor of greater size. Tumors of this nature, although generally described as sarcoma, have long been recognized to be of a very slight degree of malignancy. Schimmelbusch has perhaps taken the most advanced position in this regard. The encapsulation and the absence of

axillary or pulmonary metastasis would appear to support this contention, and it must be admitted that fibroma, myxoma and sarcoma are all tumors which are very closely related. It is unusual, in fact, to find a specimen of periductal sarcoma which does not show in some portions the characteristic picture of myxoma and of fibroma. The tendency to malignancy of the tumors of this group is only slight, and they cause disturbance principally of a local character. The danger of carcinoma is very remote. They cannot, however, be regarded as innocuous because of the limited tendency which they present to excessive growth and ulceration. For these reasons, operative removal is indicated. This may best be done in the small fibromas by the operation later to be described under the term of "plastic resection of the mammary gland." The larger sarcomas and myxomas, however, require amputation. Although the determination of the end-results of periductal sarcoma has not been worked out, a point not coming within the scope of this paper, my own experience has led me to estimate the tendency to recurrence after operation at a far lower figure than the 50% of Gross.

FIBROEPITHELIAL GROUP—EPITHELIAL TYPE—CYSTADENOMA.

A certain number of tumors of the fibroepithelial group present such marked epithelial changes as to merit description under another heading separate from the tumors of the periductal fibrous type. Tumors of this nature occur in two main classes; both of which, however, are much rarer than the tumors of the fibrous type. For these two classes I have adopted the names (1) *fibrocystadenoma*, and (2) *papillary cystadenoma*. The tendency to the formation of cysts in all inflammatory or neoplastic conditions of the mammary gland has been the cause of great confusion in nomenclature. A sharp line of differentiation, however, should be possible between a tumor of local unicentric growth and a diffuse process involving multiple areas in the gland or even the breast of the other side. For this reason I have seen fit to reject the term of "cystadenoma," for all but local newgrowths of a cystic character, the majority of which are tumors which come under the clinical classification, the papillary type. Multiple diffuse cyst formation in the breast I prefer to class as abnormal involution, and under that heading I will go more at length into the nomenclature of other writers. The occurrence of cystic tumors among the periductal fibromas has already been remarked, and allusion was there made to their purely secondary character.

FIBROCYSTADENOMA.

In four cases in this entire series secondary epithelial newgrowth occurred in a periductal fibrous tumor, producing a combination of epithelial growth in a stroma of periductal tissue. To these tumors I have applied the name of "fibrocystadenoma." They may be regarded as an epithelial exaggeration of the periductal fibroma and their anatomic structure differs from the fibroma only in the secondary proliferation of their epithelium. Tumors of this character have been described by other writers chiefly as adenomas, papillary cystadenomas, cystoadenoma proliferum, polycystoma, cystic fibroma, tubular adenoma, etc. The characteristics of the fibrocystadenomas were as follows: The size of the tumors varied from the size of a walnut to that of a fist. They were lobular and of hard consistency, and movable under the skin. They had in general the appearance of a periductal fibroma, in which the epithelial lined slits greatly predominate. The axillary glands were not enlarged and the nipples were not affected. On section these tumors presented a definite capsule and a lobular structure containing cysts of varying sizes. The cysts presented papillary outgrowths of connective tissue with a covering of epithelium. Microscopic examination showed marked proliferation in the epithelial cells lining the cyst cavity and covering the papillary outgrowths. The ducts appeared to be more involved in these tumors than the acini of the gland. All occurred in young single women, the average age being 32. They were tumors of slow growth and of long duration. Pain and discharge from the nipple were not recorded. All of these tumors were removed by excision without amputation of the breast.

The prognosis of tumors of the fibrocystadenoma type must be regarded as entirely favorable, and removal of the tumor without amputation of the breast gives freedom from recurrence. It must be said, however, that the indication for operation in these tumors is even greater than in the fibromas, because of the epithelial proliferation which they present and the possibilities of its later development into carcinoma.

PAPILLARY CYSTADENOMA.

The last group of tumors of the fibroepithelial type comes under the heading of "papillary cystadenoma." These tumors are perhaps the most distinctive in clinical characteristics of any of the benign neoplasms of the breast. Nine cases occurred in the hospital series and three in private practice. They thus form the majority of the tumors which go to make up the epithelial division of the fibroepithelial group. Tumors of this nature have been described by different writers under many headings. Gross, in his classification in 1880, attempted to restrict to them the term "adenoma" or "true adenoma," with the intention of indicating the growth of glandular epithelium in the form of tubes and ducts which they present. The English writers describe these tumors under the terms villous papilloma, duct papilloma, or by what, in the light of modern investigation, we must consider the misnomer "duct cancer." By the German writers they are commonly known as cystadenoma papillare, polycystoma proliferum, intracanalicular cystadenoma, proliferating cystadenoma, or papillary cystoma.

To my mind the term papillary cystadenoma is the most satisfactory name for tumors of this variety. The histologic picture of a papillary or warty outgrowth is that of a connective-tissue pedicle surmounted by an epithelial covering. Papillary structures of this character are the distinguishing feature of the tumors of this group and serve to differentiate them absolutely from other benign tumors of the breast. Tumors of this character rarely attain great size. Their consistency is hard although fluctuation may occasionally be detected. Adherence to the skin and enlargement of the axillary glands are not to be expected. The situation of the tumor in the breast is generally beneath or in close relation to the nipple. On gross examination these tumors present the picture of a cyst cavity containing papillary or villous outgrowths from its wall. The fluid contents of the cyst is generally hemorrhagic. Microscopic section shows the characteristic papillary outgrowth of connective tissue surmounted by a luxuriant growth of epithelium. The epithelium in these cases presents the characteristics of ductal rather than acinal epithelial cells. The average age of the cases of tumors of this type was 52; and married women, particularly those who have borne children and reared large families, appear to be especially predisposed. As a rule the tumors are of slow growth and of long duration. The most characteristic symptom, however, is the discharge of bloody fluid from the nipple, which occurs in the majority of cases.

Amputation was done in three cases of papillary cystadenoma and resection and excision in six. The absence of recurrence after operation is strong evidence in favor of the right of the tumor to a place in the category of benign neoplasms.

Papillary cystadenoma is thus seen to be a tumor occurring late in the life history of the breast, and one to which the functional activity of the gland in a certain measure predisposes. They are comparatively rare, but their significance must not be overlooked on that account, and it should be noted that although only nine cases occurred during this decade in the hospital series, during that time two cases of cancer were found in which this disease was also present. In fact, papillary cystadenoma has been thought to predispose to a special form of cancer, "adenocarcinoma destruens" (Tietze), and this condition was present in both of the cases to which I have referred. The prognosis then of these tumors with early and complete removal is good. If not removed by operation, however, the danger of malignant sequels is very great.

[*To be concluded.*]

Paterson Guilty of Pollution.—The New Jersey Court of Errors and Appeals affirmed the decision of the Court of Chancery in the suit brought by Mayor Henry W. Doremus and others, of Newark, against the city of Paterson for the pollution of the Passaic river by sewering into it. The city of Paterson filed the appeal.

THE INFLUENCE WHICH THE ACQUISITION OF TROPICAL TERRITORY BY THE UNITED STATES HAS HAD, AND IS LIKELY TO HAVE ON AMERICAN MEDICINE.[1]

BY

GEORGE BLUMER, M.D.,

of San Francisco, Cal.

It is at present almost exactly seven years since, by the terms of treaty following the Spanish war, the United States came into possession of tropical territory in both the eastern and the western hemispheres. It is sufficient if we, as the representatives of the medical profession of this country, take stock of the medical questions involved, discuss their significance, and gauge the effect which they exert on American medicine in general. We may with profit glance at the effect which the study of tropical diseases has had on the comprehension of cognate diseases in the United States, and also observe that it has led to the recognition in this country of unsuspected diseases of wide distribution, and great economic importance.

UNCINARIASIS.

Perhaps one of the most startling results of the increased interest in tropical diseases has been the discovery that large sections of the southern portion of this country are infected with the hookworm, and that large numbers of the inhabitants are suffering from uncinariasis (ankylostomiasis) or hookworm disease. The starting point of this remarkable discovery was, almost certainly, the work of Ashford in Porto Rico in 1900. This observer noted the great frequency of the disease in that island, and pointed out that, to a large extent, the disability and wretched condition of many of the natives were due to it. The credit for drawing attention to the probability that the disease was widespread in our Southern States is due to Charles Wardell Stiles, the zoologist of the Bureau of Animal Industry, and to him also is due the credit of amply proving what he at first brought forward merely as a probability. It would be out of place here to go into detail as to the clinical history of this disease, or the minute structure of the parasite which causes it. Mention must be made, however, of Stiles' discovery that the American uncinaria differs from that of Europe. It will be of interest to consider the geographic distribution of uncinariasis in this country, the main facts connected with the method of its spread, and the evidence as to the likelihood that it will become more widely prevalent than it is at present.

Up to the year 1900 not more than 10 authentic cases of uncinariasis were on record in American literature, though there are statements by southern physicians in the writings of the early part of the nineteenth century which leave little doubt that the disease was then prevalent. During 1900 and 1901, only 19 cases of the disease were reported, but in 1902, following the publication of Stiles' monograph on "The Significance of the Recent American Cases of Hookworm Disease in Man," the number of reported cases rose at a bound to 524. In 1903, 273 cases were reported; in 1904, 334; the number this year will probably not be so large, as the disease is no longer a rarity to southern physicians, and they will not be so apt to record cases. Prior to 1900, then, possibly 10 authentic cases of hookworm disease had been reported; since this date I have been able to collect from the available American literature, 1,212 cases, of which 1,095 originated in the United States, and 117 were imported from other countries, mainly from Porto Rico and the Philippines. Of the latter, 62 are reported by Gunn, and occurred in San Francisco, mainly among Porto Ricans.

If we separate the domestic from the imported cases, we find that this disease is distributed mainly through the Southern States along the seaboard from Virginia to Texas. But it is not confined to seaboard States, for Missouri and Tennessee are also infected. The States in which the disease is known to be indigenous, and probably widely distributed, are Virginia, North and South Carolina, Georgia, Alabama, Florida, Louisiana, Texas, Mississippi, Missouri, and Tennessee. This list of States includes only those in which definite evidence of the presence of the disease has been furnished; it does not include, I think, all of the infected States. Taking into account the similarities of soil and climate, anyone who will take the trouble to make a map of the known infected area, will feel convinced that Arkansas, Indian Territory, Oklahoma, West Virginia, Kentucky, and the southern portions of Illinois, Indiana, and Ohio are also probably infected. The physicians in some States have shown a lamentable lack of enterprise in investigating this disease, while in other States extensive and valuable studies have been made of it. As I have already stated, 1,095 cases of domestic uncinariasis have been reported since 1900, 824 of these have been observed in three States, Georgia, Alabama, and North Carolina. This has been due to the interest and energy of single physicians, in Georgia of Claude A. Smith, Warfield and Harris; in Alabama of E. D. Bondurant; and in North Carolina of Nicholson and Rankin. A knowledge of the distribution of the disease is not merely of academic importance, for the economic aspects of uncinariasis are paramount. There is little doubt that the stigma of laziness and general inefficiency which has attached for generations to the socalled "poor whites" of the South has been earned by them not as a result of qualities due to innate "cussedness, but because a large percentage is suffering from uncinariasis with the resultant physical and mental deterioration. This being the case, a plotting out of the infected areas is one of the first steps which must be taken preparatory to stamping out the disease. This is only one step, however, the others depending on our present conception of its method of spread. At present there are two main theories as to the means by which the parasite gains entrance to the body, the one presupposing that it enters through the alimentary canal, the other that it gains entrance through the skin. The advocates of the former theory hold that polluted drinking water, and food soiled by dirty hands are the means of introduction, the advocates of the latter, that the socalled "ground itch" is the point of entrance of the *Uncinaria rhabdites*. There is a good deal of evidence in support of both views, though the work of Claude A. Smith and of Nicholson and Rankin favors the idea that the cutaneous form of infection is the more important. In view of this the wearing of shoes, especially during the rainy season, becomes the most important prophylactic measure, though the necessity for pure water-supplies and the proper disposal of excreta still remains of great importance. In all such matters the enforcement of hygienic laws can never be obtained without education of those who are at fault. As uncinariasis is essentially a rural disease (I have not been able to find on record a single American case which originated in a city), the question is one which must be dealt with by the country physician, on whose back falls a heavy load of responsibility. The stamping out of this disease is, of course, of great economic importance to the South, but further than this, the question arises whether it may not be of importance to other parts of the country. Is there any chance that uncinariasis may become more widely distributed than it is at present? The question is hard to answer. While there has not been a lack of physicians who have predicted such a spread, it cannot be said that there is much actual evidence that it has occurred. There are a few instances in American literature in which the evidence plainly points to infection of natives from imported cases. Such, for example, are some of the cases reported by Möhlau in Buffalo, where Polish and Italian laborers contaminated a brickyard. That such sporadic outbreaks can and will occur cannot be denied, and physicians all over the country should be on the lookout for them. Whether the disease will ever become widespread outside of its present habitat is quite another story. It must not be overlooked that a variety of circumstances is necessary to its spread; the right kind of soil, sufficient heat, and enough moisture for the parasite, and a lack of certain hygienic precautions on the part of the inhabitants of the area to be infected. The absence of any one of these conditions may be fatal to the dissemination of the disease. Considering the fact that uncinariasis has existed in the South for at least 100 years, and probably longer, it does not seem very probable that it will ever extend much beyond its present limits. What is needed at

[1]Abstract of the oration on State medicine at the fifty-sixth annual session of the American Medical Association, Portland, Oregon, July 11 to 14, 1905. Published by courtesy of the editor of the Journal of the American Medical Association.

present then, is a more accurate knowledge of its distribution, and the inauguration of an educational and sanitary campaign to effect its extermination.

DYSENTERY.

One of the first diseases which the American army surgeons in the tropics had to confront was that scourge of camps, dysentery. The study of the acute form of the disease had received a great impetus from the work of Shiga in Japan, and the investigation of this condition in the American troops in the Philippines, instigated by Flexner, has since been carried on by Strong and Musgrave, J. J. Curry, and Charles H. Craig. It can fairly be said, I think, that our conception of the etiology of dysentery, and particularly of the tropical form, has been completely revised in the last few years, and this revision has depended, in no small measure, on the work of American investigators. So far as tropical dysentery is concerned, the studies of recent years have taught us to recognize two distinct forms, the bacillary and the amebic. The bacillary form, of which the acute dysentery of the tropics represents the most common type, is due to an organism first described by Flexner, and closely allied to the bacillus described by Shiga in the epidemic dysentery of Japan. In the chronic forms the ameba seems to have held its ground as the main causal agent, though the earlier investigators in the Philippines seemed inclined to think that it was usually a secondary invader. Our knowledge of the life cycle of the ameba, of the differentiation of pathogenic from nonpathogenic forms, and of the cultivation of the organism, has been achieved in the past few years, and is associated with the names of Craig, Strong and Musgrave, and Caspar Miller. A more exact knowledge of the complications of dysentery has also resulted from the work of our army surgeons, and it is to be especially noted in this connection that the socalled "tropical" abscess of the liver is nearly always due to the amebic as opposed to the bacillary form.

The most surprising and unlooked-for result of the stimulus given to the study of dysentery has been the discovery that the same group of organisms which are responsible for tropical bacillary dysentery are also concerned in dysentery in this country, and in certain forms of the summer diarrheas of infancy. The first steps in determining these relationships were taken under Flexner's guidance during 1902. In that year Vedder and Duval published the result of their work on the dysentery of the United States, work which was based on both sporadic and epidemic cases, and which showed that certain types of dysentery all over the world were due to the Shiga group of bacteria. In the same year Duval and Bassett published their preliminary announcement of the isolation of bacteria of the same group from cases of infantile summer diarrhea. Subsequent studies, conducted mainly at the large centers in the East, have, in the main, confirmed these observations, and have led to more accurate knowledge of both the clinical and bacteriologic aspects of these two classes of disease. Since 1903 investigation has been mainly focused on the summer diarrheas of infancy, the scourge of the tenement districts of the large cities. These studies have resulted in the classification of *B. dysenteriæ* into three main types, a differentiation which was suggested in part by Gay and Duval in 1903, and which has since been rendered more exact by the work of Hiss and Russel, and that of W. H. Park and his associates. On the clinical side it has been shown that all classes of summer diarrhea are not due to organisms of the dysentery group, but that certain types associated with mucus and blood in the stools are nearly always associated with this group. It has also been shown that these organisms, like the pus cocci, may give rise to primary infections, or may play the role of secondary or terminal invaders. Mild cases without blood in the stools may also be due to this group of organisms, accurate and early diagnosis only being possible in any type of case by means of a bacteriologic examination of the feces. The serum reaction, while of some value, appears late in many cases, and is not available for early recognition of the disease.

In his report on Philippine dysentery, Flexner suggested the possibility of serum therapy in these cases, and the discovery of the relation of *Bacillus dysenteriæ* to infantile summer diarrhea led to attempts at the production of a curative serum. During 1904 such a serum was used in a number of outbreaks of dysentery and summer diarrhea. The results, as a whole, have been disappointing, but will probably improve as we gain in experience. As Booker pointed out in 1903, little is to be expected from the serum in cases in which marked anatomic lesions are present. The work done under the Rockefeller Institute and summarized by Holt shows that the serum to be of value must be used early and in repeated doses. Judging from the results of Shiga in Japan, more is to be expected from the serum treatment, and, as a matter of fact, it has not yet received a fair trial in this country. At present we need more knowledge regarding the natural history of the dysentery germ, its method of introduction, and the distribution of this form of infection in the United States. As regards the means by which the germ is introduced into the body there is already some evidence, both from the Philippines and this country, that contaminated water is at fault, but the whole matter needs more thorough investigation. The distribution of this form of infection has hardly been studied outside of the large cities of the East, and although the severe forms of infantile diarrhea are almost unknown on the Pacific Coast, there is little doubt that they exist in the South and middle West.

YELLOW FEVER.

At the time that the Island of Cuba was occupied by American troops in 1898, yellow fever had been endemic there for 130 years. The disease was not widespread, but was mainly confined to the coast towns, and was particularly prevalent in Havana, the continuous stream of nonimmune Spanish immigrants serving to keep up the infection. A great deal of study had been devoted to the disease at this time, and in the years immediately preceding the Spanish war renewed interest had been awakened by the work of Sanarelli, who claimed to have found the causal agent in his *Bacillus icteroides*. His claims had met a good deal of opposition, especially from Sternberg in this country, and many yellow fever experts did not accept his results. In view of the prevalence of the disease, and the constant menace which it offered to our Southern States, a commission composed of Walter Reed, James Carroll, Jesse W. Lazear, and Aristides Agramonte was detailed to Cuba still further to study it. The commission presumably started out with a disbelief in Sanarelli's work, for certain of the members had published investigations showing that *Bacillus icteroides* was closely allied to, if not identical with, the hog cholera bacillus. While Sanarelli's work was repeated as a necessary precaution, and was proved to be erroneous, the commission concentrated its efforts on the investigation of the relation of the mosquito to yellow fever, a relationship which had been insisted on by Carlos Finlay, of Havana, for nearly 20 years, and which the work of Carter on the time limit between primary and secondary cases rendered probable.

It is not necessary to go into details as to the methods used by the commission in their work, further than to state that they were scientifically above reproach. It will be of interest, however, to consider their results, and the influence which they have had on the practical aspects of yellow fever quarantine. Briefly stated these results were as follows: The proof that Finlay's conception that yellow fever is conveyed by a certain variety of mosquito (*Stegomyia fasciata* of Theobald) is correct; the demonstration that a certain time must elapse after the mosquito is infected before it can transmit the disease, that the causal agent is in the blood during the first few days of the disease, that it can be destroyed by heat, and that it can pass through filters which hold back some of the smaller forms of bacteria; the explosion of the old idea that the disease can be conveyed by fomites, unless these are of a character to allow of transmission in them of infected living mosquitos. These are the main results, and they have led to greater accuracy in our knowledge of the incubation period of yellow fever, increased study of the yellow fever mosquito, and an entirely new conception of the prevention of the disease. Since the original work of Reed, Carroll, Lazear, and Agramonte several independent observers have confirmed their findings, notably Guiteras in Cuba, Marchoux, Salembini, and Simonds in South America, and the working parties of the United States Public Health and Marine-Hospital Service in Vera Cruz, Mexico.

The investigations carried on under the Public Health and Marine-Hospital Service have also supplied many details extending our knowledge of mosquito transmission, of the life history of the yellow fever mosquito, and of quarantine methods against the disease. Few discoveries in medicine have led to more rapid and more brilliant practical results than those above cited. The story of the remarkable change in the yellow fever history of Havana achieved by the work of Gorgas reads almost like a romance. When we consider that the annual number of deaths from yellow fever in Havana for the 10 years preceding the establishment of the mosquito theory averaged about 500, and that under Dr. Gorgas' administration they were cut down in two years to nothing, we can enthusiastically echo the sentiments expressed in a resolution of the conference of State and Provincial Boards of Health, in which they say: "We regard (it) as one of the most brilliant achievements of the application of sanitary science to public health work ever accomplished." Judging from recent reports it seems likely that Gorgas will repeat his Havana success in the Isthmian Canal zone. We have still to discover the cause of yellow fever, and we have still to ward off his advances in our Southern States. So long as our Central and South American neighbors pursue their present lax sanitary methods we are liable to have sporadic outbreaks of the disease in those regions in which *Stegomyia fasciata* can multiply. As Carter and Howard have shown, this mosquito is widely distributed in the subtropic portions of our country, and it behooves us to continue with the work of mosquito extermination, to increase its range as rapidly as possible, and to keep up with old-time strictness the quarantine of vessels, especially sailing vessels from infected ports. The protection of our land boundaries to the south will, of necessity, be much more difficult, and judging from the recent experience in Texas, it is by this route that infection is now most likely to reach us.

MALARIA.

The soldiers returned from Cuba and Porto Rico, and later those from the Philippines, offered an opportunity for the study on a wholesale scale of certain aspects of malaria, an opportunity which was grasped by both military and civilian physicians. During and immediately following the Spanish war, the accomplishment of greatest importance resulting from this study was the overthrow of the refuge of the careless diagnostician, typhomalarial fever. Those physicians who had studied malaria and typhoid fever carefully before the war, and who had controlled their diagnoses by blood-examinations, had always been sceptical about the existence of combinations of the two diseases, and had published from time to time protests against the indiscriminate use of the term typhomalarial fever. It needed the studies of the camp fevers, however, to prove to the satisfaction of most physicians that the combination was exceedingly uncommon, and that when it occurred the malarial fever preceded, or more commonly, followed the typhoid fever. In his remarks on the subject, based on the examination of the blood of 159 typhoid cases at Camp Wikoff, Ewing says: "In no case of undoubted and established typhoid fever were malarial parasites found in the blood in connection with any of these sudden rises of temperature (in typhoid), but only at the onset of the disease or during convalescence"; and later in his article: "In short, in spite of painstaking effort, the attempt to find a case of typhoid fever and active malaria progressing simultaneously was unsuccessful." Aside from this, the clinical study of the disease has received but few important additions since 1898, though mention must be made of the valuable studies of Craig on latent and masked malaria, studies which showed how great the danger to a community might be from soldiers returned from the tropics. In his article published in 1904, Craig states that 25% of the soldiers returning from the Philippines show latent or masked infections, and in a large percentage of these cases the parasite is the estivoautumnal crescent, a stage of the organism capable of development in the mosquito. The same observer cites one company of 60 men, in which 41 had parasites in their blood, and yet but 14 complained of illness.

As far as the parasitology of malaria is concerned, the past seven years have been marked by great simplification in staining methods, but discoveries of paramount importance have not been numerous. The studies of Craig on estivoautumnal fever have tended to confirm the views of the Italian school as to the duality of its parasite, and the work of Ewing on the tertian parasite has thrown light on its early sexual history in the circulating blood. Working Party No. 2 of the Yellow Fever Institute has been able to show that at the time of the malarial chill there is present in the blood a toxin, and have been able to produce a chill by the intravenous inoculation of filtered blood extracted during the paroxysm.

The study of the distribution of the malarial mosquito has been carried on in a few places, in Boston by Theobald Smith, in the valley of the Androscoggin by Jordan, and in Baltimore by Hirshberg and Dohme, but the amount of work which has been accomplished in this direction, and the time and money which have been expended in the attempt to exterminate the malarial mosquito, is almost infinitesimal when we consider the territory affected by the disease, and the losses resulting from it. Woldert estimates the annual financial loss in Texas alone at over $5,000,000, and if all the infected zones in the United States are considered the loss must be appalling. Like yellow fever, malaria is a perfectly preventable disease, but to stamp it out requires either destruction of malarial mosquitos, or protection and sterilization of infected individuals. In this country, mosquito extermination has always been the favored plan, but before it can be accomplished a much more complete knowledge of the distribution of the Anopheles is necessary, and much more thorough education of the public as to the necessity of the work. The danger that the disease may be introduced into uninfected areas by soldiers returning from the tropics is a real one, though, as Theobald Smith has shown, it is unlikely that the estivoautumnal parasite will be introduced into the northern States. Still, we have plenty of southern territory not yet infected, and the extermination of mosquitos would prevent the possibility of such contamination. The question is one which has not yet been seriously considered in large sections of the country, but is, nevertheless, of the greatest importance.

FILARIASIS.

The work of Ashford in Porto Rico, and of Calvert in the Philippines has shown that filariasis exists in both places. In Porto Rico it is probably widely distributed, as Ashford found it in 30 out of 250 soldiers in the Porto Rican regiment. Cases of Gunn and of Brown have shown that infected individuals from this source have already reached this country. In the Philippines the extent of the disease is doubtful. Calvert found the filaria in only 2 out of 426 Filipinos, but it is to be noted that both of these individuals came from the same district, and it is likely that the disease is much more prevalent in some places than in others. In this country several domestic and imported cases have been reported since 1898. It seems extremely likely that the disease is much more common in the South than the literature would indicate, and that it is often overlooked. The fact that one man, De Sassure of Charleston, was able to report 22 cases, most of them originating in the United States, is pretty strong evidence that the disease is much more prevalent than is generally supposed. It is certain that there are present in this country varieties of mosquito capable of transmitting the filaria. As these generally belong to the Culex family, which is widely distributed throughout the United States, it seems possible that there is real danger of new districts becoming infected by returning soldiers or Porto Rican laborers. Before the matter can be definitely settled we need more information as to the exact varieties of mosquito which can transmit filariasis, and their distribution in this country. At present it is quite generally assumed that a number of varieties of Culex, and at least one of Anopheles, can transmit the disease. We believe it was Myers who brought forward evidence to the contrary, and the matter is one which needs further investigation.

MALTA FEVER.

The fact that Malta fever was present in Porto Rico was first demonstrated by Musser and Sailer, and later by Cox and Curry. In 1900 Strong and Musgrave called attention to its occurrence in the Philippines, and still later cases occurring in

returned soldiers were described by Curry and Craig. The number of cases which has been described is small, and practically all of them are in soldiers and sailors. In the seven years which have elapsed since the first case was reported in this country, no case originating here has been described, and it seems that there is little likelihood of the disease becoming disseminated in the United States. It is within the bounds of possibility, as Curry pointed out, that it already exists in the Southern States. In its acute form it is easily confounded with malaria, and in its chronic stages it is generally diagnosed at first as chronic rheumatism. The serum reaction of the disease is so reliable, and the test is so easy of performance, that all cases with doubtful fevers in the Southern States should be subjected to it. It seems highly probable that if this is done systematically the disease will be found to be present.

TRYPANOSOMIASIS.

The relation of trypanosomes to animal diseases was observed in the middle of the last century, and renewed interest has been awakened in these parasites in recent years by the discovery of new forms of animal trypanosomiasis, and by the observations on human trypanosomiasis initiated by the work of Dutton. The presence of the trypanosome infection known as surra among horses and buffalo in the Philippines was noted soon after the American occupation, and the results of American researches on this disease may be found in the valuable monograph of Musgrave and Clegg. Up to 1903 attempts to isolate trypanosomes in pure culture had been ineffectual, but in that year McNeal and Novy published the results of their work on the rat trypanosome. They were able to obtain the first successful pure culture of a pathogenic animal parasite with the absolute demonstration of its causal relation to the disease. Up to this time many observers believed that the different forms of animal trypanosomiasis were due to the same organism, but during 1903 and 1904, Novy, McNeal, and Ward were able to cultivate the trypanosome of nagana or tsetse disease, and also that of Philippine surra, and could demonstrate that the parasites from these different diseases showed variations in structure and mode of growth. Later Lewis and Williams succeeded in cultivating the frog trypanosome, showing that this also differs from the other forms. Some forms of animal trypanosomiasis have appeared in the United States, dourine having been observed in Nebraska. Whether there is any possibility of the introduction into America of human trypanosomiasis will be difficult to determine until we know more of certain forms parasitic in man, and the method of their spread. The form of the disease which is most likely to be found in the Philippines, and hence most likely to appear in this country, is the affection known in India as kala-azar or dum-dum fever. The parasite of this disease, usually spoken of as the Leishman-Donovan body, has recently been shown by Rogers and Chatterjee to belong to a subfamily of the trypanosomes. The method of transmission of this form of the disease to man is not definitely known so far as we can determine; it is probably transmitted like nagana by an insect, most likely a mosquito. The possibility of its introduction into this country will probably depend on the presence or absence of some insect host.

DENGUE.

A disease which does not seem to have received the study which it merits, considering its frequency, is dengue, or breakbone fever. The reports of the Surgeon-General of the army, for 1902 and 1903, show that in the Philippines it caused in the former year 31.67 cases of sickness per 1,000 of strength, and in the latter year, 171.39 cases per 1,000 of strength. Presumably, it has not been carefully studied in the Philippines, or in the South, where it also occurs, on account of its short duration, and the almost absolute lack of fatalities. In the Isthmian Canal Zone, it has been studied in the last two years by Sutton and Carpenter. They have shown that it is probably not of the malarial class of diseases, but that it may, as Graham claimed, be transmitted by the mosquito. Their studies of the blood show that it is one of the diseases accompanied by leukopenia and relative lymphocytosis, and their bacteriologic studies suggest that a bacillus similar to the influenza bacillus may be the cause. The disease is one which, judging by its past history, is unlikely to spread beyond the southern parts of this country. It is worthy of more extended study by modern methods than has yet been devoted to it, and American physicians in the Philippines and the Isthmian Canal Zone will probably have excellent opportunities to clear up many moot points in connection with this disease.

ASIATIC CHOLERA.

During 1902, Asiatic cholera appeared in Manila, spread to the neighboring islands, and caused over 90,000 deaths before it was stamped out. The incidence of the disease among the whites was comparatively small, but among the natives it ran rife, owing to their lack of hygienic precautions and the favorable temperature conditions. In many instances the disease was not carried, as usual, by contaminated water; in fact, in the large cities indirect contact through food was a much more frequent method of spread. On account of the violent local reaction produced by Haffkine's cholera prohylactic, the natives objected to its use, and as the scattered distribution of the population made it almost impossible to control them; this method was given up. The objections to Haffkine's prophylactic led R. P. Strong to attempt the production of a protective serum lacking in the irritating properties of those hitherto used. By a process of bacterial autolysis, followed by filtration of the culture, he was able to produce a practically non-irritating protective. From the experimental standpoint, Strong was able to show that animals and men treated by his method showed but little local reaction, yet developed in their blood substances strongly bactericidal to the cholera spirillum. As the cholera had practically disappeared from the Philippines at the time that Strong's work was completed, there has as yet been no opportunity to put his method to a practical test. From what we know of the disease, there is little likelihood that it will ever get a foothold in this country under our present quarantine regulations.

PLAGUE.

The appearance of plague in several parts of the civilized world in 1900, and especially its appearance in San Francisco and Philippines, called the attention of American medical men to this disease. Luckily, but few of them had an opportunity to study it, and most of the American work on this disease has been done in the Philippines, where, according to Munson, 970 cases with 812 deaths occurred between January, 1900, and September, 1903. It cannot be said that anything startlingly new was discovered during this period, but a good deal of valuable confirmatory work was turned out. In this connection must be mentioned the work of Barker, Flexner, and Novy on various aspects of the subject, the work of Calvert and Ewing on the occurrence of plague bacilli in the circulating blood, and the work of Herzog and Hare on latent and ambulatory plague. The outbreaks of the disease in Australia, in Honolulu, in Glasgow, and in San Francisco have served to warn us of the necessity of being constantly on guard against its insidious approach. The recent outbreak in Leith, in which, as in the San Francisco outbreak, the origin of the disease was in doubt, shows us that at all our seaports constant vigilance must be maintained, and this must be the case so long as endemic foci are present in Asia. In the preventive work in this country, in this as in other infectious diseases, too much praise cannot be given to the officials of the United States Public Health and Marine-Hospital Service, who, beside having to bear the burden of their appointed work, have often also to suffer the slings and arrows of outrageous politicians, and the contumelious taunts of misguided citizens.

CONCLUSION.

We have now considered the more important of the tropical diseases which occur in Porto Rico, the Philippines, and the newly acquired Isthmian Canal Zone, the effects which their study has had on American medicine, and the chances of their becoming domiciled in this country. It has been possible to touch on many important subjects but lightly, and I ask your indulgence for the sketchy manner in which the subject has been treated. Of necessity a number of tropical diseases have not been mentioned, tropical ulcer, frambesis, bilharziasis, and blackwater fever, for example. These diseases are all present

in our tropical possessions, but are of relatively minor importance, and as yet have received but little attention from American observers. Two general conclusions are forced on us as a result of this study, one being that many of the socalled "tropical" diseases are widely scattered through the subtropical portions of this country, the other that the acquisition of tropical possessions by the United States has had a markedly stimulating effect on American medicine, and has led to valuable work, some of it of the very first rank, all of it showing evidences of earnest and painstaking effort.

MISCELLANY

ADDRESS OF THE PRESIDENT OF THE AMERICAN PROCTOLOGIC SOCIETY.[1]

BY

J. RAWSON PENNINGTON, M.D.,

of Chicago.

In compliance with the usual custom, I appear before you tonight to deliver the annual address.

I beg, first of all, to say that it is with feelings of deep gratitude that I acknowledge the distinguished honor which you have conferred upon me by calling me to preside over the deliberations of this, the only proctology society in the world.

The organization of this society has provoked comment, both favorable and unfavorable. It has been said that there is no need for such an organization, that there are already too many medical societies, that the county, State and national societies are all that are necessary. While I admit that there is an element of truth in this statement, I believe, that I will be able to show you, before completing my remarks, that there is a most urgent need at the present time for our existence, and that, while our field of work is necessarily limited, there is in it room for an abundance of original research and experimental work, and improvement in technic, to say nothing of the education of the public, and the reclamation of this specialty from the hands of the quacks.

It would seem but fitting, therefore, that we devote at the outset of our deliberations and discussions a moment to the consideration of the *raison d' être* of our organization. To take up the subject of our genesis and development, as a whole, would carry us all over the field of the synthetic philosopher and biologist; and, after all, land us on the old interrogation mark, "of whence came we, and whither go we?" It is, however, a well-settled proposition that every existence or activity is the inevitable result of antecedent forces and causes.

At the outset, according to Darwin, Huxley, Tyndall, Spencer and others, the entire universe was composed of a homogeneous mass of nebulas, extending far beyond our conception, and, through the intervening ages, there have been an incalculable number of changes and transformations, during which we have passed from an "indefinite incoherent homogeneity to a definite coherent heterogeneity." These changes and transformations result in simultaneous integration of each of the parts into which the whole divides itself. Hence, considering the medical fraternity to have been primarily a uniform aggregate and that today it is a group of dissimilar parts, is further evidence of this continuous differentiation of the aggregate. This continuous differentiation of the medical fraternity has resulted in concomitant integration of the parts with increased definiteness of structure and function. This increased definiteness of structure and function is the outgrowth of higher education.

Our organization exists, therefore, because of these complex changes and forces, within and without, which have wrought out its formation, growth and present vigorous existence. It is one of the many thousands of similar organizations in existence today, which conclusively indicates a tendency toward systematic organization of people having like minds, like pursuits, or like aims. This results not only in benefit to the individuals constituting the organization of the more complex type, but in becoming one of the most marked engines of progress and enlightenment. The evolutionist and sociologist find in such organization further confirmation of the doctrine of development as wrought out by some of the world's great thinkers.

The central idea is change. Nothing stands still. The edict "move on" went forth at dawn of creation, and this continuous changing, although apparently in the direction of greater complexity is, in reality, toward greater definiteness, both as to composition and functionary vitality; hence, heterogeneity in both regards continually increases. Along with this grouping and correlating of individuals into the higher forms of life, as viewed by the sociologist, and in large part, in consequence of it, very gratifying strides have been made in a way of a more extended and accurate knowledge.

In the genesis and development of the science of medicine the same classified relations are manifested by the organization of general and special societies. Special societies arise by a process of natural differentiation out of the great medical fraternity. This differentiation, which is unavoidable, increases its multiformity, and by organization of these resulting groups the medical fraternity increases in definiteness of structure and function. These organizations have multiplied at a more rapid rate in the last 30 years than during any preceding time. Likewise has the advancement in the science of medicine and surgery been greater during this same period than in any preceding epoch.

This process has resulted from concerted and methodic effort on the part of many intrepid leaders and indefatigable workers, whose minds have been ever busy with thoughts of how to forestall disease by searching into its causes and discovering how they may be removed or prevented.

The subject of proctology, however, has been more or less neglected. It has not been given that careful attention it so indubitably deserves, as I hope I may be able to show. It has remained for the founders of this society and their successors to develop and elevate this subject to its rightful dignity. Its field is necessarily restricted, and I am led to conclude from personal experience, that the average physician regards this class of diseases as though they were segregated, so to speak. Because, judging from both lay and professional evidence, it is not uncommon for a physician to accept the diagnosis of a rectal ailment as made by the patient himself, and to prescribe for the patient accordingly, without even so much as looking at the parts, much less making a careful examination. Again, when addressing a class of physicians upon the subject of treating hemorrhoids, for example, it is not at all uncommon for one or more of them to interrupt, and ask: "Doctor, how do you control the hemorrhage?" I usually answer that question by asking another: "How do *you* control the hemorrhage, Doctor, when you amputate a limb?" "Why, I catch up the bleeding vessel and twist it, or tie a ligature around it." I immediately reply: "Certainly, Doctor, that is good practice. Now can you give me any good reason why you should not do the same thing when operating on hemorrhoids?" He sees the point immediately. That question settled, I frequently ask another which is something like the following: "Doctor, how many lectures did you hear on the subject of rectal diseases when you were a student, and about how many clinical cases and rectal operations did you see?" The answer is usually as follows: "I never heard a lecture on rectal diseases in my life, and I never saw more than one or two rectal operations." While occasionally there will be a few who have received good preliminary instruction in this subject, yet many of them have never witnessed a rectal examination nor an operation. These physicians include those of recent graduation as well as those who have been practising for a number of years.

Because of the character of information obtained from the answers to the foregoing questions I sent for and examined the catalog of every medical school in this country that I could obtain, on this subject. I found, with few exceptions, that proctology is taught in the "inferior schools of low grade" and night schools only, or the socalled proprietary institutions or schools for private gain, as they are sometimes stigmatized. Of the 66 schools that belong to the American College Association, eight only make provisions in their curriculums for teaching

[1] President's Address at the seventh annual meeting of the American Proctologic Society, held in Pittsburg, May 5 and 6, 1905.

proctology. It seems to me that every medical college in this country should make provisions for teaching the fundamental principles of this subject. I do not mean by this that specialists should be made of these students, but I do mean that they are entitled to, and that they should receive a foundation in proctology as well as in gynecology, laryngology, genitourinary, and other diseases.

Dr. George W. Webster,[1] of Chicago, in his "Report on Curriculums of American Medical Colleges," shows that the average number of hours of work devoted to gynecology in the 125 medical schools that responded to his request is 181; genitourinary diseases, 74; syphilis and dermatology, 80. No reference whatever is made in this most excellent paper to the subject of proctology. I interpret this to mean, that while some of the colleges make provisions in the faculty lists of their announcements for teaching this subject, they fail to specify the number of hours given it. Does this mean that they, together with those colleges that make no reference in their announcements to this subject, consider gynecology, 181, genitourinary diseases, 74, and syphilis and dermatology, 80 times more important than rectal diseases? We hardly think so, because no class of diseases, in the whole range of medicine and surgery, is productive of more misery and suffering, or more secretly infect and undermine the constitution than those of the anus and rectum. Moreover, none more thoroughly and completely tax the surgeon's ingenuity, skill, and technic than many of those that come within the domain of the proctologist. Then why this inadvertence? I think it is merely an oversight on the part of the colleges, as I do not believe they are unmindful of the high importance of this class of diseases. Since writing the above I see that the American College Association has adopted a uniform curriculum consisting of 27 subjects. No reference whatever is made in this extensive course to the subject of rectal diseases. Yet it provides for 30 hours to be given each to medical jurisprudence, dietetics, hygiene, and public health, and 60 hours each to electrotherapeutics, nose and throat, and genitourinary diseases, and 160 hours to gynecology. In view of the fact that the greatest breach in the science of medicine today is, and always has been, at this very point, and that it is proverbially true that because of this breach the advertising charlatan is more securely intrenched in this than in any of the other departments of medicine, I fail to see the equity in such a curriculum.

It may be claimed by the association of colleges and those schools that do not include proctology in their curriculums, that the chairs of general surgery devote a certain number of hours to these diseases. If so, why are there so many reputable physicians practising in this country who have never heard a lecture on rectal diseases nor witnessed an anorectal examination or operation?

In the last nine years the American Medical Association has considered, in round numbers, 4,200 papers; only 27 of these were on subjects pertaining to rectal diseases, and to my knowledge two of these papers were never read nor published, leaving a possible 25 that were considered, making an average of less than three papers annually. Assuming that these statistics corroborate those of the various State and county societies during the same period, I do not see how anyone could contend that rectal diseases have been regarded in their true significance by these various societies, and yet I presume that every member of this society has at some time or other revolved in his own mind the question as to the advisability of continuing the existence of this organization, and as correlative thereto has attempted to discover whether it was his duty to assist its continuance or to withdraw from it his influence and aid. I confess that at times I have had the same questions under consideration. The spread of organization is so thoroughly widespread, and is usually so illy digested, that the tendency is toward a multiplicity of societies and similar bodies.

At the same time, special societies, in some instances, are necessary for the better development of medical science. They, however, like other organizations, after fulfilling their purpose, will surely pass away, but let it be said, and with truth, that the science of medicine was the better for their having lived. Out of this large aggregation of loosely related bodies there will some time come correlation along lines better understood than those of which we know at the present time. In the meanwhile, the societies must exist in order to fulfil a special function, since there is no niche for them in the general plan of organization.

Individual societies, when there is need for their organization should be encouraged; at the same time the danger of overspecialization must not be overlooked. This reminds me of the admonition of the great Virchow,[1] when in his address at the jubilee of the Berlin Medical Society, October 28, 1885, he said: "Amongst us has arisen a large army of specialists, and it would be useless, or at any rate fruitless, to oppose this development; but I think I ought to say here, and I hope to be sure of the consent of you all when I say it, that no specialty can flourish which separates itself completely from the general body of science; that no specialty can develop usefully and beneficially if it does not ever and ever again drink from the general fount, and if it does not remain in relationship with other specialties, so that we all help one another, and thereby preserve for science, at any rate, even if it should not be necessary for practice, that unity on which our position rests intrinsically and, I may well say also, with regard to the other world."

The organization, however, of the special societies into a national congress, is not, to my mind, conducive to the best interests of the profession. The greatest and most influential medical organization in this country should be the American Medical Association. Every reputable specialist and general practitioner in this country should belong to it, and every special society should be tributary to it. Moreover, every medical college should counsel with its graduates in regard to the advisability and importance of joining it. This should be the imperative duty of every medical college in this country.

"'Tis education forms the common mind:
Just as the twig is bent the tree's inclined."

During the short existence of this society, proctology has made rapid strides. If it continues at its present pace, the time is not far distant when its practice and technic will be second to that of no other specialty or department in the science of medicine. It is not enough, however, that we should succeed as specialists or as a special society, but we should prove a source of strength to the entire profession. The question then is, how can this be best subserved? By continuing our organization independently, or by becoming identified with the American Medical Association, or both? There are good reasons to believe that steps should be taken with the latter object in view. The organization of a distinct section, or becoming identified with some other section in the American Medical Association, should be mutually beneficial, because: 1. Proctologic knowledge would become more thorough, its distribution more widespread, and, therefore, more beneficial to humanity. 2. The advantages of belonging to an active and progressive medical society are not questioned, and the value of that society to one is not so much what he gets out of it as what he puts into it.

The number of men practising our specialty in this country must remain relatively small. The fact that these men are separated over wide spaces, makes it difficult for them to come together. For these reasons our society will probably never have a very large membership, and the attendance must be, of course, smaller still. There is, of course, much pleasure for us in assembling. A body of men working in the same field, whose daily thought is along the same lines, who are confronted with the same problems, and who compete in the same business, must either get along pleasantly or unpleasantly. When that body of men comes together once a year for open discussion, for free criticism, and when their intercourse is on a basis of frankness, the probability that the relations between them will be pleasant, rather than unpleasant, is materially increased. Now, however desirable it might be, we would still scarcely be warranted in continuing this organization, costing,

[1] New York and Philadelphia Medical Journal, July 23-30, 1904.

[1] As quoted by Sir Felix Semon, British Medical Journal, Vol. ii, p. 713, September 24, 1904.

as it does, so much of time and trouble and traveling expenses, if this was the only function which it performs.

However, I have come very definitely to the conclusion that there is at present a distinct field for this society, a reason why it should exist, and that it will exist, prosper and grow in influence, power and size, in proportion as it meets the field which is peculiarly its own.

Because of the foregoing and various other reasons, rectal diseases always have been in the hands of the advertising specialist to an altogether exceptional degree in American cities. Because of lack of education in this subject, the general practitioner gave it but little attention, and therefore brought to it but little equipment. He knew very little about its questions, and he was unable to cope with its problems, and having neither capacity nor desire in this direction, he usually neglected the rectal diseases of his patients. Into the breach thus made by the regular profession the quack very promptly and very willingly stepped.

To begin with, the quack usually had some procedure that had some degree of merit, and giving to the question more thought than the regular practitioner, he soon became fairly proficient. Had this group been composed of bigger men and broader men—men more intellectual or more intelligent or more studious—the amount of information that they should have contributed should have been large, but the entire social and intellectual environment of these men made them routinists and in consequence the old rectal specialist of the advertising type before many years was less able, less serviceable, and less useful to the community than in the earlier years of his practice.

The influence of this combination of social events has been felt in several directions. In the first place, the people accepted the rectal specialist more as a matter of course than they did the advertising men in any other field of medicine. I believe the statement can be maintained that people of a different grade of society unhesitatingly patronize the advertising rectal specialist than those who patronize readily or unreadily the advertising specialist in any other field of medicine. It has had an effect on the profession. Doctors, who otherwise are thoroughly ethical, are thoroughly regardful of all the proprieties that surround their profession, will send their patients to advertising rectal specialists, who would not think of recommending an advertising oculist or an advertising throat specialist. This same class of doctors will also throw the wing of protection around the advertising rectal specialist when he is arraigned in a court of justice in a malpractice suit who would not consider for a moment the lending of such protection to any other variety of advertising doctor. It has also operated to limit the clientele of rectal surgery for the ethical practitioner in that line.

Then, it seems to me, that the work we have to do is to reclaim this specialty for ethical medicine. In this work of reclamation we must bear in mind that effort must be exerted on three groups of men, viz.: The people, the medical profession, and the proctologist.

The People.—In the first place, it must be made plain to the people that rectal surgery is guided by the same psychologic and sociologic principles as is the remainder of surgery. In the nature of things, the rectal surgeon who advertises, and who accepts the position in society that is accorded to the advertiser, cannot grow and expand, but must continually contract and become less and less useful to his clientele. That the man who patronizes the advertiser is not and cannot secure the same grade of service as can be secured from the regular practitioner of rectal surgery, who is constantly rubbing up against bright minds and thereby adding to his stock of information, sharpening his wits, and refining his judgment.

To this another factor is being added in these recent years. Up to the last few years the advertising rectal specialist, like the advertising nose specialist, treated his patient for a moderate fee, and was disposed to prolong the treatment over a considerable length of time. The custom of the advertising man has changed, and now he generally strikes for a large and frequently an enormous fee, much in advance of the fee demanded by the regular rectal surgeon, and attempts to give, therefore, a shorter, more radical, and usually more hazardous service.

The Medical Profession.—I believe that a very considerable part of the work we have to do will be the reclamation of the medical profession itself to the rectal surgeon. It must be taught that rectal diseases, in the first place, require special knowledge and special technical skill, and that nothing is to be gained by the usual nonobservant or almost nonpersonal service which the general practitioner renders a patient with a rectal disease. In addition to this, he must be taught that the best service that his patient can have is to be had from the regular ethical surgeon, and not from the advertising quack, and that it is his duty to see that such information comes to his patient.

The Proctologist.—We rectal surgeons constitute the third group. I need not dwell upon the necessity that we ourselves should work to gain for ourselves the greatest amount of information and knowledge in the largest measure of technical skill.

It is my conclusion that there is work for us to do. There is reason why we should continue in existence. Then let us so deport ourselves as to gain the confidence of the people and of the profession for the ethical proctologist and in addition let us carry on research study and investigation. Let us fairly, frankly, and in a manly way discuss and debate the questions that we consider.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 8, 1905. [Vol. XLV, No. 2.]

1. The Research Idea and Methods in Medical Education and Practice. JOHN MILTON DODSON.
2. Ainhum: With Report of a Case. NELSON D. BRAYTON.
3. Ethyl Chlorid Anesthesia of the Membrana Tympani and External Auditory Canal. E. H. SCHILD.
4. The Transmission of Disease by the Mosquito. JOHN R. TAYLOR.
5. The Elements of Diagnosis of Cutaneous Syphilis. E. A. FISCHKIN.
6. The Practical Significance of Certain Common Symptoms in the Upper Abdomen. J. F. PERCY.
7. Foreign Body in the Bronchus. H. H. GERMAIN.

1.—The Research Idea in Medical Education.—J. M. Dodson discusses certain unsatisfactory conditions at present existing as regards medical education in this country, and also the indications of better things in the future. The remedy he sees for present evils is the general acceptance and introduction into the American medical colleges of the ideas and methods of research. He elaborates on this idea and combats the notion that practical training in medical education and research work are in any way incompatible or even separable. He states that we must accept the fact that research is a legitimate and necessary function of every medical school; the real teachers and masters of any branch of knowledge, he believes, are those who contribute to our knowledge. Even in the clinical branches, they should be independent of other means of support and have hospital facilities at command. The advantages of having the medical school connected with a university are very great, not only because of the association with collateral branches of instruction, but also on account of the better chances of endowments and encouragement of research work. Another essential of the ideal medical school is a better preliminary training of its students than is usually the case at the present time. Even the best of high schools fail to give the requisite preparation, and what they can give, plus two years of the college course, is none too much to be required of medical students. The union of research and instruction in the medical course secures the highest grade of instructors, affords almost the only basis for procuring pecuniary endowment, necessitates a better preliminary training, and provides a method of instruction that inspires and enthuses the student and affords the most logical and effective preparation for his life work.

2.—Ainhum.—Ainhum is so common in India that Crawford found a case in every 2,000 surgical patients in Indian hospitals. The absence of pain or inconvenience in many cases also probably prevents their being reported, especially as the patients are not of a class that ordinarily call for the surgeon's assistance. The ultimate result of the disease, which begins as a crack or fissure, is the spontaneous amputation of one or

more fingers or toes by a gradual circular strangulation. In Brayton's case, complete amputation of one toe and partial amputation of another had occurred before the patient sought medical assistance or appreciated his condition. It is rare in females and is almost exclusively confined to the dark-skinned races, only four cases having been reported in whites. Brayton thinks it probably a trophoneurosis of unknown origin. It is certainly not a form of leprosy as some have considered it. The diagnosis of the disorder is discussed. The principal conditions with which it is liable to be confounded are Raynaud's disease and mutilating leprosy. In the former, we have pain and preliminary lesions, such as bullas and constitutional disturbance. Local lesions also occur in leprosy, but the disease is not likely to be so localized on a certain toe as in ainhum. Paronychia and neurotic ulcer have characteristic symptoms differing from those of this disorder. The treatment is usually unsatisfactory. The cases come too late. If seen early enough linear incision, curetage, and scarification or incision of the constricting band is indicated, but does not prevent a recurrence. When the condition is of long standing or troublesome, amputation is advisable.

3.—Ethyl Chlorid Anesthesia in Otologic Surgery.—E. H. Schild, advocates freezing of the parts with ethyl chlorid in operations on the membrana tympani and external auditory canal. Practical experience, he says, has demonstrated that the danger and inconvenience that might be feared do not exist, and that the subsequent course of cases in which this method of treatment is employed, is not different from that in cases in which ethyl chlorid has not been used. He uses for the ethyl chlorid anesthesia a specially constructed nozle, very slender, about two inches long, and attached to the metal container at an angle so as not to interfere with the view of the parts. By this a very fine spray, not a jet, is easily directed to the desired spot, beginning with one that is almost imperceptible and gradually increasiug its volume and hastening the evaporation by means of a jet of air blown into the canal from a Politzer bag. He usually shuts it off as soon as any aching pain is felt by the patient, and then blows in a little more air and proceeds at once to operate.

4.—Transmission of Disease by Mosquitos.—J. R. Taylor gives a good summary of the facts in regard to the transmission of disease by mosquitos, so far as known. He does not consider any of the possible methods practicable for the complete extermination of malaria, but thinks that the disease can be greatly reduced in prevalence. He believes the methods instituted by Gorgas in Cuba, if thoroughly carried out, would exterminate yellow fever. The same methods will apply for the extermination, or at least the diminution of filariasis. He believes in quarantine in all possible cases of transmission of disease by vessels, that is, a quarantine based on the natural history of the disease as we know it. The isolation of infected persons is essential. For the destruction of mosquitos, sulfur fumigation is most effectual, but has its inconveniences. The powdered leaves of datura (Jimson weed) mixed with saltpeter and burned, 1 oz. of the mixture to each 200 cubic feet of space, is a cheap, safe, and effective method of destroying hibernating mosquitos. Pyrethrum and formaldehyd are said to be effective against hibernating insects, though the former only stupefies the mosquitos, which should be swept up and burned after its use. To exterminate the stegomyia or yellow fever mosquito, all water receptacles should be treated with oil or made insect proof, and drainage and flushing of ditches, etc., should be practised. Drainage methods are even more necessary against the malarial bearing type, which breeds especially in swamps.

5.—The Diagnosis of Cutaneous Syphilis.—E. A. Fischkin concludes from his observations and studies that the elements of diagnosis in cutaneous syphilis have only an arbitrary value. The element of time is unreliable; it may happen that simple sores with consequent gland swellings will develop in intervals corresponding to the periods of syphilis. Regionary lymphadenitis is not absolutely pathognomonic of syphilis. Indolent and indurated inguinal and cubital glands may follow infection of simple wounds. The ensemble of all syphilitic symptoms may be closely imitated by nonspecific dermatoses. Syphilis can only be diagnosed with absolute certainty when based on positive as well as on negative findings, *i. e.*, when we not only find the characteristic elements of syphilis, but when we can with certainty exclude all other skin diseases that may appear with similar symptoms.

6.—See *American Medicine*, Vol. IX, No. 3, p. 94.

Boston Medical and Surgical Journal.

July 6, 1905. [Vol. CLIII, No. 1.]

1. Collaboration in Medical Education. CLARENCE JOHN BLAKE.
2. Research into the Causes and Antecedents o Disease: Its Importance to Society. THEOBALD SMITH.
3. The Improvement in the Treatment of Diabetes Mellitus. ELLIOTT P. JOSLIN.
4. A Treatment Room for Epileptics. EVERETT FLOOD.

3.—Treatment of Diabetes Mellitus.—E. P. Joslin notes the improvement over old methods from the substitution of facts for guess work, in obtaining the percentage of sugar, in the knowledge of the amount of carbohydrates in the diet, and of the presence and the danger of acetone and diacetic acid in the urine. If the urine can be held sugar free for a few days the assimilative function recovers somewhat. If elimination of carbohydrates does not accomplish this the quantity of food must be reduced till the patient just barely holds weight or loses five pounds. The second step is the limitation of albumin. This suffices generally; if it does not, the third resource is a vegetable day, when fat, the allowed vegetables, coffee, tea, beef tea, and alcohol are taken—that is a diet free from both albumin and carbohydrates. The fourth expedient is a starvation day. The most useful carbohydrate food to add first to a strict diet is cream (milk sugar). The quantity may be gradually raised from a half gill to a half pint. Sometimes a pure milk diet is beneficial. A single variety of carbohydrate is better borne than an equivalent of different varieties. Mosse's potato cure and v. Noorden's oatmeal cure depend on this principle. The writer's preference is milk. The change from a general to a diabetic diet should be gradual. The diet causing an increase in acid bodies, it is well to give a teaspoonful of sodium bicarbonate two or three times daily as a precautionary measure. The best fats to use are milk fats and oil. These should be worked into the vegetables by the cook. [H.M.]

Medical Record.

July 8, 1905. [Vol. 68, No. 2.]

1. The Determination of Intestinal Functions by a Test Regimen. HEINRICH STERN.
2. History and Work of the Bedford Sanitarium for Consumptives. ALFRED MEYER.
3. Gastric Ulcer in Children. WILLIAM LELAND STOWELL.
4. Surgical Aspects of Gallstone Disease. JOSEPH WIENER, JR.
5. Observations on a New Method of Eliciting the Extensor Plantar Reflex, and Its Spinal Localization. WILLIAM CHARLES WHITE.
6. Nevus Pilosus Pigmentosus and Other Skin Lesions Treated with Liquid Air. WILLIAM B. TRIMBLE.

1.—The Determination of Intestinal Functions by a Test Regimen.—H. Stern says that while it is impossible to define "normal feces," we may speak of "test feces." Under this term he understands those intestinal contents, irrespective of amount and consistency, which are discharged between 30 and 48 hours after ingestion of known quantities of the food habitually consumed by the individual. Schmidt has done the pioneer work in simplifying coprologic methods and creating a basis for the examination of intestinal function, but the test diet he recommends is open to many objections, especially for use in this country, and Stern describes a diet elaborated by himself, which he considers more practical. Subsistence on this for two days gives satisfactory test feces, which are taken from a portion of the uniform feces discharged between 30 and 48 hours after starting the diet. The methods of examining these are then described at length under the heads of physicochemic examination, macroscopic examination, and microscopic examination.

2.—History and Work of the Bedford Sanitarium for Consumptives.—A. Meyer describes the evolution of this sanatorium from its modest beginning seven years ago. In a series of 500 cases tabulated at the sanatorium, 62% was positive bacteriologically. The diazo reaction, if continually present, justifies an unfavorable prognosis, but its absence does not have the opposite signification. The patients, as far as possible, are set at light forms of work and are usually kept in the institu-

tion about six months. About 17% was discharged last year as either cured or with the disease arrested. He calls attention to a method of percussion used by him which consists in percussing continuously in one spot while the patient takes several breaths, and then repeating the procedure at the point which it is desired to use for comparison. The profession can aid in the work of such institutions by the promptest possible recognition of the disease, not placing too much confidence in a negative sputum examination, and by the prompt recommendation to sanatorium treatment of those unable to care for themselves in the proper way.

3.—Gastric Ulcer in Children.—W. L. Stowell was called to see a girl of 8, who appeared as if dying from pneumonia. The epigastrium was hard and tender to pressure, and the abdomen was moderately distended. The day before she had complained of pain in the stomach, with weakness and pallor, and she died after two hours of delirium during the night of the day when seen. A partial autopsy was performed and two perforated ulcers, each about an eighth of an inch in diameter, were found on the posterior surface of the stomach, about two inches from the pylorus on the lesser curvature. Abstracts of 35 case histories are given, which Stowell says is the list of published cases of gastric ulcer in children. Prognosis does not depend on age, three-fourths of the patients recovering on proper treatment.

4.—Surgical Aspects of Gallstone Disease.—J. Wiener, Jr., says that the ideal method of handling doubtful cases of gallbladder disease is to treat them medically during a few attacks. If one or more small stones are passed, followed by relief of the pain, then an operation is not indicated, because nature may effect a cure, but if one or more severe attacks of colic are not accompanied by the passage of any stones per anum, then an operation is indicated, and indicated long before there has ever been any jaundice. Jaundice is a very inconstant symptom, as it is absent in 80% of gallstone attacks and is but rarely due to an obstructing stone in the duct. To carry out a rational plan of treatment it is necessary to determine the location of the stones and the degree of inflammation present, and careful individualization is necessary. Early operation saves the patient much pain and the dangers of suppuration, cancer, and peritonitis. A cholecystectomy done early is not much more dangerous than an interval appendectomy, whereas stone in the common duct is dangerous not only on account of the difficulty of removing it, but also of the resulting cholangitis with its sequels. The whole trend of modern progressive surgery is toward the removal not only of the gallstones, but also of the diseased gallbladder. Primary cholecystectomy is today the operation of choice in the large majority of cases of gallstones. The reasons for this are manifold: 1. The mortality is very small, lower even than after cholecystotomy. 2. The wound heals much more rapidly. 3. There is no danger of recurrence, either of the cholecystitis, or of the formation of new stones. 4. No secondary operations are necessary.

5.—A New Method of Eliciting the Extensor Plantar Reflex and Its Spinal Localization.—W. C. White describes a new method of eliciting the Babinski reflex. This consists in stroking the inner side of the front of the thigh. The response to the irritation is at times confined to the extension of the great toe, at times to extension of all the toes, and, occasionally, when Babinski's sign is present, but no reflex can be excited by the methods of Oppenheim or Gordon, White's sign is very distinct. In a case of hemiplegia, with complicating edema all four reactions were present at first, but when the edema developed, the Oppenheim and Gordon responses disappeared, but irritation of the sole of the foot and the front of the thigh gave a definite extension of the great toe. The spinal localization of these reflexes is also discussed, and it is stated that as the extensor longus hallucis is represented in the anterior horn of the fifth lumbar segment, it is evident that from the wide district concerned in the production of the reflex, it must be possible to reach this portion of the cord.

6.—Nevus Pilosus Pigmentosus and Other Skin Lesions Treated with Liquid Air.—W. B. Trimble describes the very good results obtained in hairy moles by the use of liquid air. He believes that there is no doubt of the beneficial effect of liquid air in epithelioma, lupus, and nevus pilosus pigmentosus. In cases of nevus vasculosus there is slight improvement, but insufficient experience as yet prevents a more definite statement. The histories of 11 cases of these affections are given in brief, either cure or great improvement following the application of the liquid air. The fluid was applied by means of a pine or orangewood stick with a piece of absorbent cotton twisted around the end, and the effect produced depends largely on the degree of pressure exerted in making the application. Light pressure causes a slight reaction and inflammation, all that is needed in some instances (erythematous lupus, for example). Medium pressure will cause a superficial slough; this medium pressure is the kind called for in the hairy mole. Hard pressure will cause a deep slough (sometimes used on an epithelioma). A certain amount of scarring has followed in most cases, but the cosmetic effect has been far superior to the original lesion, and by careful application it may be reduced to a minimum. The liquid acts as a local anesthetic and the only sensation produced is one of slight tingling or burning.

New York Medical Journal.

July 1, 1905. [Vol. LXXXII, No. 1.]

1. Varicella Gangrænosa, with Report of a Case. MAJOR CHARLES F. KIEFFER.
2. An Improved Method of Making Fresh Blood Mounts. GEORGE R. PLUMMER.
3. Primary Jugular Bulb Thrombosis in Children, as a Complication of Acute Purulent Otitis Media: With Report of Cases. JAMES F. MCKERNON.
4. Six Lectures on the Diseases of the Blood: Technic. JOHN M. SWAN.
5. The Scientific Spirit versus Commercialism in Medicine. W. L. CONKLIN.
6. The Etiology of Bradycardia. J. E. GREIWE.
7. How Far Shall We Go in Performing Multiple Operations at One Sitting? H. A. ROYSTER.
8. Fibroma of the Sheath of a Tendon. FRANZ TOREK.

1.—Varicella Gangrænosa.—C. F. Kieffer reports a case in a child of 16 months. In this case only a small proportion of the vesicles became gangrenous. The child seemed to be otherwise in good health. One large lesion near the end of the sternum penetrated so deeply that it was seriously feared that it might perforate the abdominal wall. Direct examination of the exudate as well as inoculations, showed only the presence of *Streptococcus pyogenes* and *Staphylococcus pyogenes aureus*. [C.A.O.]

2.—Blood Mounts.—G. R Plummer's method consists in placing a cover-slip in the middle of a slide, or two of them on a slide for that matter, with an edge of the slip and one of the slide on a line, and allowing the blood to flow between them by capillarity. As soon as the blood begins to spread, the apparatus must be taken away or rouleaux and crowding will result. He holds the glasses together with a dab of hot sealing wax. [C.A.O.]

6.—Bradycardia.—J. E. Greiwe says that we find this phenomenon of slow pulse in cardiac cases to show itself most frequently in connection with fatty degeneration of the heart: next we notice that the phenomenon occurs wherever we have marked arteriosclerosis of the coronary arteries. We further note that in all other conditions, such as aortic stenosis, mitral stenosis, pulmonary stenosis, acute dilation of the heart, and in rare cases of pericarditis we may reduce the conditions to this—mechanical interference with the blood supply to the heart muscle, interference with the nutrition of the heart, interference with the metabolism of the heart muscle—hence a slower response, hence a prolongation of the refractory period. Interstitial myocarditis is evidently not an essential condition in the production of the slow pulse. It is one of the results of atheroma of the coronary arteries. [C.A.O.]

7.—Multiple Operations.—H. A. Royster, speaking particularly with reference to gynecologic cases, says that when multiple operations are demanded, it is better to do them all at one sitting. The patient is thus spared taking an anesthetic again, she is saved the additional suffering and confinement to bed, and the chances for cure are equally good. There are limitations, however, to the number of operations. The chief matter is the amount of time to be consumed and an estimate must also be made of the patient's powers of endurance. [C.A.O.]

8.—Fibroma of Tendon Sheath.—Franz Torek reports a case of fibroma of the sheath of the flexor tendons of the index finger, taking its origin at the first phalanx and thence growing upward, downward, to the right, to the left, and around the finger to its dorsal surface. It was successfully removed. [C.A.O.]

Medical News.

July 8, 1905. [Vol. 87, No. 2.]

1. Etiology, Diagnosis and Treatment of Benign Stenosis of the Pylorus. GEORGE EMERSON BREWER.
2. Case of Peptic Ulcers after Gastroenterostomy Causing Gastrocolic and Jejunocolic Fistulas and of Spontaneous Closure of Gastroenteroanastomosis. J. KAUFMANN.
3. Some Observations on the Relations of the Gastrointestinal Tract to Nervous and Mental Diseases. ROBERT COLEMAN KEMP.
4. Syphilis of the Liver, Sclerogummatous Type. JOHN FUNKE.
5. Some Remarks on Sudden Blindness Following Orbital Injuries: Report of Case. H. B. DECHERD.
6. The Sexual Necessity. E. L. KEYES.
7. Social Prophylaxis and the Church. REV. HENRY A. BRANN, D.D.

1.—Benign Stenosis of the Pylorus.—G. E. Brewer states that the commonest cause is ulcer through exudate or adhesions following minute perforation. Diseases of the gallbladder come second. Other causes are benign tumors, hypertrophy and sclerosis of the muscular and submucous coats, syphilis, foreign bodies, etc. It may be congenital. The symptoms may be those due to the original disease, to the stenosis, or to both. Vomiting is the most important manifestation. When gastrectasia occurs, physical examination furnishes important data. The stomach-tube is of great value in diagnosis. Except in very light or in syphilitic cases, surgery alone can offer relief by enlarging the orifice or creating a new opening. The mortality of such operations is low. [H.M.]

3.—Relations of the Gastrointestinal Tract to Nervous and Mental Diseases.—R. C. Kemp discusses conditions favoring fermentation and the production of abnormal products. Ethylidenediamin, a ptomain found in gastric liquids in dilation, will produce exophthalmos and some symptoms found in Graves' disease. Methyl guanidin resulting from putrefactive processes in the small intestine causes nervous irritability and tetanic convulsions. Stasis favors putrefaction. Among the ptomains found in the colon after stasis are cadaverin and putrescin, which give the symptoms of muscarin poisoning. Indol given to animals causes cardiac and respiratory depression, clonic spasms, and reflex irritability. Small quantities taken daily for several weeks cause headache, colic, diarrhea, unnatural mental activity, and a tendency to neurasthenia. Bile, when absorbed, produces a definite toxemia. Large doses of cholin cause nearly instantaneous death in cats and rabbits. Nerin, a derivative, causes dyspnea, salivation, mydriasis, labored respiration, unconsciousness, and clonic convulsions. Muscarin causes convulsive seizures. All these substances produce epileptiform attacks. In many cases of nervous and mental diseases, derangement of the gastrointestinal function may aggravate the original condition, creating a vicious circle. A thorough investigation should be made in each case. Carnivora are subject to convulsive seizures from dietetic disturbances, whereas herbivora are exempt. Red meats tend to aggravate nervous conditions, and in epilepsy and other nervous diseases are largely eliminated from the dietary. Some convulsive seizures in children come on a short time after the administration of improper food, others not for several hours, representing gastric and enteric types. Rickets, a factor in epilepsy is often associated with dilation of the stomach. W. H. Thompson has secured brilliant results in epilepsy from treatment of the gastrointestinal tract. Even when degenerative brain changes have occurred, the convulsions may be lessened by appropriate treatment. Mental depression often accompanies toxemia, and may result in depressive insanity. Among other symptoms of autoinfection are apathy, insomnia, somnolence, and inability to concentrate the attention. Mucous colic is one of the manifestations of Glénard's disease and the neurasthenic condition is probably the result of autoinfection. The writer believes that in surgical procedures for dilation we have a brilliant future for the relief of some nervous diseases. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Typhus Fever.—F. Robinson and E. T. Potts[1] give the results of their observations in 600 cases of typhus fever. Practically all the cases were drawn from the poorest classes of society. Two-fifths of them occurred between the ages of 10 and 20, there being very few in the first five years of life. The onset is often more or less gradual, and in children the rash may be the first symptom noticed. Among the early symptoms, headache is very common; while the congestion of the face and conjunctiva gives the characteristic "typhus face." Bronchitis is a frequent symptom, as is also myalgia, especially in the calves, arms, and upper chest. The rash appears on the fourth or fifth day on the upper part of the chest, and spreads downward. It is all out in three days, and rarely occurs on the face. Its extent and abundance is in proportion to the severity of the attack. Too much stress has been laid on the "mottling," which often does not appear. Active delirium often occurs, and later an extreme degree of prostration makes it assume the low, muttering type. The temperature remains at a fairly even level for 14 days, when it falls by a rapid crisis, accompanied by a disappearance of all symptoms. Alcohol and subcutaneous injections of strychnin are valuable in the treatment. Few complications or sequels are met with. The disease must be diagnosed from typhoid fever and measles, with which it is most frequently confounded. Abundant fresh air is most important, both in the treatment and in the prevention of infection by attendant physicians, nurses, etc. [B.K.]

Aortic Displacement.—R. Ugolini[2] describes a case following spinal curvature of a high degree, incident to Pott's disease. The lowest five thoracic vertebras were destroyed and the first lumbar with a kyphosis of 25°, and at the third lumbar a compensating lordosis and a right convex scoliosis. The aorta followed the vertebral column to such extent as to have two grave reductions in lumen, and in the intervening segment a pronounced dilation. The aorta had become atheromatous in these portions, in the rare form of nodules as seen in the ascending aorta. [T.H.E.]

The Extent of Proteid Digestion in the Stomach.—E. Rosenberg[3] found that plasmon is dissolved to a considerable extent in a relatively short time, when introduced into the stomach. At the end of three-quarters of an hour the amount brought into solution was found to vary from 13% to 61%, according to the condition of the stomach. The highest value was found in cases of subacidity, while a condition of hyperacidity yielded only 18%. The lowest value, 13%, was found in anacidity. In some cases of achylia the percentage of proteid digestion sometimes rose to 40, and in carcinoma to 55. It is evident, therefore, that peptonization proceeds independently of the quantity of HCl in the stomach. The author's experiments also showed that in carcinoma, 51% of the digested proteid is made up of the residual nitrogenous bodies, a figure that is far beyond that found in any other condition. He offers this as a test of diagnostic value. His investigations do not offer any other results, that can be used in the differential diagnosis of the various gastric diseases. [B.K.]

Smith's Sign.—This sign[4] is of value in the diagnosis of bronchotracheal adenopathy and is obtained by forcibly bending the child's head backward until its respiratory tract is drawn upon and extended. The lymph patches will then be pressing upon the vessels of the neck. We can notice the vascular suffusion, which will occur with the heart beat, and whose maximum effect is marked above the superior margin of the sternum. According to best advices, the sign is not present in all cases, but when observed is pathognomonic. [T.H.E.]

Infantile Splenic Anemia.—S. G. Scott and W. H. M. Telling[5] report a case of an 8 months' infant, who was admitted

[1] British Med. Jour., May 27, 1905.
[2] Il Policlinico (Rome), May 14, 1905.
[3] Zeitschrift für klinische Medicine, Bd. lvi, p. 449.
[4] Editorial in Il Policlinico (Rome), May 14, 1905.
[5] The Lancet, June 17, 1905.

to the hospital with jaundice, marked anemia, and a very large spleen. The liver was slightly enlarged. The blood count showed 1,831,250 erythrocytes, 7,500 normoblasts, 400 megaloblasts, and 18,043 leukocytes, per cubic millimeter. Differential count of the latter showed 41.8% neutrophiles, and 53.8% lymphocytes. Autopsy showed not only the enlarged spleen, but also enlargement of the lymph-glands; and active proliferation in the bone marrow. Microscopic examination of the various organs showed a complete myeloid transformation of the lymph-glands and spleen. The liver also participated in blood-cell formation, behaving as a fetal liver. [B.K.]

Boldness in the Treatment of Some Phases of Pneumonia.—A. Morison[1] considers that the less a pneumonia progressing favorably is interfered with, the better. That it is not mainly the engorgement and consolidation of the lungs which causes the symptoms of asphyxia and cardiac failure, is shown by the lessening of the pulse-rate and the dyspnea when crisis occurs, although no material alteration in pulmonary blockage has taken place. He believes tachycardia alone is sufficient to induce cardiac failure, pyrexia being its chief cause. Cold is best calculated to reduce this, applied preferably to the head, where it is easily tolerated and induces sleep by direct transmission to the deeper nervous centers. It may be kept here continuously, so long as the temperature is above 101° F. To maintain the irritability of the heart, strychnin, pushed in proportion to the debility of the patient, is the most useful measure. When the lung is softening and the patient threatens to drown in his own secretions, a bold use of turpentine internally may be of much value. It is only when cardiac failure is threatened that venesection is admissible. Its object is not to prevent inflammation of the lung. The indications are urgency of dyspnea with cyanosis, fulness of superficial veins, and diminution in the size of the pulse; 8 oz. or 12 oz. may suffice; the quantity must be regulated by the effect. In children, a few leeches may be sufficient. [H.M.]

Typhoid Meningitis.—R. I. Cole[2] divides reported cases of this condition into three groups: 1. Cases showing symptoms of meningitis, but in which no meningeal lesions can be demonstrated. These should be cited as cases of typhoid fever showing marked meningeal symptoms. 2. Cases showing symptoms of meningitis, the presence of *B. typhosus* in the cerebrospinal fluid during life or at autopsy, and the lack of lesions of a suppurative character. These are called serous meningitis. 3. Cases of purulent meningitis. Five cases of the second group and one of the third have been observed at the Johns Hopkins Hospital. The term serous meningitis is justified when typhoid bacilli are found in the fluid which does not possess the character of pus. A true suppurative meningitis may be produced, but this appears much less frequent than the serous type, the pyogenic power of the typhoid bacillus being secondary, and not commonly manifested. [A.G.E.]

Chemic Examination of Gastric Contents.—W. H. Willcox[3] gives a test-meal of a pint of weak tea with 1 oz. of milk and sugar, or a pint of thin arrowroot made with water and 2 oz. of milk, with sugar to taste. A piece of thin, buttered toast is taken with one of these liquids. The test-meal is given in the morning on an empty stomach, and withdrawn in one and a half hours. A portion of the gastric contents is allowed to settle and a microscopic examination is made of the deposit. The rest is filtered and the filtrate is tested for albumin, mucin, albumose, peptone, dextrin, sugar, bile, and blood. Twenty centimeters of the filtrate are taken and titrated with decinormal alkali to determine the total acidity. The author divides the HCl present into three classes: (1) The free HCl; (2) that combined with proteids and nitrogenous organic bases; and (3) that combined with inorganic bases (NaCl, etc.). The first two constitute the physiologically active acid. In order to determine the quantity of the latter, the total chlorids are first estimated by Volhard's method; another portion of the gastric contents is then evaporated and burned to drive off the active HCl and the residue of chlorids again determined by the same method. The difference between the two gives the desired result. The author believes that Günzberg's test is the best qualitative test for free HCl. He uses Uffelman's reagent for determining the presence of organic acids and estimates their quantity by the difference between the total acidity and the active HCl. He finds the total acidity high in gastric ulcer, with no organic acids or peptone. In temporary dyspepsia the active HCl is normal, although it may not be free; albumose and peptone are present. In gastric carcinoma the chemic composition of the gastric contents may often determine the position of the tumor. In cancer of the cardiac portion, free HCl is never present, the total acidity is low, organic acid is present, and there is practically no albumose or peptone. In involvement of the pylorus the total acidity is greater but still subnormal, free HCl is absent, active HCl may be present in fair amount, organic acids are present; also mucin, albumin, and peptone in large amounts. [B.K.]

Relations of Tonsillitis and Rheumatism.—The term, rheumatic angina, of DaCosta, should be modified, since we have already an anginous articular rheumatism. Undoubtedly the tissues of the peritonsillar region may suffer in a general rheumatic process. Guerich[1] has examined 17 cases of acute articular rheumatism, of which all but 3 were troubled with typic throat lesions; and in these three there was not a normal condition of tonsil, which he attributed to the rheumatic process. Some writers advise tonsillotomy or even removal of the tonsil in the treatment of rheumatism, if the case exhibits any tonsillar lesion. [Is this putting the cart before the horse?] [T.H.E.]

[1] West London Medical Journal, April, 1905.
[2] Johns Hopkins Hospital Reports, Vol. xii.
[3] The Lancet, June 10, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Renal Tuberculosis.—George Walker[2] gives a very thorough review of this subject, based upon 373 cases from literature, 75 cases of genitourinary tuberculosis in the Johns Hopkins Hospital, and 4 personal cases. He also has under way a series of animal experiments. Walker does not advise the use of tuberculin as a means of diagnosis. It is exceedingly doubtful if renal tuberculosis ever heals spontaneously; the best that can be hoped is arrest of the process after the entire organ has been destroyed, and less than a dozen such cases are on record. He has found cases in which tuberculosis of one kidney has lasted two years without involving the other. Nephrectomy is the only reasonable hope of cure and should be performed as soon as the lesion is discovered. If a large abscess has formed, nephrotomy should first be done. Operation by the lumbar route has 8% less mortality. To avoid squeezing tubercle bacilli into the circulation when the kidney is delivered, Walker proposes first opening the abdomen and ligating the renal vessels. This incision is then closed and the kidney removed by the lumbar route. If there be any doubt as to whether nephrotomy or nephrectomy should be done, the former should be given the preference. [A.G.E.]

Hernia of the Ureter.—A. Carli[3] says that this form of hernia is a great rarity, although the ureter is peculiarly predisposed to form the contents of a hernial sac, from its topographic relations and its form. In its passage through the pelvis it converges toward the median line, and is bent inward and forward in the line of the intraabdominal expulsive forces. The ureter never forms a hernia alone, but is always accompanied by intestine or omentum. Two classes of ureteral hernia are to be distinguished, depending upon whether or not the bladder accompanies the ureter into the hernial sac. The author has collected the reported cases, 11 in number, and describes them. Six were inguinal and five crural, the former occurring exclusively in males, and the latter in females. Most of the inguinal cases were of the variety associated with hernia of the bladder, while all of the crural cases were simple ureteral

[1] Il Policlinico (Rome), May 14, 1905.
[2] Johns Hopkins Hospital Reports, Vol. xii.
[3] Archiv für klinische Chirurgie, Bd. lxxvi, p. 1078.

hernias. The pathogenesis depends upon the length of the ureter, its direction, the lack of elasticity in its walls, its tendency to participate in changes in the position of the peritoneum, and anomalies in its course. The displaced ureter always retains its relations to the peritoneum. The symptomatology of ureteral hernia may be negative, but signs of retention of urine in one kidney frequently arise. The diagnosis is almost invariably made at operation. The results of operation are usually favorable. If the ureter is badly damaged, a ureterocystostomy or a ureteroureteral anastomosis can be performed. If marked hydronephrotic changes have occurred, nephrectomy may be justified. [B.K.]

Separation of the Urine of Each Kidney.—J. W. T. Walker[1] discusses in a very thorough manner the recent methods of diagnosis in urinary surgery. Two are now in common use, division of the bladder into two compartments, and catheterization of the ureters. The condition of the second kidney is often disregarded by surgeons and often with impunity, but even the condition of solitary kidney (1 in 2,650 cases—Morris) must be considered. Walker says the use of the separator begins and ends with drawing the urine from each kidney after the diagnosis of renal or ureteral disease has been made. The catheter cystoscope not only localizes disease to the kidney, but shows the bladder healthy and also collects the separate urines. At the same time, the latter instrument can be used by only a few surgeons who acquire the necessary manipulative skill; the separator is easier of application and appeals to a wider class of workers. The instruments of Luys and Cathelin are regarded as the best forms of separators. [A.G.E.]

The Cause of Incontinence as a Sequel of Prostatectomy.—E. W. Ruggles[2] reviews various attempted explanations of incontinence, but considers the reasoning incorrect. Paralysis of the external sphincter, partial or complete, must be present in order to explain it satisfactorily. The vesical sphincter is a comparatively weak muscle and as soon as 3 oz. or 4 oz. of urine have collected, relaxes and permits it to pass down the posterior urethra until it meets the resistance of the external sphincter. Its function is then at an end until after the next act of urination. Either there must be a nerve supply of the external sphincter running close to the prostate which is injured in strenuous manipulations or the injury must be looked for in the operation on the membranous urethra itself. It must also be considered that pressure is capable of producing paralysis. The writer suggests that incision into the urethra should be made as close as possible to the prostate, exactly in the median raphe and the utmost care be exercised to avoid stretching and laceration of the muscles. [H.M.]

Tuberculosis of the Kidney.—Howard A. Kelly[3] says that renal tuberculosis has three possible modes of origin—by the blood, by ascending the ureter, and by direct extension from some contiguous organ. The first way is by far the most frequent. Only one kidney is attacked at a time, the other kidney not becoming involved until much later. An early diagnosis thus makes possible a complete cure by extirpation of the diseased organ. The diagnostician has not only to determine the location of the disease, but must also find out whether the other kidney is able to do the work alone. In advanced cases the diagnosis is quite easy, with the emaciation, hectic fever and its accompaniments, vesical tenesmus, pus laden urine, palpably enlarged kidney, and cord-like ureter. In early cases the diagnosis must depend upon the finding of tubercle bacilli in the urine, and cystoscopic examination. The bacilli may be found only after repeated and persistent examination, aided perhaps by inoculation into lower animals. Cystoscopic examination will often reveal an ulcerated bladder, and even in the earliest stages may show some changes about the orifice of the ureter on the diseased side. Catheterization of the ureters is necessary to determine positively the diseased kidney, also to reveal whether or not the opposite organ is free from disease and capable of functionating independently. The extent of involvement of the bladder, and the presence of tuberculosis elsewhere, have an influence on the course of treatment. The latter should consist in total extirpation of the organ, whenever possible. Nephrotomy may be performed as a preliminary measure, where the condition of the patient does not warrant an immediate radical operation. [B.K.]

Conservative Perineal Prostatectomy.—H. H. Young[1] summarizes the results from a prostatectomy operation previously described, in which he makes an inverted V cutaneous incision, the remainder of the operation being by blunt dissection, with the exception of the central tendon and rectourethralis muscle. After urethrotomy the mucous membrane is engaged with forceps and the tractor introduced and then opened, bringing the prostate into the wound. The capsular incisions leave the median ejaculatory portion undisturbed, and enucleation is carried out with a blunt dissector and the fingers. A drain is sutured at the apex of the skin wound. Abundance of water is given, instrumentation is avoided, and the patient is gotten out of bed as soon as possible. In 75 cases there were no deaths attributable to operation; the patients, even after using the catheter for years, have been able to void urine naturally in all cases; no case of continual incontinence has occurred; there has been only one easily dilatable stricture, and in a large proportion erection and sexual puissance have been maintained. Of four cases of rectourethral fistula, all have been cured by suprapubic drainage, which adds nothing to the gravity of the operation. Care has been taken to have no gauze press on the rectum, and there has been no rectal breakdown. [H.M.]

Rare Deformity Following Infantile Cerebral Paralysis.—A. Nazari[2] reports that a man of 38 is compelled to walk in the position of the feet so extended as to touch the ground only on the heads of the metatarsus and the planes of the phalanges. He calls this deformity equina recta, and attributes the development of this case to an antecedent infantile cerebral lesion. The patient walks well and rapidly in the peculiar tiptoe position, to which in years he became familiarized. R. Bastianelli has shown by skiagraphs the difference between the tiptoe position due to spinal lesion and that due to cerebral lesion. [T.H.E.]

Affections Resembling Actinomycosis.—G. Kieseritzky and L. Bornhauft[3] report a number of cases resembling actinomycosis in their course, but differing in their bacteriology. Those which are caused by organisms similar to *Cladothrix liquefaciens* and the fungi described by Berestnew, are most like the true actinomycosis. The diseases caused by the rods of Sawtschenko differ from actinomycosis in the following particulars: 1. A very offensive pus. 2. A slower and benign course, easily amenable to operation. 3. The possibility of a primary, central disease of the bone. Two cases differed from true actinomycosis in the following ways: 1. A rapidly increasing quantity of offensive pus. 2. A rapid progress of the disease, with high fever and no tendency to healing. 3. A rapid loss of strength, leading to an early death. The treatment of all these conditions must consist in an early extirpation of the diseased tissue. [B.K.]

Causes of Appendicitis.—F. C. Bottomley[4] regards *B. coli* as the most frequent bacterial cause of this disease, the streptococcus being second. The great amount of lymphoid tissue in the appendix, especially in the young, is to destroy bacteria, but if the latter are too virulent the tissue is destroyed with the formation of pus. Concretions are contributing causes. Constipation and the use of purgatives do not seem to predispose, otherwise the disease would not be less frequent in women than in men. J. Sherren[4] says appendicitis is due to the action of bacteria upon a vulnerable appendix. In most cases this vulnerability is brought about by interference with the blood supply by increased tension, due to obstruction of the cecal opening by distention of the cecum or by inflammatory swelling. In both groups the immediate cause lies in the cecum. Sherren finds no direct relationship between influenza and the frequency of appendicitis, but shows a close correspondence between the number of cases of influenza under treatment and the deaths from appendicitis. [A.G.E.]

[1] The Practitioner, June, 1905.
[2] Annals of Surgery, April, 1905.
[3] The Lancet, June 17, 1905.

[1] Annals of Surgery, April, 1905.
[2] Il Policlinico (Rome), May 14, 1905.
[3] Archiv für klinische Chirurgie, Bd. lxxvi, p. 835.
[4] The Practitioner, June, 1905.

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The London Deathrate.—Notwithstanding its size and numerous congested districts, London must be regarded as one of the healthiest cities in the world. A brief note by Dr. George Newman on the annual report for 1904, shows a very satisfactory state of health for such a great city. The deathrate for the year was 16.6; this, with the exception of 1903, is the lowest on record. The chief decrease in deaths during the last few decades has been in those from smallpox, scarlet fever, diphtheria, and typhoid fever. There has also been a decrease in mortality from measles and whoopingcough, but practically none from epidemic dysentery. Little or no improvement has occurred in such general diseases as tuberculosis (excepting pulmonary), malignant disease, nervous diseases and those of the heart and circulatory apparatus. These, with pneumonia and bronchitis, contribute most largely to the mortality. The report also shows that during 1904 the birthrate was 27.9, the lowest on record. It has steadily declined since 1867, the greatest diminution being in those districts which socially are highest in the scale. The marriage rate for the year, 17, was lower, with three exceptions, than it had been since 1855. On the whole, the health officers of London may well be proud of the standing of their city.

The Therapeutic Uplift.—Neither the degradation of true therapeutics by the blameworthy manufacture of secret medicine, nor the sorry vogue of those whose interest in a patient and his disease ends in diagnosis, with little or no care for treatment, can prevent the rehabilitation of drug treatment on a scientific basis. Let therapeutic nihilism have as speedy an end as it deserves! The therapeutic uplift has, of course, only begun, although its solid scientific foundations were laid when pathology contributed diphtheria antitoxin to the materia medica and when pharmacology found a place in our schools. The rehabilitation of therapeutics is under way. The road is staked out, the profession is being invited to follow the reputable and scientific path, and all that remains to be done is that the physician shall open his eyes to the facts and be guided thereby. This means, no doubt, that the fight is yet to be won by the forces of simple, accurate therapeutics. With a recognition of the forward trend of evolution and full apprehension of the strength of the reform movement, the favorable outcome is not in doubt. Indicative is the fact that the American Medical Association will undertake to lead the way to therapeutic discrimination. When impartial experts will compile a volume containing the exact facts regarding remedies—old, new, and proprietary, no longer will ignorance of true composition and value excuse the physician who blindly accepts the manufacturer's statements, unless those statements have been made with due regard for professional honor and commercial probity. The millennium is not in sight, but the initiative of the American Medical Association and the support of growing healthy professional sentiment, fully justify the expectation that the next decade will witness the marked retrogression of all the forces that led to the downfall of therapeutics. This happy outcome will be supported by the medical schools that give increasing importance to instruction and research in pharmacology.

The sun cure for wounds has long been a routine custom of the negroes of Jamaica, more especially for penetrating wounds of the foot. The patient lies in his cabin and thrusts his foot out of a door or window into the sunshine without dressings of any kind which might prevent the light reaching the injured parts. It is a fixed belief of the negroes that this method cures their wounds, and it is reported to be quite successful. Their feet are very calloused, of course, as shoes are a luxury which few can afford, and it is said that incised or punctured wounds, which have introduced infections under the thickened skin, are otherwise apt to be severe and difficult to manage. As a rule, a custom of lower races survives because it is beneficial, though its origin may have been in an ignorant but happy chance. If harmful it ceases through natural law. There may be a good scientific reason then for this negro custom. It has now been shown that strong sunlight can destroy pathogenic bacteria in the skin and to a certain extent in deeper tissues, though our more northern sunlight, if not concentrated, may not be strong enough to accomplish as good results as are said to be obtained by the tropic sun in Jamaica. Still in would be wise to act upon the hint and determine experimentally whether or not it is possible, through the application of röntgen rays or ultraviolet rays, to obtain immediate and aseptic union in wounds which have been infected. It is not necessary

to apply rays strong enough to kill the organisms, for if bacteria are merely injured, the tissues, if healthy, can be depended upon to dispose of them. There are possibilities of valuable findings in such experiments, for they might lead to the routine use of such an addition to our surgical technic in every case, as a check upon faults of asepsis. The use of röntgen rays after operations for the removal of malignant growths seems to be beneficial by destroying or injuring the vitality of any remnants of diseased tissue which might have escaped removal, and it certainly lessens the chances of recurrence. Perhaps the extension of the practice to all cases, particularly accident cases known to have been infected, might reduce the number of suppurative cases. It sounds well enough to deserve investigation at least.

The decadence of lactation has progressed to such an extent that among some classes of our complex modern society it is the rare exception to find the mother who can nurse her baby even a reasonable time. All this is no doubt deplorable in one sense, but it is the inevitable result of our increasing ability to prepare appropriate artificial food for bottle-fed infants. In former ages these babies perished, and the race depended upon good nursing mothers for its continuance. A woman might have possessed other traits of the greatest value to society, traits which heredity might have transmitted, but if lactation was deficient, these desirable lines died out, and civilization itself suffered a loss. It is not, then, an unmixed evil that such types are preserved, but a distinct gain to the world. Since the partial or complete failure of lactation, like every other variation, is likely to be hereditary, it is evident that the proportion of these types should be constantly increasing as medical science becomes more and more able to raise infants on artificial food. The preservation of the race and its continuance are thus being taken away from the women whose essential qualification is the purely animal one of supplying infant food, and is becoming the privilege of types possessing the intellectual ability to raise their families in spite of physical deficiencies which were once fatal. This evolution has already progressed a considerable distance, and it is but one of the numerous illustrations that in mammalian evolution, feeble types able to raise offspring are better fitted for survival than strong types unable to give much care to their young. Indeed, the first mammals were tiny frail things which survived in environments where the huge saurians perished, and there is no doubt that it was due solely to the care given to the offspring. The longer they were able to do this the better were they fitted for survival. This required increasing intelligence, so that the past history of our ancestral lines shows that intelligence and the length of the infantile period have increased together. The same law is operative now as in past geologic ages, and we find that families survive best when the children are cared for until well into adult age, but that when this care ceases in early childhood, the adversities of life are likely to destroy the little ones left to shift for themselves.

Complete cessation of lactation, though possible in the very distant future, is not at all probable soon. Cows' milk can now be so modified as to be better suited to an infant in a few cases, than the milk a feeble mother supplies, yet we are so far from being able to imitate human milk exactly, that the infant which has proper breast nourishment for a few months stands a far greater chance of survival than one which receives it for a few weeks only, and the babies raised on bottles from birth suffer a dreadful mortality, even with the greatest care. A certain period of lactation is therefore still necessary, and the more it can be prolonged the better is the infant's chance of survival, even though we can shorten the period with far greater safety than was possible a century ago. Such lessening of the period of lactation also permits an intelligent woman to raise good, sound children, even if she is so feeble as to be destroyed by the drain on her vitality caused by the long lactation which was necessary in past ages. There is no doubt that lactation does draw enormously upon the vital resources even in the strongest of mothers, and frequently it must be ended prematurely for their preservation, so that every discovery which enables us to shorten the period even a trifle is a distinct gain to the species, as it is in the direction of economy. Hence the trend of natural law is toward the survival of types able to do this successfully, even though they are frail, and they must tend to crowd out strong women who cannot raise children except at a fatal expense to themselves. There is also a chance for selection to work in the direction of evolving a type of children able to subsist on what we can prepare for them. Such an evolution causes great destruction of life, but it seems to be in progress already, for the infant mortality, even when care is exercised, is far greater than it should be. Only the strongest seem to survive poor feeding.

A perfect artificial food for infants will not be possible until the chemists have discovered the exact composition of the proteids of human milk, and are able to make them synthetically. Each species of mammal produces proteids which its young are able to digest, and the adjustment is so perfect that it is a matter of extreme difficulty to substitute proteids from another species and thus raise any mammal deprived of its mother's milk from birth. From the extreme difficulty now and then encountered, of finding a wet nurse suitable for a certain child, there is a well-defined opinion that there are individual differences also, so that a mother's milk may be suitable for her own child and not for others, though there is less evidence of such differences between individuals of lower species. These facts have long been known, but as they have been mostly noticed in our efforts to modify cows' milk to make it suitable for infants, they have given rise to a widespread opinion that there is a vital element in the matter which will never be reached—that is, the milk as drawn by the infant is a living product, while that from the cow is dead after some time, and is unsuitable for this reason. Hence the custom was not at all uncommon in ancient times to allow a child to suckle one of the lower mammals, and is even yet a practice in certain places. Whether there is sufficient basis for this vitalistic belief, time alone will tell, but there is a growing

suspicion among advanced biologists and chemists that the differences may be due to actual chemic differences in the proteids themselves. The molecule is so large and complex, and composed of such an enormous number of atoms, that it can well exist in very many forms. In any one mother the proteids may not be the same from day to day, for there are times when the milk disagrees, and yet there is no discoverable change in its constituents or their relative proportions. The milk of both cows and women may, through nervous shocks, become actually poisonous, and produce alarming symptoms. The solution of all these chemic problems cannot be expected soon, so that the elimination of lactation entirely is so far off as to possess merely an academic interest. The present course is merely to shorten the necessary period and thus save the mother's strength.

Lactation is opposed to conception not only in woman, but in many of the lower mammals also, though the rule is not universal. It is commonly reported that here and there among lower races it is a custom to prolong lactation to two or three years, or even longer, to prevent conception—the savage woman's first effort to stop the infanticide inevitable in times of famine and the first step in that steady reduction of the birthrate still in progress. The reduction of the period of lactation would then be antagonistic to the latter phenomenon, were it not for enforced continence or other means now taken. Through the survival of only vigorous types, which have not been injured by too much child bearing, there are practically no women now who consider it wrong to prevent conception, and their hereditary opinions are fixed, in spite of all theologic teachings to the contrary. Whether it is ethically right or wrong is immaterial, as it is a natural phenomenon, and if it is carried too far the lines die out. Hence, the two processes are going on side by side and the surviving types will be those which, irrespective of their frail physique, have sufficient intelligence to keep themselves vigorous enough to produce and rear the proper number of offspring. Those which do this most economically to themselves by a reduced birthrate and restricted lactation have a tremendous advantage over those which rear only a few of many children born and who exhaust themselves by prolonged lactation. It is evidently, then, a natural law that these reductions in the way of vital economy should now be occurring.

The ethical aspects of the decadence of lactations are of considerable importance. The brutal destruction of life in primitive times has disappeared as a natural phenomenon, because racial survival demanded that every life should be preserved. This has developed into the idea of the sacredness of life and the sinfulness of destroying it, an idea which no doubt also is another way of expressing the instinct of self-preservation. Every newborn baby now has as perfect a right to live as any older person, and society guarantees this right. It is, then, morally and therefore naturally wrong to deprive one child of its food in favor of another. The decadence of wet nursing through skill in infant feeding is therefore a distinct gain. Only when great issues are at stake, as in the rearing of royal infants to render States stable and prevent war, is it justifiable to abandon one that many may live. Safety demands that even every fructified ovum must be brought to maturity, as the right to live was created at the instant of conception. This evolution has not yet progressed as far as it will in time, for a very large proportion of women still claim the right to destroy a young ovum, and the crime is still a natural one as compared with infanticide, which is already so unnatural as to merit the universal condemnation of normal women. It has been estimated that more than a fourth of all legitimate conceptions is criminally ended prematurely, but as the mortality is dreadfully high, the natural tendency, of course, is to eliminate such types, and eventually all women will possess an inherited abhorrence of destroying the ovum at any stage.

The conflicting rights of mother and child would require no comment were it not for the older theologic prohibition to destroy one that the other may live. In those rare cases, no physician hesitates. Similarly when it is a question of the destruction of the mother by prolonging lactation, there is no hesitation in weaning the child even though its chance of living is thereby lessened. It is only in the lower orders, such as the salmon or the male bee that reproduction is necessarily fatal, and the higher the organism the safer must be the whole process from conception to the legal freedom of the youth. There is a nice balance then between the two, and as soon as variations occur which render the process injurious to one or the other, those variations must perish. Every mother demands that we save her child, though her clamors never go to the point of self-destruction. This is a marked contrast to the ethics of a few centuries ago when the feeble children had to be destroyed by exposure. At present the matter has been left to nature, for the children unable to start in life on the lessened period of lactation now inevitable, are eliminated. It would be justifiable then to devote public funds to the investigation of proteids and their manufacture, to the end of improving the race by the artificial rearing of infants which now perish. The chemists may effect a profound change in the race. Every physician knows of magnificent women who have lost all or nearly all of their children in this way, and the disappearance of these lines has been a sad loss to the intellectual uplifting of the race. The trend is toward the preservation of these milkless types and we need not be alarmed at the decadence of lactation. It is in accordance with natural law, it is a result of civilization and the increase of knowledge, it will permit of the survival of better and more intelligent types even though they are frail, and it will increase the wellbeing of the race. Nothing we can do will prevent this evolution, indeed science is causing it, and there is no more reason for worry over it than for the loss of ability to climb trees nimbly. Nor can it progress too fast, for nature will promptly interfere to restore the balance to accord with our knowledge.

Mental Worry and Holiday Rest.—The fertile subject of "worry" is discussed in the April number of *Chambers' Journal*, by D. Rao, M.B., who writes:

When the body is weak and exhausted, the brain seems to lose its controlling and rationalizing power—so much so, indeed, that trifling accidents assume the proportions of grave calamities, and appeal strongly to the emotions. Therefore, when one realizes that the petty affairs of life, which do not usually cause one any anxiety, are gradually dominating the imagination, and causing vexation and worry, one may make up one's mind that the constitution is run down and is demanding rest and change. I may mention here that short but frequent holidays are more beneficial to a person working hard both mentally and physically, than a long rest taken after a sustained period of work. Looked upon in this light, worry is a danger signal. It is wonderful how one forgets all one's worries after a little rest and a short holiday!

This is sound observation and advice, and recalls to our memory two papers by Dr. John Knott (of Dublin, Ireland), which appeared in the pages of *American Medicine:* "Holiday Repair Versus Climacteric Decay" (October 3, 1903), and "Physical Overexertion and Its Effects on Health" (January 23, 1904), in which the physiology of muscular and mental effort, and the effects of the extension of the latter beyond the hygienic landmarks laid down by nature, are set forth with thoroughness and lucidity. We do not wholly agree with Dr. Rao, when, after observing very truly that "this very act of trying to forget may seem to make the worry stronger still"—which we believe to be universal experience, he goes on to add: "But this must not be allowed to discourage us; we must try to forget, and try again and yet again. It is wonderful how soon things may be forgotten. . . . If we persevere, we shall most certainly succeed—and often very quickly." We are much more nearly of his way of thinking when he states that, "the best way to banish your trouble from your mind is to take an interest in something quite different—music, poetry, or painting, for instance—and to devote your whole mind to it, not giving your worries a moment's thought."

Kansas State Board of Health and County and Municipal Health Officers.—The second annual conference was held in the State house at Topeka, June 27, 1905. The program included a report on legislation; on the new State laboratory; on disinfection; on modern sanitation—(1) municipal disposal of garbage and refuse, (2) rural disposal of garbage and refuse; on the health officer—(1) his legal status, (2) his relation to the community, (3) his relation to the profession; and on quarantine versus vaccination in the control of smallpox.

Removal of Russian Wounded from Manila.—With the assent of the Japanese Government, the United States Government has authorized the removal from the hospitals in Manila, P. I., of the sick and wounded officers and men of the Russian warships Auroria, Oleg, and Jemtchug, which were disabled in the battle of the Sea of Japan and sought refuge in the harbor of Manila. The Russian hospital ship now at Shanghai will be sent to Manila to transport the sick and wounded to Russia. It is understood that these men will remain under parole not to engage in further hostilities.

Health of Chicago.—It is confidently predicted that 1905 will establish a new record for the healthfulness of Chicago. This is based on the fact that the average annual deathrate of the first six months of each year during the 10 years, 1895 to 1904 inclusive, was 15.51 per 1,000 of population. For the last six months of each year the average was 14 43, or 7.48% lower. The rate of the first six months of 1905 is 14.09—the total deaths being 13,918. If the second six months should be 7.48% lower than the first six months, its rate will be 13.04, the total deaths for the year about 26,800, and the annual rate for 1905 will be 13.56—the lowest ever recorded for Chicago. The lowest previous was 13.88 per 1,000 in 1901—a year of unusual healthfulness throughout the world.

AMERICAN NEWS AND NOTES

GENERAL.

Panama Health Conditions.—On the recommendation of Colonel Gorgas, the quarantine against La Boca, in consequence of the discovery of cases of the bubonic plague, was removed from noon of July 15. The death last week from yellow fever of a clerk in the disbursing office caused an increase in the list of registrations. It is believed that an efficient sanitary board is held back in its efforts by a false idea of consideration of the feelings of the Panamans. The leaders of public opinion in Panama recognize that the yellow fever is holding prosperity back and favor the same drastic methods that were used in Cuba.

National Food Law Necessary.—The necessity for a national food law was the principal topic of discussion at the convention of the National Dairy and Food Association at Portland, Ore., last week. It was stated that the only way to get a national law was to educate the people to the necessity of it by showing them the billions of dollars they spend annually because of deceptions in the manufacture of food products. Horace Ankency, State dairy and food commissioner of Ohio, was the principal speaker. R. M. Patterson, assistant State food inspector of Illinois, stated that the control of the milk supply of large cities was the greatest and most vital problem of pure food work.

Railroad Casualties.—Accident bulletin No. 15, just issued by the Interstate Commerce Commission, giving an account of railroad accidents in the United States during the first three months of 1905, shows that during that quarter there were 28 passengers and 204 employes killed, and 1,651 passengers and 2,062 employes injured in train accidents, making in all 232 persons killed and 3,713 injured in train accidents. Other accidents to passengers and employes, not the result of collisions or derailments, bring the total number of casualties up to 15,306 (909 killed and 14,397 injured). There was a decrease of 42 in the total number of persons killed as compared with the quarter ending December 31, 1904. The total number of collisions and derailments was 3,108 (1,787 collisions and 1,321 derailments) of which 284 collisions and 177 derailments affected passenger trains. The damage to cars, engines and roadway by these accidents amounted to $2,449,248. There was an increase of 27 in the number of collisions, and of 131 in the number of derailments as compared with the last preceding quarter. The total number of employes reported killed in coupling and uncoupling cars during this quarter was 62.

Personal.—Samuel T. Armstrong has been appointed superintendent of Bellevue Hospital, New York. After his graduation from the St. Louis Medical College, in 1879, Dr. Armstrong entered the Marine-Hospital Service. Later he was visiting surgeon to the Riverside Hospital, on North Brother Island, and to the Willard Parker Hospital. From 1898 to 1900 he was in charge of the medical department of the army at Puerto Principe, Cuba, as a brigade surgeon, with the rank of major. Later he held a similar post in the Philippines.—**A. P. Ohlmacher** has been appointed director of the biologic laboratories of Frederick Stearns & Co., Detroit, Mich., and has entered upon the active duties of the position.—**Harvey W. Wiley**, chief of the Bureau of Chemistry, of the Department of Agriculture, has gone to Europe under instructions from Secretary Wilson to make an exhaustive investigation of methods of preparing and preserving food products for shipment to America.—**Wyeth E. Ray** has been appointed associate medical director of the Travelers' Insurance Company, Hartford, Conn., and has also received an appointment as assistant surgeon (rank of ensign) in the Naval Batallion, C. N. G.

EASTERN STATES.

Decision Affecting Life Insurance.—In an action brought by Elizabeth A. Barker against the Metropolitan Life Insurance Company, to recover $500 on a policy of insurance issued on the life of Blaney P. Barker and payable to plaintiff, his wife, the full bench of the Massachusetts Supreme Court held that it was competent for the company to show that at the time of the issuing of the policy the insured was not in sound health. One of the terms of the policy was that, at its date, the assured was alive and in sound health. It was immaterial that the assured believed he was in sound health, that matter not being dependent on his knowledge but on the fact itself; and the company had the right to put in evidence bearing on the fact.

NEW YORK AND VICINITY.

New York State Hospital for the Treatment of Incipient Pulmonory Tuberculosis at Ray Brook.—Melvin Page Burnham, of New York, has been appointed acting superintendent in place of Dr. John H. Pryor, who has resigned. Dr. Burnham has had a large experience in the sanatorium treatment of tuberculosis, and for the past three years has been the resident physician of Seton Hospital, at Spuyten Duyvil, a tuberculosis sanatorium of 300 beds.

Bequests to Hospitals.—Mrs. Margarette A. Jones, of New York, left her residuary estate to be divided into three parts for the benefit of St. Luke's Hospital, the Presbyterian Hospital, and the New York Postgraduate Medical School and Hospital. The St. Luke fund is to be known as the "Margaret Jones Fund," in memory of Mrs. Jones' mother. The money is to be invested and the income to be used for the support of free beds. The Presbyterian Hospital fund is to be known as the "Margarette A. Jones Fund," in memory of the testatrix. The sum left to the New York Postgraduate Medical School and Hospital is to be known as the "David Jones Fund," in memory of Mrs. Jones' brother.

New York Hospital for the Tuberculous.—Dr. Darlington, Commissioner of Health, has been empowered by the Board of Estimate to purchase a tract of more than 1,200 acres of land in Orange county, in the Catskill mountains, for a municipal hospital for the treatment of tuberculous patients, and bonds to the amount of $250,000 were authorized to pay for the property. At present there are 40 farmhouses on the tract which, Dr. Darlington says, can be fitted up at comparatively little expense to accommodate more than 400 patients within a month or two after the city obtains title to the property. The tract is situated at the top of Shwangung mountain, more than 1,200 feet above the level of the sea. Dr. Darlington pointed out that there are more than 25,000 tuberculous patients in the city, and added that none but "curables" would be sent to this institution.

Sues Optician for Damages.—A peculiar case was begun July 17 in the United States Circuit Court of New York, when William F. Arnold, a retired naval surgeon, who lives in Tennessee, asked $3,000 damages from S. Weisbaden, a jeweler and optician, for having permanently injured his eyesight. The complaint alleges that in his service in the Philippines he lost the sight of one eye and the sight of the other was greatly weakened. To preserve the sight of his remaining eye, Dr. Arnold declares, he was compelled to wear spectacles with lenses ground according to a complicated formula. On June 1, 1905, Dr. Arnold says, he left with the defendant, a pair of gold-rimmed spectacles with bifocal lenses, the rim of which was to be repaired. He impressed upon the defendant, he says, the necessity of properly adjusting the lenses in replacing them, and left with him a prescription to assist in this adjustment. The defendant, it is charged, ignored the instructions and prescription and improperly adjusted the lenses, so that the sight of Dr. Arnold's remaining eye was impaired, making it impossible for him to attend to his ordinary occupations.

PHILADELPHIA, PENNSYLVANIA, ETC.

Typhoid Case in Every House.—Typhoid fever is epidemic at Collinsburg, Pa., 25 miles southwest of Pittsburg. There are about 30 houses in the village and in every house there are from one to five cases of the disease. Five children of a family named Litt have died and a number of other families have lost from one to two members.

Sanatorium Must Go.—Judge Beitler has rendered an opinion in the Philadelphia Court of Common Pleas that the restriction in conveyances of ground prohibits the maintenance of the open-air tuberculosis sanatorium at Mount Airy, conducted for several years by a trained nurse. Neighbors objected to the hospital, which consists of several tents, and were instrumental in the starting of injunction proceedings. They complained that they were annoyed by the coughing of the patients, and that the establishment was a menace to the health of the community.

House-to-house Inspection of Infants.—Under the direction of Director Martin, 48 medical inspectors of Philadelphia have begun a house-to-house canvass in their respective districts in order to aid infants suffering from the heat and to give advice to mothers. The heavy mortality among children in the last two weeks induced the director to take this step, which he believes will result in the saving of many infants' lives during the heated period. While the medical inspectors are aiding ailing children and parents, they will also make as many vaccinations as possible. All persons who have not been vaccinated will be requested to have the operation performed. When the family is too poor to pay for medical treatment, it will be given free, either by the district inspectors or by the ward outdoor physician.

A Monumental Attack on a Physician.—A conspicuous spot in a cemetery at York, Pa., is occupied by a handsome Scotch granite monument bearing upon one of its sides this inscription:

"A Victim of Chloroform Poisoning
and Shock, the Result of a Doctor's
Negligence."

This announcement starts many inquiries. Why the inscription is there and what story there is back of it no one knows save the man who reared the monument and a few of his most intimate friends. The monument marks the grave of the wife of a prosperous York merchant. When questioned as to the significance of the words on the tombstone he says: "It is all the truth. Some tombstone inscriptions may lie, but that one does not. It is a long and sad story, which I do not care to repeat."

SOUTHERN STATES.

Texas State Journal of Medicine.—The State Medical Association of Texas has replaced its Transactions by the *Texas State Journal of Medicine*, the first volume of which is just issued for July. The journal appears well, and promises to report the scientific work of the section of the country covered in an interesting manner. I. C. Chase, Fort Worth, Tex., is the editor-in-chief, and there are 15 associate editors and councilors.

Railroad Surgeons Elect Officers.—At the closing session of Seaboard Air Line Surgeons at Old Point Comfort, Va., officers were elected as follows: President, Dr. G. A. Neuffer, of Abbeville, S. C.; first vice-president, Dr. W. F. Monroe, of Sanford, Fla.; second vice-president, Dr. G. G. Holliday, of Portsmouth, Va.; third vice-president, Dr. W. Palmer, of Ailey, Ga.; chairman executive committee, Dr. Southgate Leigh, of Norfolk. The association will meet next year in Savannah.

WESTERN STATES.

Infant Deaths Alarm Cleveland.—Within the nine days ended July 17, 82 infants under 1 year have died in Cleveland, and the city health authorities are making a close investigation into sanitary conditions and the milk supply. It is expected that radical action will be taken at once.

Typhoid Epidemic at Clinton, Iowa.—The epidemic of typhoid fever in Clinton, Iowa, is assuming dangerous proportions. There are more than 50 cases of the disease, although many are in a mild form. The victims are mainly employes in the machine shops of the Chicago & Northwestern. The men declare the proximity of the company's artesian well to the defective sewers of the company are responsible for the spread of the contagion. No deaths have been reported.

Mortality of Michigan during June, 1905.—The total number of deaths returned to the Department of State for the month of June was 2,394, a decrease of 306 from May. The deathrate was 11.4 per 1,000 population, as compared with 12.5 for the preceding month. By ages there were 396 deaths of infants under 1 year, 121 deaths of children from 1 to 4, and 700 deaths of elderly persons of 65 and over. Important causes of death were as follows: Tuberculosis of lungs, 176; other forms of tuberculosis, 26; typhoid fever, 28; diphtheria and croup, 31; scarlet fever, 10; measles, 11; whoopingcough, 7; pneumonia, 98; diarrheal diseases, under 2 72; cancer, 129; accidents and violence, 228, of which number 61 were deaths from drowning. There were 14 deaths from smallpox, 1 in Hill township, Ogemaw county, and 13 in the city of Grand Rapids. There were 4 deaths reported from tetanus, 1 in Hillsdale City, 1 in Milan township, Monroe county, and 2 in Grand Rapids City. This number may be noted for comparison with the number of deaths returned from this cause for the following month as the result of Fourth of July accidents.

FOREIGN NEWS AND NOTES

GENERAL.

Does Not Cure Cancer.—The report of the committee of experts who has been investigating Dr. Doyen's anticancer serum for five months, has been presented to the Surgical Society. It is distinctly unfavorable. It admits that the application of the serum possibly caused a temporary improvement in some cases, thereby lessening the danger of subsequent operations; but it never cured the disease. Of the 26 cases examined, 20 became worse under the treatment. The report concludes by expressing the opinion that Dr. Doyen, like other inventors, has mistaken his desires for facts.

India and the Plague.—In India physicians are making strenuous efforts to encourage the people to undergo inoculation against the plague, but as the masses do not take very kindly to the treatment, some novel and interesting plans have been proposed to secure its adoption. It was suggested to the government of Bombay that it should pay 100 rupees to the family of any person who should die from the plague within a year after inoculation. The Government, however, declined to entertain this proposition, and while it is officially committed to inoculation, it is rather lukewarm in its practical support of the treatment. The adherents of inoculation then addressed themselves to the insurance companies, and urged that they undertake the business of insuring against plague, and make a lower rate to those who had been inoculated. This might possibly lead to a policy similar to that pursued by insurance companies in Germany, where the tuberculous policy-holders receive medical treatment in specially maintained sanatoriums. Thus in India medical treatment could be given to policy-holders who have been inoculated, as it is known that by using antiplague serum the danger of death can be even further reduced. As there are sometimes as many as a million deaths a year from this dread disease, the necessity of thorough preventive measures is apparent.—[*Harper's Weekly.*]

OBITUARIES.

Edward Stickney Wood, aged 59, of Cambridge, Mass., from cancer of the intestines, at his summer home at Pocasset. He was graduated from Harvard Medical School in 1871, and then took up an extended course in chemistry in Berlin and Vienna. Upon his return to this country he was elected to the position of assistant professor of chemistry at Harvard until 1876, when he was made full professor, which position he held at the time of his death. He was an expert in the examining of human blood and his judgment has been considered final. He had been chemist of the Massachusetts General Hospital since 1873. In 1880 he was a member of the Committee on Revision and Publication of the United States Pharmacopeia; also of the Medical Commission on Boston's water-supply. He was the author of an article on the examination of blood and hair for a book on medical jurisprudence and his work, "Arsenic as a Domestic Poison" created great interest at the time of its publication.

Augustus Palmer Dudley, aged 52, of New York City, from pulmonary tuberculosis, July 15, at Liverpool, England. He was graduated from the Dartmouth Medical School in 1877. He was a wellknown gynecologist and was to have read a paper before the International Medical Congress in St. Petersburg in August, having been appointed United States delegate. The symptoms of the disease developed a few days before his departure for Europe and all efforts of his physicians to dissuade him from taking the voyage were unsuccessful. He was professor of gynecology in the Postgraduate Hospital, Harlem Hospital and the medical school of the University of Vermont; member of the American Medical Association, International Gynecological Society, American Gynecological Society, New York Obstetrical Society and the New York Academy of Medicine.

William C. Tyree, aged 51, of Kansas City, Mo., June 23, from tuberculosis, at El Paso, Texas. He was graduated from the Kansas City (Mo.) Medical College in 1876; ex-president and professor of ophthalmology and otology in the Kansas City Medical College; oculist and aurist to St. Margaret's, St. Joseph's and Scarritt Hospitals, Kansas City; and president of the Kansas City Academy of Medicine in 1891.

Pascal H. Sawyer, aged 68, of Cleveland, from pneumonia, June 26, in St. Anthony's Hospital, Cleveland. He was graduated from the medical department of the Western Reserve Medical School in 1850. He was one of the oldest and most prominent physicians of Cleveland, and was for many years a member of the faculty of the medical department of the University of Wooster, Cleveland.

Edwin Stanton Fowler, aged 77, of Chicago, July 11, at the North Shore health resort. He practised medicine in Springfield, Illinois, for 45 years and had recently moved to Chicago. During the Civil war he was commissioned by Governor Yates to head the surgeons sent by Illinois to the field after the battle of Fort Donelson.

Charles W. Crary, July 13, from paralysis, at his home in Chicago, Ill. He was graduated from Jefferson Medical College in 1871. He was formerly a member of the United States pension examining board. At the outbreak of the Civil war he enlisted in the army from Lake City, Minn., and served as captain and surgeon-major.

Rupert W. Parker, formerly of Boston, July 10, from heart trouble, at his home at Crow Point, near Hingham. He was graduated from the University of Vermont, medical department, in 1893. He was a member of the Boston Medical Society and well known in the South End.

William Armisted Moale, aged 56, of Baltimore, July 12, at the Johns Hopkins Hospital after an operation for appendicitis. He was a graduate of the University of Maryland School of Medicine in 1879. He was the author of several books on medical subjects.

William H. Vincent, aged 51, June 12, at his home in Hinsdale, N. Y. He was graduated from the University of Buffalo (N. Y.), medical department, in 1881. For several years he served as a member of the board of supervisors of Cattaragus County.

John Allen, aged 48, July 1, from spinal meningitis, at his home in Covington, Ky. He was a graduate of the Medical College of Ohio, Cincinnati, in 1882. He was referee of the Kentucky State Board of Health for Kenton County.

George H. Wilson, aged 35, July 3, of Bright's disease, at his home in Cleveland, Ohio. He was graduated from the medical department of the Western Reserve University, Cleveland, in 1893. He was of the colored race.

J. C. Mundy, aged 75, July 13, from heart disease, at his home in Allen's Creek, Va. He was graduated from the University of Virginia, medical department, Charlottesville, in 1853.

R. D. McIlwaine, aged 41, July 13, from paralysis, at his home in Petersburg, Va. He was a graduate of the University of Virginia, medical department, Charlottesville, in 1885.

Robert S. Briskoe, aged 72, June 25, at his home in Colorado City, Col. He was graduated from the medical department of Washington University, St. Louis, in 1857.

Roger Q. Drake, aged 59, June 29, at his home in Mt. Sterling, Ky. He was graduated from Jefferson Medical College in 1868.

FOREIGN.—**Johannes v. Mikulicz-Radecki,** aged 55, June 14, after a painful illness, at his home in Breslau. For some months obscure gastric symptoms had given him uneasiness, and early in December, 1904, he discovered a hard mass in the region of the stomach. Out of consideration for his family, he said nothing about his condition until after Christmas, and on January 7 at an exploratory laparotomy it was discovered that the pylorus was involved in a malignant growth so adherent to the pancreas and colon as to be inoperable. He accepted the decision with great fortitude, and caused the report to be circulated that the operation had been done for the relief of an umbilical hernia. After a very brief period of convalescence he resumed the routine of his professional and clinical work. In April, after a severe hematemesis, he had to give up and gradually became weaker until death occurred. It is a tragic coincidence that one who had contributed so much to the surgery of the stomach should himself fall a victim to a carcinoma that when diagnosed was too far advanced to be operable. **Dr. Clado,** a Greek physician, residing in Paris for many years, July 10, from blood poisoning, the result of pricking his finger while operating on a patient. Returning late at night about ten days ago and finding that an operation was necessary on a poor workman, he went to the hospital and performed the operation that night as he could not conscientiously postpone it until the next day. He was a chevalier of the Legion of Honor.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 15, 1905:

			Cases	Deaths
SMALLPOX—UNITED STATES.				
District of Columbia:	Washington	July 1-8	3	
Florida:	Jacksonville	July 1-8	1	
Illinois:	Chicago	July 1-8	15	4
	Danville	June 27-July 10	3	
Indiana:	South Bend	June 24-July 8	3	1
Louisiana:	New Orleans	June 24-July 8	7	
			(one imported)	
Michigan:	Grand Rapids	July 1-8	7	1
Minnesota:	19 counties	June 12-19	61	
	10 counties	June 19-26	50	
Missouri:	St. Louis	June 24-July 1	1	
Nebraska:	Omaha	July 1-8	2	
New York:	New York	June 24-July 1	1	
	Rome	July 1-8	1	
North Dakota:	9 counties	May 1-31	55	
Pennsylvania:	York	July 1-8	1	
South Carolina:	Greenville	June 24-July 1		1
Tennessee:	Memphis	July 1-8	1	
Wisconsin:	Appleton	July 1-8	2	
	La Crosse	June 24-July 1	1	
	Milwaukee	June 24-July 8	17	
SMALLPOX—FOREIGN.				
Africa:	Cape Colony	May 27-June 3	2	
Belgium:	Brussels	June 10-17		1
Brazil:	Bahia	May 13-27	14	
	Rio de Janeiro	May 28-June 11	19	9
China:	Hong Kong	April 30-May 6	3	
Colombia:	Cartagena	June 10-17	1	1
France:	Paris	June 10-24	31	4
Great Britain:	Birmingham	June 17-24	1	
	Bristol	June 17-24	3	
	London	June 10-24	4	
	Sheffield	June 17-24	1	
India:	Calcutta	May 27-June 3		2
	Madras	May 27-June 2		2
Italy:	Catania	June 15-22		4
	Messina	June 17-24	3	
Mexico:	City of Mexico	June 17-24	15	9
Russia:	Odessa	June 10-17	13	3
	St. Petersburg	June 3-17	14	3
West Indies:	Grenada	June 1-15	4	
YELLOW FEVER.				
Brazil:	Rio de Janeiro	May 28-June 11	85	34
Ecuador:	Guayaquil	June 6-13	4	
Guatemala:	Livingston	June 21-July 6	12	5
Mexico:	Tehuantepec	June 25-July 1	1	1
	Tierra Blanca	June 18-July 1	3	1
	Vera Cruz	July 11	1	
Panama:	Colon	June 23-28	4	1
	Panama	June 23-28	6	1
	Paraiso	June 23-28	1	
CHOLERA.				
India:	Calcutta	May 27-June 3		9
PLAGUE—FOREIGN.				
Africa:	East London	May 20-27	3	1
	King Williams Town	May 20-27	1	
	Queenstown	May 20-27	3	1
Arabia:	Aden	June 2-9		1
Brazil:	Rio de Janeiro	June 4-11		1
China:	Hong Kong	April 30-May 6	8	7
India:	Calcutta	May 27-June 3		84
	Madras	May 27-June 2		1
Peru:	Payta	June 14	2	1

Changes in the Medical Corps of the U. S. Army for the week ended July 15, 1905:

SENECAL, HENRY C., sergeant first class, now at Vancouver Barracks, will proceed to Fort Wright for temporary duty relieving Sergeant First Class Eugene Weber who will proceed to Manila, P. I.

WAKEMAN, Major WILLIAM J., surgeon, is granted leave for one month from about July 5, after the return to post of First Lieutenant Robert M. Blanchard, assistant surgeon.

GANDY, Major CHARLES M., surgeon, is granted leave for twenty days to take effect when his services can be spared by the post commander.

HALLOCK, Captain HARRY M., assistant surgeon, will report to Major William H. Arthur, surgeon, president of the Examining Board at the Army Medical Museum Building for physical re-examination for promotion.

STILES, Captain HENRY R., assistant surgeon, having been examined for promotion by a board of officers and found physically disqualified for the duties of a major and surgeon, by reason of disability incident to service, his retirement from active service as a major, under the provisions of the act of Congress approved October 1, 1890, is announced, to date from July 1, 1905, the date on which he would have been promoted to that grade by reason of seniority if found qualified. He will proceed to his home.

CUSHMAN, GABRIEL, sergeant first class, hospital corps, now on furlough at New York City, will report at Columbus Barracks about July 20 to accompany the first detachment of recruits ordered to the Pacific coast. Upon completion of this duty he will report to the commanding officer, depot of recruits and casuals, Fort McDowell, who will send him to Manila.

The following changes in the stations and duties of officers are ordered: Major Edward C. Carter, surgeon, having reported to the military secretary of the Army, in compliance with orders heretofore issued, will proceed to Fort Leavenworth for duty; Captain Edward R. Schreiner, assistant surgeon, is relieved from duty at Fort McHenry, and will proceed to Washington Barracks for duty; First Lieutenant James Bourke, assistant surgeon, will proceed from New York City to Fort McHenry for temporary duty.

HALLORAN, First Lieutenant PAUL S., assistant surgeon, is granted leave for one month, with permission to apply for an extension of two months.

KOERPER, First Lieutenant CONRAD E., assistant surgeon, will report at Washington Barracks for temporary duty, and upon the arrival of Captain Edward R. Schreiner, assistant surgeon, at that post will return at his proper station.

HOGUE, GUSTAVUS I., contract surgeon, leave granted June 1, is extended fifteen days.

Boards of medical officers as hereinafter constituted are appointed to meet on August 1, at the places designated, for the purpose of conducting the preliminary examination of applicants for appointment in the medical corps of the Army: At the Army General Hospital, Washington Barracks—First Lieutenants Harry L. Gilchrist, Charles R. Reynolds, Conrad E. Koerper, assistant surgeons. At Fort Ethan Allen—Major Joseph T. Clarke, surgeon; First Lieutenant Chandler P. Robbins, assistant surgeon. At Fort Jay—Major Charles Richard, surgeon; First Lieutenant George H. Crabtree, assistant surgeon. At Fort Thomas—Major William J. Wakeman, surgeon; First Lieutenant Robert M. Blanchard, assistant surgeon. At Ancon, Canal Zone, Isthmus of Panama—Captains Paul F. Straub, Ira A. Shimer, First Lieutenant Theodore C. Lyster, assistant surgeons. At Vancouver Barracks—Major Rudolph G. Ebert, surgeon; First Lieutenant Robert L. Richards, assistant surgeon. At Fort Leavenworth—Captain David Baker, First Lieutenants James F. Edwards, Carroll D. Buck, assistant surgeons. At Fort Sheridan—Captain Charles E. Marrow, First Lieutenant William E. Vose, assistant surgeons. At Jefferson Barracks—Major William B. Banister, surgeon; First Lieutenant Patrick H. McAndrew, assistant surgeon. At Columbus Barracks—Major Henry I. Raymond, surgeon; First Lieutenant Ernest L. Ruffner assistant surgeon. At Fort Snelling—Major Euclid B. Frick, surgeon; First Lieutenant William H. Tefft, assistant surgeon. At Fort Sam Houston—Lieutenant Colonel Louis M. Maus, deputy surgeon-general; First Lieutenant Perry L. Boyer, assistant surgeon. At Fort Banks—Captain Harry A. Webster, First Lieutenant Robert M. Thornburgh, assistant surgeons. At Fort Wayne—Major Charles M. Gandy, surgeon. At Fort McPherson—Major Henry P. Birmingham, surgeon. At Madison Barracks—Captain Powell C. Fauntleroy, assistant surgeon. At San Juan, P. R.—Major William F. Lippitt, surgeon. At Fort Crook—Major Richard W. Johnson, surgeon. At Fort Logan H. Roots—First Lieutenant James M. Phalen, assistant surgeon. At Fort D. A. Russell—Major Charles F. Kieffer, surgeon. At Jackson Barracks—First Lieutenant William L. Little, assistant surgeon. At Fort Preble—Captain Percy L. Jones, assistant surgeon. The boards will be governed by instructions to be communicated to them by the surgeon general of the Army, to whom the reports of the boards will be rendered direct.

HALLOCK, Captain HARRY W., assistant surgeon, is granted leave for 14 days, to take effect after the completion of his examination for promotion.

JEAN, First Lieutenant GEORGE W., assistant surgeon, will proceed to Fort Porter for temporary duty, until the return of Captain Harry W. Hallock, assistant surgeon, when he will rejoin his proper station (Fort Adams.)

OLIVER, ROBERT T., examining and supervising dental surgeon, is detailed to represent the dental corps of the army at the annual meeting of the National Dental Association to be held at Buffalo, N. Y., July 24 to 29.

HOWARD, Captain DEAN C., assistant surgeon, so much of the leave granted June 19, as remains unexpired is changed to sick leave and is extended one month and fifteen days on surgeon's certificate.

The following changes in the stations and duties of officers and of contract surgeons are ordered:

HALL, First Lieutenant JAMES F., assistant surgeon, having reported his arrival at San Francisco, Cal., will report for assignment to duty at the Army General Hospital, Presidio of San Francisco, Cal.

VAUGHAN, MILTON, contract surgeon, is relieved from duty at Fort Douglas and will proceed to Fort Crook for duty.

KELLER, First Lieutenant WILLIAM L., assistant surgeon, is relieved from duty at the Army General Hospital, Presidio of San Francisco, Cal., and will proceed to Fort Douglas for duty.

SCOTT, SIDNEY L., contract surgeon, is relieved from duty at Washington Barracks to take effect upon the return of the engineer troops from Saunders Range, Md., and will then report to the commanding officer Army General Hospital, at that post, for duty.

BROBERT, MERTON A., contract surgeon, will proceed to his home, Delaware, O., for annulment of contract.

DAVIS, HARRY A., sergeant first class, transport Sumner, Brooklyn, N. Y., will be sent to Fort Myer for duty.

CARTER, Major EDWARD C., surgeon, is granted leave for two months, with permission to go beyond the sea.

SUGGS, FRANK, contract surgeon, is granted leave for two months on surgeon's certificate, to take effect upon his being discharged from the Army General Hospital, Presidio of San Francisco.

JONES, First Lieutenant PERCY L., assistant surgeon, leave granted for twenty days is extended ten days.

Changes in the Medical Corps of the U. S. Navy for the week ended July 15, 1905:

RICHARDSON, R. R., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from May 18, 1904—July 7.

FAUNTLEROY, A. M., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from September 29, 1904—July 7.

SUTTON, R. L., assistant surgeon, having been examined by a retiring board and found incapacitated for active service on account of disability incident thereto, is retired from active service, June 30, 1905, in accordance with the provisions of Section 1453, Revised Statutes—July 7.

PAYNE, J. H., passed assistant surgeon, detached from the Pennsylvania and ordered to the Nashville—July 8.

MAYERS, G. M., assistant surgeon, ordered to the Naval Training Station, Newport, R. I., with additional duty on the Constellation—July 8.

CATHER, D. C., assistant surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to the Pennsylvania—July 8.

MEARS, J. B., acting assistant surgeon, ordered to duty with the torpedo flotilla of the Coast squadron—July 8.

OHNESORG, K., passed assistant surgeon, ordered to the Mayflower—July 10.

THOMPSON, E., surgeon, detached from the Des Moines and ordered home to wait orders—July 11.

HOYT, R. E., assistant surgeon, ordered to the Naval Academy—July 11.

GORDON, F. T., pharmacist, detached from the Naval Dispensary, Washington, D. C., and ordered home to wait orders, after discharge from treatment at the Naval Hospital—July 11.

Changes in the Public Health and Marine-Hospital Service for the week ended July 12 1905:

IRWIN, FAIRFAX, surgeon, granted leave of absence for one month from August 8—July 12, 1905.

SPRAGUE, E. K., passed assistant surgeon, leave of absence for one month from June 27, 1905, granted by bureau letter of June 10, amended so that said leave shall be effective from July 5—July 7, 1905.

PARKER, H. B., passed assistant surgeon, granted leave of absence for ten days from June 16, on account of sickness—July 7, 1905.

AMESSE, J. W., passed assistant surgeon, granted leave of absence for three days from July 11—July 10, 1905.

EARLE, B. H., assistant surgeon, bureau telegram granting leave of absence for seven days from June 25, amended so that said leave shall be effective from June 27—July 12, 1905.

STIMSON, A. M., assistant surgeon, granted leave of absence for one month and fourteen days from July 21—July 10, 1905.

RUCKER, W. C., assistant surgeon, granted leave of absence for seven days from July 6, 1905, under paragraph 191 of the regulations.

COLLINS, G. L., assistant surgeon, granted leave of absence for four days from July 5, 1905, under paragraph 191 of the regulations.

FROST, W. H., assistant surgeon, granted leave of absence for two days from June 24, under paragraph 191 of the regulations.

BAILEY, C. W., acting assistant surgeon, granted leave of absence for seven days from July 12—July 11, 1905.

RICHARDSON, N. D., acting assistant surgeon, granted leave of absence for five days, under paragraph 210 of the regulations.

SINCLAIR, A. N., acting assistant surgeon, granted leave of absence for thirty days from July 8—July 10, 1905.

ACHENBACH, J., pharmacist, relieved from duty at the Marine Hospital, Port Townsend, Wash., and directed to report to the medical officer in command of the Port Townsend quarantine station for duty—July 7, 1905.

GIBSON, F. L., pharmacist, to proceed to Portland, Oregon, for duty in connection with the Service exhibit at the Lewis and Clark Exposition—July 11, 1905.

TROXLER, R. F., pharmacist, relieved from duty at the Port Townsend quarantine station, and assigned to duty at the Marine Hospital, Port Townsend, Wash., effective May 10—July 7, 1905.

Boards Convened.

Board convened to meet at Key West, Fla., July 7, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon C. E. Banks, chairman; Acting Assistant Surgeon S. D. W. Light, recorder.

Board convened to meet at Washington, D. C., July 12, 1905, for the consideration of examination papers of Assistant Surgeons B. H. Earle, M. W. Glover and C. C. Pierce, to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Assistant Surgeon-General J. M. Eager, chairman; Passed Assistant Surgeon Jos. Goldberger, Assistant Surgeon J. W. Trask, recorder.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine*.]

Officers Chosen.—President, William J. Mayo, of Rochester, Minn.; first vice-president, Surgeon-General Walter Wyman, of the United States Public Health and Marine-Hospital Service; second vice-president, Kenneth A. J. MacKenzie, of Oregon; third vice-president, Eugene S. Talbot, of Illinois; fourth vice-president, Edward Martin, of Pennsylvania; secretary, George H. Simmons, of Illinois; treasurer, Frank Billings, of Illinois; trustees, E. E. Montgomery, of Pennsylvania; A. L. Wright, of Iowa, and H. L. E. Johnson, of the District of Columbia. The next meeting will be held in Boston, Mass.

House of Delegates.

The real beginning of the fifty-sixth annual sessions of the American Medical Association was weeks and months ago when the various local committees, under the leadership of K. A. J. MacKenzie began their preparations for entertainment, amusements, meetings, exhibits, and the various other functions which make up a successful gathering. For days beforehand the delegates and visitors were coming into Portland and being assigned to places of entertainment, and on Monday morning there was a goodly gathering of delegates presented to the committee on credentials; so that the first session was not called to order until 11 o'clock. At this hour President J. H. Musser called the House of Delegates to order and formally opened the session. The first order of business was the report of Stevens, chairman of the committee on credentials and registration, who reported the names of 118 delegates, who had arrived and registered before the opening meeting. After this, President J. H. Musser delivered an address to the House of Delegates, expressing a most hearty welcome to the delegates and a profound appreciation of the work of the officers and committees during the year just past. He spoke in part as follows: "It gives me pleasure to welcome you in assemblage this day, to assume the duties imposed upon you by your fellow members of the constituent bodies of this great organization. The demands upon your time and patience you may find somewhat onerous. The sense of responsibility that attends and the satisfaction of fulfilling an imposed trust will sweeten your labors and allay your discomforts. The sincere sympathy and generous charity accorded me while conducting your deliberations last year, will, I am sure, be mine this, and my extreme regret is that in the absence of parliamentary skill I cannot show the master hand worthy the occasion. We have, however, a common object, the welfare of the Association and, through it, of our beloved profession, before which our mutual shortcomings pale. During the year I have had the opportunity of contact with the various officials of the American Medical Association whose tenure of office is more or less permanent and who are, in a sense, the organization. Your president, in a measure, stands aloof from them in action and is more representative of the profession than of the organization, if such distinction may be made. I care not where you seek or whither you turn, no more high-toned, honorable men, with higher altruistic motives, exist than those, who, while we go on our way, are laboring for the good of the organization they represent. I might speak of your Board of Trustees, whose deliberations mean so much for us. We are what we are because of their faithfulness to the trust imposed on them. Your permanent, and therefore organic committees bring to us reports only as the result of mature deliberation. The emotional impulse—that influence which ofttimes tricks assemblies of men—should not carry us counter to their suggestion without calm deliberation. A corollary to this is, accept within your rights the reports of your committees and then hold them responsible, if a wrong is done or a project fails. Of the business of the year I have nothing to report. The secretary, treasurer, and the Board of Trustees will lay before you the facts that you should know. From them you can infer the growth of the organization, the success of its endeavors, its benefits to the profession. You will not, after hearing these reports be surprised to know that the power of the organization is complimented by others than those who are its well-wishers. We labor as an Association, under the organization of recent adoption. The results justify the trials and tribulations that attend this change. No mobile organization, growing to giant strength as the night passes, can be fitted to fixed rules of convention at once. There naturally must be misfits and friction. We must realize this and be patient while the mellowing influence of action and experience rubs down the inequalities. The conduct of the deliberations is based upon lines, now organic law, laid down by that master of organization, my predecessor in this chair, Frank Billings. The Association cannot be too grateful to him for the unselfish manner in which he has dedicated his powers to its cause. The official relation of president and president-elect, a new experience for the Association, has been continued as in the previous year, with advantage, we believe, to the Association. I must recall to you and indorse the recommendation of ex-President Wyeth, that the selection of the meeting place and the duties of arrangement for the meeting becomes a fixed part of our organization under the direct control of the House of Delegates and its representatives. I should like, too, to ask your scientific attention to further promotion of our scientific work. I would ask, also, that you lend counsel and support to the utmost, to the cause of medical education, to the questions of reciprocity, and allied measures that are the woof and warp of our whole existence. Let us not forget that we owe a duty to our nation, and that due support should be given its officials whose duties are cognate with us, the medical departments of the army and navy and the department of public health and hygiene.

At the conclusion of the address, President Musser announced the following committees:

Credentials.—Cyrus L. Stevens, Pennsylvania, chairman; R. C. Moore, Nebraska; H. W. Dewey, Washington; J. N. McCormick, Kentucky; C. S. Sheldon, Wisconsin.

Reports of Officers.—President's address, secretary's report, trustees' report. Frank Billings, Illinois, chairman; G. W. Guthrie, Pennsylvania; C. D. Coleman, Georgia; M. H. Richardson, Massachusetts; C. J. Smith, Oregon.

Committee on Medical Legislation and Political Action.—W. B. Dorsett, Missouri, chairman; G. H. Thoma, Nevada; C. E. Williams, Maine; L. C. Morris, Alabama; W. J. Miller, Tennessee.

Reference Committee on Medical Education.—(Ex-officio, members of Council.) George M. Kober, District of Columbia, chairman; J. N. McCormick, Kentucky; Charles E. Woodruff, United States Army; W. A. Jayne, Colorado; John C. Munro, Massachusetts.

Reference Committee on Section and Section Work.—Joseph McFarland, Pennsylvania, chairman; Edward F. Wells, Illinois; J. N. Jackson, Missouri; F. W. Langdon, Ohio; John W. Foss, Arizona.

Reference Committee on Rules and Order.—George Ben Johnson, Virginia, chairman; J. A. Campbell, Iowa; F. E. Daniel, Texas; C. J. Smith, Oregon; G. B. Black, New Mexico; Melville Black, Colorado.

Committee on Hygiene and Public Health.—W. H. Sanders, Alabama, chairman; Wm. S. Foster, Pennsylvania; H. S. Cumming, California; H. M. Workman, Minnesota; Alexander Marcy, New Jersey.

Reference Committee on Amendments to Constitution and By-Laws.—A. R. Craig, Pennsylvania, chairman; W. N. Wishard, Indiana; Frank Paschall, Texas; Wm. M. Harsha, Illinois; J. Garland Sherrill, Kentucky.

Reference Committee on Miscellaneous Business.—E. Eliot Harris, New York, chairman; C. S. Bacon, Illinois; Philip Mills Jones, California; Edward E. Maxey, Idaho; E. J. Williams, Mississippi.

The next order of business was the report of the secretary, which being read, was referred to the committee on Reports of Officers.

Report of the Secretary.—During the year there have been added 4,889, and 938 have been dropped; 162 on account of death, 176 not eligible, 36 for nonpayment of dues, 535 resigned, and 29 were not found, leaving a net gain of 3,951. This makes the total membership on June 1, 1905, 19,285. (It is estimated that there are about 17,000 subscribers not members.) Of the 4,889 members added to our membership list, 2,380 were new members, and 2,509 were subscribers to *The Journal*, and finally were transferred to the membership list. A letter has been received from the president of the Oklahoma State Medical Association, in which he states that a committee has been appointed by the Indian Territory Medical Association looking to the union of the Indian Territory Medical Association with the Oklahoma State Medical Association should the two Territories be admitted as one State. He also states that he has been asked to appoint a similar committee, and asks for the proper mode of procedure. In reply I have stated that the matter rests entirely with the territorial associations, and that if the two decided to unite, a report of such action should be presented to the House of Delegates of the American Medical Association, with a request for the recognition of the new organization. During the past year correspondence has been carried on with a number of physicians practising in Porto Rico regarding membership in the American Medical Association, and looking toward the establishment of a constituent association on that island. It is probable that the next year will see the organization of such an association in Porto Rico, asking for recognition. A letter was received from the secretary of the American Electrotherapeutic Association, stating that "at the fourteenth annual convention of the American Electrotherapeutic Association, held at St. Louis, Mo., September 13 to 16, 1904, it was voted that the secretary be instructed to communicate to the officers af the American Medical Association a request that the said American Medical Association establish before the next convention a Section on Electrotherapeutics." The year has been marked with a growth and development of organization machinery that is highly gratifying. Under an ideal system of organization, the county secretary should report promptly to the State secretary the names of newly-elected members, as well as the names of members who have died, removed, or resigned, or who have been suspended or dropped. The State secretary, after duly entering it on his own records, should for-

ward this data to the general secretary's office, which should be the center of information in regard to the profession and its members. There are two essentials for such a system: (1) A method of transmitting such data from county secretaries to State secretaries, and from State secretaries to the general secretary. Such a system should be simple and accurate, and should be capable of transmitting a maximum amount of information with a minimum amount of labor. The majority of the county and State secretaries do their work practically without compensation, in the leisure moments of active professional life, and their work must be systematized so as to reduce it to the smallest necessary amount. Such a system of reporting members and collecting data is gradually being developed; (2) the second essential is that information regarding members must be preserved in the most available and most easily corrected form. The constant changes going on in the profession make any printed lists inadvisable, as they soon become incorrect. A card index is the only elastic, easily corrected system. For some time we have been engaged in constructing such an index of members of constituent State associations. We now have indexed the membership of over half of the constituent State associations, and this will be completed as rapidly as possible. The councilors of the constituent associations are the mainspring of organization in each State. Each councilor should have all the assistance that can be given him in his work of organizing his district and of stimulating local societies. Feeling that the councilors have heretofore been given too little attention and aid by the general organization and that each councilor was left to work out his own problems without knowing anything of the successes or failures of his fellow workers in other States, it was proposed as a remedy for these conditions that there shall be established a councilors' bulletin for the discussion of organization conditions, methods, and results, such a bulletin to circulate among the councilors, State secretaries, and, perhaps, county secretaries. A circular letter outlining such a plan, and asking for an expression of opinion as to its advisability, was sent out in May to all State councilors, numbering about 288; 118 answers were received. Of these, none was opposed to the plan, three were in doubt, and the rest heartily favored it. Many valuable suggestions were made. It seems advisable that such an organization bulletin should be issued, perhaps quarterly, for circulation among those specially interested in the work of organization, and in making county societies of more value to their members. It has long been recognized that a permanent biographic card index of American physicians, giving data in regard to preliminary education, medical education, previous locations, etc., would be of great value to the Association and to the profession. Such an index will be of value in tracing a physician through various locations, making up matter for directories, etc., and in compiling statistics regarding the profession. This work has been begun, and is now being carried on along two different lines, viz.: 1. The accumulation and indexing of biographic data in regard to members of the profession now engaged in active practice. 2. The accumulation of similar data in regard to graduates of the current year and of recent licentiates of State Boards of Health. This has been carried on through the assistance and with the cooperation of medical colleges and secretaries of State licensing boards. The amount of information on hand is considerable, and is steadily increasing.

The report of the Board of Trustees was next in order, but was delayed on account of the inability of the board to present a final report without another meeting.

Next the report of the Committee on the Rush Monument Fund was presented. This being the final report, after its adoption the committee was discharged. The report, brief but interesting on account of its significance, was as follows: In 1900 the surviving members of your Committee on the Rush Monument consisted of two, Henry D. Holton and the chairman. At their request, the president of the Association, at the 1900 Atlantic City session, added to the committee, Frank Billings, Chicago; L. Duncan Bulkley, New York; and Wm. L. Rodman, Philadelphia. This enlarged committee considered with great care various methods of increasing the fund, which then, with interest, amounted to about $15,000. Finally, it was determined to erect such a monument as could be obtained with the funds already on hand. After careful investigation the contract for the monument was given to the Henry-Bonnard Bronze Company, of New York, at whose recommendation the commission for the statue was awarded to Mr. R. Hinton Perry, a young sculptor of prominence, and that for the pedestal to Mr. Louis R. Metcalfe, an architect of distinction. The thanks of the committee are due to these gentlemen for the efficient and satisfactory manner in which they discharged the work allotted to them, and to Mr. Eugene F. Aucaigne, the manager of the Henry-Bonnard Bronze Company, for practical suggestions and advice. Early in the history of the committee, through the efforts of the late Albert H. Gihon, the then Secretary of the Navy had designated a site for the statue on the grounds of the Naval Museum of Hygiene and Medical School, at Twenty-third and E streets, Northwest, Washington, D. C. The exact location within the enclosure was fixed early in 1904 by a special commission, consisting of Surgeon-General P. M. Rixey, United States Navy; Dr. J. C. Wilson, Mr. Louis R. Metcalfe, Mr. Frederick B. McGuire, appointed by W. H. Moody, Secretary of the Navy. There the monument now stands in a conspicuous position on a beautiful lawn in front of the Naval Museum, and at a considerable elevation above the level of the public highway. The bronze statue is a little more than life size, and has been favorably spoken of by many who are capable of judging it, as a work of art. The pedestal, which stands on an octagonal base of granite rising from the level of the ground by three steps, is of beautiful design, and bears on its four panels, respectively, the following legends: In front, "Benjamin Rush, Physician and Philanthropist, 1745, 1813." On the left, "Signer of the Declaration of Independence." On the right, "Studium sine calamo somnium," and on the rear, "The First American Alienist." These legends are in raised bronze letters, dowelled into the stone. The total height of the monument is about 17 feet. On the base in front, cut into the stone, are the words "Erected by the American Medical Association, 1904." The unveiling and dedication of the monument took place on Saturday, June 11, 1904, at 5 o'clock. J. H. Musser, the president of the American Medical Association, made a brief address; J. C. Wilson, the chairman of the Committee on Rush Monument, delivered a eulogy on Rush, and the President of the United States accepted the monument as a gift from the medical profession to the nation in a graceful and interesting address. Your chairman of the Committee on Rush Monument recently examined the monument and found it well cared for and surrounded by beds of recently planted flowers.

On account of the absence of C. A. L. Reed, chairman of the Committee on Medical Legislation, the presentation of the report of that committee was deferred.

Next was presented the report of the Committee on Walter Reed Monument, which was accepted and the committee continued.

[To be continued.]

Obstetrics and Diseases of Women.

FIRST SESSION.

Chairman's Address.—C. L. BONIFIELD (Cincinnati) reviewed the advances made in gynecology and obstetrics, stating that as these departments had made such advances in the past and had encroached upon the department of surgery to such an extent that he would suggest the change of the name of the section of "Obstetrics and Diseases of Women" to that of "Obstetrics, Gynecology and Abdominal Surgery." There was no ideal method yet found for the treatment of retrodisplacement of the uterus. He then considered lacerated perineum, etc., dividing the cases into (1) those requiring treatment and (2) those not requiring treatment—these being mostly not seen by the gynecologist. When treated nonsurgically, he mentioned the use of tampons, douches, rest, tonics, and suitable exercises. When treated surgically, repair the perineum, do a curetage, trachelorrhaphy, etc. Continuing, he said that the surgical treatment of displacement is made simple and free from danger by using Alexander's method. In case of complications the abdomen should be opened, the uterus freed from adhesion, and the tubes and ovaries treated as required. This operation not done in child-bearing women. In cancer of the uterus he thought the question of operation depended upon the patient's condition and the skill and rapidity of the operator. He begins the operation of cancer of the cervix by cauterizing the same, and does an abdominal hysterectomy at once and trims off a collar of tissue around the upper border of the cervix to decrease the danger of extension. The doctor next mentioned the late operation of Dudley, of Chicago, for incontinence of urine in women. Bonifield thinks the toxemia of pregnancy was mostly due to pathologic changes in the liver, and highly recommended veratrum viride as a remedy. He concluded that vaginal cesarean section has become a well-recognized surgical procedure, the Porro operation being used in cases of placenta prævia. He next spoke of sterility and its tendency to increase in American women.

Following the address of the chairman, TAUSSIG (Milwaukee) read the report of the committee relating to the question: "What may be done to increase the percentage of cures of uterine cancer?" The committee, consisting of J. A. Sampson (Albany), Clark, and Taussig, made its report. Taussig stated: (1) That as cancer of the uterus was the most frequent form of cancer, and (2) that cancer of the cervix was more frequent than any other part of the uterus, the committee recommended the education of the mother concerning the nature of the disease by her medical adviser. All advertisements should be done away with. The American Medical Association should take the initiative in the matter. Continuing, he suggested: (*a*) The education of physicians: (1) By mailing under separate cover a reprint of this report; (2) insisting upon immediate examination of all women showing suspicious symptoms; (3) obtaining the assistance of university or pathologic laboratories, where specimens of tissue may be examined gratis or otherwise; (4) by suggesting to State Boards of Health the necessity of establishing stations where bottles containing formalin solution, and instructions may be obtained as to securing material for examination and disposing of the same (as is now done with tuberculous or suspected sputum). *b*. The education of women and the laity: (1) The family physician should early investigate the suspicious symptoms; (2) among the poorer classes, district nurses or superintendents should give lectures to the mothers; (3) cooperation of the "American Federation of Women's Clubs," for the pur-

pose of lectures. An advance communication to be sent to the State medical associations to act in accordance with these ideas. The subject of this report to be entrusted to a committee of five, to be appointed by the House of Delegates for this purpose. Commenting upon the report, Taussig said that the objections to be considered were: (1) Nervousness on the part of the mother, because of the worry and fear of malignancy, etc.; (2) many women would be induced to consult "cancer quacks," and (3) opportunity of individual physicians to profit at the expense of their fellow physicians. In regard to (1), he thought nervousness, worry, etc., nothing as compared to the probability of saving a life; and as to (2) and (3), the suggestions contained in the report he thought would tend to prevent the occurrence of these conditions. The report was adopted.

The Innocent Fibromyoma of the Uterus.—THOMAS BARKER EASTMAN (Indianapolis) urged that at the time of diagnosis, or soon after, conditions are present that will warrant the removal of fibromyoma, and which do not show previous symptoms, except the presence of a tumor. He cited the statistics of several authorities as well as those occurring in his own experience to support his views, a large proportion of those not being removed, later undergoing malignant degeneration or changes. He stated that sarcomatous changes were the most frequent at the menopause, and therefore not agreeing that it is best to wait and expect relief after the menopause. He had a case of calcareous tumor with much enlarged blood-vessels. He claimed that the menopause increases rather than alleviates the symptoms in at least 50% of the cases. Nothing so innocent or treacherous as a fibroid, and all fibromyomas should be removed, unless there are contraindications to the same.

Discussion.—FRANK D. ANDREWS (Chicago) wished to go on record as holding absolutely contrary views to those of Eastman. He looks upon Eastman's position as dangerous. He thought most cases got symptomatically well after the menopause. J. H. CARSTENS (Detroit) stated that it was a question of individuals and surgeons; also a question of how many cases will undergo changes of any kind, also how many will develop septic conditions or tumor—on the other hand, how many cases will die if you operate. He thought more cases would undergo changes if not operated upon, *i. e.*, cancerous, suppurative, etc. A fibroid is ordinarily not dangerous, therefore, select your time for operation and put her in condition in the meantime and you will get a lower mortality. If a young woman has a fibroid tumor, enucleate; if in an old person, perform a hysterectomy, but do not let her carry it for ten or more years, etc. L. H. DUNNING (Indianapolis) heartily agreed with the essay. He thought every case of fibroid should not be operated on: 18% undergoes degeneration, while, on the other hand, there is 5% mortality. He believed many underwent absorption after the menopause. We are justified in being conservative when there are no symptoms whatever. Signs present in cases of dangerous tumor are: Pain, growth of the tumor, fever, cachexia, and increased and painful menstruation. If there are no pressure symptoms and no signs of degeneration he would wait but keep the patient under observation, and proceed to operate when these symptoms arise. D. H. CRAIG (Boston) took the position that we should decide on cases that need and do not need operation, and act accordingly. HAWKINS (St. Paul) thought it not wise to advise every woman with fibroid tumor to submit to operation, as not all cases are well after the operation, and there is a large percentage of deaths, while many are entirely well after the menopause. HENRY (Omaha) said that we have not reached the point where operation is absolutely safe, hence we should not recommend operation in all cases, but only when it gives trouble or evidences of degeneration. Involution following pregnancy may cure the fibroid. GILMORE (Chicago) did not think one could detect malignancy by hemorrhage. BONIFIELD stated in reply to Henry's last statement that there was great danger in cases of pregnancy complicated by fibroids, often calling for cesarean section, etc.

Causes of Failure after Successful Gynecologic Operations.—WM. E. GROUND (Superior, Wis.) claimed that there is too much of a tendency nowadays to operate and send the patient away cured, only to return later in as bad or worse condition than before operation. Women frequently date their ill-health from pregnancy. Most important to deliver a woman without producing some injury to the perineum, cervix, or pelvic floor, as muscles rarely recover their tone after labor, even if they have been repaired; and immediate repair of the perineum does not cause proper pelvic support to result. After a careful and immediate suture a large number of cases will have to be repaired secondarily and a normal physiologic support never follows, whether repaired or not. Uncomplicated retrodisplacement of the uterus gives rise to few if any symptoms and little cure or benefit follows retroposition. If infected, the part becomes fixed and few women escape infection. The symptoms in most cases of retrodisplacement are dependent upon injury to the pelvic floor. There is not too much attention given the execution of the operation, but too little consideration given the patient after the operation.

Discussion.—J. H. CARSTENS endorsed this paper and asked why cases of operation are not cured: 1. Because of poor technic, nonunion, etc.; adhesion formed by an abdominal operation; shock. 2. The great trouble is that we did not make the correct diagnosis, but operated just because the patient was a woman. He advocated a more thorough diagnosis, and being sure all symptoms are absolutely produced by the trouble for which we operate, and don't promise too much. D. H. CRAIG said to epitomize, we have (1) uncommon operations; (2) insufficient operations; (3) excessive operations; (4) insufficient preparation; (5) insufficient convalescence. WALLS (Portland) spoke of the danger of malignancy and infection from laceration of the cervix. He advised repair within 12 months regardless of the size. HAWKINS (St. Paul) thought that if the patient was not getting well we should ask for consultation, but the surgeon should not expect that every patient taken to him is necessarily for operation. CARSTENS said that failure in these cases was due to operating for something other than the real trouble and that family physicians promised too much before bringing their cases to the surgeon.

[To be continued.]

Diseases of Children.

FIRST SESSION.

Chairman John Lovett Morse, of Boston, called the house to order at 2.45 p.m. The attendance was small at the beginning, but the room filled rapidly.

The Teaching of Pediatrics: Chairman's Address.—JOHN LOVETT MORSE (Boston) gave a description of the methods used in the Harvard College of Medicine. After giving a brief outline of the requirements for admission into Harvard, and a synopsis of the medical course as a whole, he said pediatrics was not begun till the third year, and not emphasized till the fourth. All the studies of the senior year are elective, and out of the 70 seniors of the present class, 65 elected some work in pediatrics. This fact shows that the subject is coming to be looked upon as an important one. This chair practically controls the children's wards in three hospitals, so they have clinical material in abundance. They also control the contagious wards in the Massachusetts Hospital. Morse strongly advised taking the emphasis away from didactic teaching and placing it upon clinic and ward studies. Recitations in this branch he called useless things, and recommended the system of case studies there in vogue.

A Plea for National and Local Boards of School Hygiene.—ALICE M. SMITH (Tacoma, Wash.) had carefully prepared her paper, and received close attention. Some of the thoughts advanced are as follows: Altruism, the study of the amelioration of the ills of humanity, is the natural role of the physician everywhere, hence he should bend every energy toward educating the public along the lines of preventable diseases and crimes. It is estimated that the loss to the general government by the death of one person is $1,000. Osler estimates the loss of life from tuberculosis alone to be $1,000,000 yearly. When to this amount is added the loss from all other diseases, most of which could be prevented by perfect hygienic surroundings, the total loss in dollars is enormous. Since the period of greatest stress is in the formative period of childhood, the greatest care should be exercised over the hygienic conditions of children, and especially in schools. In 1892 it was estimated there were 18,080,000 persons attending the various schools of this nation. They bring germs from all manner of homes, and their opportunity for spreading them is obvious. Ignorance and lethargy of school boards and parents, together with the lack of organized effort, have resulted in a pitiable state of affairs from a hygienic standpoint in most public schools. A vigorous reform is needed. A practicable plan is the creation of a national board of school hygiene, with subordinate State and local boards, which shall have general oversight of this entire business and full authority to carry out their plans. They should be empowered to close schools that are dangerous to the health of pupils, etc. There should be complete federation of these boards with the boards of public health. It would be a good thing for every city school superintendent to be an M.D. He might then have oversight of this matter and be able to act intelligently, leaving the questions of pedagogy to be decided by the teachers themselves, as they always are as it is.

Discussion.—C. F. WAHRER (Fort Madison, Ia.) strongly advocated the appointment of publication committees at every medical society to have printed by the Associated Press abstracts of papers presented. A. W. FAIRBANKS (Boston) spoke of the organized medical inspection of the Boston schools and the difficulties he found in the way of the medical inspector. He said he had had great trouble sometimes from opposition of family physicians, with one of whom he was compelled to labor four months before he could persuade him and the family to have a child treated for hip-joint disease, they insisting it was only "growing pains." H. E. GARRISON (Dixon, Ill.) advised that every physician take it upon himself to educate the people of his own community on hygienic principles. D. MCGAVIN (Portland, Ore.) said she had found the people quite teachable where she had been and quite quick to take up new ideas. SMITH closed the discussion with a few additional thoughts along the line of the paper. The plan is practicable, she declared, and if brought about would save the government billions of dollars annually.

[To be continued.]

Section on Ophthalmology.

FIRST SESSION.

Officers.—The following were elected for the ensuing year: Chairman, L. H. Taylor, Wilkesbarre, Pa; vice-chairman, W. H. Wilder, Chicago, Ill.; secretary, A. E. Bulson, Jr., Fort Wayne, Ind; member of House of Delegates, C. R. Holmes, Cincinnati.

Christian R. Holmes (Cincinnati, O.), chairman, presided. Prof. J. Hirschberg, of Berlin, was introduced as an invited guest of the society.

Chairman's Address: Studies of School and Hospital Hygiene of Interest to the Ophthalmic Surgeon (Illustrated with Lantern Slides).—CHRISTIAN R. HOLMES, (Cincinnati, O.) reminded the members of the amazing expansion of all human activities in this country in the past few years, and especially of the efforts given to the building of new schools, colleges and hospitals. As a people, he thought, we were slowly awaking to the importance of properly lighting, heating and ventilating these new buildings in accordance with scientific laws; we no longer took old buildings and tried to remodel them to make them resemble what a school, college or hospital should be, but made efforts to construct them upon the latest and most improved principles. He considered the problem of the lighting of school houses as a comparatively easy matter, and said the law laid down by Risley could not be broken without disaster to the children's eyes: "That it is the duty of the architect to secure in his plans all the window surface possible consistent with safety of construction." Pupils should face a blank wall of neutral tint, and the abundant light should be admitted from the left, or left and rear, so that the writing hand should cast no shadows upon the writing surface. A number of pictures was projected upon the screen, showing badly lighted school houses and those which were proposed as good models. He referred to the physical deterioration of children soon after entering school life, and to the large number brought to the attention of the oculist on account of progressive myopia. Out of 30,000 children examined in the schools of Cleveland in 1899 to 1900, he said 20% was found to have defective sight, and in Indianapolis out of 25,696, 32% was trying to do school work with defective vision. He advocated Risley's proposal that the schools should introduce a modified curriculum adapted to the physical capabilities of these scholars; the hours of eye work and brain work should be cut down, or so distributed as not to become a drain that would be felt as a burden. In hospitals sunlight and brilliant diffused daylight should have free admission. A more difficult problem in hospitals was the matter of ventilation. The different systems for securing proper ventilation were described and discussed in detail, with pictures showing the methods adopted in various hospitals and public buildings. Sanitarians and educators everywhere, Holmes said, were clamoring for proper and systematic medical inspection of school children, and it behooved those whose province is the eye to heartily second their efforts. He commented upon the work of Cohn, of Breslau; Williams and Ayers, of Cincinnati; Agnew, of New York; Derby, of Boston; and of Risley and his associates in Philadelphia, in working up the subject of the production of myopia by the ill-lighting of school rooms, and thought we had already gathered sufficient facts to justify a vigorous demand for the expert examination of the eyes of all school children as soon as they reach an age when they can be intelligently examined.

Is Keratitis Ever Caused by Rheumatism?—LEARTUS CONNOR (Detroit) looked upon rheumatism as a "symptom-complex" rather than a definite disease and desired to separate it from the joint diseases due to "infected wounds," "typhoid fever," "acute follicular tonsillitis," or "septic pyemia," in his discussion. Clinical experience, he said, showed that eliminative agents influenced most favorably both rheumatism and associated keratitis. In rheumatism the fibrous tissues were chiefly attacked. Experiments had shown that ligations of the long ciliary arteries or the venae vorticosa produced a parenchymatous keratitis, though observations on the human subject were lacking to indicate their force. He thought there was no a priori reason why the cornea should always escape the fate of tendons, endocardium or joints, so that the question was pertinent, does it escape? He considered that rheumatism might appear primarily in the sclera and secondarily in the cornea, or vice versa. Most ophthalmologists declared they had never recognized such keratitis and most of the books did not mention the subject. A number of cases was reported illustrative of the author's views. In three there was a clear history of recurring attacks of keratitis with rheumatism, the keratitis appearing with the rheumatic attack and fading as it declined; all benefited by antirheumatic treatment. All were classed as rheumatic keratitis, because they started in the cornea during an attack of acute rheumatism; some recurred many times; other constitutional causes were eliminated; they were nonsuppurative; there was pain and photophobia disproportionate to corneal lesion; antirheumatic treatment alone promoted rapid recovery. Queries on the subject had been sent out to colleagues and more or less full answers received. Sixty-seven had never seen cases of corneal disease which they could ascribe to rheumatism. Several had seen keratitis which they ascribed to gout. Sixty had seen one or more cases. The full text of positive answers accompanies the paper.

Discussion.—W. H. SNYDER (Toledo, Ohio) added two cases in which antirheumatic treatment and attention to diet produced a quick and permanent recovery.

[*To be continued.*]

Nervous and Mental Diseases.

FIRST SESSION.

The meeting was called to order at 2.20 p.m. by the chairman, J. H. McBride, (Pasadena, Cal.), who delivered the **annual address**, in which he urged that every practitioner in his daily work be an investigator, and expressed the belief that by such men more would be accomplished than by great experimenters. The future advances in medicine, he felt, would arise from bedside investigation and that the progress would be more of a preventive than of a therapeutic nature, although he felt that much could be accomplished by the latter means, and that new discoveries and new ideas along both lines should be sought after.

The Report of the Committee on Drug Addictions was read by the chairman, Smith Ely Jelliffe (New York). The work of the committee had been confined exclusively to investigations of the morphin habit, and the report consisted chiefly of an outline for the subsequent study of this matter. The committee recommended particularly the investigation of the distribution of the habit, and felt that as a large percentage of these cases were to be found in the penal institutions, the physicians in charge thereof had a wide and fertile field for such work. The committee was, on motion, continued for another year.

Defects of Will in Practical Medicine.—H. T. PERSHING (Denver, Colo.) stated that voluntary motion is causedly the idea of action, which is the memory of sensations previously caused by the action, and is in a definite kinesthetic center, connected by association fibers with the corresponding motor center. He dwelt at length upon the production of the processes of volition, acceleration, inhibition, and deliberation and the effect of the cortical exhaustion and emotional states thereon. The author then outlined the method of the practical application of these principles in alcoholism, drug habits, sexual errors, neurasthenic defects, and hysteric paralysis, and believed that more could be accomplished by rewards than by punishments.

Discussion.—H. A. TOMLINSON (St. Peter, Minn.) directed attention to the fact that inhibitory centers of the brain existed in the prefontal region, more particularly in the second and third prefontal convolutions, and that destruction of these would necessarily interfere with this function in proportion to the extent of such destruction. He believed that the greatest knowledge in this direction would be obtained by a closer study of the brain, as it affects elimination. G. R. CLARK (Dearborn, Mich.) stated that the various forms of dementia præcox, while presenting different clinical symptoms, showed the same psychologic picture. He dwelt upon the importance of obtaining the previous history and tracing the origin of these cases whenever possible as an aid to diagnosis and treatment. GILBERT (Portland, Ore.) stated that he believed the will must be considered as a unity, and did not believe that it was possible to devise any classification of physiologic psychology that is founded strictly upon a material basis. PERSHING, in closing, stated that he believed the main part of the sensation was situated in the forepart of the cortex, and that the perversions of the will were due to the fact that the higher development of the cortical cells had been destroyed and the mind had reverted to its primitive state.

[*To be continued.*]

Laryngology and Otology.

FIRST SESSION.

Chairman's Address: Specialism.—ROBERT C. MILES (New York) said that in the advanced stage of general and special medical knowledge it is out of the question to acquire a thorough knowledge of everything, as this would absorb the best part of a lifetime. But that which is essential in the various specialties should unquestionably be included in the up-to-date training of our students. We should not advocate the creation of what has facetiously been termed a "general specialist," but necessity demands something akin to a "general specialist" in the country districts. A specialist should be well grounded in general medicine. Local lesions are frequently responsible for general symptoms, and general conditions frequently cause localized symptoms or lesions. The student should be taught so much of the specialties as he may have practical use for in his work. A more intimate acquaintance with laryngology and otology would be a useful and highly commendable achievement in the military and marine service. Too often our soldiers and sailors are completely helpless when the services of an expert specialist are required. They are helpless in time of peace, and may be compelled to bear pain and inconvenience of ears, nose, and throat for want of special knowledge on the part of the army physician or surgeon, making them completely unfit for the strenuous exertions demanded in times of war. They are more helpless when suffering from wounds and injuries contracted in the vicissitudes of war, when a special knowledge of the anatomy and treatment of the organs referred to might serve to save the soldier's life.

It is a mistake to assume that once a specialist has acquired a thorough knowledge of diseases of the ear, nose, and throat and their treatment there is no need for him to trouble about the ills of other parts of the body. The affections of special organs stand in close interdependence with the general functional activity of the body, and by narrowing his views, thoughts, and opinions strictly to the details of his specialty, the specialist will promptly lose the all-important comprehensive view of cause and effect in the mechanism of the human body. Again, the general condition of the body often determines the question whether a certain operation should be performed or not, whether local or general anesthesia should be applied, and, in the latter case, by what anesthetic and application of what method. For this and other reasons, it is necessary that the specialist should keep in close touch with those who have adopted the general practice of medicine and surgery. The general and special practitioners are not contestants for opposing favors, but friends and comrades in the furtherance of a mutual cause, and in the interest of suffering humanity are under moral obligation to work in harmony for their common goal. Broad and liberal views and principles should underlie our every thought and action.

[*To be continued.*]

Pharmacology.

FIRST SESSION.

The meeting was called to order, Chairman Heinrich Stern presiding. The Chairman bid the members welcome to the meeting in Portland, and commented on the fact that, although it had been suggested that the section on Pharmacology be done away with, still in none of the other sections have practical papers been presented. In his **chairman's address,** STERN held that medicine is an art requiring no innate talent, and differing from painting and sculpture inasmuch as it demands no creative force, but may be acquired and practised by any one possessing clear understandding and common sense. He further stated that first and last the object of the healing art should be the alleviation of the physical and mental distress of the patient; that the true physician is the comforter of the patient, while the prognosis and the diagnosis take second and third place respectively. Stern held that it was, in most instances, the personal experience, the bedside experience by which the general practitioner differentiates the many symptoms and recognizes the disease; that he should not wait for socalled "science" to help him along, but should do that which he sees fit from the objective and subjective symptoms. In commenting on the failure of the general practitioner to retain his patients, and the passing away of the family physician, in the majority of cases, Stern remarked that the physician of today forgets that he is above all the confidant and the comforter of the patient, and his family; he forgets that he is dealing with an individual and speaks of him as his "case" only. In his ardent quest for that putative science he has lost the most potent charm of the doctor—sympathy—which is often more effective in alleviating the patient's condition than all pain-soothing remedies. He tries to impress his patient with his callousness, feeling that this is the surest way to inspire him with awe and reverential respect for himself, the master of the situation, who has deeply quaffed of "science," with which he is saturated; disregarding the fact that sympathy and the skilful execution of his profession make the successful practitioner. Orthodox medicine of today with its shallow doctrines estranges him from his real calling. While Stern voiced his respect for the heroes of the microscope and the test-tube, as being in deep earnest about their work, yet the meager results which they have obtained to this very hour, are absolutely insufficient to build thereon the superstructure of medical treatment.

William C. Westcott (Atlantic City, N. J.) and Charles O. Jones (Osceola, Mo.) were elected to membership.

[*To be continued.*]

AMERICAN SURGICAL ASSOCIATION.

Twenty-sixth Annual Meeting, held at San Francisco, Cal., July 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

Officers.—The following were elected for the ensuing year: President, Albert VanderVeer, Albany, N. Y.; vice-presidents, James E. Moore, Minneapolis, Minn., and John C. Munro, Boston; secretary, Dudley P. Allen, Cleveland, O., reelected; treasurer, Geo. R. Fowler, Brooklyn, N. Y., reelected; recorder, Richard H. Harte, Philadelphia, Pa. Cleveland, O. was selected as the place for holding the next annual meeting, the time for which is to be fixed by the committee on annual meeting.

After a brief executive session, Emmet Rixford, of San Francisco, first vice-president, took the chair, and President Johnston delivered his address.

John Peter Mettauer was the subject of the presidential address by GEO. BEN JOHNSTON, Richmond, Va. But little was known of his childhood and youth beyond the fact that, raised in an atmosphere of surgery, he imbibed a love for this profession and early determined to adopt it as his life's work. He was born in 1787. Mettauer's medical education was carried on under the most favorable conditions obtainable in America at that time. For a period of about 40 years the number of surgical patients who gathered to Mettauer for treatment was sufficient to keep him constantly with from 45 to 60 cases under his care. Often it was true that about every good house in the community sheltered some person who was convalescing or awaiting his turn for operation. His operations for cataract far exceeded the 800 that could be accounted for. Dudley's great record in cutting for stone 225 times in a practice of 40 years must yield to Mettauer's total of 400 operations, and the number of strictures relieved was commonly put at something over 200. Three operations were recalled, performed in the last week of his life, when at the age of 88 his eyes were yet keen enough and his hands steady enough for him to make a successful operation for cataract, for stone, and for amputation of the breast. But Mettauer's most brilliant work in the way of operations was his method with vesicovaginal fistula, and his successful use and employment of wire sutures made of lead, in which he antedated by a good many years even Sims, whose name was generally associated with this operation. Mettauer's first reference to the operation of vesicovaginal fistula appeared in the *Boston Medical and Surgical Journal*, Vol. xxii, p. 154, 12 years before Sims' communication, and it clearly outlined the operation which ought always to be associated with his name. Mettauer was decidedly of the opinion that every case of vesicovaginal fistula could be cured, and his success justified the statement. Reference was made to the eccentricities of Mettauer, and among them was his invariable custom to wear on all occasions and at all times a preposterously tall hat. One of his children, now surviving, had told the speaker that she never saw her father without his hat on. He never attended service in the churches, and the explanation was always assumed to lie in the unwillingness either to remove the covering from his head or to attend church wearing his hat. He would decline to take off his hat in court on the occasions when his expert testimony was sought, and the sole occasion on which a judge seems to have insisted that the doctor should be uncovered, brought from Mettauer the suggestion that if his evidence was essential to the cause he would be pleased to give it with his hat on, and that if it were not so, he would be quite as well pleased to leave the courtroom, meanwhile, of course, wearing his hat.

(*To be continued.*)

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

Address of Welcome.—FREDERICK CHEEVER SHATTUCK, Jackson Professor of Clinical Medicine, Harvard Medical School, delivered an address of welcome on behalf of the local medical profession.

President's Address.—FREDERIC C. COBB (Boston), in his opening address, said that the foundations of this society and its phenomenal success rested upon this one principle: To be fair to all, and to give to every worthy specialist the opportunity to demonstrate his power, to meet others, and to exchange his views for theirs. This was the essence of true democracy, and it could only be a failure when self-seeking and demagogism took the place of public spirit and a desire for truth.

Tympanomastoid Exenteration, Showing Healing of Cavity by Blood Clot, and Wound by Subcutaneous Silk Suture.—FRANK B. SPRAGUE (Providence, R. I.) showed this case. The patient was a boy of 19, who gave a history of chronic suppurative otitis media dating back 15 years. Three weeks ago Sprague performed a radical mastoid operation after the Stacke-Zanfal method. The cavity was allowed to fill by a blood clot up to the drainage-tube, and the external mastoid wound was closed by subcutaneous silk sutures, so that now the scar was scarcely visible. An ordinary cigaret drain was inserted into the tympanum and allowed to come out through the opening of the canal, in which was placed a stiff rubber drainage-tube, about a half inch in diameter, for the purpose of giving a good conformation to the canal, and an opening of sufficient size to insert the dressings. The tube was allowed to remain in about a week. At the present time the whole canal was well formed, and new skin formation was well under way. The case was a good illustration of what the organized blood clot could do in the repair of the mastoid wound in chronic cases, where radical operation was necessary. This patient, Sprague said, prior to the operation, had suffered from epileptic convulsions during the past seven years, the seizures coming on about twice weekly. Since the operation he had been entirely free from attacks, and it would be interesting to note whether it would have a permanent beneficial effect on the epilepsy.

(*To be continued.*)

AMERICAN ORTHOPEDIC ASSOCIATION.

Nineteenth Annual Meeting Held in Boston, June 6, 7, and 8, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 94.*]

Skiagraphic Demonstration of Bone Changes in Osteoarthritis.—L. A. WEIGEL (Rochester) exhibited a number of skiagrams showing changes in osteoarthritis with explanatory remarks and comments.

Discussion.—REGINALD H. SAYRE (New York) spoke of the mechanical treatment of osteitis deformans. He thought a number of different names have been assigned to the same pathologic process and a varying number of processes very probably called by the same name, just as there are different pathologic conditions and a very large number of clinical pictures, so there are a very large number of etiologic factors which have been assigned. We have not yet learned the exact truth about osteitis deformans, but it would seem as though we are dealing with an inflammation of the joint in some cases of subacute variety with very distinct indications for local protection of inflamed conditions. This idea seems not to be prevalent. A number of cases was reported in which the application of this principle was productive of good results. G. G. DAVIS (Philadelphia) said that the prevention of deformity was of importance in considering this condition. Protection should be used. Elevation was of service sometimes. He thought it useless to forcibly break up adhesions, as they reformed to a greater extent than before. The use of a pendulum apparatus, something that would jog the joint without causing excessive or lasting pain, would be of service, especially in the treatment of affections of the smaller joints, and even of the wrists, elbows, and knees. J. E. GOLDTHWAIT (Boston) thought that distinct advances were being made in both the clinical and pathologic aspects of the subject and that further work would produce a satisfactory classification. Some of the types of this disease he considered as only stages in the process. Infection he considered as perhaps a much more frequent cause than at present believed. Infection undoubtedly accounted for some of the associated conditions, especially the fringed, in some of which colonies of bacteria had been found. NICHOLS, in closing, speaking of the treatment, thought in many cases the changes were so extreme as to be hopeless. In the early stages, fixation and protection, baking and passive congestion might relieve the symptoms and give nature a chance to make partial restoration; in infectious cases, opening of the joint and drainage. In extreme cases with destruction of cartilage, eburnation and dentition of the joint, excision for the relief of pain might be indicated.

A Report on the Adult Ward for Women in the Hospital for Ruptured and Crippled, for Two Years, Ending March 1, 1905.—V. P. GIBNEY (New York) made a report as above, detailing the various conditions treated, with the immediate and final results obtained by various methods in a large number of conditions, in patients varying from 15 to 67.

Concerning Patterns of the Spinal Curve of Patients with Plaster Jackets for Pott's Disease. How These May Be Used without Disturbing the Jacket to Detect Slight Changes of the Curvature.—AUG. THORNDIKE (Boston) read this paper and exhibited the apparatus used for the estimation of the kyphosis. This apparatus was designed to detect recurrence of deformity, careful measurements being taken from time to time, which could be met with the application of a new jacket. On the other hand, as long as satisfactory progress was made, needless change of the jacket was avoided. After a comparison of the results of various methods of applying jackets, the writer had concluded that the best results were to be obtained by the use of a modified "hammock" method, which was described in the paper.

The members of the association made a visit to the Industrial School for Crippled and Deformed Children, where an inspection of the work and methods used in the school was made. The afternoon session was held in the school building.

Rigid Spine: A Study, with a Report of Five Cases; Autopsy.—GEO. R. ELLIOTT (New York) read this paper. Two of the cases reported were of the Strumpell-Marie type, in one of which the report of an autopsy was given with exhibition of the vertebral column. Another case reported was of the socalled Bectgeren type. The writer presented a new classification for this condition, believing the present classification incomplete and unsatisfactory, arguing that entirely different conditions have been grouped together, and urging that more careful investigations be made.

Discussion.—J. E. GOLDTHWAIT said that he believed that many of the traumatic cases of rigid spine were in reality cases of osteoarthritis, the trauma being a cause of the disease. He believed that a more exact classification could be arrived at, and thought the differential diagnosis as of very great importance with reference to the prognosis and treatment.

Coxa Vara Adolescentium and Osteoarthritis Deformans Coxæ.—A. H. FRIEBERG (Cincinnati) said that since Mueller's description of coxa vara adolescentium (1888) investigation has resolved the condition of bending of the femoral neck into a number of components depending upon a variety of morbid processes. Mayd (1897) called attention to the fact that osteoarthritis deformans occurs in juvenile form and may simulate nonsymptomatic coxa vara. Pathologic investigation has shown this condition as far from rare in youth and requiring it to be taken into account more carefully in the differential diagnosis of coxa vara. The contention that the juvenile form is always traumatic is no longer tenable. Two cases were reported in which this condition came on after adolescence with symptoms precisely those of essential coxa vara. The differential diagnosis was made with the röntgen ray which showed the process to be one yielding of the femoral neck. The importance of differential diagnosis in reference to treatment and ultimate prognosis was insisted upon.

Discussion.—J. E. GOLDTHWAIT (Boston) said that he had seen a similar case with bilateral involvement, where an osteotomy was deemed unadvisable. REGINALD H. SAYRE (New York) had seen a unilateral case showing symptoms of incipient hip-joint disease. Röntgen rays showed head and neck porous. A protective splint was applied to take weight from that leg. The condition must have existed in this case for some time before development of symptoms, because head and neck were spongy. No deformity had yet taken place, but would probably have developed.

Fracture of the Cervical Spine.—REGINALD H. SAYRE (New York), in his presentation of this subject, said that fracture of the cervical spine was not necessarily fatal. A satisfactory result was obtained in a number of cases which he reported. The deformity in these cases after the injury was that of wry-neck. Treatment consisted in rest in bed, application of jury mast and plaster jackets extending over neck and head. In many cases of this condition the patients have been allowed to stand upright too soon without support to the head, pressure paralysis resulted, which occurs in nearly every case. If the fracture has not united completely, pressure paralysis will be caused in the arms and sometimes in the legs, through change in the relation of fragments. These symptoms can often be removed by supporting the head, and by degrees restoring the relations of the parts more nearly to the normal. In a certain number of these cases, support can be dispensed with after a time without the recurrence of paralyses. In some cases operative interference is necessary for a cure.

Periarthritis of the Shoulder, Reporting Eight Cases.—HOMER GIBNEY (New York), by invitation, reported eight cases as above. Six were the result of a fall. Three were thought to be rheumatic, one a contusion, and one showed evidence of general involvement of the joints. Two of the cases were not caused by trauma. Treatment consisted in breaking up adhesions under ether, the application of hot compresses immediately thereafter, massage, Paquelin cautery which latter agent was considered as being of great service in the relief of pain when freely used. A circumflex neuritis was usually thought to have been associated with the condition.

Multiple Osteoma.—G. G. DAVIS (Philadelphia), in this paper, reported two cases of multiple osteoma. One occurred in a man aged 53. No history of similar affection in any other member of family or relatives. Trouble began at 12. Traumatism not apparent as a cause. Had deformities of the types of both exostoses and osteophytes involving one finger, left ulna, wrists, both humeri, both femora, left clavicle above coracoid process, hallux valgus both feet, the right more marked, right ankle and bones of the legs. Funnel breast present. The other case occurred in a child. The masses affected left fibula at malleolus, left tibia in upper third, left femur in lower third, right tibia and outer side of fibula, right ulna, right scapula, vertebral border, left scapula at angle, left humerus. There was beading of the ribs and epiphyses, all somewhat enlarged. Facial bones not enlarged in either case. The paper considered the various theories advanced in explanation of the condition with a review of cases reported.

Discussion.—HENRY LING TAYLOR (New York) placed on record the occurrence of a condition similar to that reported occurring in three children, brothers and sisters, ranging in ages from 6 to 14, all seriously affected, with gradually growing tumors, painful and producing deformities. Mother had no such affection, but father had considerable stiffness of the joints. H. P. H. GALLOWAY (Toronto) reported a case of 18. Trouble began at 9 with lumps in feet and one in neighborhood of shoulder. These were removed and did not return, but enlargements in large number came all over the body. Were painless, except one in popliteal space, which caused trouble. This was very easily removed. A brother of patient was similarly affected. The growths were mostly in neighborhood of epiphyseal lines. A. H. FRIEBERG (Cincinnati) reported a case occurring in a boy of 18. There was a history of a similar affection for three generations back. One of the growths in popliteal space had induced an aneurysm of popliteal artery, for which an operation was done. In this case the growths were situated on the bones near the joints, mechanically interfering with full movement. DEXTER D. ASHLEY (New York) mentioned an instance of the condition being present in four generations of the same family. L. A. WEIGEL (Rochester) thought that some of these cases should be regarded not as osteoma, but as an actual bone disease, involving not a limited area, but the whole osseous system.

J. E. GOLDTHWAIT and C. F. PAINTER (Boston) gave a clinical demonstration at the Massachusetts General Hospital

of cases illustrative of the various forms of bone and joint disease met with in adults, with operation on knee-joint. Also cases of osteartbritis of spine and hip, and cases of injury and disease of the pelvic articulations were exhibited.

E. A. CODMAN (Boston), by invitation, gave a demonstration of the surgical anatomy of periarthritis of the shoulder-joint with an exhibition of a frozen section.

An Analysis of 152 Cases of Hallux Valgus in 77 Patients, with a Report upon a New Operation for Its Relief.—H. AUGUSTUS WILSON (Philadelphia), in discussing the principal etiologic factors of hallux valgus, mentioned shoes that are too short, those having high heels and pointed toes too short, or stockings with pointed toes. Eversion and pronation and whatever might cause them were the most important causes. He further said that hallux valgus is usually synonymous with bunion, although either may occur independently. An analysis of 152 cases of hallux valgus occurring in 77 patients out of 397 persons examined for the condition showed apparent exostoses in 141 feet. Radiographic exposition showed very many less exostoses and revealed the inner aspect of the distal extremity of the metatarsal bone protruding in such a way as to simulate an exostosis. Pronation existed in nearly 80% of the cases. This was considered as one of the most potent causes of hallux valgus and also a source of aggravation of the trouble after it had already arisen. Eversion of the feet was present in more than 85% of the cases. Attention was called to the fact that with such position of the feet the final propulsive spring must fall not upon the great toe, but upon the bunion joint, thus further aggravating the condition after it is once produced. Plantaris was an associated condition in 23% of the cases. In the röntgen-ray demonstration of the subject attention was called to the widening of the foot and of the space between the first and second metatarsal bones with often a curve in the first metatarsal bone. Displacement, in some cases amounting to a partial dislocation, at the metatarsophalangeal articulation with projection of the metatarsal bone inward give rise to an apparent exostosis, angular deformity of the great toe. True exostosis in some cases. Hypertrophic enlargements of the head of the metatarsal bone in some cases. The operation consists in the removal of the projecting portion of the head of the metatarsal bone, after excision of the inflammatory bursa. The great toe is placed in proper position by means of a plantar splint. Passive movements in two weeks and walking resumed in three weeks. A number of cases was reported resulting in normal function and relief from pain. The operation was claimed to be superior on account of unimpaired mobility of joint, the unchanged tension exerted upon tendons, noninterference with the supporting arches of the foot, and the removal of inflammatory bursas and their cause.

Discussion.—JAMES K. YOUNG (Philadelphia) said that he had had no experience with the operation described, but that in cases requiring operation he had obtained satisfactory results by performing a linear osteotomy of the metatarsal bone just back of the head. A. R. SHANDS (Washington) said that he had operated upon a number of cases and used a diamond-shaped incision down to the bone, removal of bursa and inner half of metatarsal bone. NEWTON M. SHAFFER (New York) thought many cases were due to shortening of the gastrocnemius. He reported good success by treating condition with a traction shoe. HENRY LING TAYLOR (New York) formerly used an operation consisting of taking an oblique bite from the inner condyle of the metatarsal bone by the use of bone forceps subperiosteally. This gave good results, but was not entirely satisfactory. He now takes off the whole head of the metatarsal bone by means of an ordinary transverse bite with bone forceps. He did not believe that shortening of the foot thereby produced the damage to the arches of the foot, or the partial ankylosis resulting was of such consequence as to offer serious objections to the operation. CHARLES F. PAINTER (Boston) thought that there was a true hypertrophy of bone in some of the cases and that definite exostoses existed in others. He believes that shortening of the posterior calf muscles was an etiologic factor and that restoration of proper status of the foot would often effect a cure. The objections to Müller's operation he did not consider valid, except in few cases. REGINALD H. SAYRE (New York) had seen a case where manipulation of the toe had caused the reduction of the deformity with a loud snap. This he believed was due to a rupture of some of the ligaments holding the joint in an abnormal position. PHIL. HOFFMAN (St. Louis) thought the deformity must always be due to a shoe, since the condition was not found in nonshoewearers he had examined. However, in women wearing high heels a compensatory shortening of the calf muscles would take place.

Demonstration of Machine for Correction of Deformities at the Hip Following Hip Disease, and for Holding the Limb in Corrected Position while Plaster is Applied.—JOHN RIDLON (Chicago) exhibited and explained the use of the apparatus as above.

Achillotomy and Fasciotomy in a Patient of 72—A. R. SHANDS (Washington, D.C.), in this paper, reported a case in which tenotomy and fasciotomy had been done upon a patient of 72, with a mild degree of equinovarus as a result of poliomyelitis occurring in infancy. He was well developed and in good physical condition. Under cocain anesthesia the tendo achillis was divided subcutaneously as well as the constricting bands of the plantar fascia. Plaster-of-paris was applied with the foot in an overcorrected position, and so held for three weeks. There was prompt union, and the patient was able to walk with ease and comfort.

Discussion.—F. E. PECKHAM (Providence) said that he had performed a tenotomy under ether upon a patient of 70, with a good result. PHIL. HOFFMAN (St. Louis) stated that he had performed a similar operation upon a patient of 45, suffering from infantile paralysis. Twelve days after operation an amputation was necessary. Examination of the limb showed it to be devoid of muscular fibers, yet the tendon, although separated 1½ in. showed evidences of firm union. He concluded from this case that even under the most adverse conditions union of the tendon is to be expected.

Investigations on the Value of Traction in the Treatment of Hip Disease.—E. H. BRADFORD (Boston) in his paper said, that although the advantages of traction in the treatment of hip disease had been abundantly shown, the benefits to be derived had been questioned by some writers, and that a further demonstration of the value of this method would be of use. It might be assumed that bone affected by tuberculous osteitis may, under favorable conditions, be transformed into a healthy state, and that constant irritation and bruising of the diseased portion of the bony structure is unfavorable in repair and cure. An examination of a number of specimens of advanced hip disease showed undisputably the forcible crowding of the head of the femur upward and backward, allowing the lower portion of the acetabulum opportunity for early repair. Corresponding changes had taken place in the head of the femur. It was manifestly desirable in placing the bone in a condition favorable to repair that this crowding should be prevented. The author thought that traction could be used so as to prevent such crowding and had demonstrated this fact by a series of skiagrams taken of patients suffering from hip disease and subjected to various degrees of traction. The distraction caused by traction should vary in the different stages of hip disease.

Discussion.—PHIL. HOFFMAN said that the statement made that there existed in this condition a crowding and flattening of the opposed surfaces of the joint, was illustrated in a specimen which he possessed, obtained from a boy suffering from hip disease, who died of meningitis just after pus had broken into the joint. In this case there was a decided flattening of the cartilages with a wearing away of the joint surfaces. R. H. SAYRE (New York) said that he felt traction to be of service in knee and ankle cases as well as in the hip. NEWTON M. SHAFFER (New York) said that the ideas set forth in the paper coincided with those of C. F. Taylor many years ago, who had applied the selfsame principles with such great success. C. W. WILSON (Montreal) said that in spite of arguments which had been urged upon him by others, who said that traction was only another form of fixation, that he would continue to use traction and considered it of very great value.

A Study of 30 Cases of Chronic Nontuberculous Joint Disease Occurring in Adults, with Special Reference to Some of Doubtful Identity.—HAROLD W. JONES (St. Louis), by invitation, read a paper considering nonarticular joint lesions of nontuberculous origin, involving the spine, hip, knee, shoulder, elbow, and ankle. Gonorrheal infection was the causal factor in three cases, and syphilis in one. For the purposes of study the cases were divided into: (1) Cases characterized principally by hypertrophy of the joint, of which seven cases were reported; (2) cases characterized principally by atrophy of the joint, of which one case was reported; (3) cases of undoubted joint infection, in some of which erosion of the articular surfaces was demonstrated. There were five cases in this group, four cases of probable periarthritis in which infection was at least uncertain, and in which no permanent changes in the joint could be shown. In this last group 17 cases were included. In the entire series osseous hypertrophy occurred entirely in the male sex and in the weight-bearing joints. Exposure to sudden changes of temperature and occupation trauma were not found to be an important factor, except in the shoulder, often the seat of disabling joint lesion, where trauma was regarded as an important factor. Moderate success only was achieved in the treatment of the cases.

A Frame for Holding a Patient with a Fracture of the Shaft of the Femur while Plaster-of-paris is Applied.—F. E. PECKHAM (Providence), in a paper described a frame designed to support the body and make extension with sufficient force to pull the leg down to length and hold it there firmly until the plaster is applied and completely set. The plaster should take in the whole body, from the axillas down to and including the fractured leg.

A Modification of the Dollinger Brace for Cervical and Upper Dorsal Pott's Disease.—R. T. TAYLOR (Baltimore) described a brace made of plaster-of-paris bandages braced with steel from a corrected cast of back and head, of value in Pott's disease. The brace was claimed to be rigid, durable and light.

A Modification of the Back Brace for Pott's Disease.—AUG. THORNDIKE presented a brace designed to (1) obtain uniform pressure over the line of the transverse processes, undisturbed by body movements; (2) to eliminate the neck piece and increase the lung capacity, by keeping the shoulders back and elevating the ribs with the serrati muscles.

ORIGINAL ARTICLES

VICARIOUS ACTION OF THE BOWELS FOR THE KIDNEYS IN TUBERCULOSIS.[1]

BY

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AND

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It has long since been recognized that in certain cases of tuberculosis there is a looseness of the bowels which is not due to ulceration. This looseness has been termed in the textbooks an irritative diarrhea and has been ascribed to errors in diet. When it has occurred in cases which have come to autopsy the bowels have been found free from ulceration and apparently in a healthy condition.

A careful study of a number of cases which have been under observation for a long time clinically and which have come to autopsy has led us to believe that in these cases the looseness of the bowels is due to a vicarious action of the bowels for the kidneys and that nature is really trying to protect the system by this vicarious action.

Though the diagnosis "enteritis" from the clinical symptom diarrhea is frequently allowed to stand even when the autopsy findings are negative, it is to be remembered that the more we study pathology the fewer clinical symptoms do we attribute to apparently healthy organs. We can understand how a diarrhea of a few days' standing produced by an acute enteritis might be undiscoverable at autopsy, but we do not believe a diarrhea of weeks', months' and even years' duration can properly be attributed to what at autopsy seems to be a normal intestine.

We have 11 cases to report. In all of them there was severe diarrhea, usually over a protracted time. In all, the intestines were found normal and the kidneys were found to have undergone acute alterations.

Two of the cases were private patients and nine were patients of the Phipps Institute. In one of the private cases the autopsy was made by C. Y. White and in the other by Joseph Walsh. The autopsies on the cases in the Phipps Institute were made by R. C. Rosenberger. The microscopic study in one case was made by C. Y. White and in the other 10 by Joseph Walsh. The study of the kidneys was macroscopic and microscopic. The kidneys in 9 cases out of the 11 were cut into 140 to 150 small pieces and each piece was examined macroscopically. A varying number of pieces were then blocked and microscopic sections made. From 12 to 60 microscopic specimens were studied in each case.

We wish to thank Mr. Karl W. Smith whose assistance made this detailed study of the kidneys possible.

The cases were as follows:

CASE I. (Private patient; Flick).—Female, single, school teacher, aged 31. She came under treatment first on June 23, 1901. Her history of exposure to tuberculosis dated back 12 years. She gave a history of having had severe colds for several years. She weighed 113 pounds, and was in an acute stage of the disease. She had tubercle bacilli in the sputum and had signs of involvement of both lungs. She improved rapidly under treatment, and in about 11 months was able to go back to teaching. She weighed 150 pounds at the end of the first year's treatment, and her pulse and temperature were normal. While teaching she again lost weight, dropping down to 145 pounds. She regained her weight during the summer vacation and went back to teaching in the fall. During the early winter months she lost weight, but remained pretty well. She again regained her weight, and by spring weighed 150 pounds. During the spring months she again lost slightly, and at the end of her second year's treatment she weighed 143 pounds, and was in a pretty fair condition of health, in spite of the fact that she had taught a year. She went to the mountains for her summer holiday and returned in October in rather bad condition. She had lost 11 pounds and showed congestion of considerable of the left lung and the upper part of the right lung. She now had a pulse of 120, and had to go to bed for awhile. She again gained in weight and improved in every way, so that by December she weighed 139½ pounds. She was very short of breath, however, upon exertion, and suffered alternately from constipation and diarrhea. From this time on she had alternate periods of diarrhea and constipation, although occasionally her bowels were in good condition. In April, 1904, a cavity formed in the upper part of the left lung, after which she again improved in many ways, although she did not gain in weight. She weighed at this time 136 pounds. Her pulse became more rapid and her dyspnea increased. In June her pulse ran as high as 130. In August she weighed 130 pounds, and her pulse was 124, although she felt pretty well. In the latter part of August she was taken quite ill, with great looseness of bowels and extreme weakness. The physician who was called, diagnosed her case as severe diarrhea, and treated her for it with bismuth and opium. She unexpectedly died on the third day of her illness. There is no record of an examination of the urine in this case, although nephritis was suspected for some time, and our recollection is that an examination of urine was made, but found negative. Our recollection also is that there was edema of the legs.

Autopsy (Walsh).—August 24, 1904, 8.30 p.m.; autopsy done in private house.

Pathologic Diagnosis.—Bilateral chronic adhesive pleurisy; healed tuberculosis of the right lung; partially healed tuberculosis of the left lung, with cavity formation; emphysema and edema of both lungs; tuberculosis of the bronchial glands; acute diffuse nephritis; a few scattered tubercles in the kidneys.

External Appearances.—Well-nourished female; no decomposition; postmortem rigidity quite well marked; no postmortem lividity; no jaundice; edema of both feet; subcutaneous fat well developed and preserved, three-fourths of an inch over the thorax, an inch over the abdomen, and about a half inch in the omentum; abdominal and thoracic muscles apparently normal; position of abdominal, pelvic and thoracic viscera normal; peritoneum, normal.

Pleura.—Left: Dense adhesion over the upper lobe and especially over the apex. In breaking up these adhesions in the apex a cavity in the lung was opened; scattered and easily broken adhesions over the lower lobe. Right: Dense adhesions over the upper lobe, though not so dense as on the left side. There was practically no exudate.

Lungs.—Left: Large, emphysematous and edematous; pale in color. The apex of the upper lobe presented a cavity, 2 in. by 3 in. in diameter. The cavity had smooth walls and was empty. There was slight infiltration about it. Except for the edema and emphysema, the rest of the lung was normal. Right: The lung was generally emphysematous and edematous. There were several scars evident over the apex; no infiltration.

Pericardium.—Normal; no adhesions and a normal amount of fluid.

Bronchial Glands.—Enlarged, but not caseous.

Heart.—Completely covered by emphysematous lungs; normal in size, color and consistency; subepicardial adipose tissue marked.

Valves.—Normal.

Aorta.—Normal.

Spleen.—Slightly enlarged and congested; shape and consistency normal.

Liver.—Size, consistency and color normal.

Gallbladder.—Normal.

Suprarenal.—Left: Apparently normal. Right: Not examined.

Appendix.—Normal; no tuberculous ulceration apparent.

Stomach.—Normal in position; mucous membrane of pink tint.

Small and Large Intestines and Rectum.—Normal; no blood; no appearance of inflammation; no ulcers.

Ovaries and Uterus.—Apparently normal.

Mesenteric Glands.—Normal; not enlarged.

Kidneys.—Left: Enlarged one and a half to twice normal size; shape, normal; capsule slightly adherent; consistency softer than normal; surface of section cloudy, dull; cortex markedly thickened, pale in color; pyramids normal in size, but congested. Several small yellowish, millet-seed to split-pea size areas on external surface and surface of section. Right: Exactly similar to left. Both kidneys cut into 140 small pieces.

Microscopically (Walsh).—Forty specimens examined; kidney investment normal; malpighian bodies normal distance from kidney surface; glomeruli enlarged; hyaline degeneration apparent in the epithelial cells of the loops; quite marked thickening of the connective tissue of Bowman's capsule; widespread marked necrosis of the epithelium of the convoluted tubules and of the secreting tubules of the medullary rays; numerous hyaline casts; thickening of the interstitial tissue between the tubules; infiltration of small round cells between tubules, and sometimes about glomeruli; several areas of destroyed tubules replaced by infiltration of small round cells, which look like young tubercles; bloodvessel

[1] Read at the meeting of the National Association for the Prevention of Tuberculosis, Washington, D. C., May 19, 1905.

walls thickened; several typic tubercles with caseation and giant-cells.

Diagnosis.—Acute diffuse nephritis; scattered tubercles.

CASE II. (Private patient; Flick).—Male, aged 18, 6 feet 2 inches in height, student. He was exposed to tuberculosis for a considerable period of time when aged 6. He was again exposed for a considerable period when aged 13. He was a fairly healthy child, but was always thin. The highest weight that he had ever reached was 145 pounds, about a year before death. He broke down in health after a very severe year of study and overwork in college, a year before death. In spite of rest the disease remained active during the year. He first came under observation (Flick) two months before death, when he was extremely weak, unable to move about, and ran a pulse of 122 at rest. He had had loose bowels for four months at this time. Physical examination revealed a cavity in the upper lobe of the right lung, with more or less infiltration of the entire lung and extensive involvement of the upper half of the left lung. He had considerable tenderness over the abdomen and gave some evidence of appendicitis. In spite of all that could be done, the disease ran to a fatal termination in two months.

Autopsy and pathologic report were made by C. Y. White.

Pathologic Diagnosis.—Chronic tuberculosis of the lungs with cavity formation; miliary tuberculosis of the lungs, liver, spleen, and kidneys; subacute parenchymatous nephritis; chronic fibroid pleurisy; acute splenitis.

External Appearances.—The body of an emaciated young man, aged about 20. The subcutaneous tissue contains a small amount of fat. The external lymphatic glands are not enlarged. Postmortem rigidity is marked; postmortem lividity in the dependent parts of the body. The body had been injected with preserving fluid before the autopsy.

Abdomen.—The peritoneal cavity contains about one liter of bloody fluid, part of which is injection fluid. There is one small puncture wound in the epigastrium, presumably from the injection instrument. The organs are all discolored, varying from a bleached pale pink to a deep red.

Intestines.—The intestinal coils are moderately distended with gas. The walls are irregularly congested. Section over these areas does not show ulceration. The large intestine is similar to the small, but not so deeply congested.

Appendix.—The appendix is bound down with firm adhesions. The walls are moderately thickened and congested. Section shows the walls thickened and the lumen small. Microscopic examination shows the walls congested and the muscular coats infiltrated with round cells; subacute appendicitis.

Liver.—The liver is moderately enlarged, firm, and of a yellow color. The surface is mottled and bleached from the injection fluid. Section shows the cells pale and the organ congested. Throughout the section surface and on the surface of the organ there are numerous small 2 mm. yellowish tubercles. Microscopic examination of the organ shows the liver cells cloudy and the organ congested. Numerous early and some moderately advanced miliary tubercles are to be seen throughout the section.

Spleen.—The spleen is enlarged, soft, and of a deep red color. The lower surface and edge of the organ are bleached from the action of the injection fluid. Section of the organ shows the organ congested and the trabeculas not increased. No distinct miliary tubercles are to be seen on the section surface. Microscopically, the organ is congested and the section shows a few small miliary tubercles. These tubercles show a slight caseous center and a few giant-cells.

Kidneys.—The kidneys are both enlarged, soft, and of a pale color, the capsule strips easily showing a pale, somewhat yellowish cortex. Section of the organs shows the cortex greatly thickened and yellowish-pink in color. The medulla is deep red. The surface and section surface of the organs show a few scattered miliary tubercles. Microscopic examination shows the sections of the kidneys to be moderately congested. The epithelium of the tubules of the cortex is swollen and cloudy and in some places distinctly granular. The lumen of the tubules is in places partly filled with granular debris. The cells in places are slightly necrotic. The cross section of the tubules of the medulla shows in places the lumen to contain granular material.

Heart.—The heart is somewhat dilated and filled with currant jelly clots. The muscle is yellowish-red, and somewhat soft. The valves are apparently normal.

Lungs.—Both pleural cavities are filled with bloody fluid. There are a few firm adhesions in both cavities. Right lung: The upper and part of the middle lobes contain a large cavity, which is situated along the anterior surface of the lungs and varies from 1 cm. to 2 cm. below the surface. The greater part of this cavity is within the upper lobe. Almost all of the remaining upper lobe is consolidated. This consolidation varies in color from a deep red to a caseous yellow. The greater part is caseous, *i. e.*, small caseous areas separated by deeply congested and infiltrated lung tissue. The lower lobe contains numerous 1 mm. to 2 mm. yellowish tubercles and a moderate amount of edema. Left lung: The upper part of the left upper lobe is consolidated, and contains a small cavity measuring about 2 cm. to 3 cm. in diameter. The cavity is situated in the posterior lateral part of the lobe. The lower part of the lobe and the whole of the lower lobe contain numerous small 2 mm. to 3 mm. caseous tubercles, a moderate amount of congestion, and a slight amount of edema.

CASE III.—Phipps Institute case. (Hatfield, Brinton, and Walsh.) Abstract.

No. 236, Vol. ii. Male, aged 32; occupation, laborer; entered hospital April 21, 1903. He was discharged from hospital April 21, 1904. He reentered September 1, 1904; died October 1, 1904.

Duration of illness, eight years. First symptom, pneumonia; no edema.

Sputum.—Tubercle bacilli positive.

Bowels.—From April 21, 1903, to February 1, 1904, according to temperature chart, generally constipated; patient's statement, April 22, 1903, constipated; April 24, 1903, constipated; May 1, 1903, constipated; May 5, 1903, constipated; May 8, 1903, constipated; October 3, 1903, constipated; February 5, 1904, constipated; August 23, 1904, diarrhea; from September 1, 1904, to October 1, 1904, bowels somewhat loose, as follows; 6, 5, 2, 2, 2, 1, 1, 2, 1, 2, 0, 2, 2, 1, 2, 2, 2, 2, 2, 1, 2, 2, 2, 2, 6, 4, 4, 3, death.

Urine.—July 14, 1903, trace of albumin, no sugar, many pus cells, no casts; July 18, 1903, no albumin; October 28, 1903, urethral discharge like gleet; April 22, 1904, albumin present, no sugar, granular casts; June 1, 1904, no sugar, albumin and blood present, much debris; March 8, 1904, acid, 1,032, albumin present, no sugar, no diazo; September 3, 1904, cloudy white precipitate, no sugar, hyaline and granular casts, pus in great quantities, epithelial cells, debris; tubercle bacilli positive; September 15, 1904, pain in bladder and incontinence; June 18, 1903, considerable pain in right lumbar region; July 31, 1903, pain in left lumbar region extending down to left groin. Three or four months previous to death the diagnosis of tuberculosis of the left kidney (that is, surgical kidney) was made.

Heart.—April 22, 1904, accentuated second sound.

Pulse.—During first year in hospital, pulse was between 90 and 100; respiration between 25 and 30; temperature between 98° and 100°. During last two weeks of illness, pulse, temperature and respiration gradually became elevated.

Autopsy (Rosenberger).—Abstract.

Pathologic Diagnosis.—Fibroid tuberculosis of right lung; ulcerative tuberculosis of both lungs; chronic parenchymatous nephritis right kidney; ulcerative tuberculosis of left kidney; cystitis; amyloid spleen; congestion of liver and calcified tubercle.

Heart.—Normal.

Aorta.—Beginning atheroma.

Spleen.—Amyloid.

Liver.—No amyloid reaction obtained; one calcified tubercle, otherwise normal.

Bladder.—Tuberculous ulceration.

Suprarenal.—Tuberculosis of left suprarenal.

Intestines.—Normal.

Appendix.—Small, no ulcers.

Mesenteric Glands.—Not enlarged.

Kidneys.—Left: 7 oz.; enlarged and swollen; shows three large ulcerated areas averaging 3 cm. in diameter, each surrounded with fibrous tissue. Right: Enlarged, swollen, pale. Nothing further found except a very small cyst.

Microscopically (Walsh).—Right cut into 70 small sections. Thirty-eight sections studied. Glomeruli swollen, sometimes fibroid; epithelium sometimes shows a vacuolated condition (hyaline vacuoles); Bowman's capsule thickened. Convoluted tubules: Widespread degeneration and necrosis of the epithelium; innumerable hyaline casts; many cellular and granular casts; round-cell infiltration between tubules; tubules sometimes contain red blood cells, again white blood cells; secreting tubules of medullary rays swollen and necrotic; interstitial connective tissue thickened; general congestion, especially of pyramids; no amyloid to gentian violet; no tubercles found.

Diagnosis.—Right: Marked diffuse nephritis. Left: Advanced tuberculosis.

CASE IV.—Phipps Institute case. (Hatfield.) Abstract.

No. 1,032, Vol. xii. Male, aged 27, single; occupation, coppersmith; entered hospital June 30, 1903; duration of illness, one year; edema present, but history does not say where.

Heart.—June 30, 1903, dulness increased up and to right; second pulmonic accentuated.

Pulse.—100 to 120; respirations, 26 to 32; temperature 97° to 100°. He left hospital of his own accord, August 12, 1903; he reentered without being seen in the meantime, August 9, 1904, and died September 10, 1904.

Clinical Diagnosis.—Tuberculosis of the lungs and pleura; tuberculosis of the intestines.

Principal symptoms during second stay in hospital, cough, expectoration and looseness of bowels.

Bowels.—June 30, 1903, fairly regular; while in house from June 30, 1903 to August 12, 1903, bowels were alternately constipated and slightly loose. On entering hospital, August 9, 1904, he complained of diarrhea. From the time of entrance to hospital, August 9, 1904, till death, his stools averaged about four a day, though once, 12.

Urine.—July 10, 1903, no albumin, no sugar, no casts.

Autopsy (Rosenberger).—Abstract.

Pathologic Diagnosis.—Ulcerative tuberculosis of both lungs with emphysema, tuberculous pleurisy, fatty kidneys, amyloid spleen, congested liver.

Heart.—Weight, 7½ oz.; normal.
Spleen.—7 oz.; enlarged; consistency diminished; dark red; reacted to the iodin stain.
Liver.—2 lb., 6 oz.; small, congested; mottled in appearance.
Intestines.—Normal.
Appendix.—Tubercles.
Mesenteric glands.—Not enlarged.
Kidneys.—Left: 6 oz.; slightly larger than normal; pale; tubercles evident. Right: 5 oz.; same as left.
Microscopically (Walsh).—Both kidneys cut into 140 to 150 sections. Left showed two small tubercles. Twenty-four specimens studied; widespread degeneration and necrosis of epithelium of convoluted tubules; occasional slight round-cell infiltration between tubules, between the epithelial cells in convoluted tubules and into the tubules; connective tissue of Bowman's capsule thickened; a few hyaline casts; no amyloid to gentian violet; typic tubercles with caseation and giant cells.
Diagnosis.—Parenchymatous nephritis; scattered tubercles.

CASE V.—Phipps Institute case. (Stanton.) Abstract.
No. 1,157, Vol. xiii. Female, aged 34, widow; occupation, domestic; entered hospital July 29, 1903; died June 3, 1904.
Diagnosis.—Tuberculosis of the lungs, larynx, and glands of neck and axilla; duration of illness, six months; no edema.
Sputum.—Tubercle bacilli positive.
Heart.—Normal.
Pulse.—80 to 90; respirations, 20 to 30; temperature, 98° to 100°; toward the end all three elevated.
Bowels.—July 29, 1903, patient said bowels were regular; during August, 1903, average 1 to 2; during September, 1903, average 2; during October, 1903, varied from 0 to 3; during November, 1903, average 1; during January, 1904, 1 or 0; in other words, a little tendency to constipation alternating occasionally with looseness; March 6, 1904, diarrhea; March 11, 1904, diarrhea severe; March 16, 1904, diarrhea better; March 25, 1904, diarrhea; blood in stools; in other words, from February 1 to March 6, 1904, pretty regular, generally only 1, once 2, again 3; March 6, 9 stools; March 6 to March 11, 9, 4, 5, 4, 5, 4; then regular, 1 or at most 2 a day till April 1. April 1, 1904, 3; April 2, 1904, 4; April 18, 1904, 3; and after that 3 and 4 a day till death.
Urine.—July 29, 1903, acid, 1,010, no albumin, no sugar. Microscopically.—Leukocytes.
Autopsy (Rosenberger).—Abstract.
Pathologic Diagnosis.—Miliary tuberculosis of both lungs, with cavity in both; emphysema; congestion; kidney infarct; catarrhal appendicitis; red atrophy of liver; extreme emaciation.
Heart.—8½ oz.; right ventricle shows fatty infiltration, the ventricle wall is thin, about 3 mm.; muscle flabby, otherwise normal.
Spleen.—3½ oz.; small and firm.
Liver.—2 lb., 14 oz.; dark red, presents the appearance of red atrophy.
Intestines.—Normal.
Appendix.—Normal.
Mesenteric Glands.—Enlarged, not caseous.
Kidneys.—Left: 4½ oz.; recent congestion; old infarct; pale. Right: 4½ oz.; same as left, except infarct.
Microscopically (Walsh).—Ten sections studied microscopically. Glomeruli swollen, epithelium vacuolated; no congestion. Convoluted tubules: Epithelium swollen, degenerated, and occasionally necrotic; same is true of the secreting epithelium of the medullary rays; slight thickening of interstitial tissue; no congestion; no appearance of amyloid; not stained for amyloid; infarct not studied; typic tubercles, with caseation and giant-cells and tubercle bacilli.
Diagnosis.—Toxic nephritis; scattered tubercles.

CASE VI.—Phipps Institute case. (Landis.) Abstract.
No. 2.180, Vol. xvi. Female, aged 42, married; first visit March 11, 1904; entered hospital March 31, 1904; discharged May 12, 1904; readmitted July 16, 1904; died October 27, 1904; duration of illness, two years; no edema.
Sputum.—Tubercle bacilli present.
Heart.—Sounds poor in quality, systolic murmur at pulmonary area; July 27, 1904, second pulmonic accentuated, systolic murmur at pulmonic area, also at apex; mitral murmur probably hemic; dyspnea extreme.
Pulse.—During first stay in hospital, 90 to 110; respirations, 30; temperature, 98° to 100°; after readmission to hospital, pulse, 110; respirations, 32; temperature, 98° to 102°. During September, respirations oftentimes went up to between 40 and 50.
Bowels.—March 11, 1904, regular; on admission, March 31, 1904, she said regular; July 19, 1904, very loose; July 27, 1904, condition of bowels much improved; from April 1, 1904, to April 30, 1904, during stay in hospital, bowels quite regular, usually 1; once, 0; 10 times, 2; from time of readmission, July 16, 1904, till death, there were frequent spells of looseness; July 22, 5; July 28, 7; August 3, 7; August 4, 5; August 10, 5; August 14, 5; August 21, 5; September 19, 5; September 27, 6; September 28, 6; September 29, 6; September 30, 5; October 9, 5; October 10, 6; October 11, 4; October 12, 5; October 14, 10; from this time till death, 4, 4, 5. 4, 7, 5, 5, 6, 4, 3, 6, 4, 8. In addition, during July, August, and October, there were practically never less than 3 or 4 a day.
Urine.—March 20, 1904, amber, acid, 1,024, trace of albumin, no sugar; no casts; July 19, 1904, acid, yellow, albumin positive, no sugar, diazo positive.
Autopsy (Rosenberger).
Pathologic Diagnosis.—Pleurisy of both sides; tuberculosis of both lungs; caseous pneumonia of right lung; congestion of liver; mitral valvulitis; parenchymatous nephritis; atheroma of the aorta and splenic artery; capsulitis of spleen and liver; appendicitis.
Heart.—Displaced to left; mitral valve markedly thickened; fenestration of the middle aorta leaflet; chordæ tendinæ of mitral valve also thickened; weight, 8 oz.
Spleen.—6 oz.; slightly enlarged; rather firm; area of capsulitis posteriorly; pin-point areas, resembling tubercles; splenic artery atheromatous.
Liver.—Slightly enlarged; 2 lb., 14 oz.; veins slightly dilated; more or less mottled on section.
Intestines.—Ileum much congested; no ulcers present; rest of intestines normal.
Appendix.—6 cm. in length; swollen near tip; connects with another mass on left; upon opening this mass purulent material was found and perforation near the tip.
Mesenteric Glands.—Enlarged; some calcified.
Kidneys.—Left: 5 oz.; slightly enlarged; shows slight congestion; two small areas apparently tubercles. Right: 4 oz.; paler than left; firm in consistency; evident macroscopic tubercles.
Microscopically (Walsh).—Both kidneys cut into 140 to 150 sections; three small tubercles found. Thirteen specimens studied; glomeruli sometimes swollen; rare fibroid glomerulus; connective tissue of Bowman's capsule thickened; necrosis of epithelium of convoluted tubules; lumina frequently filled with debris; no round-cell infiltration; few hyaline casts; some general congestion; no amyloid to gentian violet; typic tubercles with caseation and giant-cells.
Diagnosis.—Parenchymatous nephritis; scattered tubercles.

CASE VII.—Phipps Institute case. (Brinton, Stanton.) Abstract.
No. 2,238, Vol. xvii. Male, aged 25, single; occupation, waiter; first visit to dispensary March 29, 1904; entered hospital April 29, 1904; died May 15, 1904.
Diagnosis.—Pulmonary tuberculosis with pneumothorax. Pneumothorax developed suddenly while in hospital; duration of illness, 6 years.
Sputum.—Tubercle bacilli present.
Heart.—Normal, second pulmonic sound slightly loud.
Pulse.—100 to 120; respirations, 28; temperature, 98° to 103°.
Bowels.—March 29, 1904, inclined to diarrhea; April 29, 1904, patient said he had slight diarrhea and had had several attacks. From time of entrance to hospital till death, 15 days, he showed once three, and once four, and three times two stools.
Notes.—April 5, 1904, bowels loose; April 12, 1904, regular; April 19, 1904, regular.
Urine.—May 1, 1904, no albumin; May 12, 1904, no albumin, sugar present, diazo present, excess of phosphates.
Autopsy (Rosenberger).
Pathologic Diagnosis.—Pneumothorax, right side; ulcerative tuberculosis of both lungs with widespread cavity formation; adhesive pleurisy, fatty infiltration of liver; miliary tubercles in appendix; tuberculous pneumonia.
Heart.—7 oz.; normal.
Spleen.—5 oz.; normal.
Liver.—3 lb., 14 oz.; large, dark and firm.
Intestines.—Normal.
Appendix.—Contains a few small yellowish areas resembling tubercles.
Mesenteric Glands.—Very slightly enlarged.
Kidneys.—Left: 5½ oz. Right: 6 oz.; both organs pale, and in some areas congestion is present.
Microscopically (Walsh).—Thirty-three specimens studied; glomeruli: Marked hyaline vacuolization of epithelium; Bowman's capsule connective tissue thickened; epithelium of convoluted tubules swollen and necrotic; lumen obliterated; epithelium of secreting tubules of medullary rays swollen and necrotic; intertubular tissue thickened; congestion here and there; no infiltration; no amyloid to gentian violet.
Diagnosis.—Mild diffuse nephritis.

CASE VIII.—Phipps Institute case. (McCarthy.) Abstract.
No. 2,262, Vol. xvii.—Male, aged 57, married; occupation, cook; entered hospital, April 5, 1904; died June 13, 1904; duration of illness, since 1889; no edema.
Sputum.—Tubercle bacilli present.
Heart.—Normal; distinct accentuation of pulmonic second sound.
Pulse.—100 to 120; respirations, 24 to 30; temperature, 98° to 103°.
Bowels.—Loose; painful movements; from 1 to 4 daily till death; most frequently 2; frequently 3; occasionally 4.
Urine.—1,028; albumin in slight quantities; no sugar.
Autopsy (Rosenberger).
Pathologic Diagnosis.—Ulcerative tuberculosis of both lungs; miliary tuberculosis of both lungs; pleurisy, most marked on left side; parenchymatous nephritis; fatty liver, with possible red atrophy; tuberculosis of the mesenteric glands; bed sores.
Heart.—4½ oz.; small, pale, normal in shape and size.
Spleen.—Normal, 6 oz.
Liver.—2 lb., 6 oz; firm, pale; apparent dilation of veins.
Gallbladder.—Small; walls thickened.

Intestines.—Normal.
Appendix.—Normal.
Mesenteric Glands.—Much enlarged and somewhat caseous.
Kidneys.—Left: 5 oz.; slightly enlarged; pale. Right: Smaller; cortex thickened; medulla purplish; stellate veins prominent; surface smooth; 5¼ oz.

Microscopically (Walsh).—Both kidneys cut into 140 to 150 pieces. One small cyst found and a few small, yellowish areas looking like tubercles. Twenty-four specimens studied; glomeruli swollen, sometimes shriveled, again fibroid; connective tissue of Bowman's capsule thickened; convoluted tubules dilated, sometimes cystic dilated; epithelium atrophic; sometimes desquamation of epithelium into tubules; few hyaline casts; thickening of interstitial connective tissue; no amyloid to gentian violet; several areas (1 mm. in diameter) of round-cell infiltration, possibly young tubercles; several typic tubercles with caseation and giant-cells.

Diagnosis.—Chronic interstitial nephritis; scattered tubercles.

CASE IX.—Phipps Institute case. (Brown and Norris.) Abstract.

No. 2,344, Vol. xvii. Female, aged 35; occupation, housework; first visit to dispensary May 4, 1904; entered hospital May 12, 1904; died August 10, 1904.

Diagnosis.—Tuberculosis of both lungs; tuberculous enteritis; duration of illness one year; no edema.

Sputum.—Tubercle bacilli present.
Heart.—Normal.
Pulse.—100 to 110; respirations 32; temperature 98° to 101°; all three elevated toward the end.

Bowels.—May 3, 1904, regular; May 12, 1904, regular. These two represent the patient's own statement on the history sheet. May 15, 1904, constipated; June 20, 1904, diarrhea; June 22, 1904, two stools daily; June 25, 1904, five to six daily; June 28, 1904, no better as regards diarrhea; June 29, 1904, more comfortable; July 11, 1904, diarrhea continues; from May 18 to June 1 bowels usually 1 daily; from June 1 to June 21, usually 2, frequently 3, twice 4, and twice 5; from June 24 to July 28, usually 3, once 4, and once 6; from July 28 till death, 5, 4, 4, 7, 7, 7, 7, 7, 6, 7, 4, 2, 4, 5.

Urine.—1,020, clear, acid, trace of albumin.

Autopsy (Rosenberger).

Pathologic Diagnosis.—Ulcerative tuberculosis of both lungs; bilateral pleurisy; fatty kidneys; congested liver; enlarged mesenteric glands; congestion of ileum.

Heart.—8 oz.; somewhat enlarged and flabby.
Spleen.—7 oz.; slightly enlarged; no amyloid to iodin.
Liver.—3 lb., 1 oz.; dark, mottled veins prominent.
Intestines.—Ileum congested.
Appendix.—Normal.
Mesenteric Glands.—Enlarged.
Kidneys.—Left: 4 oz.; no tubercles visible. Right: 5 oz.; no tubercles visible; small, pale.

Microscopically (Walsh).—Kidneys cut into 140 to 150 small pieces; numerous small cysts filled with brown gelatinous material found. Thirty-three specimens studied; glomeruli swollen and hyaline, sometimes appearance of amyloid degeneration (hematoxylin and eosin), again of pure hyaline degeneration; no amyloid in specimens stained with gentian violet, though specimens so stained were poor and amyloid remains questionable; Bowman's capsule connective tissue thickened; convoluted tubules dilated; epithelium atrophic; numerous hyaline casts; many convoluted tubules filled with debris; several areas of round-cell infiltration looking like young tubercles; one area of dense connective tissue looking like healed tubercle; occasional localized infiltration between tubules; several small cysts; interstitial tissue generally thickened; no congestion.

Diagnosis.—Interstitial nephritis; possible amyloid; probable scattered tubercles.

CASE X.—Phipps Institute case. (McCarthy.) Abstract.

No. 2,815, Vol. xxi. Male, aged 28, married; entered hospital October 8, 1904; died November 9, 1904; duration of illness, nine months; some swelling of feet.

Sputum.—Tubercle bacilli present.
Heart.—Normal; accentuated pulmonic and aortic second.
Pulse.—120 to 150; respirations, 50 to 60; temperature, 99° to 102°.

Bowels.—Loose from time of entrance to hospital till death; for 22 days preceding death, bowel movements daily, 2, 0, 3, 4, 3, 3, 3, 3, 4, 3, 4, 3, 3, 3, 3, 2, 3, 4, 4, 5, 2, 2.

Urine.—No analysis.

Autopsy (Rosenberger).

Pathologic Diagnosis.—Ulcerative tuberculosis of both lungs; coalesced tubercles in both lungs; caseous pneumonia and emphysema of right lung; pleurisy; red atrophy of liver; dilation of right side of heart; enlarged mesenteric and bronchial glands.

Heart.—Slight displacement to right; right side dilated and shows chicken-fat clot; enlarged; 8 oz.

Spleen.—7 oz.; slightly enlarged; soft; darker than normal; no amyloid.

Liver.—4½ lb.; enlarged; extends nearly to umbilicus; dark.

Intestines.—Normal; rectum and ischiorectal region not examined.

Appendix.—7 cm. in length; no ulcers present.

Mesenteric glands.—Enlarged.

Kidneys.—Left: Movable; enlarged; dark red, and presents slight striation of cortex; 6 oz. Right: 6 oz.; resembles left; enlarged; no tubercles present in either.

Microscopically (Walsh).—Both kidneys cut into 150 pieces. Thirteen specimens studied. Glomeruli: Hyaline vacuolization of epithelium; some congestion; Bowman's capsule connective tissue thickened; convoluted tubules: Epithelium swollen, degenerated and necrotic; occasionally round-cell infiltration between tubules, also between the cells of the convoluted tubules; epithelium of secreting tubules of medullary rays necrotic; rare hyaline casts; rare fibroid glomerulus; no amyloid to gentian violet; typic tubercles with caseation and giant-cells.

Diagnosis.—Parenchymatous nephritis; scattered tubercles.

CASE XI.—Phipps Institute case. (Ravenel.) Abstract.

No. 2,926, Vol. xxi. Female, aged 19, single; entered hospital November 26, 1904; died December 22, 1904; duration of illness, 3 years; no edema.

Sputum.—Tubercle bacilli positive.
Heart.—Reduplicated first sound.
Pulse.—110 to 140; respirations, 35 to 45; temperature, 97° to 100°.

Bowels.—Loose; November 29, diarrhea; December 6, diarrhea quite bad and painful; from November 27, 4, 1, 6, 1, 1, 2, 4, 5, 3, 4, 2, 3, 4, 5, 2, 5, 3, 4, 3, 3, 2, 2, 0, 2, 0, 0.

Urine.—1,024, pus, albumin, no sugar, diazo slight.

Autopsy (White).

Pathologic Diagnosis.—Tuberculosis of both lungs with cavity formation; tuberculosis of the bronchial and mesenteric glands and of the appendix; dilated right and left ventricles; parenchymatous nephritis.

Heart.—Right ventricle walls thin and cavity twice normal size; left ventricle walls thin and cavity one and a half times normal size.

Spleen.—Normal.
Intestines.—Normal.
Appendix.—Contains considerable hardened feces and showed five small ulcers ⅛ in. in diameter. Mesenteric glands: Slightly enlarged.

Kidneys.—Left: Normal in size; pale in color; normal consistency; capsule reasonably adherent. Right: Normal in size; pale in color; normal consistency; capsule reasonably adherent.

Microscopically (Walsh).—Both kidneys cut into 140 to 150 small pieces. One cyst ½ in. by 1½ in. in cortex filled with gelatinous caseated material; no tubercles found; Twenty-six specimens studied; glomeruli swollen, congested; epithelium shows hyaline vacuoles; Bowman's capsule connective tissue thickened; occasional glomeruli fibroid; small hemorrhagic infarct about 5 mm. by 6 mm.; various small areas of infiltration, especially under capsule; in localized areas convoluted tubules show epithelium necrotic; interstitial tissue thickened; no amyloid to gentian violet; no distinct tubercles found.

Diagnosis.—Diffuse nephritis.

Of the 11 cases, nine showed some abnormality of the liver. Some diseases of the liver may give rise to diarrhea, but in them other symptoms are prominent which did not exist in these cases. Six cases showed inflammation of the appendix. Appendicitis may give rise to diarrhea, but usually causes constipation. In seven cases there were enlarged mesenteric glands. Diseased mesenteric glands are credited with producing diarrhea, but even here there is some doubt, as there usually is associated with them ulceration of the bowels. In seven there was abnormality of the heart. Heart disease can only produce diarrhea by setting up hyperemia in the abdominal organs. In one case the liver, appendix, mesenteric glands, and heart all were normal, and yet the diarrhea and nephritis were marked.

In two of the cases an abnormal condition of the thyroid gland was found by Dr. William B. Stanton. One showed tubercles and the other simple enlargement. Enlargement of the thyroid is sometimes accompanied by diarrhea.

In only three cases was edema recorded as being present. It probably was present in some others, but was overlooked or not recorded. In six cases, however, there was a record of no edema. It may at least be inferred that edema is not a marked symptom. The absence of edema is most remarkable in Case XI, in which the autopsy revealed a dilation of both sides of the heart.

In five cases there was albumin in the urine. In three there was none. One of the remarkable features of nephritis in tuberculosis is the nonelimination of albumin. Even when the kidneys are extensively dis-

eased there is very little albumin in the urine, and sometimes there is none. In one case there were hyaline and granular casts in the urine; in one case there were no casts; in nine cases no record was made upon the subject of casts. The probabilities are that hyaline or granular casts would have been found in all if careful search had been made for them. Hyaline or granular casts seem to occur in all cases of nephritis associated with tuberculosis.

The specific gravity of the urine was 1,020 and over in four cases, and below 1,020 in one case. In six cases no record was made of the specific gravity. In tuberculous nephritis the specific gravity of the urine usually is very high. In cases in which loose bowels exist this high specific gravity may be due to the amount of fluid carried off by the bowels.

In seven of the cases the pulse was above 120, and in four it was below 120. For most of the cases the pulse record was a bed record. High pulse in tuberculosis is always suggestive of nephritis. The character of the pulse has not been recorded. Usually it is thready.

Nephritis occurs very frequently in tuberculosis. It is caused by the growth of the tubercle bacilli in the tissues of the kidney, and by the toxin excreted through the kidneys from lesions elsewhere. It also may be caused, perhaps, by the dead tubercle bacillus in the process of elimination. That the tubercle bacillus escapes from the body by way of the kidney can no longer be doubted. Whether it escapes only with broken-down tubercles in the kidneys, or also by elimination is unsettled. In a study of the urine in tuberculosis, made two years ago,[1] we reported the finding of tubercle bacilli in the urine in 44 out of 60 cases.

Grancher and Martin[2] reported a series of experiments upon dogs for the establishment of immunity with gradually increasing doses of avian tubercle bacilli in which the ultimate outcome frequently was nephritis, either bacillary or toxic. The longer the animal lived and the more resistant it became the greater were the chances of nephritis.

Clinically, nephritis is one of the complications in tuberculosis most to be dreaded. This is the more so because it is a complication which comes on with the very process which leads to recovery, namely, immunization. When established it becomes a menace to life. Many patients with tuberculosis die by way of nephritis as the real cause of death. The symptom-complex by which nephritis in tuberculosis may be recognized is a pasty skin, unusual fatigue upon slight exertion, shortness of breath, rapid thready pulse, high specific gravity of urine, hyaline and granular casts at times, tubercle bacilli in the urine at times, and slight amount of albumin at times. Edema may be present, but is not as a rule. Frequently there is looseness of bowels alternating with constipation and sometimes there is continuous diarrhea. Albumin and casts are more apt to be found when something has occurred to congest the kidneys.

We have found magnesium sulfate and nitroglycerin of greatest use in the treatment of this complication. When the bowels are very loose, .78 gm. (12 gr.) doses of magnesium sulfate every hour will lessen the number of stools. When the bowels are costive the magnesia will greatly improve the general condition. Sometimes patients begin to gain in weight under the use of magnesium sulfate who have done badly before. Opiates should never be used in these cases.

Grave Charges against Board.—Charles Showalter, until recently superintendent of the Wisconsin State Blind Institute, but who failed to be reelected, states that the board of control was responsible for the bad quality of bread that caused the sensational riots at that institution last fall. He also states that the board of control violated the rules of the school by taking pupils into saloons and buying them tobacco.

[1] Proceedings of Philadelphia Pathological Society, 1903.
[2] Revue de la Tuberculose, 1893.

A BRIEF REPORT ON RESEARCH IN THE WRITER'S LABORATORY ON BACTERIAL TOXINS AND IMMUNITY.[1]

BY

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Theory.—The research on the action of toxicogenic bacteria and the production of immunity, that has been prosecuted for some years under my direction, is based upon a theory different in some respects at least from any held by others, so far as I know. I believe that the bacterial cell, so far as its essential constituents are concerned, is a definite chemic compound, just as much so as is sodium chlorid or phenylhydrazin, but, of course, infinitely more complex. The number of groups in these large molecules must be great and when such a molecule is broken up the lines along which cleavage takes place depend upon the nature and degree of the force applied. All life is cellular and every cell is in its essential constituents a definite chemic compound. Cell growth is a chemic process. There can be no chemic element in any cell which did not preexist in the medium in which the cell grows; but the arrangement of the chemic elements in the cell may be quite different from that in the medium. Some bacterial cells, like the colon bacillus, may take the elements as they exist in relatively simple compounds and build them into their own bodies. These organisms grow in proteid-free medium. Other bacteria, such as the typhoid bacillus, require, as it were, ready-made atomic groups, and consequently will not grow in mediums which do not contain proteid bodies.

The cell molecule, even that of a bacterial cell, must be exceedingly complex, consisting of a great number and variety of atomic groups. Certain of these groups are undoubtedly common to many kinds of cells, but each species of cell must differ from all others somewhere in its molecular structure; certain atomic groups must be absent in one and present in the other or the arrangement of the groups with reference to one another must vary. Some atomic groups are loosely held in the molecule and drop off from time to time to be replaced by similar groups built up from the constituents of the medium in which the cell lives. These groups that drop off from the cell molecule constitute its secretions and it seems to be the chief function of certain cells to form these easily detachable groups, which go to serve other cells, in some instances beneficially, in others harmfully. Other atomic groups are held in the cell molecule more closely and cannot be split off without destroying the cell itself.

Every toxicogenic bacterial cell must have among its constituent groups at least one which is poisonous to certain animals. Some toxicogenic bacterial cells have poisonous groups that are easily detachable and the cell continues to reproduce this poison. In this case we may say that the bacterial cell secretes a poison. This is true of the diphtheria and tetanus bacilli. In other toxicogenic bacteria the poisonous group is not set free until the cell molecule is so thoroughly broken up that the life of the cell is destroyed. To this group most of the pathogenic bacteria belong. From bacteria of this class the poisonous group of the cell molecule cannot be extracted by physical solvents, but may be separated from other constituent groups of the cell molecule by chemically breaking up the cell.

When bacterial cells of the second class die, their cell molecules break up into their constituent groups and the poisonous as well as the nonpoisonous groups are set free. This process is known as cell autolysis and accounts for the appearance of soluble poisons in old cultures and in emulsions of bacteria kept for a while at relatively high temperatures.

[1] Read before the Association of American Physicians, May 17, 1905.

When an animal is infected with bacteria of the second class the bacterial poison is not set free until the cell molecule is broken up. When the bacterial poison is set free it acts injuriously on the animal by entering into a chemic reaction with the constituent molecules of certain body cells. The bacterial poison, having a greater affinity for some constituent of the body cell than that which holds this particular group in its place, combines with it and thus impairs the function of that body cell. The injury done to the animal as a whole depends upon the number and kind of body cells thus put out of commission. If the body cells impaired by the bacterial poison belong to some vital group, such as the respiratory center, a relatively slight injury may immediately put the life of the animal in jeopardy; while, on the other hand, if the body cells affected are blood-corpuscles, either white or red, or liver or kidney cells, more extensive injury may be done without any immediate and recognizable effect upon the health of the animal. Like other poisons, those derived from bacterial disintegration have what we call a selective action, which, I take it, depends upon the relative chemism existing between them and the constituents of certain body cells.

My theory can probably be better illustrated by the following diagrams:

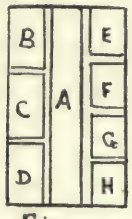


Fig 1.

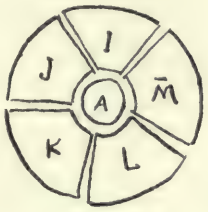


Fig.2.

Fig. 1.—A, nuclein group; B, amido group; C, diamido group; D, monoamido group; E, toxic group; F, hemolytic group; G, hemoglobin splitting group; H, carbohydrate group. Fig. 2.—Body cells.

Suppose that the chemic attraction between group "e" in the bacillus molecules and group "m" in the cell molecules is greater than that which holds these groups in their respective molecules; then these groups will be broken away from their molecules and unite to form a new molecule, which, being saturated and stable is not harmful. The body cell injured by the loss of its "m" group will have its function impaired more or less, depending upon the functioning value of that particular group to the cell. If the "m" group is essential to continued existence of the body cell, that cell is destroyed by the removal of the "m" group and repair is impossible. If on the other hand the body cell can continue its existence after the loss of the "m" group the injury done is repaired by the cell splitting off new "m" groups from the food material within the range of its chemisms. In doing this it splits off more "m" groups than it can utilize, and this excess becomes the antitoxin or the bacteriolytic or hemolytic body as the case may be.

This attempt to illustrate the theory diagrammatically, while of possible value, is to a certain extent misleading. I have no idea that the reaction between bacterial cell and body cell is as direct as the diagrammatic explanation indicates. There may be many intermediate reactions before a bacterial cell placed in the abdominal cavity can impair the function of a body cell in the respiratory center of the brain. However, if by chemic means we can split up the bacterial cell outside the animal body and then inject the free toxic group into the animal, we should get the effect of the poison within a relatively short time, and this is exactly what we have attempted, and in my opinion have succeeded in doing.

Chemistry of the Bacterial Cell.—In attempting to work out the theory, briefly and inadequately stated above, the first thing to do is to obtain the cell substance in large amount and free from all substances that do not form a part of the cell molecule. The tanks which I first described before this association have enabled me to obtain the cellular substance of certain bacteria in large amount, and this has been freed from everything except that held in chemic combination by subjecting it to thorough extraction with such solvents as water, dilute saline solutions, ethyl and methyl alcohol, ether, chloroform and benzol. Practically, however, we have found that the only solvents needed for the extraction of the cell substance are dilute salt solution, alcohol and ether, and in our routine work only these are used. By carrying the cellular substance of the colon bacillus through these extraction processes, pulverizing and passing it through the finest sieve, there is obtained an impalpable white powder, which, under the microscope, still shows the individual bacilli, and these take the ordinary stains. This powder is designated as the "crude toxin." It kills all guineapigs when suspended in salt solution and injected intraabdominally in the proportion of 1 to 40,000 of body-weight. This substance, when heated at 78° in a reflux condenser, with from 15 to 25 times its weight of a 2% solution of pure sodium hydroxid in absolute alcohol, is split up into portions A and B. Three extractions of an hour each are necessary in order to make this cleavage complete. After this treatment, portion A is in solution in the alcohol and portion B is in the residue.

The alcoholic solution of A is neutralized by the addition of hydrochloric acid, an excess of the acid being avoided by preliminary titration of an aliquot part. When this is done, the sodium chlorid is precipitated, removed by filtration, and the filtrate evaporated in vacuo at 40°. The residue is easily reduced to a brownish powder. This is known as the "crude, soluble toxin"; crude, because it is still a mixture, and soluble in contradistinction to the germ substance. It is freely soluble in water, ethyl and methyl alcohol, insoluble in ether, chloroform and benzol. Its aqueous solutions respond to all the proteid color reactions, with the exception of that of Molisch. There is no evidence that this substance contains an alkaloidal body; at least, all attempts to extract an alkaloid have proved fruitless. The poisonous constituent of portion A is precipitated by platinum chlorid, but we have not been able to obtain the platinum compound in crystalline form. On account of its toxicologic action, we suspect that portion A contains a neurin group, but up to the present time we have not been able to prove the presence of neurin chemically. The action of portion A on animals will be discussed later, and more detailed information concerning its chemistry may be found in a recent paper from my laboratory by Dr. Wheeler.[1]

It is well to state that the method which we have employed, of splitting off the poisonous group from the cell molecule of the colon bacillus is by no means perfect and, indeed, it leaves much to be desired. In the first place, it is expensive, on account of the large amounts of absolute alcohol and ether, especially of the former, required. In the second place, a large proportion of the toxic group, about three-fourths of it, is broken up by the reagents employed. The great loss may be better shown by the statement that from a "crude toxin," 10 mg. of which killed guineapigs, we obtained a "crude soluble toxin," 60 mg. of which was required to have the same effect, and yet the "crude soluble toxin" was only about a third of the "crude toxin," which was split up, and the residue, equivalent to two-thirds of the "crude toxin," was shown by animal experiment to have no toxin left in it. It is possible that methyl alcohol may be advantageously used, but in our work we have purposely avoided it on account of its toxic properties.

[1] Journal of the American Medical Association, April 22, 1905.

Portion B, the part insoluble in absolute alcohol, is placed in a Soxhlet and thoroughly extracted with absolute alcohol, in order to remove the alkali. After this treatment portion B is found to be, for the most part, soluble in water, forming a feebly alkaline solution. When this is rendered acid by the addition of hydrochloric acid, a flocculent precipitate forms and is collected by the centrifuge and removed by filtration. This part, known as the acid precipitate from portion B, gives the proteid reactions, but has not been closely studied, and will not receive further notice in this paper. The filtrate from this acid precipitate gives, on being heated, a second precipitate, and this is of interest, inasmuch as it contains a hemolytic body. This will receive further mention later.

Action of the Crude Soluble Toxin.—It is interesting to compare the effects of the living colon bacillus, the dead germ substance or, as we have called it, the "crude toxin," and the crude soluble toxin, on animals. When a fatal quantity of a colon culture is injected intraabdominally in a guineapig, the animal remains apparently normal for a period of from eight hours to twelve hours, varying with the virulence and amount of the culture employed. During this time the animal eats, its coat is smooth and natural, and its temperature is normal, or possibly slightly above. At the expiration of this time the pig begins to show it is sick; it sits in one corner of the cage, its coat becomes rough, and its temperature begins to fall, and continues to do so until death, which occurs within 24 hours. When the dead germ substance, or "crude toxin," is injected in fatal quantity the effects are exactly the same as with the living bacillus, except that the period between the giving of the toxin and the first appearance of sickness is shorter; the temperature beginning to fall within from two to four hours, continues to fall until death, which occurs within 12 hours. The postmortem appearances, the most marked of which is a hemorrhagic peritonitis, are the same whether the living or dead germ be used. There can, therefore, be no doubt that the toxic substance by virtue of which the living bacillus destroys the life of the pig, is present in the dead germ substance. With the "crude soluble toxin," or portion A, split off from the dead germ substance by a dilute alcoholic solution of sodium hydroxid, the effect upon animals is exactly the same as with the living and dead germ substance, again with the exception that the time between the administration of the poison and the appearance of illness, best measured by fall in temperature, is still further shortened, coming on within from 10 minutes to 15 minutes, and continuing until death, which occurs within an hour. There is no peritonitis after death from the crude soluble toxin, but when this toxin is combined with sodium bicarbonate or with certain nonpoisonous organic substances, and injected into the abdominal cavity, a hemorrhagic peritonitis, identical with that observed after the living or dead germ, is observed. The temperature curves with the living culture, the dead germ substance, and the split off toxins are the same, with the exception of the time when the fall begins.

The soluble toxin of the colon bacillus kills when injected intravenously within 6 to 7 minutes; when given intraabdominally or hypodermically within an hour. The fatal doses for guineapigs are intravenously from 1 mg. to 15 mg.; intraabdominally from 8 mg. to 60 mg.; the fatal dose when administered hypodermically is between twice and three times that required to kill when given intraabdominally.

It kills apparently by its action on the respiratory center, respiration ceasing a measurable time before the heart stops. We have poisoned with it guineapigs, rabbits, and a goat, the time and manner of death being the same in these animals, but, of course, larger doses being necessary to produce a fatal result in the larger animals. A more detailed discussion of the action of the soluble toxin has been given in a recent paper by Victor C. Vaughan, Jr.[1]

A similar poison to that obtained in soluble form from the colon bacillus, as described, may be prepared by the same method from egg albumen and Witte's pepton. It is probable that this group is a constituent of a large number of proteid bodies. Besides the colon bacillus, we have obtained this soluble toxin from the typhoid and anthrax bacilli and from the micrococcus of pneumonia. We have shown that the colon bacillus can build up this poisonous group synthetically when grown on proteid free culture mediums. This experiment has served a double purpose inasmuch as it has enabled us to be certain that the toxic group, in this instance at least, did not come from any proteid carried over from the culture medium. Agar does not contain this group, or, at least, this group cannot be split off from agar by the method which we have used. For this reason we have in our recent work inoculated our agar tanks with colon cultures grown in proteid-free mediums. The fact that this poisonous group is contained in the pepton and albumin molecule offers an explanation of the poisonous action of these substances when injected intraperitoneally, subcutaneously and intravenously in animals. It also offers a possible explanation of the fact, reported by several observers, that the injection of beef tea and other albuminous fluids gives some increased immunity to certain pathogenic bacteria.

The Production of Active Immunity with the Split Products of the Colon Bacillus.—1. With portion A or the "crude soluble toxin." By beginning with nonfatal doses and increasing these at intervals of a week we have been able to establish in guineapigs and rabbits some degree of tolerance for the "crude soluble toxin." After from six to eight weeks of this treatment the animals bear without harm intraperitoneal inoculation of from two to four times the minimum fatal dose of living culture of the colon bacillus. Indeed, an injection of an amount of the soluble toxin slightly less than the fatal quantity will enable the animal to withstand twice the fatal dose of the living culture given the next day. In making these experiments we used controls that received 5% solutions of salt solution and beef tea and found that these animals were not protected. This transient protection against the colon bacillus may be secured with the "crude soluble toxin" obtained from egg albumen and pepton as well as with that made from the colon bacillus itself. However, the immunity obtained by a single injection of the soluble toxin is transient and less in degree than that secured by repeated treatments at intervals of from five to seven days. From a close study of the temperature curves we are inclined, for the present at least, to the opinion that the immunity obtained with the "crude soluble toxin" corresponds with natural immunity, or, in other words, it is simply an increase in the natural resistance possessed by the guineapig and rabbit to small inoculations with the colon bacillus and that it may result from the toxic group split off from albumins and peptons. This immunity is in our opinion not specific.

2. With portion B, or that part of the cell molecule that remains after the toxic group has been split off. Portion B is in the ordinary acceptation of the word not poisonous. As much as 500 mg. of it may be thrown into the abdominal cavity of a guineapig and twice this amount used in like manner in a rabbit without appreciable effect. The temperature remains unaffected, the animal loses but little, if any, in weight, and soon regains what it may lose, and is without roughened coat or other evidence of illness. However, that portion B is a cell poison we have good reason for believing. When repeated treatments with it are given the animal finally dies of marasmus. Besides, as we shall see later, it leads to the development of a specific bacteriolytic body, and we can scarcely conceive of this being done without

[1] Journal of the American Medical Association, April 29, 1905.

affecting certain cells of the body. We think that portions A and B furnish excellent illustrations of two kinds of poisons, the difference being due to the difference in the body cells acted upon. There is no doubt about the poisonous action of A. In sufficient doses, which are small, it kills animals within a few minutes. We have seen a large goat in convulsions within 30 minutes after such an injection, its respiration cease within 45 minutes, and its heart stop after five or ten minutes longer. The most careless observer will admit that portion A contains a poison, while he would probably deny that B is possessed of poisonous properties, and yet B probably impairs the function of more body cells than an equal weight of A. Portion A strikes the cells of the respiratory center, and the animal dies promptly. Portion B reacts with other cells, the impairment of which has no such direct effect upon the life of the animal.

Animals treated with successive doses of portion B bear intraperitoneal inoculations of from eight to ten times the minimum fatal dose of the living culture of the colon bacillus, and this immunity is specific. It is not induced by the corresponding split products from albumin and pepton, and it is specific for the colon bacillus and does not protect against the typhoid bacillus.[1]

A Hemolytic Body in the Colon Bacillus.—I have stated that there is a hemolytic body in portion B. This can be extracted from the precipitate obtained after acidifying an aqueous solution of B, removing the precipitate that forms and heating the solution. The hemolytic body in this precipitate is soluble in alcohol and ether. A hemolytic body, probably identical with this, can be obtained in large amount by evaporating either the absolute alcohol or the ether used in extracting the dead germ substance. This body is a fatty acid, and it dissolves red blood-corpuscles, either as free fatty acid or as a neutral soap. Whether or not an antibody can be produced with it in animals, we are not prepared to say at the present time. The probabilities are that the hemolytic body is no part of the cell molecule, because only traces of it are found in portion B, while much larger quantities are present in the alcoholic and ether extracts. It may be a secretion or a by-product formed in building up the cell molecule from the constituents of the culture medium.

Agglutination not Produced by the Split Products.—The blood-serum of animals immunized with either portions A or B does not agglutinate the colon bacillus. We treated one goat with heated cultures of the colon bacillus, a second with portion A, and a third with portion B. The blood-serum of the first only agglutinated the colon bacillus. We conclude from this that agglutination is due to the action of some easily detached group or secretion of the bacillus, and that it has no direct relation to immunity. In other words, our work confirms an early statement of Widal that agglutination is a reaction of infection and not of immunity. To the latter it is only incidental.

We are not ready to claim that immunity can be obtained by the methods mentioned to all the pathogenic bacteria that have intracellular toxins. In other words, we do not think we would be justified in claiming that we have established a general law that either portion A or portion B gives immunity to the bacteria from which they are derived. Each microorganism must be studied individually, and there are *a priori* reasons for believing that each has its own peculiarities of chemic structure. The agent that splits the colon bacillus molecules into portions, each of which may be used in securing increased resistance to living cultures, may have quite a different effect upon other pathogenic bacteria.

[1] A more detailed statement concerning the production of active immunity with the split products of the colon bacillus has been given in a paper by Victor Vaughan, Jr., read before the Association of American Pathologists and Bacteriologists, April 21, 1905, but not yet published.

We have, as has been stated, split off toxic groups from the typhoid and anthrax bacilli and the micrococcus of pneumonia, and I might add that with the toxic group from the typhoid bacillus we have increased the resistance of guineapigs to this organism to the same extent that we have secured it to the colon bacillus, but with portion B we have not done enough work with any other bacteria to enable us to make any positive statements. The problem which we have before us, involving as it does the chemistry of the bacterial cell and the physiologic action of its constituent groups, is one the solution of which no one can hope to accomplish without the expenditure of much time and labor. It opens up an untrodden field of research, and its limits lie far beyond our range of vision. Cellular chemistry is as yet a *terra incognita*, and somewhere in it lie hidden the facts, the discovery and application of which are to place medicine among the exact sciences.

SUMMARY.

1. The theory upon which this work is based assumes that the bacterial cell is, in its essential part, a chemic compound made up of many groups.

2. The endeavor in this work has been to split up the cell molecule of the colon bacillus into its constituent groups and to study the physiologic action of these groups.

3. The result of the work has been to show: (*a*) That the colon bacillus even when grown upon proteid-free mediums contains a highly poisonous group and that animals treated with repeated doses of this group have their resistance to living cultures of the colon bacillus multiplied from two to four times; (*b*) that a group similar to that mentioned can be obtained from egg albumen and pepton and that animals treated with this also show increased resistance to the living bacillus; (*c*) that animals treated with successive doses of that portion of the colon cell left after the removal of the poisonous group acquire a specific immunity to the colon bacillus; (*d*) that the blood-serum of animals treated with either the poisonous group or the nonpoisonous group of the colon bacillus does not agglutinate the living colon bacillus; (*e*) that cultures of the colon bacillus contain a fatty acid which either as a free fatty acid or as a neutral soap dissolves red blood-corpuscles.

WHAT CASES ARE SUITABLE FOR ADMISSION TO A STATE SANATORIUM FOR TUBERCULOSIS, ESPECIALLY IN NEW ENGLAND ?[1]

BY

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Very little has been written on this subject, and yet it is extremely desirable that the practising physicians in a State, on whom a State sanatorium must necessarily depend for its supply of patients, and who often make inquiries, should know as exactly as possible just what kinds of cases are acceptable.

The present paper is an attempt to furnish the desired information, and is based on a practical experience of six and a half years in the oldest State sanatorium in America, that in Rutland, Mass.

The successes in sanatorium treatment in properly selected cases are often so remarkable, and indeed almost miraculous, when measured by the therapeutic standards of a few years ago, that many physicians who are not well acquainted with the limitations of the subject, but who have heard exaggerated stories about sanatorium recoveries and who have on this account become overenthusiastic, often flatter us by thinking we can do im-

[1] Read before the National Association for the Study and Prevention of Tuberculosis, at Washington, D. C., May 19, 1905.

possibilities, and send to us for admission cases which are absolutely hopeless, expecting them to end in recovery.

These exaggerations and this excess of enthusiasm, instead of helping the cause, are sure to result in a reaction and in a great injury to the legitimate claims for sanatorium treatment, which would be a calamity indeed. About equally injurious to the public welfare is the attitude of some other physicians (fortunately each year growing less in number), of skepticism as to the real efficacy of these modern methods, arising from a lack of knowledge and from an unwillingness to investigate.

What physicians of the largest experience in lung diseases throughout the whole civilized world are now pretty well agreed upon, making slight allowances for difference in climate, can be expressed somewhat axiomatically as follows: In early cases (at least three-quarters of them) cure can be effected. In far advanced cases (with a few rare exceptions) cure can never be effected. Moderately advanced and advanced cases sometimes end in recovery, but oftener not. They are always very doubtful.

The word "cure" is often loosely used, and thus gives rise to wrong impressions. Therefore, it may be desirable to add that at the date of discharge some of us modestly call a satisfactory case not cured, but apparently cured or arrested. If after a proper lapse of time, however, the patient continues well, the word "apparently" is dropped. But if the patient backslides, we think the "cure" was more apparent than real, or else a fresh infection has taken place.

The rules for the admission of patients into sanatoriums in general in this and other countries differ widely as to the stage of the disease. Private sanatoriums, with high charges, naturally open their doors more widely than charitable sanatoriums, with low prices or with no fees, and the latter will have a larger number of applicants and can establish a higher standard for admission. With State institutions, as a rule, the standard should be higher still, and if so, their efficiency will thereby be increased.

In conducting a State institution for the benefit of the citizens of the State, it is obviously the best and the wisest policy to try to do the greatest good to the greatest number of people. This supreme object should be kept constantly in mind. In this instance it will be far better for the community at large if we make incipient cases as nearly as possible the standard for admission, because of their greater curability. There will always be a rush of advanced cases, while at first the supply of incipient applicants will not be sufficient to fill the beds.

As the public becomes more and more educated, however, to the importance, nay, the necessity, for early treatment (and we should all do our best to further this education), the number of early applicants will increase. Until then the sensible method of procedure seems to be to select from all who apply, those who seem most likely to receive permanent benefit, and that, too, in the shortest period of time, for obvious reasons of economy. If, for instance, we admit four cases that seem likely to be arrested or apparently cured in six months each, it costs no more and is manifestly a wiser expenditure of the State's money than to admit instead one case that seems likely to get well in 24 months or two years; and, besides, we can feel much more confident that the four will recover than the one. As the number of applications will vary from time to time, our minimum standard will necessarily vary within certain limits. If on a certain day we have five beds to fill and 25 applicants to choose from, we can naturally be more strict, other things being equal, than if only 10 should apply. Our standard, therefore, must always be more or less flexible, unless we are content to have frequently a large number of vacant beds, which seems wasteful of money and of opportunity.

In a public school all students who reach a certain standard are allowed to graduate, but only certain ones receive the prizes, which are provided in definite numbers. The examiners for a public sanatorium in filling its beds are virtually giving out prizes, instead of invariably passing all who come up to a certain standard and of invariably rejecting all others, which would make the whole question very much easier. Simple as this principle seems to be when stated as above, and when studied in the abstract, it is exceedingly hard to explain satisfactorily to some physicians why at one time we feel obliged to refuse cases which may seem to be no worse than those which we may have accepted from them at another time, when we happened to have more vacancies. It is the old question of putting four quarts into a gallon jug.

This principle of prize giving ought to have the effect of stimulating early application. If it were made too easy to enter a State sanatorium, and there were always plenty of room to be had for the asking at any time, the natural and common procrastination of the patient would be favored, and often with fatal results.

So far, in Massachusetts, our rejection of undesirable patients has not constituted a great injustice to anybody; for while we never have claimed that those whom we reject are thereby considered by us as necessarily incurable (as is sometimes reported)—in fact, we decidedly disclaim such a statement—yet practically, so far as we can learn on inquiry, the great majority of those heard from whom we have rejected have failed to get well, although some of them, under proper treatment, have temporarily improved, and now and then possibly (but very rarely, we believe) one may have recovered. If we should accept these cases, as we are constantly begged to do, we should turn our curative institution into an old-fashioned home for incurables, who, like the dog in the manger, would neither get well themselves nor by their preoccupation of the beds would they allow anybody else to get well.

If, on the other hand, we had rejected as large a number of incipient cases, an injustice would have been done, for perhaps three-quarters of these patients might have been apparently cured, if they had had a chance. When the number of incipient applicants increases so as to be as great as, or greater than, the number of our beds, it will certainly be the duty of the State to enlarge our accommodations. They have already been twice enlarged. Starting in 1898 with 175 beds, the number was later increased to 260, and recently to 325, and soon, prospectively, it will be increased to 400. If there had been no enlargement from the beginning, our beds would now probably be about filled with incipient cases.

What Cases to Exclude Positively.—There are some cases which must be refused admission to a State sanatorium at all hazards, and the examiner will very likely prefer, by the weeding-out process applied to these at the outset, to narrow down his range of vision preparatory to deciding the nicer points involved in selecting the best cases and at the same time in keeping the beds all full. It must not be understood that the cases now to be mentioned are invariably and inevitably incurable, but their average is low, and they are not suitable for a good sanatorium.

No bedridden patients should be accepted, nor even those who are confined to their rooms. If an applicant is not strong enough to ride some distance to the examining office, it is cause enough for his rejection, for a time, at least. It is to be taken for granted that patients in a first-class sanatorium are able to be up and about, and to go to the dining-room for their meals, even if at other times their exercise has to be more or less restricted. If while in the sanatorium they get sick, of course they are put to bed and properly cared for; but no persons should be deliberately received from the outside as bed patients.

No case of acute tuberculosis should be admitted, nor any case in which there is high fever or even a temperature which, after rest in bed with open windows for a week or two, does not come down to perhaps 100° or

so in the afternoon; no case of tuberculous laryngeal complication, unless the trouble in the larynx as well as in the lungs is small. If the rules are very strict, all with tuberculous laryngeal complications should be excluded. In a great many really good cases of pulmonary tuberculosis the subjects have a slight catarrhal hoarseness or roughness of the voice much of the time; but no patient with more hoarseness than this should be admitted without a laryngoscopic examination. No complication of chronic diarrhea, glycosuria, Bright's disease, melancholia, tuberculous disease of the kidney, pharynx, peritoneum, bones or joints should be allowed to enter. The last two are appropriate for a children's seaside sanatorium, but not for one for lung diseases. Not to be desired are cases of tuberculous deposit widely extended through one or both lungs, or through a large part of a lobe (especially with the coarse bubbling rales of breaking-down lung tissue); no cases with clinical signs of cavities, no confirmed neurotics, no cases of obstinate dyspepsia and malassimilation. This latter disqualification perhaps needs explanation. The great majority of our acceptable applicants before entrance admit, on being questioned, that they have more or less lack of appetite and flatulence, of sour stomach or other symptoms of indigestion; but after a few weeks, and occasionally even after a few days in the sanatorium, we find most of them eating enormously and digesting well, and gaining many pounds in weight. The vital point is this: Proper nutrition is a *sine qua non* in our treatment. Without it we can do nothing. If the indigestion is too bad to be likely to allow of much improvement, the patient is inadmissible; likewise, if he has decided dyspnea without exertion, marked insomnia, or a chronic very rapid pulse, even without fever.

The serious symptoms and conditions as enumerated should always make us cautious about accepting such a patient, even if the physical signs of disease in his chest are small and indefinite. And yet, because small and indefinite, they have often induced physicians to send us as incipient cases those which were really almost hopeless. Whether we explain the fact by excessive virulence of the tubercle bacilli, or by a remarkable receptivity and fertility of the soil in the patient, true it is that in some persons it takes only a little of the tuberculous poison to produce a tremendous infection of the whole system; while in other persons a large solid mass, evidenced by tubular breathing, bronchophony and even flatness on percussion, may sometimes remain latent and almost innocuous for months, if not for years, in the upper part of a lung.

Very decided complications of bronchitis, asthma, and emphysema constitute another class of cases which our experience has amply demonstrated it is not wise to accept at a sanatorium in a climate as cold and as variable as that in New England. They cannot bear such exposure as is necessary for almost all of our tuberculous patients, and should, if possible, seek a warmer climate; although for most cases of tuberculosis without these complications our New England climate has been proved to do its best work in the coldest part of the year, contrary to popular ideas.

Two other classes of cases are likely to be excluded from our sanatorium on account of practical difficulties met in our experience—children under 14 and adults over 50, although we are not bound by a hard and fast rule. Not that children are incurable, but they can be better treated in institutions by themselves; and many people (not all) over 50 or 60 years, of the classes that come to us, have not vigor enough to stand the winter exposure, which we deem absolutely necessary for younger people.

We follow pretty closely the rule which seems to us wise, to make one year the maximum duration of residence of patients; not because we despair of their recovery later, if they are not well then, but because by that time they have had their share and we need the beds for others, and also because a year's training in good living ought to enable them to carry on the good work alone outside.

Acceptable Cases.—A sanatorium cannot get its cases too early for the best and quickest results. If tubercle bacilli are found in the sputum, no matter how strong the patient is, no matter how well he looks and feels, he will make no mistake in applying for admission at once. Nor should his physician feel obliged to wait for tubercle bacilli to appear in his sputum. One who is skilled in auscultation and percussion can, not always, perhaps, but very often detect the disease by this most important means, in addition to a careful investigation of the symptoms and personal and family history of the patient, many weeks before the bacilli appear in the sputum, or even before the sputum itself appears, and thus save valuable time, which may in some cases make the difference between the life and death of the patient.[1] Afebrile cases are the most desirable. In cases in which there is not enough fever to bar acceptance, our first effort is to reduce the temperature to normal.

Other things being equal, the smaller the size of the tuberculous deposit or deposits, the more favorable the case. If at one apex, it is better than in both. We use the word incipient rather loosely. One case may progress as far in two months as another in five years, and we call them both incipient, and they may both end in recovery. Time is not necessarily an important element in the definition. Yet, if possible, we like to get cases within one or two or three months from their first symptoms, such as cough, hemoptysis, etc. The less severe the constitutional symptoms the better. We should, if possible, be convinced from the personal and family history of the applicant that he has sufficient underlying vitality (a "tough streak") to enable him under favorable surroundings to resist successfully the invasion of the disease.

I think the importance of character in influencing recovery is greatly underestimated. A man with a strong will, able to control his passions, and to regulate his habits carefully, and obediently to live the proper life (to "take the treatment," as we call it), whether he is watched or not, will stand a much better chance of recovery, especially if he has a cheerful disposition and a good stomach, than a weak and irresolute character, or one bound hand and foot by the bonds of dissipation. Even if by keeping him strictly under our thumbs while in the sanatorium we send such a weak or dissipated man out as "apparently cured," what is there to prevent his backsliding later? Are not his reception and treatment often a waste of the State's money?

Theoretically, a certain amount of intelligence should be demanded of a patient to enable him to live aright after he has left us, in order to keep well. Practically, we have been surprised to find out by our results how comparatively little of this is absolutely necessary, provided the right moral stamina is present, because of the thorough practical drill in right living while with us, extending over a number of months, here a little and there a little.

Contrary to a widespread popular belief, hemoptysis is not generally an unfavorable symptom in the prognosis of early cases, unless it is very free and frequent. Practically, we accept most cases with hemorrhages as quickly as those without. In the early diagnosis it is very valuable to us, being pathognomonic of tuberculosis in the great majority of cases, in the absence of organic heart disease. It is also very valuable to the patient, being to him a good danger signal, warning him to seek relief at once.

In later cases, which we are apt to refuse for other reasons, hemoptysis is often followed by unfavorable complications.

[1] "The Dangers of the Microscope in the Early Diagnosis of Pulmonary Tuberculosis," H. C. Clapp, *American Medicine*, December 10, 1904.

After reading the foregoing restrictions and limitations advisable in the admission of patients, some physicians may think we want only well persons to treat at the sanatorium. Indeed, this criticism has really been made. The fact is (although we regret to say it) that at the present time a large number of our physicians, even among those in good repute, are often only able to recognize a case of tuberculosis after it has reached the incurable or doubtful stage. Soon, however, we hope that this will be changed and they will be well posted on the early diagnosis of the disease, about which so much has been written of late. When most of the early cases are cured, there will be few left to become incurable.

No examiner is infallible. Occasionally a patient whom he thinks ought to do well, suddenly develops an unfavorable complication, and goes from bad to worse. Occasionally a bad subject surprises him by improving remarkably. Undoubtedly a part of his difficulty consists in his inability to measure the varying amounts of the mysterious power of resistance in the patient. Still, in most cases, after proper training and experience, he can judge with a considerable degree of accuracy. This judgment would be increased in value if in some of the more doubtful cases a short period of close and constant observation or "probation" could be established, either in the patient's home, or in a nearby hospital, or in a boarding place in the town where the sanatorium is situated, or even in the sanatorium itself. We often now admit patients for a limited time on trial, and discharge them, if on the one hand, with considerable disease, they do not respond to the treatment as well as we think they ought to do, or on the other hand, if we decide, after close watching, they have no tuberculosis at all.

Illustrative Cases.—The following three cases are appended in abstract, as samples of the kind we like to admit and illustrative of different phases of the disease.

The first is presented as an ideal incipient case, and might serve as a model. If most of our cases were like it, our institution would be an ideal sanatorium. Not only would our records be ideal, but also (which is the same thing) our results, as shown in increased benefit to the community. It may not be out of place to add that this patient was in every other respect a model young man.

CASE No. 816.—W. F. A., aged 28. A physician, with a previous college education (A.B.). Entered February 15, 1901. Had coughed two and a half months; hemoptysis 1½ oz. on January 5; slightly hoarse at times; temperature 98.6°, pulse 80; anemic; slight loss of weight from his normal of 119 pounds; 5 ft. 8½ in. tall. His physical signs were dulness, bronchovesicular respiration, bronchophony, at the right apex extending down to the second rib, with a very slight depression above and below the clavicle. His sputum, which had not been examined before entrance, showed tubercle bacilli immediately thereafter. By April 29, his physical signs had diminished in amount, and he had gained 14 pounds and had lost his cough. He left June 29, after a stay of four and a half months, and has remained well since, now almost four years, in the active practice of medicine.

The next case we classed as incipient, for want of a better name, because, although the symptoms dated back three or four years, yet the resistance of the system had been such that the amount of the deposit was small, as well as the constitutional disturbance. Still, five months to obtain arrest in such a case is exceptionally short.

CASE No. 1,372.—C. A., aged 27, waitress. Entered May 28, 1902. Sent by Dr. E. O. Otis. Cough three or four years, dyspnea on exertion, dyspepsia, poor sleep, weak and tired; temperature 99.2°, pulse 84; lost three pounds from her normal of 120 pounds; height 5 feet 4 inches; tubercle bacilli in sputum, nasal catarrh, slight deposit at right apex to second rib. Discharged October 29, apparently cured and 19 pounds heavier than at entrance. Has remained well since.

The next case was seen very early, had apparently about as much trouble, and yet took twice as long (10 months) to be arrested. We wish physicians who send patients would not promise them a cure in three months, as some do.

CASE No. 1,412, entered June 26, 1902. N. A., Boston, aged 23, domestic. Father died of pulmonary tuberculosis. Cough one month, hemoptysis June 16, three ounces, and June 20, one ounce; slightly hoarse, appetite fair, indigestion, dyspnea on exertion, very pale, tired, scanty menstruation, lost weight; height 5 feet 6 inches; afebrile; tubercle bacilli in sputum. The bacilli continued until December. Discharged April 22, 1903, apparently cured, having gained 23 pounds.

The next case is not quoted as a model for admission, but illustrates to a remarkable degree the possibilities of sanatorium treatment when there has been pulmonary hemorrhage. As a symptom by itself in early cases we very seldom consider it a bar to admission.

CASE No. 1,261.—J. F. R., Boston, aged 32, letter carrier. Admitted February 12, 1902. Has coughed four years, and has had two children die of tuberculous meningitis. Has tubercle bacilli in sputum. Has had by actual count 91 hemorrhages from the lungs in three and a half years, averaging about half a cupful each. Other prominent symptoms were dyspnea on exertion, anemia, constipation, lassitude, and loss of weight. Considerable deposit at right apex to third or fourth rib; less at left apex to second rib. He gained in every way during his stay of about a year, and in that time lost only about six ounces of blood, and that on three days in one week. Weight increased about 30 pounds. When he left (his year being up), although we did not record him as cured, yet his condition had improved to such an extent that he has ever since been strong and has been able to do his full work as letter carrier in an out-of-town district, not losing a single day from sickness during the last two years.

We wish more physicians would visit our sanatorium and see for themselves a little of the good work which is being done there.

RELAPSING FEVER: ITS OCCURRENCE IN THE TROPICS AND ITS RELATION TO "TICK FEVER" IN AFRICA.*

BY

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The disease under discussion—variously spoken of as famine fever, seven-day fever, fièvre à rechute, hungerpest, *febris recurrens*, relapsing fever, and, quite recently, "tick fever"—is defined by Osler[1] in the following words: "A specific, infectious disease, caused by the spirochæte (spirillum) of Obermeier, characterized by a definite febrile paroxysm, which usually lasts six days, and is followed by a remission of about the same length of time, then by a second paroxysm, which may be repeated three, or even four times."

Since the epidemic, about 1870, in New York and Philadelphia, and the description of the parasite by Obermeier in 1873, the disease has not attracted much attention in the United States, and I bring it before the readers of this journal, not as a condition which is of great present concern to the student of the endemic affections of our own country, but as a disease of warm climates, having a wider distribution than was formerly supposed, and which may prove to be of much interest and importance to students of that branch of pathology known as "tropic medicine." Relapsing fever is not described in the usual books on tropic diseases, *e. g.*, Davidson, Manson, Scheube, Brault, Fisch, etc., but we know that it has long been common in India, and is known in China, the East Indies, and other parts of the Far East, and an examination of current medical literature reveals its existence in several quarters of Africa.

My attention was specially drawn to the existence of spirillary fever in warm countries by a typic case of the disease, which was brought to my notice some months ago in Angola, West Africa, and which I have recently published in another periodical.[2] I have accordingly brought together the records of a few cases reported from the tropics, which I herewith present, together with some remarks on the parasite and its probable car-

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riers. It will be seen by the notes and charts reproduced that the disease is, so far as can be gathered from the incomplete data available, but slightly different (possibly somewhat more atypical) from relapsing fever in cooler lands.

CASE I.—Author's case. (From Angola, West Africa.) The patient was a Bantu man, aged 32, and was first seen on March 3, 1904. He stated that he had been taken ill with fever the day before admission. He had had no rigor or vomiting. There were pains in back and limbs. He had had no previous attack. The patient was a large man, fairly well nourished. Said he was thinner than when taken ill. Temperature, 104.4° F.; pulse, 92; respirations, 29. Pupils normal, spleen slightly enlarged. *Spirillum obermeieri* very plentiful in blood, averaging about a dozen to each field ($\frac{1}{12}$ imm. lens, oc. II). The patient appeared very comfortable, and I should not have suspected so much temperature. The temperature remained fairly stationary for two days after admission, and parasites were found in the blood during this time. On the third morning the temperature was found to have fallen to subnormal, although the parasites still persisted, but in fewer numbers, in the blood until the fifth evening, after which the blood remained clear of parasites for about a week, during which time the patient felt well and the temperature rose to normal and slightly above. On March 11 he had a slight rise of temperature, with some malaise and pains in the back, and the following day it went steadily higher, and he went to bed. There was no vomiting nor purging. The parasites were first again noticed on the evening of March 12. On March 13, there were many spirilla, although fewer than in the previous attack. They grew gradually less, and finally disappeared from the blood on the evening of March 17.

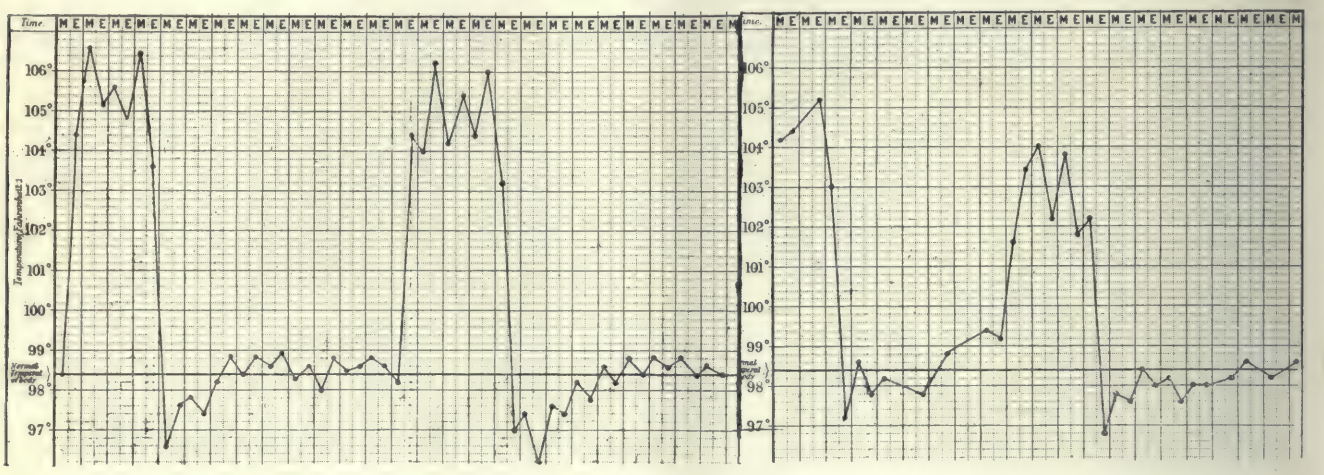


Chart I. Chart II.

Chart I.—Temperature chart of case of relapsing fever occurring in the United States. Chart II.—Temperature Chart of Case I.

The temperature (as in the first attack) fell a couple of days before the disappearance of the parasites, and remained subnormal for a few days after the crisis. The patient continued well till he left the hospital, on March 23. I have indicated in the following chart the very definite relation between the rise and fall of the temperature and the presence of the parasite in the blood.

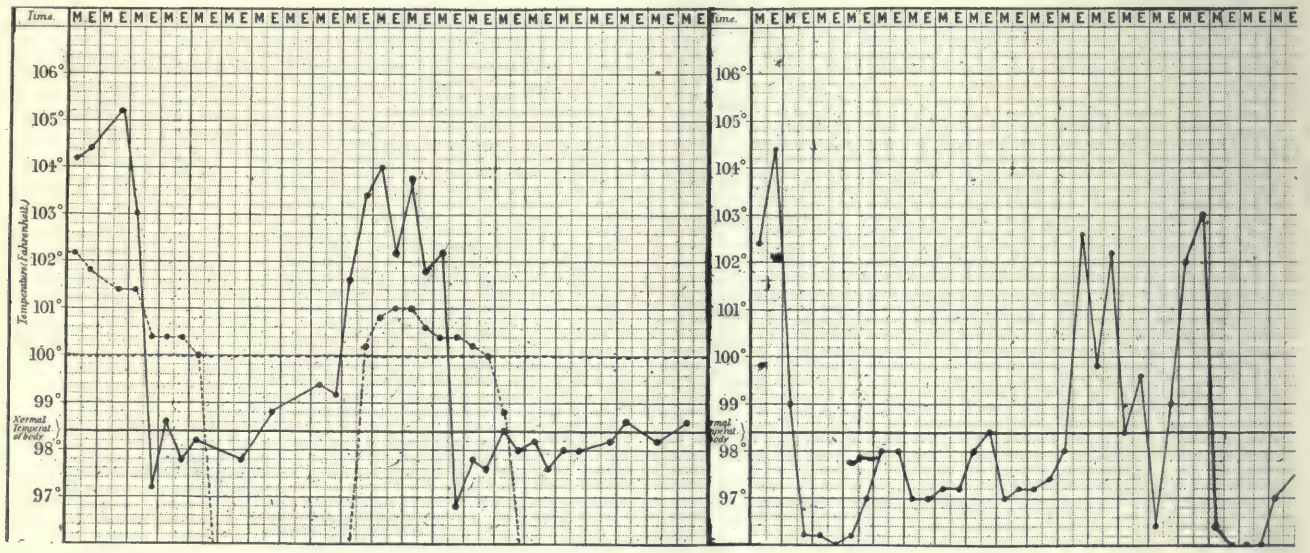


Chart III. Chart IV.

Chart III.—Combined Blood and Temperature Chart of Case I. Description of Chart.—The temperature is represented in the usual manner, by an unbroken line. The dotted line represents the comparative abundance of the parasites in the blood during different stages of the attacks, taking the line marked 100° as representing the average of one parasite in each field. Thus 101° would mean 6 parasites in each field, 102° 11 parasites, etc. I have not tried to compute the number of parasites in a given volume of blood, as my object was rather a study of the relation between the temperature and the presence of parasites in the blood throughout the attacks. Chart IV.—Temperature Chart of Case II.

CASE II.—Dr. L. G. Hill[3] has published a case of relapsing fever from Pak-hoi, South China. The patient was a Chinese woman, aged 65. When first seen she had fever and delirium. Many active spirilla in the blood. History: Had fever from June 24, 1903, to July 5. On July 6, 7, and 8 she had no fever. On July 9 fever reappeared, and lasted till July 13, when she was admitted to a hospital. On the evening of July 13 it stood

at 104.2° F. The next morning it fell to 99° F., and the evening of the same day to 96.2° F. It remained subnormal till July 23, on the evening of which day it rose to 102.8° F. Three days later it fell again to 96.2° F., and on July 27 rose to 103° F. On the morning of July 28 it was again subnormal (96.2° F.), and continued so until she left the hospital, on July 31. The spirilla were seen in the blood in diminishing numbers for two days after the crisis, and not again till July 23, when the fever returned, on which occasion they were plentiful but not so active as during the previous attack.

CASE III.—Dr. J. C. Graham[4] reports a case of spirillary disease in Sumatra. The patient was a Chinese coolie from Swatow. The man had high fever, tenderness over both hypochondriums, pains in his joints and the muscles of the leg, beside severe headache. The ocular conjunctivas and the skin generally were icteric. The blood teemed with spirilla.

CASE IV.—Christy[5] has described an epidemic of relapsing fever from the Bombay Presidency, marked by jaundice, ecchymosed conjunctivas, pains in the joints, and severe fever, with more or less weekly intermissions. He only succeeded in persuading one man (who had a temperature of 103° F.) to have his blood examined. The blood proved to be full of *Spirillum obermeieri*.

The next three cases are reported by Dr. A. R. Cook[6] from Uganda, Central Africa:

CASE V.—The patient was taken ill with pain in the chest and vomiting. No definite history of rigor diarrhea. Spleen and liver did not extend below ribs. Patient was in collapsed condition when seen. Temperature, 99.4° F.; pulse, 140; respirations, 80. Died three days after onset of attack. Spirilla very abundant in the blood. Autopsy showed stomach and bowels empty; liver, spleen, and kidneys somewhat enlarged. Spleen very soft. Some spirilla found in smears from liver and spleen.

CASE VI.—Temperature, 104.2° F. on admission; rose rapidly. Slight delirium. No jaundice. Chest and abdomen normal. Spirilla rather sparse in blood (one to every field with high-power). Temperature fell next day to subnormal, and spirilla disappeared from blood. Patient said this was second attack.

CASE VII.—Small girl; applied for treatment for bronchitis. She had some temperature, and blood-examination showed

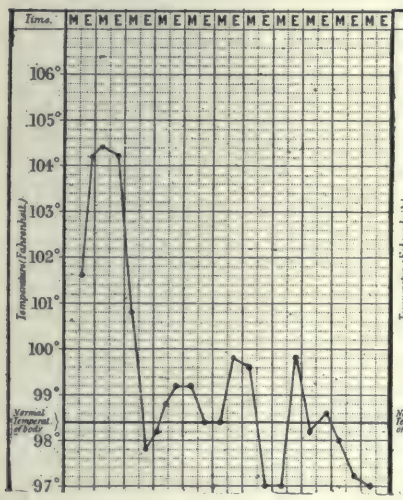


Chart V.

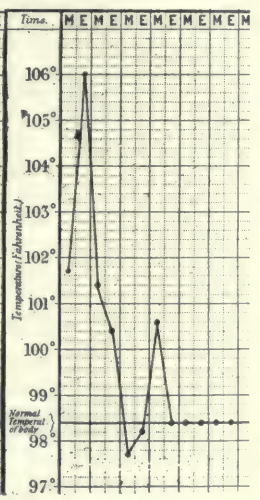


Chart VI.

Chart V.—Temperature Chart of Case VI. Chart VI.—Temperature Chart of one of Ross and Milne's cases.

presence of many spirilla. Temperature rose to 105° F. No jaundice. Liver and spleen could not be felt below the ribs. History of rigors, but no vomiting or diarrhea.*

The succeeding four cases are also from Uganda, and are reported by Drs. P. H. Ross and A. D. Milne.[7] The significant point about the cases is that these patients, together with four others ill with spirillum fever examined by these observers, all ascribed their illness to having been bitten by ticks. The case histories are given as follows:

CASE VIII.—Nubian private, K. A. R., stayed 14 days at Escarpment Camp Butiaba.† On his return two days later, he fell ill.

CASE IX.—Mnyoro hut tax laborer, stayed 18 days at Lake Camp, Butiaba. The day after his return, fell ill.

CASE X.—Mganda boy, belonging to Nubian soldier, stayed several days at Escarpment Camp, where he actually picked the ticks off his body each night. On the third day after his return, fell ill.

CASE XI.—Wife of Nubian sergeant, returned from Escarpment Camp, Butiaba, six days previously, and had fallen ill two days after her return.

The symptoms complained of by these tick-produced cases of spirillum fever were:

Severe pains in the head, mostly in the occipital region and back of the head; sometimes cough, pains in the back and limbs; sometimes splenic tenderness; another marked symptom was vomiting; pulse varied from 90 to 120; half of the patients had diarrhea. On examination the skin was hot and dry; there was congestion of the conjunctivas, alas of the nose dilating and contracting, tongue mottled with slight yellow fur; no enlargement of liver or spleen.

All the patients recovered. Some with spirillum fever examined by the last-named observers had a relapse, others had not. They mention one patient in whom there was no return of temperature but who, at the time when the relapse was expected, complained of severe headache and showed spirilla in his blood.

CASE XII.—The last case in the meager literature accessible here, likewise from Central Africa, is one reported several years ago,[8] and which was mistaken for malarial fever, but which seems to me clearly spirillary disease, and I therefore reproduce it here. The writer is speaking of the flagellated bodies of *Hæmamœba præcox* which he believed he saw and which he described as follows:

"On making a fresh specimen and examining at once the whole field seemed to be full of a mass of waving and lashing flagella coming from nearly every corpuscle. It reminded me of the rippling effect produced by the wind passing over a cornfield. . . . Careful examination in similar cases has failed to detect any 'crescent' bodies which could have been transformed into the flagellated bodies. On the other hand, the flagella generally seem to spring . . . from unaltered red blood-corpuscles."

The foregoing forms a capital description of *Spirillum obermeieri* in the blood, and there is little doubt but that this was what the writer saw. His drawings, too, are very suggestive of the parasite just named. We know that the flagellated body of malignant malaria is evolved only from the crescent or gamete, and those of us who have worked for any length of time with the disease know how very rarely the gamete is seen in the tropics. I personally saw only two crescents in a series of over 400 examinations of malarial blood. Plehn saw them but once during nearly four years' work in the Cameroons, and Ziemann, out of more than 1,000 examinations, only on 12 occasions detected isolated crescents. Then, too, the finding of "flagella" in freshly drawn blood would preclude the possibility of their being malarial microgametes. This case then, must be considered relapsing fever.

The symptoms are not indicated. The patient was an anemic and emaciated child who was very ill and died the same night the blood-examination was made.

From what has been written it will be seen that relapsing fever has a wide distribution in tropic countries. It is also quite probable that it has been overlooked in other places or mistaken for other conditions. Others may have made a mistake similar to the one I have pointed out, and, as the parasite is sometimes very scarce in the blood, it may have been overlooked in many instances. And so, while the affection also occurs in temperate climates, it would seem to have as good a claim to be ranked as a tropic disease as have malaria, leprosy, plague, and other diseases which are only partially dependent on climatic conditions for their survival. It therefore behooves practitioners in the tropics to search carefully the blood of suspected patients before making a diagnosis of "double continued fever," etc. Ross and Milne[9] write that in some of the cases in which search was made through the whole of a large blood film only two or three spirilla

* Dr. Cook reports an epidemic of relapsing fever in his district, of which the foregoing cases are examples.

† A station badly infested with ticks and a hotbed of "tick fever," Ross and Milne, loc. cit.

were found.* With these facts in mind it would seem reasonable to believe that the known distribution of relapsing fever will soon be greatly widened. The disease is now generally thought to be carried by vermin. The bedbug, *Acanthia lectularia*, and more recently the "Ocihopio" tick, genus *Ornithodorus*, of which there appear to be at least two species in Africa, have been suggested as probable hosts. The careless personal habits of savage and semicivilized peoples greatly facilitate the spread of a disease so transmitted, and its presence in most tropic countries should not therefore be a cause for surprise.

Since the publication by Marchaux and Salimbeni of their work on the spirillary disease of fowls, there has been, as I have said, a disposition on the part of some to predicate a tick as a carrier of the human spirillum also.

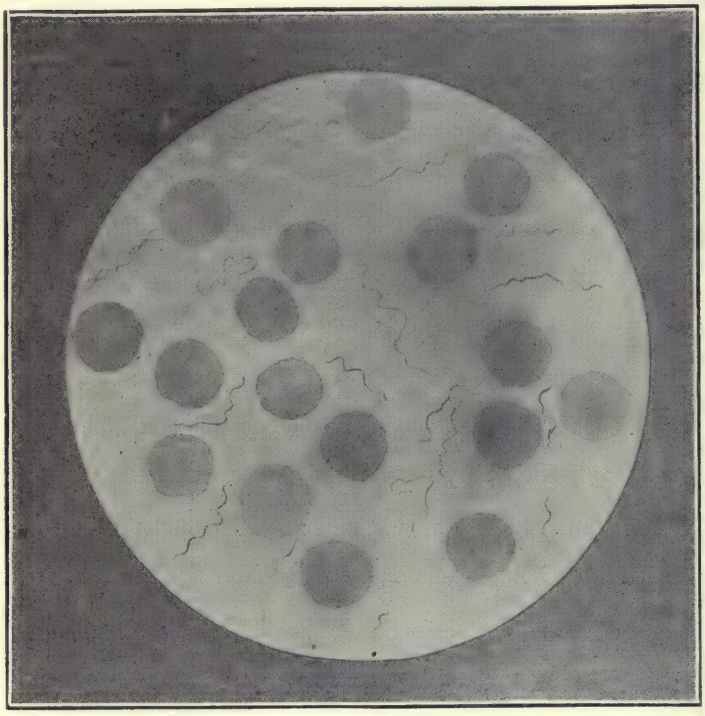
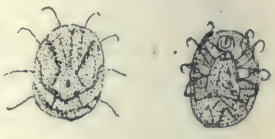


Fig. 1.—*Spirillum obermeieri.* Stained with carbol fuchsin.

The work of Ross and Milne, referred to, seems to establish this hypothesis. Daniels, quoted by Manson,[10] describes the violent symptoms of "tick fever" as lasting "for nearly a week. . . . After that, fever continues often for three or four weeks." Christy[11] says the natives of Central Africa "dread this tick (*Ornithodorus moubata*) and know well the symptoms occasionally following its bite. In describing these they invariably go through a pantomime indicative of vomiting, with pain in the head and abdominal region. They say that the symptoms may last for several weeks." Both these observations are certainly suggestive of the clinical course of relapsing fever. The racasu mentioned by Daniels and Christy, can be but one of several carriers of the spirillum, since spirillary disease is not confined to the hemisphere producing ticks of this species. However, Christy has seen a tick in South America which is very similar to *Ornithodorus moubata*[12] and Brault[13] mentions *Argas turicata* and *A. megnini* as being described from Mexico, *A. talaje* from Central America, and *A. chinche* from Colombia. Finally, from Persia, *A. persicus* is reported as causing "tick fever."[14] Perhaps these and similar acari serve as carriers of the spirillum in other countries. Of course, the possibility of other parasites being conveyed to man by ticks must be kept in mind with the consequent possibility of there being more than one kind of "tick fever." It has been suggested by several that an African tick is one of the intermediate hosts of *Filaria perstans*.

There have been described from Africa three species of the genus *Ornithodorus*, viz.: *O. savingnyi*, Aud., *O. moubata*, Murray, which was first discovered by Welwitsch in Angola and described under the name *Argas moubata* by Murray in 1877, and Neumann has described a third variety from South Africa, *O. savingnyi* var. *caeca*, Neum. This latter is thought by some to be the same as *O. moubata*, Murray.



A B

Fig. 2.

The "Ocihopio" tick (the species of *Ornithodorus* found in this immediate locality and which I believe to be *O. moubata*, Murray) is very plentiful here. I have found as many as 100 in an hour in an old native hut. There are also at least three other kinds of ticks here. The "Ocihopio" is of a yellowish-brown color (somewhat lighter at the edges than in the middle) when small, and greenish-brown when older. The shell which is cast when the tick moults is of a pale yellow color. The chitinous covering has a rough appearance, due to its being covered with fine points all over its surface. The adults measure about 8 mm. or 9 mm. long by 6 mm. or 7 mm. broad and are deeply furrowed on both the dorsal and ventral surfaces. In the younger ones the furrows are much less marked on the ventral surface. The body is thick and rounded at the edges. There are no eyes. The feces of the tick are white. Compared with other acari the "Ocihopio" is fairly active. When placed on its back on a smooth surface which affords no hold for its legs, such as a piece of glass, it has a curious way of changing the shape of its body to enable it to roll over. The ticks hide by day in holes and cracks in the floors and walls of native huts, or in the grass thatch of old camps, and come out by night to bite. They bite man and all the domestic animals, viz., pigs, sheep, goats, dogs, etc. They are very tough, and difficult to kill.

An interesting fact in connection with these ticks is that they are sometimes attacked by a fungus, which destroys them. The disease generally begins at one edge of the tick, and appears in the form of a light, almost white spot which spreads. The infected ticks are more sluggish than healthy ones.

I have not discussed in this paper the views of Nuttall, Christy, and others, on the bedbug as a possible carrier of relapsing fever, my special object being rather to point out the probable wide distribution of the disease in the tropics, and to call attention to some of the reasons for connecting it with "tick fever" in Africa. In conclusion, I would say that the preceding suggestions from an isolated tropic worker are only offered in the hope that they may elicit an adequate discussion of this interesting subject from some one at home who, with access to the necessary literature, can go much

*Note on the parasite of relapsing fever. It has seemed to me that the socalled spirillum of Obermeier, as seen in stained specimens from the blood in my case, dies in rounder and more flowing curves than are generally described and pictured. The specimens I have measured average about 30 μ by 0.1 μ. They are sharp at the ends. The presence of the parasite in the blood had, in the case mentioned, a constant relation to the rise and fall of the temperature which I have indicated in Chart III, q.v. The spirillum, or more properly, *Spirochæta obermeieri*, is placed by many observers among the protozoa, and in view of the theories of Schaudinn (Trans. in *Jour. Trop. Med.*, June 1, 1904, et seq.) the possibility of its representing some stage in the development of a flagellate occurs to one. The development of the hemameba of a certain owl, *Athene nactua*, into a spirochæte and finally into a trypanosome as described by the author just mentioned (vid. *Archiv für Schiffs- und Tropen-Hygiene*, 1902, Vol. vi, p. 389) is particularly suggestive in this connection. In the blood of man one occasionally sees the spirilla lying together in such a fashion as to suggest the multiplication by longitudinal fission which is characteristic of other spirochætas and of trypanosomes. Tubes of hemoglobin agar, such as are prepared for the cultivation of trypanosomes, inoculated with blood from the patient whom I saw and incubated at room temperature and at 37° C. showed nothing of such multiplication and the cultures died out in a short time. I was unable to procure healthy monkeys at the time (the ones which I had were being used for the purposes of another study) so I did not try inoculation experiments with the patient's blood.

more fully into the question than is possible with one situated like I am.

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CONTRIBUTION TO THE STUDY OF SYPHILITIC SPIROCHÆTAS IN CEREBROSPINAL FLUID.

BY

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The discovery of spirochætas in primary specific lesions by Schaudinn and Hoffmann[1] undoubtedly announces a new era in our studies of syphilis. The presence of the spirillums was verified and corroborated by a certain number of competent observers, as Metchnikoff and Roux, of Pasteur Institute, and others. The future experiments will determine, if the spirochætas are the only pathogenic agents of those various specific manifestations which accompany or follow even many years later an initial chancre. The discovery of various serums which are antitoxic in character has brought remarkable results in combating certain infectious conditions. Syphilis is due to an infection, and if the infectious element is discovered there is a bright outlook for its culture, and development of an antitoxin. As it stands at present, no attempts as yet have been made in that direction; observers are only studying the presence of the spirillum in specific lesions.

The effect of syphilis on the nervous system is very great. The damage it produces in the delicate structures of brain and cord is well known. Cerebrospinal syphilis is certainly a very common affection. Although we have powerful means for combating some of its manifestations, we nevertheless often fail in our efforts. If mercury and iodids could be brought into immediate and intimate contact with the nervous elements, perhaps therapeutic results would be more brilliant. In the light of the new discovery, it is probable that if mercury and iodids which are antagonistic to syphilitic lesions, have an antagonistic effect on the syphilitic spirochætas great results could be obtained by direct application of mercury or iodids to the spirochætas. The cerebrospinal tissue is directly inaccessible, but the cerebrospinal fluid can be easily reached. Are the spirochætas present in this fluid?

With this object in view I made a series of investigations. Selection was made of patients with cerebrospinal syphilis and tabes, who presented an undoubted history of syphilis. Lumbar punctures were performed with all possible antiseptic precautions at the level of the fourth and fifth lumbar vertebras. In each case 4 cc. of clear fluid was obtained and the tubes placed in a centrifuge. The centrifugation lasted from a half hour to two hours. Drops taken from the bottom of each tube were examined very carefully with an oil immersion lens, also several spreads were made from each case and stained according to Marino's method,[2] as strongly advised by Metchnikoff and Roux.[3] Of all the 10 cases examined, 8 presented cerebrospinal symptoms many years after the initial lesion. The most careful and repeated examinations of the unstained and stained specimens failed to reveal the presence of spirochætas in the 8 cases. It then appeared to me interesting to see whether they are present in the cerebrospinal fluid of patients with initial lesions. Two patients were offered to me by Prof. Horwitz, to whom I am indebted for this privilege. One presented a syphilitic chancre of 12 days' duration and the other of four weeks'. While in the first case the spirochætas were absent, in the second, bodies were found which resembled somewhat some of the varieties presented on the drawings of Schaudinn's article. The brief histories of the eight cases are as follows:

CASE I.—W. H. E., aged 62, presented upon examination cerebral and spinal symptoms: Headache, mental hebetude, impairment of memory, ataxia, spasticity, exaggerated knee-jerk, Babinski and paradoxic reflexes on both sides; disturbance of micturition and defecation. Previous history of chancre with secondary eruption 15 years ago. Diagnosis: Cerebrospinal syphilis.

CASE II.—C. R., aged 29. Chancre at the age of 19. Five weeks ago, subsequently to an insignificant trauma, developed: Ataxia, spasticity, exaggerated knee-jerks with Babinski and paradoxic reflexes on one side, difficulty of micturition and sexual impotence, sensory disturbances marked. Diagnosis: Specific myelitis.

CASE III.—Wm. M., man, aged 49. Chancre with secondary symptoms 20 years ago. Presents a history of a left hemiplegia three years ago, from which he recovered under mercurial treatment. A year later a similar attack and recovery. One year ago attack of aphasia, from which he recovered, when put on mercurial treatment. Two months ago a right hemiplegia with left homonymous hemianopsia. Patient also has paroxysms of severe headache and mercury is the only drug that relieves him. Diagnosis: Cerebral syphilis.

CASE IV.—C. McN., aged 34. Chancre with secondary symptoms seven years ago. Present, ataxia, exaggerated knee-jerks, Babinski reflex on one side, paradoxic reflex on the other; involvement of rectum and bladder. Diagnosis: Syphilis of the cord.

CASE V.—Mrs. L., aged 40. History of six miscarriages and two stillborn children. Says husband had an eruption several years ago, which lasted about four weeks; lost his hair at that time. Patient presents a thickening of sternomastoid muscle, a peripheral facial palsy, intense headache, which can be relieved only with mercurial inunctions; also exaggerated knee-jerks, bladder disturbances. Diagnosis: Cerebrospinal syphilis.

CASE VI.—C. T., aged 38. Chancre with secondary symptoms 14 years ago. Came to the Jefferson Hospital with a left facial palsy, a palsy of two branches of the fifth nerve (complete anesthesia over the entire distribution of these two nerves); also a neuroparalytic keratitis of the left eye with involvement of the third nerve on the opposite side. There was also a history of nocturnal headache unusually severe in character. the knee-jerks were much exaggerated; ataxia of the lower extremities; finally, involvement of the sphincters complete the picture. Diagnosis: Cerebrospinal syphilis with multiple palsies of the cranial nerves.

CASE VII.—C. C., aged 34. Chancre 10 years ago. He presents ataxia of lower and upper extremities, exaggerated reflexes and Babinski, involvement of sphincters and some cerebral symptoms, namely, headache, impairment of memory, and attacks of confusion.

Diagnosis: Cerebrospinal syphilis.

CASE VIII.—H. D., aged 29. Chancre nine years ago, with secondary symptoms seven years later. Ataxia with sharp shooting pains in the lower limbs. A year later difficulty of micturition. At the same time dimness of vision. Now he presents: Ataxic gait, Romberg's sign, loss of reflexes, Argyll-Robertson pupils, optic neuritis.

Diagnosis: Tabes.

CONCLUSIONS.

The absence of spirochætas in the cerebrospinal fluid in the eight cases with cerebrospinal symptoms suggests the thought that perhaps in parasyphilitic lesions which are tertiary manifestations of lues there is only a *chronic intoxication* produced by a toxic product elaborated by the spirochætas. Metchnikoff and Roux assert that positive results are obtainable only in the primary lesions. McWeeney[4] has also obtained positive results in primary lesions, but failed to find the spirochætas in advanced tertiary ulcerations.

I wish to acknowledge my gratitude to Professor W. M. L. Coplin for many valuable suggestions. I am indebted to Dr. Bland for the lumbar punctures in the first three cases.

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THE MANAGEMENT OF EPILEPSY.

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The proportion of epileptics in the United States is about 1 to every 500 of population, epilepsy being nearly half as frequent as all other forms of mental diseases. Furthermore, the course of this disease is such as to render the attitude of the physician more or less fatalistic in his relationship to the case, and this attitude is incompatible with its good management. We are now at a time when the known facts regarding epilepsy, more than any other nervous affection, can be made available and put to the fullest use by every general practitioner of medicine, and the results of the application of such knowledge will be found more profitable than in any other similar field.

The researches into the pathology of epilepsy have rendered evident the destructive character of the fit upon the cells of the cerebral cortex. This destructive process is most in evidence after a period of status, or of serial fits, the lesion involving especially certain small cells of the second cortical layer. Some of these cells are destroyed, others are functionally impaired. These facts account for the gradually increasing dementia of the epileptic, the degree of mental impairment depending in every instance upon the duration and severity of the epileptic process.

The progressive and destructive character of epilepsy as regards the cerebral cortex gives us our first point in its management, viz., the control of the fit. While the results following the regulation of the medication and mode of life of the patient will depend much upon the duration and severity of the epilepsy, nevertheless, there are very few cases in which the patients cannot be made comparatively comfortable. In a few instances we succeed in bringing about an actual recovery, or a condition which practically amounts to it.

The most helpless cases are those engrafted upon a gross anatomic brain lesion or defect. Such are, for example, those complicated by infantile cerebral palsy or idiocy. In the former condition we are dealing with a gross anatomic brain lesion. Certain portions of the cerebral cortex, varying in extent, have been destroyed by a disease process occurring in early life. The lesion is usually confined to one hemisphere, and varies in extent from the destruction of a few convolutions to the destruction of a whole hemisphere. It is evident that a child with such a brain lesion is especially susceptible to epilepsy, since from the nature of things its central nervous system is especially unstable. As a matter of fact, fully 50% of all patients with infantile cerebral palsy develop epilepsy. Curiously enough, the smaller the lesion the more prone is the patient to develop epilepsy, and in many of these cases the lesion has been so small as to have produced little or no palsy (Freud, Sachs, Clark). For this reason, the exact nature of the condition with which we are dealing is often unrecognized for a long period.

It is very essential to separate sharply the cases of epilepsy in which there is a gross brain lesion from those in which there is no gross anomaly, since a recognition of this fact influences our prognosis and treatment. To this end, the facts in a child's early history should be very carefully weighed and a thorough physical examination made, in order to make positive the existence or absence of an infantile cerebral lesion. Such an examination will furnish us with a knowledge of the existence or absence of any possible irritating factors in the case, such as tenia, diseases of the nasopharynx, constipation, injuries, irritable cicatrices, eye defects, and the like. While factors of this sort are not to be regarded as the direct cause of epilepsy in any instance, yet, since they are sources of irritability to the patient, their removal or correction in each case has become almost axiomatic. The results to be obtained from treatment and the prognosis generally, will depend to large degree upon the findings of the examination. Any evidence of an infantile cerebral lesion or other cerebral defect, makes the prognosis bad. In such cases the epilepsy is engrafted upon a gross brain lesion of greater or lesser extent. Even these patients, however, can be rendered comparatively comfortable. Fortunately, they constitute but 4% to 5% of all epilepsies. With the vast majority of epileptics, however, our aim should be entirely different. In most instances the mental strength of the individual can be so conserved that a fairly useful member of the community results. The patient will lead a quiet but a useful life, and will not be a serious burden upon either his friends or the community.

Recurring for a moment to the pathologic conditions underlying the epileptic process we find adequate evidence upon the strength of which to emphasize the principle that our chief object in treatment should be the limitation of the frequency and severity of the fits. For this purpose our therapeutics naturally divide into the medicinal, hygienic, and dietetic management of the patient; and in following out a regime for a given case indications for special treatment of the individual must not be lost sight of. Since no two patients with epilepsy will present exactly the same lines for treatment, we shall find it necessary to individualize. One patient will, perhaps, not be able to digest certain articles of food which another may relish; another presents a heart lesion or possibly a kidney complication, or perhaps the lymphatic diathesis with persistent thymus; while in all epilepsies developing late in life the possibility of a syphilitic infection, or some other condition capable of producing an arteriosclerosis is a feature of great import. Then, too, the elimination of all irritating factors must not be lost sight of. The possible existence of tenia, the removal of adenoids, and the correction of eyestrain, if present, must be considered. It frequently happens that the epileptic process is accompanied by a weak, or irregular, or more or less irritable heart. This is especially true of the epilepsies occurring late in life. These conditions should be controlled by appropriate medication. In this connection nitroglycerin and digitalin will be found of especial value. The correction of these difficulties will not, of course, cure the epilepsy, but by their removal we eliminate irritating foci and organic defects and place the organism in as nearly normal a state as is possible. Having done this, we are in a position to direct our attention to the organ most seriously involved in the epileptic process, the brain.

For the purpose of ameliorating the epileptic seizures the most important drugs are the bromids. Their use in epilepsy depends upon the fact, recently established by experimentation, that preparations of the bromids locally applied diminish cortical irritability. The work of Prus, of Innsbruck, corroborated by that of Hering, of Prague, and more recently by Rossi, of Naples, has established the fact that the local application of bromid to the cerebral cortex of animals makes impossible, or very difficult, the artificial production of epileptiform seizures. The bromids, in other words, diminish the irritability of the cortex, and there is no other drug among all those which have been more or less used in epilepsy which has a like effect.

Since the introduction of the bromids there has been no advance in the treatment of epilepsy comparable to the socalled hypochlorization method of their administration, introduced recently by Toulouse and Richet, of France. While still in the experimental stage, it is safe to say that the principle enunciated by these authors, or some one of its modifications, forms one of the most important advances in the therapeutics of epilepsy. It has been found that the effect of bromid depends not upon

the amount of bromid taken into and eliminated by the system, but upon the amount retained by the tissues. By the substitution of sodium bromid for sodium chlorid in the processes of tissue metabolism, these authors conceived that this principle in treatment would be best subserved. To this end sodium bromid was substituted for sodium chlorid in the cooking. At the same time, instead of using common salt at the table, the patient used a small amount of sodium bromid. While it was found that the patient was controlled by a much smaller quantity of the bromid and was in almost every particular distinctly better, yet it is obvious that difficulties would and did arise, owing to the inexact amount of bromid thus taken by the patient, and the further difficulty that many patients under this form of medication were found to be particularly susceptible to bromid intoxication.

This method has been somewhat modified, the same principle being carried out in various ways. Of these modifications, the salt starvation method advocated by Clark is the most practical. The patient receives a dosage of sodium bromid at regular intervals, say three times daily after meals, and at the same time the meats and vegetables are either unseasoned or but slightly seasoned with salt. The patient may with advantage learn to eat unsalted butter. With this method a certain amount of the bromid may also be given as a condiment with each meal, or the entire dosage may be taken in the usual manner after meals. This principle may be utilized in the treatment of every patient and modified to suit existing conditions. It is particularly useful since it obviates the necessity of high dosage, and this is a valuable feature in those cases in which the patients bear the bromids badly. Further, the general condition of the patient, particularly of the gastrointestinal tract, is much better under this form of treatment than it is under the unmodified form of bromid medication. Signs of bromid intoxication, however, should be watched for carefully.

A preparation of special value in the treatment of epilepsy is the socalled bromipin of Merck. It is a 10% solution of bromin in oil of sesame and is of value especially because of its nonirritating qualities. Its slightly laxative effect is a distinct advantage in those cases in which constipation is the rule; especially is this condition true of children, in many of whom constipation is a very troublesome symptom. Further, if the patient is poorly nourished, bromipin has the qualities of the fats in general in supporting nutrition. It may be emulsified and flavored with peppermint or wintergreen if there should be serious objection to its taste.

Of the administration of the bromids in general, I need hardly speak further. The dosage depends upon the case. The bromid must be increased until the fits are under control. When this point is reached, the patient should be held at that level for some time and then the bromid should be gradually reduced. The ill-effects of the drug are to be guarded against by keeping the bowels freely open and the skin active by measures to be detailed in their order. There is one quality of the bromid salts which will demand attention, especially if the case is of such character as to require very high dosage. I refer to the irritating action of the bromids of sodium and potassium. The sebaceous glands of the skin, through an alteration of their secretion, or their mechanical activity, become engorged and inflamed. It is probable that there are two factors in the causation of this condition. One of the channels for bromid elimination is the skin, and this organ becomes irritated in the attempt to eliminate an irritating substance. In the second place, the sensory nerve-endings are less responsive under the effect of bromids. A paralysis of the glandular structure results, with retention of its secretion. This condition should be prevented by the introduction of two measures, to be used with unremitting vigor, viz.: Active physical exercise and baths. The daily use of the bath is a most important adjunct to the treatment of the epileptic. When the bathtub is the only means at hand, a great deal can be accomplished; if a shower is attached, it will be ample for our purpose. If the patient can be sent to a hydrotherapeutic establishment daily, or if the home treatment can be supplemented by a visit two or three times weekly to such an establishment, so much the better. Our principle object is the promotion of the functional activity of the skin and for this purpose vigorous measures are preferable. Personally, I like the effect of the cold pack at 70° from three-quarters to an hour in duration, followed by a short cold shower and vigorous rubbing. This can be done at home by any competent nurse, or by an intelligent mother after instruction in the technic of the application of the pack. Technic, however, is all-important. The pack must be properly applied, the shower must be short and sufficiently cold that the patient receives a distinct shock, and the rubbing afterward must be given with no light hand. If the patient is sent to a bathing establishment, we may vary this treatment with the Scotch douche, which consists in subjecting the patient to alternating streams of hot and cold water under pressure. This may with advantage, follow the warm or hot tub bath, or the hot box for three to five minutes, followed by vigorous rubbing and rest in the recumbent position for at least a half-hour. During all of these bathing procedures the head should be wet with cold water, or wrapped in a cold, wet towel, placed about the head like a turban and changed when warm.

In the matter of exercise, some form of physical exercise or employment should be required of the patient each day for at least an hour or two. Exercise in the open is preferable. The question of providing suitable exercise for many of our patients will, I know, prove perplexing. If physical work is objected to, we still have the field games of tennis and golf, croquet and tether ball to fall back upon in summer, and walking, perhaps dancing in moderation, and in a few instances horseback riding in winter. The use of Indian clubs, dumb-bells and stationary apparatus in general should also be considered.

In carrying out such a regime, the services of an intelligent nurse are most desirable, and in many cases absolutely essential. Such a nurse, however, should have some knowledge of the mental peculiarities of epileptics in general, as well as of the principles governing the mode of life, medication, and diet of the patient. In regard to the diet, the nurse should be held personally responsible, since its proper regulation is most essential. All epileptics, almost without exception, are given to excesses in diet and many patients have an intense craving for things which they cannot digest properly. If unrestricted, they almost invariably eat to excess. This tendency is most pronounced in insane epileptics, with whom the importance of dietetics has no weight.

It has been estimated that the seizures in epilepsy can be reduced from a third to a half simply by regulation of the diet. The necessity and importance of our dietetics are therefore apparent. In every case a diet list should be carefully prepared and placed in the hands of those responsible for the patient. At the Vanderbilt Clinic we use a printed diet list which is very convenient, accompanying which there is a simple device for recording the date and time of occurrence of the seizures. Some method of recording these, as well as any other symptoms which may develop, should be provided in every case. The diet should be simple, one easily digested, and should exclude all coarse, highly-seasoned and rich foods, coarse fruits, or fried meats, and coarse or fried vegetables. As a beginning, if the case is a severe one, I think it well to keep the patient on milk and eggs and their various preparations, with perhaps some vegetables, and gradually enlarge the range of diet as the conditions seem to warrant.

Our diet list should be accompanied by directions regarding eating, which will be of importance even to the well-bred epileptic. Such directions should include the hours for meals, the hour of the principal meal and the time to be consumed for each, while "eat slowly and chew the food well" is an injunction with which they should be constantly impressed. If the patient is to take an unsalted diet, some statement of the matter may also be made. In order to remove the keen edge from an appetite tending to the ravenous, I am accustomed to enjoin that the patient take a glass of milk with crackers or dry bread or toast an hour before meals.

The hygiene of the mouth is extremely important. The teeth of epileptics are inclined to be soft and carious and when neglected decay rapidly. Many bolt their food because they are unable to masticate it properly, and therefore any dietetic regime should be preceded by a careful examination of the mouth, teeth and gums, and dental work should be done in every case needing it.

By means of vigorous exercise, a thorough bathing regime, and regulation of the diet as outlined, we make possible the elimination and diminished formation of the autointoxicant agent or agents, the presence of which in epilepsy, while not an established fact, nevertheless is a theory which bids fair to become a fact within a relatively short period. (Krainsky, Agostini, Collolian, Herter.) A period of active physical exercise, the effect of which upon the tissue and organs of the body is enhanced by a tonic bathing regime, increases also their eliminating powers; while the regulation of the diet and its strict confinement to those foodstuffs which are relatively easy of digestion, render the formation of toxins within the gastrointestinal tract less possible.

SPECIAL ARTICLES

THE SURGEON AND THE PATHOLOGIST: A PLEA FOR RECIPROCITY AS ILLUSTRATED BY THE CONSIDERATION OF THE CLASSIFICATION AND TREATMENT OF BENIGN TUMORS OF THE BREAST.[1]

BY

J. COLLINS WARREN, M.D.,

of Boston, Mass.

[*Concluded from page 114.*]

HYPERPLASIA.

The term "hyperplasia" I have reserved in this classification for those processes in the breast which are of a diffuse character, and for this reason to be sharply differentiated from the local unicentric process of actual tumor formation.

By hyperplasia is meant an increase in the fibrous and epithelial elements of the breast, affecting one or more lobules of the gland, and presenting the microscopic picture of an increase in the number of cell elements of both of the significant tissues, the fibrous stroma and the epithelium. Under this category two main divisions can be made: (1) "Diffuse hypertrophy" of the breast, and (2) abnormal involution.

DIFFUSE HYPERTROPHY.

The socalled "diffuse hypertrophy" of the breast is a rare disease, but one which has received attention from many writers. Two instances of this disease are included in the hospital series of cases, and fortunately the two cases serve to illustrate well the two main subvarieties of this condition.

One form of diffuse hypertrophy, and perhaps the most common variety, is that which occurs in connection with pregnancy.

Of this form we have an example in the case of a woman of 43, who had undergone two miscarriages and who presented the abnormalities and diseases of the pelvic organs which have so frequently been noted in connection with this disease. Both breasts were affected and were uniformly enlarged. The consistency of the breasts was soft, but hard, stringy nodules could be detected on palpation. Microscopic examination showed the presence of fat, loose fibrous tissue and atrophied gland structures. There were no cysts nor discrete fibromas. The breasts gave trouble only from their size, and the pain was of an insignificant character; a double amputation was performed.

The other case serves to illustrate the condition as it appears in younger women. This occurred in an unmarried girl of 17, and involved the left breast only, which was enlarged to two or three times the size of the breast on the other side. The consistency of the breast was nodular and corded, and tenderness or "mastodynia" in this case was a marked feature. Irregularity of catamenia was noted, but no other abnormality of the pelvic organs could be determined. In this case no operation was done, and a year and a half later, under palliative treatment by supporting bandages, the enlargement of the breast had partially subsided, and tenderness and mastodynia had diminished to a moderate extent.

ABNORMAL INVOLUTION.

The hyperplastic changes in the tissue of the mammary gland which accompany the process of involution have long been the subject of contention and controversy among pathologists and clinicians. The chief source of difficulty in the classification of the involution changes of the breast is undoubtedly to be attributed to the tendency which the gland exhibits to the formation of multiple cyst cavities. In all probability a moderate degree of dilation of the ducts may be considered the normal condition of the breast at a certain stage of its decline, and only when these cysts and their surrounding stroma become so extensive as to attract attention by the induration which they produce, does the process attain a degree of abnormality sufficient to classify it as pathologic. Multiple cystic disease of the breast has long been recognized, and has been many times described under a multitude of different terms. Abernethy and Bell considered this a form of hydatid disease, as did also Sir Astley Cooper. Brodie took the view that the cysts were caused by dilation of the preexisting ducts, and the French surgeons of that time agreed in this interpretation. Paget believed that cysts were formed in the breast both by obstruction and by active newgrowth, and the German school of pathologists of that time were inclined to attribute the multiple cysts of the declining breast to an active newgrowth of the acinal epithelium, although Virchow was a believer in the obstructive origin of mammary cyst formation. A new impetus was given to the study of this disease by Réclus, who in 1860 attempted to show that the cysts were produced by an active newgrowth of the epithelium of the gland closely allied to carcinoma, and gave to it the name of intraacinous cystic epithelioma. Later publications in 1887 called attention more specifically to the epithelial origin of these growths, and the disease became known in France as the "maladie de Réclus."

From the time of Réclus' later publications, many different theories have been advanced to explain the occurrence of multiple cysts in the involuting breast. These theories may be grouped into three main classes, which may be briefly described as follows:

1. *Inflammatory Theory.*—The prevailing theory among French and English surgeons, and the view which has been vigorously supported by Koenig and other German surgeons, attributes the cyst formation to inflammatory origin, "chronic cyst mastitis." Whether this inflammatory process arises from infection of the ducts, as believed by the French writers, or whether it is of a more remote character, is not determined. The chief points on which the theory is based are the evidences of chronic inflammation in the round-cell infiltration and thickened stroma of the gland, and in the clinical course of the disease, which is thought to be subject to repeated exacerbations. Koenig lays great stress upon the increased swelling and sensitiveness at the time of the catamenia.

2. *Newgrowth Theory.*—The second theory, advanced originally by Schimmelbusch, and supported by Sasse, Maly, and to a certain extent by Tietze, attributes the process to an actual newgrowth. This theory is widely accepted in Germany, and has obtained some support in other countries. Because of the

[1] Abstract of the oration on surgery at the fifty-sixth annual session of the American Medical Association, Portland, Ore., July 11 to 14, 1905. Published by courtesy of the editor of the Journal of the American Medical Association.

supposed relation to tumor formation, the names of cystadenoma (Schimmelbusch), polycystoma (Sasse), or cystoma (Tietze), have been proposed. It should be stated that Sasse and others attempt to distinguish the lesser degrees of this disease, under the name of "involution cyst," from the more advanced process of "polycystoma." The line, however, between the two conditions, appears to be determined with the greatest difficulty.

3. *Involution Theory.*—A later theory, and the one which has been supported by the investigations which have been carried on in this country, rejects both the inflammatory and the neoplastic origin, and refers the proliferation of the breast epithelium to the abnormal conditions produced by involution. This is, in a measure, a return to the views of Réclus, who recognized the significance of the epithelial proliferation, but erred in considering this the origin of the process.

Tietze agrees that the disease is chiefly epithelial in character, and of a more diffuse distribution than would warrant the title of a tumor. Bloodgood has recognized this fact in the name which he suggests of "senile atypic parenchymatous hypertrophy." Greenough and Hartwell made a study of 30 cases of this disease in 1902. By these writers the chronic appearances of the stroma of chronic cystic disease of the breast are considered to be of secondary importance, whereas the diffuse character of the epithelial proliferation is thought to be evidence sufficient to prevent the interpretation of the process as an actual newgrowth. According to their views, the connective-tissue increase is attributed to the normal process of involution and atrophy which the breast gland shares during its declining stage, with other organs of the genital apparatus. Cystic changes of the ducts and acini are produced by obstruction from this thickened fibrous tissue. Up to this point the process may be considered physiologic. It has long been understood, however, that the epithelium of the breast gland is of notoriously unstable equilibrium, and the abnormal condition of cyst formation provides a stimulus which in about half the cases of this disease, as nearly as can be estimated, leads to secondary proliferation of the epithelium. Were we able to state at what point this epithelial proliferation would cease, no danger from this disease need be apprehended, but it has been determined by a number of different observers that in the proportion of about one case in ten this epithelial proliferation oversteps the bounds of hyperplasia into the territory of malignant newgrowth. It is probably to these proliferative cases of abnormal involution that Sasse and Schimmelbusch would restrict the term polycystoma or cystadenoma, and it must be confessed that a certain number of advanced cases of abnormal involution can be distinguished with great difficulty from actual newgrowth. It has seemed to me, however, to be safer to restrict the term "cystadenoma" to tumors of local origin and well-determined outline, and to apply the general term of hyperplasia or abnormal involution to all of those diffuse processes which by their microscopic appearances are still within the pale of benign diseases of the breast.

The chronic interstitial mastitis of the English writers, chronic cirrhosing mastitis (Billroth), cystoma (Sasse), maladie de Réclus, maladie noneuse de la mammelle (Phocas), chronic cystic mastitis (Koenig), periductal mastitis (Delbert), polycystoma epitheliale (Sasse), cystadenoma (Schimmelbusch), plexiform fibroma (French writers), chronic mastitis or diffuse fibroadenoma (Wood), cystic disease of the breast (Bryant), and fibrous and glandular hyperplasia with retention cysts are but a few of the designations which have been applied to this disease. The last term, which was evolved by Dr. W. F. Whitney, pathologist to the Massachusetts General Hospital, is probably the most correct and satisfactory appellation for this condition which could be devised, but suffers in being too unwieldy for practical use. For this reason I prefer the name of "abnormal involution."

Eighty-seven cases of abnormal involution appear in the hospital series and 28 in the cases from private practice. Of this total number, 59 show lesions which are classified as cystic only, the remaining 56 presenting evidence of epithelial proliferation. A certain amount of fibrous tissue increase with more or less round-cell infiltration is characteristic of involution of the breast under any circumstances.

The changes which have been classed as cystic are those presented by breasts in which this fibrous thickening has produced dilation of the ducts alone without obvious changes in the character of the epithelium. The proliferative group includes those which are characterized in addition by proliferative changes in the epithelium of the cysts or acini.

Of the proliferative group, three subdivisions have been distinguished according to the character or degree of the epithelial growth: (1) Proliferation of the acini; (2) papillary outgrowths of epithelium into cysts; and (3) adenomatous proliferation of epithelium. The significance of these three groups will appear in the discussion of their special characteristics. The gross appearances of cases of abnormal involution may be summarized as follows: A considerable proportion of the cases are diffuse in character, while others present local indurations of the breast tissue of varying size and situation. The consistency of this induration is hard or nodular, although softer and even fluctuating areas are occasionally noted. It would seem, however, that a cyst to be appreciated with certainty by its elastic feeling or fluctuation must attain considerable size. Pain and tenderness are present in about half of the cases, and, although not diagnostic, this symptom must be considered of significance in view of the generally painless character of carcinoma. Axillary glands are detected in only a small proportion of the cases. It has been my impression, based on clinical experience, that inversion of the nipple is a frequent accompaniment of abnormal involution, and it may certainly be stated that previous diseases or abnormalities of the breast, such lesions especially as interfere with the normal function of the gland, are predisposing factors in the origin of this disease.

On gross examination these specimens show fibrous induration of the breast gland with the presence of multiple cystic cavities containing fluid varying from a clear serum, through all the shades of brown and green and black. The process is diffuse in the vast majority of cases, although one lobule of the gland is often noted as the situation in which the disease is most advanced. Under microscopic examination fibrous hyperplasia and secondary involvement of the gland structures with cyst formation are observed.

The majority of cases occurred between 40 and 50 years of age. Married women were apparently the more susceptible to the disease. The duration was a matter of considerable variation, and the rate of growth was generally slow. Trauma was apparently of comparatively little etiologic importance. In this series of cases the relation between exacerbations of the disease and the catamenial period was conspicuous by its absence, only four patients having stated that the induration was influenced in its sensitiveness or in size by the monthly period. Discharge from the nipple was noted in 14 cases, and was relatively more frequent among the proliferative than among the purely cystic types of involution. The character of the discharge varied from yellow serum and watery or milky fluids to brownish and bloody fluid, and even pus. Of the 14 cases, however, which showed a discharge from the nipple, seven presented tumors immediately beneath the nipple, and it is probable that discharge from the nipple will be found to depend more on the situation of the cyst than on the character of the epithelial changes within its wall. The right breast was involved in 27 cases, the left in 42, and both breasts in 17. The tendency to the involvement of both breasts in this disease is worthy of remark. So far as the situation of the induration in the breast tissue is concerned, the outer and upper hemispheres appear to be the seats of predilection; and the upper and outer quadrant, as in almost all diseases of the breast, is the region most commonly affected. Diffuse induration involving the whole breast occurred in 14 cases. Operation was performed in 86 of these 87 cases. In 41 the entire breast was amputated. In 45 an excision or resection of the breast was done after the method later to be detailed.

The subclassification of the cases of the proliferative type is of interest only from a histologic point of view, and can be determined only by microscopic examination.

The 36 hospital cases which presented proliferation were subdivided as follows: Ten showed an apparent increase in the number of the gland acini, when compared with normal breasts of the same age, and conditions of marriage, childbirth and lactation. This increase in the number of acini was accompanied, in the majority of instances, by a proliferation of the epithelium to such an extent that thickened or even solid columns of cells were produced, retaining, however, the characteristic formation of the gland ducts, and presenting no infiltration beyond the basement membrane. The significance of this form of proliferation could not be determined from the

cases which were available for examination; but it is not improbable that it may ultimately lead to carcinoma. In support of this assertion, a case of scirrhous cancer occurred in the hospital series and two in private practice, in which abnormal involution of the acinal type was also present. The clinical characteristics of the cases of acinal proliferation were not to be distinguished from those of other types of abnormal involution.

Another class of epithelial proliferation in abnormal involution is to be described under the term of papillary proliferation. This group again is one of only histologic significance. By this term is meant a growth of epithelium in cyst cavities, of such a nature that the epithelial cells are heaped up and project into the cavity, without a connective-tissue pedicle or support. The microscopic picture of this papillary projection suggests strongly that more epithelium is produced in the lining of the cyst wall than can be accommodated on the basement membrane, with the result that certain portions are forced out toward the center of the cavity. There were 18 cases of abnormal involution which presented this form of proliferation. Of this class, again, the clinical characteristics are not to be distinguished from those of other forms of abnormal involution.

The third and last type of epithelial proliferation which is to be distinguished is that to which Tietze and Greenough and Hartwell have applied to name of "adenomatous" proliferation. Adenomatous proliferation occurs only in cases in which papillary outgrowths are already present, and must be regarded as a somewhat more advanced type of epithelial growth. In these cases, the papillary outgrowths from different portions of the cyst wall appear to meet and fuse together, and the resulting microscopic picture is that of a space filled with epithelial cells, in which here and there an open gland lumen is observed. This form of proliferation occurred in eight of the hospital cases and in four of the cases from private practice.

Adenomatous proliferation derives its greatest interest, however, from the fact that it is chiefly in its presence that we find the combination of involution and carcinoma. During the 10 years in which the 12 cases of adenomatous proliferation have been collected, 517 cases of cancer have come under observation. Of this number there were 15 which presented the lesions of abnormal involution and carcinoma. Three of these cases showed scirrhous carcinoma in connection with abnormal involution of the acinal type of proliferation. These have already been considered. Of the remaining 12 cases, nine showed adenocarcinoma with involution changes of the papillary and adenomatous character. In the three other cases medullary carcinoma of a more advanced type was recorded in the pathologic report. Thus during the collection of 115 cases of abnormal involution, 15 cases of this disease in combination with carcinoma were obtained, or 13%. This figure is somewhat greater than the 10% which has been found by Tietze, Greenough and Hartwell, and others, but may be considered as very closely approximating the actual condition.

Attention must again be called to the fact that the clinical symptoms of these proliferative types of abnormal involution are to be distinguished in no way from those of simple abnormal involution, and by no sign on physical examination can the degree of epithelial growth be determined. Microscopic examination is, therefore, absolutely necessary for the correct classification of the individual case, and in fact the variation between the different portions of the same gland is so great that microscopic examination of all of the tissues is necessary to a correct diagnosis.[1] For these reasons and because of the liability to carcinoma which these cases present, I have no hesitation in recommending operative treatment for abnormal involution in every case. An induration in the breast gland at or about the time of the menopause which is palpable with the flat of the hand against the chest wall I consider sufficient indication for operation.

For cases of this character I perform "plastic resection of the mammary gland," by means of which a thorough exploration of the gland may be obtained and portions of a suspicious nature may be removed for microscopic investigation without the mutilation of an amputation. This operation I would recommend for every case of abnormal involution in which the diagnosis can be established.

CHRONIC INFLAMMATORY DISEASES.

The chronic inflammatory diseases of the breast are divisible into two main classes, those occurring in connection with lactation, and those produced by specific inflammatory diseases such as tuberculosis. It is to these diseases of the breast that the much abused term "chronic mastitis" should really be applied, but this term has been so loosely employed that its use in any way is at present inadvisable. In addition to the two main classes detailed above, I have ventured to place in the category of chronic inflammation two cases of nonmalignant eczema of the nipple, and five cases of single retention cyst of mechanical origin. It is regretable that no case of syphilis or actinomycosis entered the hospital during this decade, as it is under this heading that these diseases should be classified.

There were 8 cases of chronic lactation mastitis and 13 of tuberculosis in the hospital series. Chronic lactation mastitis has been again subdivided into five cases of chronic abscess and three of inflammation of the ducts (ductal mastitis). The cases of ductal mastitis show multiple small abscesses and necrotic foci distributed through the breast gland in close relation with the larger ducts. Clinically they present tender indurated masses in the breast. The mass may be adherent to the skin, and enlarged axillary glands may be present. Microscopicly these breasts show an increased amount of fibrous tissue with small yellowish foci of necrosis and abscess cavities, while the tissue about the ducts is infiltrated with great numbers of small round cells and leukocytes. The disease especially affects young women, and may be attributed to infection of the ducts during the process of lactation. The chief clinical characteristics are diffuse induration of the breast occurring shortly after lactation, with a tendency to involvement of the skin and more pain and tenderness than would be expected with a tumor. In two of our cases the breast was amputated, and in one the affected lobule was excised.

CHRONIC ABSCESS.

Five cases of chronic or subacute abscess of the breast occurred during the decade. All presented a tumor or nodular induration of the breast of varying size, and in only one case was fluctuation to be detected. Tenderness, adherence to the skin, and enlargement of the axillary glands were occasionally noted. The pathologic examination showed one or more abscess cavities of varying size, and microscopic examination showed excessive infiltration of the gland tissue with leukocytes and round cells. The patients were all young adults. All were married, and four had had children, while one had never been able to nurse her child. Two gave a history of previous acute breast abscess. The abscesses were, as a rule, of slow development, and pain was not a pronounced symptom. In two cases old discharging sinuses from previous acute abscesses were still present. In three cases incisions with drainage were made; in one case the breast was amputated, and in one the affected lobule was excised.

GALACTOCELE.

One of the cases of chronic abscess presented, in addition to the abscess, the picture of a retention cyst in a breast which was in active lactation. This condition has been repeatedly described under the name of galactocele, but its occurrence is comparatively infrequent, as may be seen from the fact that but one instance occurred in our total of 758 cases. The symptoms of galactocele do not differ appreciably from those of single retention cysts, except that the condition occurs in a breast which is yet, or has been recently, in active lactation. Under these circumstances, the contents of the cyst is of a milky rather than of a serous character, because of the milk-secreting function of the cells which line the cyst at this period of the breast's development.

TUBERCULOSIS.

In this division are included the 13 cases of chronic disease of the breast produced by the tubercle bacilli. Indurated masses of varying size were produced in the breast, of irregular outline and varying consistency. Tenderness and fluctuation were present in most of the cases. The tendency to involvement of the skin was marked, and in seven cases there were discharging sinuses present at the time of operation. Enlargement of the axillary glands was generally noted. Tuberculosis of other organs was present in only three cases. Microscopic examination of the specimens showed the characteristic tuber-

[1] The prognosis of a given case of abnormal involution untreated is a matter of some uncertainty. Spontaneous rupture or discharge of the cyst through the nipple may rarely occur, and the entire process subside for a time, or indeed, forever Suppuration of the cyst is occasionally observed. More often the disease becomes stationary at a certain stage of its development or advances slowly involving more and more of the gland and the breast of the opposite side. Carcinoma develops—something more than 10% of all cases.

culous tissue with cheesy foci of necrosis and the typic histologic peculiarities of tuberculosis.

The average age was 30, and in three cases the patients were under 20, although the disease was well distributed through the decades of adult life. Married women who had borne children appeared to be the most susceptible, and in two cases acute abscess had occurred during a previous lactation. The average duration was nine months and the development of the disease was of a chronic character. Pain was absent in about half the cases. Both breasts were involved in only one case; and the upper and outer quadrant was again the seat of predilection. In seven cases the breast was amputated, in four a portion was excised, and in two the abscess was simply opened and drained. The immediate result in all of these cases was satisfactory.

SINGLE RETENTION CYST.

Five cases occurred in the hospital series which presented the characteristics of a single cyst of varying size, with no abnormality of the surrounding tissues. These cases have been separated from those of abnormal involution because of their purely local character and the absence of pathologic changes in the breast tissue in their immediate vicinity. It is not to be denied that a certain number may belong properly among those of abnormal involution, and that a more extensive examination might have given data which would justify their inclusion among the latter class. In the absence of these data, however, it has seemed wiser to place the single retention cysts in a separate class. Cysts of this character have been described under the name of "evolution" cysts by Gross. They differ in no way from the simple cysts produced in other glandular structures by accidental occlusion of a duct. We are especially familiar with cysts of this type in the epididymis and the salivary glands. Occlusion of a duct may be due to any one of a number of different causes; congenital defects, trauma, and the scars of transient inflammatory processes of the nipple or in the substance of the gland being perhaps most frequently observed. Operations on the breast for small fibromas are not infrequently followed by cicatricial obstruction of the ducts.

The five cases here presented varied from 21 to 49—three were single and two married women. The duration was comparatively short (an average of about two months) and development was rapid; there was no pain or tenderness, as a rule, and the clinical appearances were those of a single, painless, elastic, fluctuating tumor, varying in size from a walnut to a hen's egg, and of uniform and rapid growth. The axillary glands were not enlarged. Excision was done in every case, and a single thin-walled cyst removed without other abnormality of the gland. The fluid contained in these cysts varied from clear serum to a fluid of yellowish-brown color, with more or less turbidity. The significance of a single retention cyst in the breast must be considered very slight, and their chief interest and importance lies in the difficulty in distinguishing them from the multiple cysts of abnormal involution. Because of this difficulty, exploration and incision are to be advised.

NONINDIGENOUS TUMORS OF THE BREAST.

A certain number of tumors of the breast occur which are situated in that organ only accidentally, as it were, and have no special relation to the mammary gland as regards their origin. Among these tumors I have classed the sarcomas which were derived, not from the periductal tissue, but from other sources, and which presented no evidence of inclusion of the glandular elements of the breast. Two of these tumors were classified as fibrosarcoma, one was of mixed cells and one of spindle cells. All were much smaller in size than the periductal sarcomas, and all appeared to involve the breast gland before removal. The tendency to the involvement of the skin in these tumors was marked, two being actually ulcerated and one other showing marked adherence and brownish discoloration. The ages varied widely, from 33 to 70. All were in married women. The duration varied from six months to 10 years. Two were of slow growth, and two more rapid within the last few months. Discharge from the nipple was not noted, and the axillary glands were found enlarged in only one case. Pain was generally present. Amputation was done in three cases and extensive excision in the fourth. The origin of these tumors appeared to be from the connective tissues forming the stroma of the mammary gland. The essential anatomic elements of the mammary gland were merely displaced by their growth, and they differ in no respect from sarcoma of a similar character arising in other organs. Their size was smaller than the periductal sarcoma, but with this exception the two forms were with difficulty to be distinguished.

The other nonindigenous tumors of the breast were lipoma and lymphangioma. Three cases of lipoma occurred in the hospital series and one in private practice. They were freely movable and not tender. No enlargement of the glands or abnormality of the nipple could be detected. They were multiple in one case. The ages of the patients varied from 20 to 66, the duration of the tumors from 3 to 20 years. They were of slow growth, and occasioned no objective symptoms. All of the cases were operated on, excision being done in two and amputation in a third.

A single case of lymphangioma occurred during this decade. This was a cavernous lymphangioma in a girl of 16, which started in the axilla and involved the breast only by secondary extension. It was of six years' duration. Examination showed a dense fluctuating tumor the size of a man's head, occupying the position of the breast, but being situated behind the gland and extending from there to the axilla and into the neck. The whole mass was removed without amputation of the breast, and the patient made good recovery.

SUPERNUMERARY BREAST.

One instance of this condition is included in the series of cases from private practice, and another was accidentally discovered in one of the hospital cases of periductal fibroma. Both occupied a situation at the anterior margin of the axilla, and this appears to be the most common site, although supernumerary breasts in other situations along the socalled "milk line" from the axilla to the groin, are occasionally reported (Young).

Both cases presented a small collection of glandular tissue without a nipple. No symptoms were produced in either case, and in one the tumor was discovered only in routine physical examination. In the other, anxiety was aroused by the presence of the axillary tumor, but was promptly relieved when the correct diagnosis was ascertained.

In neither of these cases was there any evidence in support of the theory that supernumerary breasts are more prone to tumor formation than breasts in a normal condition; and indeed this theory is probably one of those which has been handed down from writer to writer without satisfactory evidence for its support (Martin). The rarity of cases of supernumerary breast (only two occurring in 758 cases) is the probable explanation of its uncertainty in the matter of prognosis.

PLASTIC RESECTION OF THE MAMMARY GLAND.

As Stewart justly says, there is a lamentable and unnecesssry difference of opinion as to the treatment of doubtful tumors of the breast.

Many of the tumors are situated in such portion of the gland as to involve disfiguring scars in a conspicuous locality if an incision is made directly over the tumor. Many operations designed for benign tumors involve an amputation of the breast. This unfortunate organ has suffered countless mutilations in times past in conformity with prevailing customs. Thomas first sought to overcome this difficulty by proposing an incision along the lower and outer border of the breast, but details as to his technic are wanting in the original article, and the method does not seem to have been generally adopted.

In the treatment of cysts, Abbé has advocated an exploratory puncture, and gives a large number of permanent cures effected by simply evacuating the cyst. McGraw has also written upon the treatment of cysts by aspiration, and in the main agrees with Abbé, although he notes two cases in which he observed the development of cancer after this procedure. Bull also has long been an advocate of aspiration of cysts, and had no cases of cancer following aspiration in his own experience. McGraw's two cases, however, are excellent concrete examples of the theoretic dangers of aspiration.

At one time I was in the habit of using exploratory puncture to determine the nature of a doubtful growth, and for this purpose used a Mixter punch (a long steel cylinder of small caliber with a handle at one end and sharp edges at the other). Richardson, however, later reported cases in which an extension of the cancerous process was observed along the line of

puncture; and although I have succeeded in curing many a cyst by puncture, I have abandoned it as routine practice. In doubtful cases, it may cause serious displacement of cancer cells; in cases of cystic disease, it disposes only of the larger cysts. I should still use the method, however, in exceptional cases, such as in the presence of a large cyst near the nipple in a small breast which could be easily palpated.

Herbert Snow has recently recommended removal of cystic tumors of the breast by forcible massage. Cysts can, undoubtedly, be ruptured in this way and permanently cured, but it is not a method of precision, and would be most dangerous advice for general adoption.

Stewart advises an exploratory procedure, so planned as to avoid contact of cut lymphatics with any tissues left behind, and any chance of dissemination of cancer cells by pressure before the removal of the breast.

Bloodgood agrees in advising exploratory incision, and states that this operation is the routine treatment of doubtful tumors at the Johns Hopkins Hospital. Curtis and Morris support this recommendation, and Morris calls attention to the ease with which consent may be obtained for an exploratory operation early in the course of the disease, when the possibility of avoidance of a total amputation can be urged.

The operation which I have gradually elaborated, starting with the socalled Thomas incision, consists in the removal of a V-shaped portion of the gland containing the cyst or tumor, and exploratory radiating incisions in the remainder of the gland. In the early operations I undertook to remove all sections of the gland involved in cystic changes, and in several cases this resulted in removal either of the entire gland or of all but fragments here and there of the cortical portion. These fragments were brought together with catgut sutures placed at certain points, or by a single pursestring suture, so that in the breasts of women possessed of a fair amount of adipose tissue the organ could be reconstructed and the nipple (which previously perhaps had been inverted) could be restored to its normal shape. In this way the outward shape and appearance of the breast could be maintained while the entire mammary gland had been removed. Further experience, however, showed me that this radical measure was in the great majority of cases unnecessary. The details of the operation as I now perform it are as follows:

The preliminary incision is longer than that contemplated by Thomas, and, starting at the lower border of the breast, opposite the middle of the outer arc of the lower inner quadrant, it runs along the lower fold and outer margin to the inner border of the axilla, thus severing the lymphatic connections of the breast with the axillary plexus of lymph-glands. The incision should be carried down to the lower border of the pectoralis major muscle, which should be freely exposed. The dissection is then carried along through the loose connective tissue which lies between the pectoral fascia and the posterior layer of the fascia in which the mammary gland lies. With the left hand the operator reflects the breast upward and inward so that the posterior surface of the gland becomes exposed in its entire length. The gland tissue can now be seen through the transparent fascia and easily inspected. If cysts are present they are readily observed, as the majority of them lie in the posterior portions of the gland. Usually there are one or two large cysts lying in the same quadrant. This portion can be removed by a V-shaped incision without opening the cysts. The apex of the V lies directly under the nipple in the central portion of the gland. Radiating from this point incisions can be carried into the gland tissue in all directions, exposing and bisecting all small cysts so that no cyst, however small, remains that has not been laid open by the knife. A second V incision may occasionally be necessary, but this is rarely the case. The next step of the operation, after arresting hemorrhage from the larger vessels, is to close the V-shaped opening with two rows of catgut sutures, one along its anterior borders, and one bringing its posterior edges into contact. The gland is now released from the hand of the operator and dropped back on to the pectoral muscle, and it will be found that the various incised portions of the gland resume their natural positions and fit accurately together. A few sutures may be needed to arrest hemorrhage from small arteries in the gland substance, but this is not usually necessary. The gland should next be anchored to the subjacent pectoral muscle at its outer edge; and still another row of sutures is advisable to hold together the deep layers of the superficial fascia before closing the outer edges of the wound with silkwormgut. The buried sutures are useful in removing strain from the surface suture.

The dressing should be applied so as to produce lateral compression of the two hemispheres, as the ordinary swathe tends to tear the buried gland sutures apart. I have devised for this purpose a bandage which crosses in front and is pinned like a diaper; the ends of each half are then caught into two loops which are attached to suspenders crossing over the shoulders (empire bandage). This bandage can be elaborated into a breast supporter, which is made for me by Messrs. Leach and Greene, of Boston. If the breast operated on contains a benign tumor, the tumor can be removed by the V-shaped incision, the double suturing of the gland incision being carried out as before. I have found it better to make a clean V cut even in the cases of the periductal fibromas, as I have always found the capsule of these tumors more closely adherent to the gland tissue than is usually represented to be the case.

In case of exploratory operations for cancer, the incision can be carried a little farther from the gland border if necessary and sufficiently deep to sever all lymphatic connections with the axillary lymphatics or those which run through the pectoral muscle. The incision into the posterior surface of the gland, if cancer be found, should be closed by a single suture before proceeding with the major operation.

I have called this operation plastic resection of the mammary gland, as the incision and subsequent sutures are devised with special reference to restoring the gland as nearly as possible to its normal shape and to improve often the outward appearance of the nipple. In case of inversion of the nipple as is often seen in abnormal involution, the gland tissue should be so laid open from behind that a subcutaneous pursestring suture can be placed around the base of the nipple and force it outward.

I have performed plastic resection of the gland in 66 cases, in 8 of which both breasts were operated on, so that I have performed the operation in all 74 times. The great majority of these operations was for abnormal involution, but in no case have I had any recurrence of cyst formation. It is remarkable how completely all trace of the incisions into the gland tissue disappears. It is usually difficult to tell from the feel only a few months after the operation what portion of the gland has been resected. As the outward cicatrix is practically invisible to the patient, the result from a cosmetic point of view is also most satisfactory. In three cases only have I found suppuration of the gland to take place, and this was attributed to infection from the cavity of the cyst. One was a case of large multiple cysts; another was a large cyst near the nipple; and the third was a case of papillary cystadenoma near the nipple in an old woman. I have tested many exposed cysts for bacteria, but have invariably obtained negative results. I should, however, advise the operator to avoid opening the larger cysts if possible, and to use catgut for deep ligatures and sutures, as they are quickly absorbed and leave no trace of their presence in the sensitive structure of the gland. I have had stitch abscess in the skin sutures in two cases only, neither of which was in private practice.

As will be seen from my experience in 74 cases, the operation is attended with little risk or discomfort to the patient, who may be assured that it can be performed without a prolonged convalescence and without disfigurement of any kind. I venture, therefore, to offer it to the profession as a satisfactory substitute for the disfiguring exploratory incision on the anterior surface of the breast, for the uncertainties of puncture, and for the mutilation caused by amputation.

Aerial Convection of Smallpox around Smallpox Hospitals.—The question of the spread of smallpox by aerial convection has been discussed with great interest at late meetings of the Epidemiological Society of England. A report to the local government board on smallpox in Gateshead and Felling in relation to Sheriff Hill Smallpox Hospital resulted in the conclusion that the use of this hospital was responsible, directly or indirectly, for a material portion of the epidemic in Gateshead and Felling. As the result of a report made as long ago as 1886 to the local government board on the incidence of smallpox in London, the subject of hospital influence in variola diffusion was brought into prominence in London. Methods of calculating the incidence by the number and location of houses invaded and the intensity within certain radii have formed the subject of discussion. Of interest in this connection is the report of the Board of Health of Philadelphia on the spread of smallpox from the old Municipal Hospital, notwithstanding the efforts to prevent such dissemination. The influeuce of the hospital upon the occurrence of the disease in the surrounding neighborhood is well illustrated by the returns for the years 1901, 1902, and 1903.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 15, 1905. [Vol. XLV, No. 3.]

1. The American Medical Association: Its Origin Progress and Purpose. LEWIS S. MCMURTRY.
2. The Surgeon and the Pathologist: A Plea for Reciprocity as Illustrated by the Consideration of the Classification and Treatment of Benign Tumors of the Breast. J. COLLINS WARREN.
3. The Delay of Old Age and the Alleviation of Senility. CHARLES G. STOCKTON.
4. The Influence Which the Acquisition of Tropic Territory by the United States Has Had and Is Likely to Have on American Medicine. GEORGE BLUMER.
5. A Case of Peripheral Nerve Syphilis. JULIUS GRINKER.
6. Method of Treating Fractures of the Superior Maxilla. RAYMOND RUSS.
7. An American Medical Assurance. W. P. WHERRY.
8. The Ethics of Pharmacy. H. W. WILEY.
9. Acute Epidemic Dysentery. LAWRENCE B. PILSBURY.
10. The Commerce of Surgery. FERNAND HENROTIN.

1.—See *American Medicine*, Vol. X, No. 3, p. 107.

2.—See *American Medicine*, Vol. X, No. 3, p. 110.

3.—See *American Medicine*, Vol. X, No. 3, p. 108.

4.—See *American Medicine*, Vol. X, No. 3, p. 115.

5.—Peripheral Nerve Syphilis.—J. Grinker reports the case of a man, aged 40, with history and traces of anterior syphilis, suffering with right trigeminal neuralgia, right-sided peripheral facial paralysis and neuritis of left sciatic and left anterior crural nerves. The combination of nerve affections undoubtedly pointed to syphilis as their cause, though two months' vigorous antisyphilitic treatment failed to give relief.

6.—Fractures of the Upper Maxilla.—Raymond Russ describes a form of splint for fractures of the upper jaw, consisting of a headpiece of heavy wire or whalebone and an interdental plate of aluminum molded to the jaws, the two parts being united by strong rubber bands and permitting the taking of food and power of speech during the mending of the bone. The interdental plate is, for part or all of its extent, bent upward so as to form a sort of gutter filled with softened dental compound, which molds around the teeth, keeping them in place. Two lateral arms pass out of the mouth over the bicuspids, affording attachment for the rubber band. The splint can be easily removed and cleansed by boiling.

7.—An American Medical Assurance.—W. P. Wherry believes that the American Medical Association should sanction the institution of a life assurance company of strictly first-class character and operating all over the United States and Canada. He calls attention to the fact that the British Medical Association has a benevolent fund that is often of much service to members and which acts as a bond to hold the units of the association together. Wherry believes that the philanthropic features should not be allowed to predominate altogether, but that the company should be conducted on strict business principles. He outlines briefly his idea of the plan of organization of such a life assurance company.

8.—The Ethics of Pharmacy.—H. W. Wiley discusses the subject of the duties of the pharmacist as regards the interests of his own profession, those of the physician, and those of the public. The relation of pharmacy to his own profession, he thinks, can be defined in a few words: That he should keep and dispense standard medicines and those of the purity and strength required; that he should avoid substitution, and that he should avoid illegitimate commercialism. In other words, the essentials are purity of products, legitimate profits and freedom from debasement and substitution. As regards the medical profession he sums up briefly the ethics of pharmacy, as the training of skilled pharmacists able to compound in the most artistic way, and with the best results to the patient, the prescription which the physician may present. He deprecates the use and sale of proprietary remedies. This he considers as one of the greatest evils of the day. In many cases the pharmacist is an emergency physician, and should be able, therefore, in his relations to the public to give first aid in the way of drugs and other help. He holds there should be a mutual friendliness between the druggist and the physician since each must at times exercise the functions of the other and he would like to see more instruction in pharmacy in medical schools, and vice versa.

9.—Acute Epidemic Dysentery.—Lawrence B. Pilsbury reviews briefly the history of the study of the dysentery bacillus. He calls attention to the cultural characteristics of the bacillus as described by Shiga, and reviews the bacteriologic reports of various investigators. He gives the results of investigations made with the Shiga bacillus and with *B. dysenteriæ* of Flexner. The article includes a summary of 237 clinical cases.

10.—Commerce of Surgery.—Fernand Henrotin calls attention to the fact that physicians are said to be no less deeply stained with the supposedly unfortunate taint of commercialism than their brethren in other lines of work. Physicians are no more exempt from this desire of possession than other classes of society, and to this attribute is due much of their activity and success at the present time. Physicians should make their patients understand that they expect a definite return for their services, and he advises a prompt collection of accounts. He touches briefly on the matter of commissions given by surgeons to general practitioners, and states that the matter of commercialism among physicians will settle itself.

Boston Medical and Surgical Journal.

July 13, 1905. [Vol. CLIII, No. 2.]

1. The American Medical Association: Its Origin, Progress and Purpose. LEWIS S. MCMURTRY.
2. The Delay of Old Age and the Alleviation of Senility. CHARLES G. STOCKTON.
3. Neurasthenia, A Study of Etiology: Treatment by Occupation. HERBERT J. HALL.
4. Senile Albuminuria. A. E. Austin.
5. The Recording of Rotation Deformity by Projecting Horizontal Points. HENRY O FEISS.
6. Anal Fissure. T. CHITTENDEN HILL.

1.—See *American Medicine*, Vol. X, No. 3, p. 107.

2.—See *American Medicine*, Vol. X, No. 3, p. 108.

3.—Neurasthenia.—H. J. Hall thinks that in this affection there is always probably a long preparatory stage. In a large proportion of persons there is a more or less faulty relation between the individual and the ordinary affairs of life resulting in irritation and irritability. The minimum amount of inharmony which can produce an appreciable mental irritation may be looked on as a sort of neurasthenic unit. As a result of continued irritation, we have a fatigue and exhaustion, clearly psychic, and not to be distinguished from the weariness of neurasthenia. In most cases, the process aborts early. In the daily life of the average neurasthenic there are generally the grossest maladjustments. Mental therapeutics aims at correcting the patient's attitude toward his environment, but it is a fact that the environment is almost invariably bad. Change of outward condition gives an opportunity for new adjustment of the individual with life. In light cases, rest and recreation may be sufficient for recovery, but in others, lack of occupation causes degeneration. As a therapeutic measure, Hall has started a shop in which his patients are given instruction in pottery and textile work, and which aims to be commercially practical. [H.M.]

4.—Senile Albuminuria.—A. E. Austin concludes from the examination of the urine of 45 men, ranging in age from 64 to 95, that albuminuria is fairly frequent in old men; that mucinuria is more so, and that both are associated with distinct changes in the urinary apparatus; that these changes are not of serious import; that the low urea excretion, common in old age, cannot be due to retention; and that there is no connection between albuminuria and indicanuria. [H.M.]

5.—Recording of Rotation Deformity by Projecting Horizontal Points.—H. O. Feiss describes an apparatus with an upright on which there is a sliding cross-beam supporting two parallel arms in the same horizontal plane. In the cross-beam and in the arms at corresponding intervals are pencil holes. Through these the patient's trunk is marked at the plane of the anterior superior spines and at the plane of greatest deformity. Tracings of these two planes are then superimposed on paper, that of the pelvic plane serving as the standard by which the amount of rotation can be measured. [H.M.]

6.—Anal Fissure.—T. C. Hill describes the lancinating pain of a very superficial ulcer and that of a dull dragging nature

which develops as the ulcer deepens, also the hypertrophy, spasm, and rigidity of the muscles brought about by the induced constipation. The pain may last from a half to six hours, and numbness may extend down the back of the legs. Physical examination is necessary to distinguish fissure from abscess, hemorrhoids, stricture, etc. The speculum should rarely be used. Digital pressure should be in a direction opposite to the position of the fissure. A single lesion is the rule, except in syphilis, gonorrhea, or tuberculosis. The bowels should be regulated by diet, and the injection at night of 1 oz. of olive oil, to be retained until morning. There must be the strictest cleanliness. Pure ichthyol two or three times weekly is better than silver. If this does not suffice, and the stretching operation fails, the writer advocates complete division of the sphincter at a slight distance from the base of the ulcer. [H.M.]

Medical Record.

July 15, 1905. [Vol. 68, No. 3.]

1. The American Medical Association: Its Origin, Progress, and Purpose. LEWIS S. MCMURTRY.
2. The Delay of Old Age and the Alleviation of Senility. CHARLES G. STOCKTON.
3. Congenital Absence of Tibia: Transplantation of the Head of the Fibula, Arthrodesis at the Ankle-joint. T. HALSTED MYERS.
4. Examination of the Rectum and Its Value in Diagnosis. CHARLES J. DRUECK.

1.—See *American Medicine*, Vol. X, No. 3, p. 107.

2.—See *American Medicine*, Vol. X, No. 3, p. 108.

3.—See *American Medicine*, Vol. X, No. 3, p. 93.

4.—Examination of the Rectum and Its Value in Diagnosis.—C. J. Drueck speaks of the lack of thoroughness displayed by the average practitioner in handling patients with rectal disorders. These diseases are very common, yet they are often treated without any examination at all, or only very cursorily. The preparation of the patient for examination by means of enemas, etc., the question of tables and illumination, and examination by inspection, are considered at length. It is stated that digital examination is the most important of all methods, as 80% of all rectal cases may be diagnosed in this way, and the other 20% by the history and an examination with the speculum. In speaking of instrumental methods, the author says that the probe has no place in the diagnosis of rectal diseases, and very little in the treatment, except in fistula. Rectal surgery especially interests doctor and patient, because it can be done in the office under local anesthesia, and the results of careful work are both positive and prompt, so that it is advantageous to devote greater attention to it.

New York Medical Journal.

July 8, 1905. [Vol. LXXXII, No. 2.]

1. Bronchoscopy for Removal of Foreign Bodies from the Lungs. E. FLETCHER INGALS.
2. Primary Jugular Bulb Thrombosis in Children, as a Complication of Acute Purulent Otitis Media: With a Report of Cases. (Concluded.) JAMES F. MCKERNON.
3. Six Lectures on the Diseases of the Blood. JOHN M. SWAN.
4. The Early Detection of Uterine Carcinoma. DANIEL H. CRAIG.
5. The Incidence of Pulmonary Tuberculosis in Large Families. HENRY L. SHIVELY.
6. Symptomatology of Acute Otitis in Children. CHARLES GILMORE KERLEY.
7. Some Interesting Coroners' Cases. PHILIP F. O'HANLON.
8. Widal's Reaction for Typhoid Fever. PAUL SHEKWANA.

2.—Jugular Thrombosis.—James F. McKernon takes up the symptomatology, diagnosis and surgical treatment of primary jugular bulb thrombosis in children, as a complication of acute purulent otitis media. His attention was called to it by the unusually high temperature curve quickly following the onset of an acute purulent otitis in young children. He believes that this high temperature is caused by a direct infection from the tympanic cavity to the blood current closely adjacent, namely, through the floor of the tympanum to the jugular bulb; this bony partition in young children being almost like parchment. The diagnosis is made almost entirely from the wide temperature range, closely following as it does an acute purulent otitis. Bacteriologic examination of the discharge is of value only in that it gives us knowledge of the characteristic infection, which is usually that of the streptococcus, although in one of the cases reported, the predominating infection was that of the staphylococcus. All other diseases should be barred out by a process of careful elimination. The blood count to determine the polynuclear percentage is of aid in diagnosis. Several cases are reported and their surgical treatment taken up in detail. [C.A.O.]

4.—Uterine Carcinoma.—D. H. Craig gives the data of 78 cases. In 45 of these the first symptom was a leukorrhea, which in itself was in no wise characteristic. In 21 cases the first symptom was bleeding in varying degrees from a slight staining to profuse flowing. In 12 cases pain was the first symptom, preceding both leukorrhea and bleeding, often by many weeks. Pain as an initial symptom appeared slightly, more often in carcinoma of the uterine body, but not with sufficient emphasis to be considered either characteristic or pathognomonic. Leukorrhea had existed previous to the onset of the present illness in 33 cases, and had not so existed in an exactly equal number of cases. In 9 cases no satisfactory answer was obtainable. Craig concludes, therefore, that there is no characteristic first or early symptom of uterine carcinoma, either of the cervix or of the body. He urges a thorough physical exploration of the pelvis, both bimanually and with the speculum, of every woman having pelvic symptoms. In this way lives may be saved by the consequent early recognition of carcinoma. [C.A.O.]

5.—Tuberculosis in Large Families.—Henry L. Shively has collected 1,175 cases of tuberculosis in families ranging from 4 to 13 children, and tabulated them according to the size of the family. This, he did, to test the theory of Herman Brehmer that the later children in large families were more likely than the first born to become tuberculous. An examination of the figures shows that there is little ground for the belief; on the contrary, there would appear on the whole to be a leaning in favor of the later children. [C.A.O.]

6.—Symptomatology of Otitis in Children.—C. G. Kerley, in 72 cases, found only one symptom present in all—an elevation of temperature above the normal; 58 of the cases occurred with or followed nonspecific, inflammatory conditions of the upper respiratory tract, such as amygdalitis, grip, and catarrhal cold. This fact emphasizes the necessity for frequent aural examination during or following such disorders, particularly when there is an elevation of the temperature, a temperature which, in the absence of definite clinical signs, we are apt to look upon as possibly due to chronic grip, malaria, typhoid fever, or dentition. The most interesting factor in the series was the absence of pain or localized signs by manipulation in 50 of the cases. [C.A.O.]

Medical News.

July 15, 1905. [Vol. 87, No. 3.]

1. The American Medical Association: Its Origin, Progress and Purpose. LEWIS S. MCMURTRY.
2. The Delay of Old Age and the Alleviation of Senility. CHARLES G. STOCKTON.
3. The Influence Which the Acquisition of Tropic Territory by the United States Has Had and Is Likely to Have on American Medicine. GEORGE BLUMER.
4. The Treatment of Diarrhea in Children. JOSEPH E. WINTERS.
5. Two Cases of Epilepsy, the Result of Gastrointestinal Disturbance. FRANK H. MURDOCH.
6. Three Additional Cases of Primary Sarcoma of the Stomach. HARLOW BROOKS.

1.—See *American Medicine*, Vol. X, No. 3, p. 107.

2.—See *American Medicine*, Vol. X, No. 3, p. 108.

3.—See *American Medicine*, Vol. X, No. 3, p. 115.

4.—Treatment of Diarrhea in Children.—J. E. Winters states that appropriate treatment at its inception arrests it at once, and yet it registers more deaths than all the contagious exanthemas combined. To prevent a local affection becoming a constitutional infection the fermenting food must be quickly and radically ejected by castor-oil, and this must be followed by a period of absolute rest, in which nothing passes through the digestive tract but water for from one to several days, according to the severity of the case. In young infants, hot water from a bottle is preferable. Some infants and most older children prefer cold water. From three to five drops of very hot water from a dropper on the tongue every 15 minutes is at times magical in checking vomiting. The auspicious moment for food having arrived, milk should be given with the proteid

content minimized. The food must be of low proteid until cool weather. The mortality in young infants with diarrhea is principally due to the use of cereals, in older children to animal broths. The vegetable proteid cannot be utilized, the animal extractives stimulate metabolism, both result in starvation. Cereals are indispensable to the treatment of diarrhea in the second year. Those of most value are barley, imperial granum, arrowroot, rice, cream of wheat. They must be cooked with water, never with milk. In subacute and chronic cases, Winters strongly recommends the temporary use of condensed milk. The castor-oil may be supplemented with irrigation on the first day, but repeated irrigations are exhausting and seldom advisable. [H.M.]

3.—Primary Sarcoma of the Stomach.—H. Brooks reports several cases. That he has found it in 4 out of 1,200 autopsies, leads him to think that sarcoma of the stomach is more frequent than is generally believed. Without microscopic examination, it is probably often mistaken for carcinoma. There is less tendency to involvement of the mucosa and more toward infiltration of the muscular wall than in carcinoma. Metastases are less frequent, are of later appearance, and the course of the disease is longer. The field is more hopeful for surgical intervention. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
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EDITORIAL COMMENT

Colotyphoid and Its Complications.—By the term colotyphoid is merely meant a special type of typhoid fever, while in classic typhoid the ulcerative lesions predominate at the lower end of the small intestine, in colotyphoid the ulcerations are more abundant in the large intestine, particularly the ascending colon. Quite a number of cases of colotyphoid have been recorded by Barth, Henriot, Devic, and Roux, and in a recent and very complete work on the subject by Nugue,[1] this authority has carried out researches relative to the various clinical characters by which a diagnosis of this special form of typhoid may be made. The frequency of diarrhea, which in colotyphoid is profuse, fetid, and unconsciously passed, the special form of meteorism, which is found along the course of the large intestine, taking on the form of a horseshoe or located in the epigastrium along the track of the transverse colon, are all clinical signs which would favor the diagnosis of a colic localization of the typhoid process. A methodic exploration will enable one to detect a sharp pain over the course of the colon when pressure is used, but this pain should not be mistaken for that due to peritonitis which is more acute, superficial, and generalized, and is also accompanied by the symptomatic train of peritonitism. The general condition of these patients rapidly changes, extreme weakness soon occurs and they present a characteristic paleness. The diagnosis of this localization of the typhoid lesion is a difficult or even impossible matter, according to Meunier and Devic, but nevertheless the three cardinal signs already mentioned will at least allow one to suspect this particular type. If one has the good fortune to make an early diagnosis of colotyphoid, it should always be recalled that the prognosis is far more serious than in ordinary typhoid fever. The ulcerations being deeper and more confluent in the large than in the small intestine, it is easy to understand why perforation and hemorrhage are far more frequent in this type. Perforation always occurs insidiously; the patients are extremely weak and in a condition of deep torpor; meteorism is hardly, if at all evident, the face becomes pinched, and death takes place within a few hours. There is a very infrequent complication which was discovered by Nugue during the autopsy of one of his cases, namely, abscess of the liver. There was no symptom during life which could lead one to suspect the presence of this process, but in some cases a persistent and sharp pain has been complained of by the patient in the right hypochondriac region. If the diagnosis of colotyphoid can be suspected on account of the cardinal symptoms present, the practical conclusions as to treatment become evident. No enemas should be given on account of the extensive ulceration of the large intestine. Cutaneous ulcerations and superficial abscesses are to be avoided because Tripier believes that they are the starting point of pathogenic agents which produce hepatic abscess, and for this reason the patient should be frequently bathed. There is another difficulty. If the diagnosis of abscess of the liver should be made during the progress of the typhoid fever the question arises as to whether or not it should be operated upon. If the patient is still in the height of the disease, puncture is to be practised and Chater has obtained one very brilliant success, but when the condition of the patient is such that an operation can be performed, free incision and drainage must be resorted to.

[1] Thesis, Lyons, 1904.

REVIEW OF LITERATURE

Breathlessness.—Sir Lauder Brunton[1] presents the results of clinical and laboratory studies of this subject. Dyspnea may come from the air being hindered in going from or to the lungs or the blood being retarded in its passage through the lungs. The sensation of dyspnea is probably of cardiac rather than pulmonary origin; in one patient the diagnosis of atheroma of the right coronary artery was verified by autopsy. Just as fatigue may be felt without evident change in the muscles, so dyspnea may be accompanied by no objective cause. In other persons, insufficient aeration of the blood may be evident and yet dyspnea be absent; these points are of importance in showing that attention in some patients must be directed to a peripheral, in others to a central condition. The most common causes of right-sided congestion and dyspnea are mitral regurgitation, mitral obstruction, and chronic bronchitis. High arterial tension cannot be regarded a cause. To facilitate pulmonary circulation the most efficient agent is rest; second is massage. There is no better way of giving digitalis than in the pill of digitalis, squill and blue mass, with at times the addition of hyoscyamus. Digitalin and strychnin may be given when the heart is failing. Opium is the best drug for immediate relief. [A.G.E.]

Peculiar Eruptions in Typhoid Fever.—R. v. Jaksch[2] reports a case of typhoid fever in which a hemorrhagic eruption appeared around the umbilicus toward the end of the disease. The eruption had nothing in common with the typhoid roseola, and bacilli could not be found in it. The author regards it as a cutaneous manifestation of widespread hemorrhages into the musculature, which view is supported by the finding of urobilinuria and the occurrence of a subicteric appearance in the patient. Another case is described as an example of a more common eruption. This form appears in the first week, and consists of rather large papules, surmounted by a pale summit. Typhoid bacilli are found in the blood from these papules. [B.K.]

Etiology and Classification of Summer Diarrheas in Infancy.—C. H. Dunn[3] suggests this clinical classification: 1. Acute nervous diarrhea, characterized by loose stools of normal color and odor and without abnormal constituents. 2. Irritative diarrhea: Acute intestinal indigestion of the irritative type, characterized by the absence of persistent fever, and by the presence of curds and undigested masses in the discharges. 3. Fermental diarrhea: Acute intestinal indigestion of the fermental type, characterized by the absence of fever and by green stools of a foul or sour odor. 4. Infectious diarrhea, characterized by the existence and persistence of fever, and by the

[1] The Practitioner, June, 1905.
[2] Zeitschrift für Heilkunde, Bd. xxvi, Abth. f. Int. Med., Heft. 2, p. 297.
[3] Archives of Pediatrics, June, 1905.

tendency toward early signs of ileocolitis, as shown by the presence of blood, and excess of mucus in the discharges. When a specific organism, *Bacillus dysenteriæ*, is proved to be the cause, the case may be further particularized by the term infantile dysentery. The name thermic diarrhea may be given to the entire group. [A.G.E.]

Cirrhosis of the Liver.—R. Saundby[1] says, that although cirrhosis of the liver may arise from infective toxins or foods, the chief and nearly invariable cause is alcohol. This does not exclude the agency of bacteria, which may more freely act on the depressed liver. It is quite possible that the abuse of pepper and spice aids the effect of alcohol. The first symptoms in a typic case reported were pain and distention of the abdomen. Pain in this affection is most often due to catarrh of the stomach or intestines; in reality the complex of symptoms popularly associated with the liver are due to gastroduodenal catarrh. Traces of peritoneal inflammation found at autopsy in cases of ascites should be regarded as terminal infections and not as the cause of the ascites. Saundby has had very satisfactory results from tapping in more than 50 cases. Surgical treatment should not be instituted until tapping has had a fair trial, although it must not be postponed too long, as this tends to discredit the operation and diminish the chances of the patient. [A.G.E.]

Etiology and Constitutional Treatment of Bright's Disease.—W. H. Porter[2] concludes: 1. The etiologic factors in nephritis are numerous and very complicated in their action; no single remedy or operation can be expected to reach all the indications for treatment. 2. Histologically, Bright's disease can never be cured, but physiologically, the etiologic factors can be modified and often removed and the symptoms held in abeyance, while the renal glands perform their functions normally. 3. The disease is by nature oscillatory and remissions must not be mistaken for cures. 4. Rational dietetics and therapeutics offer the largest possibility for a complete physiologic cure. 5. A well-regulated mixed diet, especially if composed largely of the animal class, when it can be tolerated, yields the best results. 6. Rational therapeutics is not directed at the renal lesion, per se, but toward establishing a more perfect digestion and metabolism and a decrease in the work imposed upon the renal glands. [A.G.E.]

A Pharmacologic Point.—Daells[3] asserts that in preparing infusions or decoctions the substances should be first extracted by cold solution; in every instance he believes his experiments indicate a greater richness of quantity and quality in materials so treated. [T.H.E.]

Pernicious Effects of Alternating Current of High Voltage.—F. H. Miller[4] has made a study of this subject, especially in the large power houses along the Niagara frontier. He reports 18 cases in which the phenomena are remarkably uniform and constant. The conclusion is that persons who are continuously employed in an atmosphere heavily charged with electricity or ozone, or whatever it may be, suffer from such changes in the digestive fluids as greatly to impair the digestive function. Persons so employed lose their appetite, experience pain and distress after taking food, become of an almost chalky complexion, and often have to obtain short periods of vacation to recover their ability to eat and digest their food in a normal manner. The remedy may lie in some sort of insulation, a neutralizing ray, or grounding of the waste energy that now fills the rooms of power houses. The matter is serious enough to demand the attention of physicians and of electricians in general. [A.G.E.]

Fat in Relation to the Production and Cure of Infantile Marasmus.—Heinrich Stern[5] reaches the conclusion that yolk fat of the hens egg is the ideal fat for infants suffering from chronic gastrointestinal disturbances, together with latent or even pronounced athrepsia infantum. Each 2 gm. of yolk equals 5 cc. of cream. Stern says the gastrointestinal changes underlying infantile atrophy are not infrequently due to the fatty content of the food, and the withdrawal of milk fat often leads to cessation of the local disturbance. Yolk fat is the best substitute. It must completely replace the milk fat and in amount be adequate for the caloric and nutritive demands of the organism. Yolk should never be given to the newborn nor to the infant which thrives on physiologic nutriment or a modification of cow's milk, being reserved for pathologic conditions which may lead to athrepsia infantum, in those due to or aggravated by the fat constituents of the nourishment. [A.G.E.]

Effect of Raw Meat on the Incidence of Hemoptysis in Pulmonary Tuberculosis.—I. Mears[1] reports the results of three years' (1900 to 1903) use of raw meat by the patients in the Woodburn sanatorium. Of the 114 patients thus treated, only 2, or 1.7%, had hemoptysis. Of the 152 patients admitted from 1899 to 1903, 20% showed hemoptysis before treatment; 38 were not fed rigidly on raw meat, and among these were three cases of hemoptysis. The results are furnished as an evidence of the value of raw meat in preventing hemoptysis during the treatment of pulmonary tuberculosis. Statistics of patients admitted since 1903 are equally convincing, but are not employed because of the short time of observation. [A.G.E.]

[1] The Practitioner, June, 1905.
[2] The Postgraduate, April, 1905.
[3] Il Policlinico (Rome), May 14, 1905.
[4] Buffalo Medical Journal, July, 1905.
[5] Archives of Pediatrics, June, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

EDITORIAL COMMENT

Interlobar Pleurisy. — Interlobar pleurisy can, without doubt, be cured by simple medical treatment, and when once the collection has been expelled, antiseptic inhalations, combined with the general tonic treatment, result in a final cure, in spite of the continued fever which is present for some time following the emptying of the pus cavity. When medically treated, however, the duration of the disease is long, and many weeks will go by before the patient enters into convalescence. On the other hand, death may occur from progressive loss of strength or the advent of pulmonary gangrene. If the condition of the patient is serious, the treatment must, consequently, consist in surgical measures, in order to empty the purulent focus, but in interlobar abscess there is one mishap that must be guarded against, namely, breaking down the adhesions which separate the pocket from the general pleural cavity, because the extreme septic contents would easily infect the entire cavity. In order to avoid this danger, one should mark out with precision the limits of the area of dulness before operating, and make a deep exploratory puncture which will demonstrate the presence of pus. There are no regular points to determine anatomically, but the absolute rule is to make the incision at the lower and posterior part of the area of dulness, where the needle has shown the presence of pus. Without any doubt it would be a much simpler affair to open the abscess by simply spreading apart the lips of the interlobar fissure, but this procedure, which theoretically appears simple, is not always applicable in practice. In the normal condition, the oblique scissure is easily recognized, and Rochard advises resection of the fifth or sixth rib in the axillary line to reach it, and for the horizontal scissure, he considers that the resection of the fourth rib, just in front of the axillary line, is the proper situation. In pathologic conditions, and in cases of interlobar abscess, all these anatomic relationships are changed, so that the rule is never to incise excepting in the dull area, where exploratory puncture has revealed the presence of pus. At this point, after having done a subperiosteal resection of one or two ribs, the pleura should be incised, so as to form two flaps sufficiently large to be able to search for the dark profile of the scissure. If this is exposed, one should endeavor to open it with the finger or a director in such a manner as to separate the two lips, and thus arrive directly on the interlobar purulent collection. When the pus is deeply

[1] The Practitioner, July, 1905.

seated and the opening into the thorax does not expose the scissure, puncture should be resorted to with a needle, sufficiently long and of large enough caliber to enlighten one as to the direction and depth of the abscess. The external envelope of the lung should be incised with the knife, and then with the thermocautery or with the finger, the surgeon should force an intrapulmonary opening down to the purulent focus. The resulting hemorrhage need not be feared. When once the cavity has been emptied, which should be done as thoroughly as possible, it should be drained with two large tubes. Irrigation after the operation is usually useless. When the pus has been evacuated, one will find a cavity whose walls are composed of more or less hyperemic pulmonary tissue, which becomes insufflated when somewhat violent inspiration is made. When the purulent encysted pleurisy is double, as may happen after a bronchopneumonia complicating influenza, Bormans advises commencing with the left side in order to avoid deviation of the heart to the right, which frequently occurs in left-sided interlobar pleurisy. If, on the other hand, the collection on the right side is much larger than that on the left, the former should be operated upon first. A few days later, when the lung on the operated side has become used to its thoracic fistula, the pus in the abscess on the other side may be removed by puncture, and if it should collect again, puncture may be resorted to for the second time before undertaking resection of the second rib. Two or three weeks after the first surgical intervention, when the wound has advanced considerably in cicatrization, and when the functions of the lung are being fulfilled with the thoracic fistula, resection of the second rib may then be undertaken. The operative results are, in general, good, and Tuffier, out of a total of 49 cases, had a mortality of 23%. Ricard and Launay consider that this mortality may be still more reduced if operation is undertaken early in the progress of the disease. If one will not wait too long, the cure is rapid and complete.

REVIEW OF LITERATURE

Comparative Surgery.—H. Cushing[1] says the ordinary dissecting-room method of teaching operative surgery disregards surgical cleanliness, which should be acquired by the student as a reflex habit. Again, the ability gently to dissect and handle living tissue is not acquired, and the control of hemorrhage cannot be learned. Finally, the particular technic of visceral surgery cannot be acquired on the cadaver. To obviate these points, operative instruction was begun on living animals, stray dogs at first being utilized. Now quite a clinic has been built up by the owners of diseased dogs, who bring the animals for operation. Faris, Thacher, Ortschild and Beall report a very interesting series of cases, fully illustrated, including 2 cases of cystic thyroid, 2 of uterovaginal prolapse, 8 of neoplasm, and 3 of hernia. The operative results and the teaching facilities have both been very satisfactory. [A.G.E.]

Traumatic Ossification of Muscles.—K. Frank[2] reports two cases of ossifying myositis following trauma. In the first case the kick of a horse on the left thigh caused the appearance of a tumor that was firmly united with the femur. The growth was found to be composed of spongiosa, cartilage and degenerated muscle fibers. In the second case, a luxation of the elbow-joint was followed by the development of two bony tumors, one being attached to the bone and the other being free. These growths were made up of compact tissue, little spongiosa and atrophied muscle fibers. A dislocation is a very rare cause of ossifying myositis, the first case being a more common example. The symptoms resulting from these tumors naturally depend on their size and situation. The condition must be diagnosed from progressive ossifying myositis, syphilitic myositis, muscle hernia, traumatic muscular swellings, chondroma, fibroma, osteomyelitis, etc. Two questions arise in connection with this condition: 1. Does the process arise from the supporting connective tissue of the muscle or from the periosteum? 2. Is it an inflammation or a neoplasm? The author believes that both the connective tissue and the periosteum are involved in the formation of the tumors. He is still unable to answer the second question. Regarding treatment, he recommends conservative methods (massage, absorbents, etc.) in recent cases, and radical operation in older cases. Recurrence of the growth is an exceedingly rare event. [B.K.]

New Method of Obtaining Rectangular Flaps for Transference with a Pedicle.—W. W. Babcock[1] describes a method used by him to cover an area of denuded tibia 17 cm. (7 in.) long and 1.5 cm. (½ in.) wide. In that instance the flaps were taken from the calf of the other leg. Two rectangular flaps a third wider and collectively a third longer than the denuded area are formed by one long incision separating them and two outer incisions half the length, starting at opposite ends. The flaps are loosened, leaving the pedicles side by side. The skin margins of the wound are then approximated and sutured, the line of junction being linear with two right angles at the center, the width of the flap separating the angles. The flaps are then placed on the denuded area, and after union occurs the pedicles are divided. The method may be employed wherever two parts can be apposed, but is to be reserved for exceptional cases where grafting by the usual methods without a pedicle is impracticable. [A.G.E.]

Etiology of Volvulus of the Small Intestine.—According to W. Philipowicz,[2] volvulus of the small intestine usually occurs in the lower end of the ileum. This may be partly due to the sudden transition from a freely movable small intestine with long mesentery to the fixed large intestine with short mesentery. The author has noticed, however, in nine cases that have come under his observation, that there is frequently a peculiarity of these parts, which predisposes them to the occurrence of volvulus. This peculiarity consists in a shrinkage of the mesentery, especially of its inferior layer, so that the ileum is often turned on its own axis to a certain extent. A resistance is thus offered to the progress of the intestinal contents, giving rise to the chief cause of volvulus. This shrinkage of the mesentery is always present to a certain extent; but in the cases described, a cicatricial contraction was also found in other parts of the mesentery. This leads the author to the conclusion that the process is due in such cases to a previous mesenteritis, whose cause cannot be determined. [B.K.]

Tuberculosis of the Palmar Aponeurosis.—M. Maillaud[3] comments on the thesis of Perdrizet, who reported nine cases, and adds five cases of retraction of the palmar aponeurosis (Dupuytren's disease) due to tuberculosis. Clinical or autopsy examination confirmed the presence of tuberculosis elsewhere in the body in all cases. Histologic study of the aponeurosis in one case revealed obliterative endarteritis and great increase in the fibrous tissue. Maillaud, after Poncet, describes the process as inflammatory tuberculosis, the usual caseous and destructive lesions being absent. In these instances a sclerosing action only is manifested, the lesion, in a sense, being properly denominated paratuberculous. [A.G.E.]

Vesical Complications of Appendicitis.—If the appendix is in direct contact with the bladder, the inflammation becomes directly continuous with its wall; the same occurs if the abscess produced through the appendiceal inflammation comes in contact with the bladder wall. If the diseased appendix is any ways close to the bladder, the prevesical connective tissue becomes affected and a pericystitis arises. If the process continues, the bladder wall becomes affected and small hemorrhages of the vesical mucosa may arise. If an abscess exist, it may rupture into the bladder; before doing so ulcers and ulcerating polypoid growths of the vesical mucosa may form. After the rupture, fistulas of different size remain, most commonly on the posterior surface. Pus and feces may be excreted with the urine, and stone formation has been observed. Spontaneous closure of the fistulas has been reported. G. Baradulin[4] reports three instances of vesical complications during appendicitis. In the first instance the patient had four distinct attacks

[1] Johns Hopkins Hospital Bulletin, May, 1905.
[2] Archiv für klinische Chirurgie, Bd. lxxvi, p. 883.
[1] Medicine, June, 1905.
[2] Archiv für klinische Chirurgie, Bd. lxxvi, p. 943.
[3] La Médecine Moderne, June 28, 1905.
[4] Monatschrift für Urologie, 1904, ix, 705.

of appendicitis; during the second attack the abscess ruptured into the bladder, the fistula closing spontaneously; with the fourth, after a period of vesical pain and cystitis, the urine contained much pus for a time and also had a fecal odor. In this instance the patient suffered reflex vesical pain before the vesical wall was affected. The urine suffered no change of any kind until the abscess had ruptured and the rupture manifested itself through violent pain and sudden discharge of pus. In the second and third patients the symptoms never went beyond pericystitis, as proved by the frequent micturition associated with a normal state of urine. In both cases the appendix was found adherent to the prevesical structures; recovery occurred after operation. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN
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REVIEW OF LITERATURE

Balneologic-dietetic Treatment of Chronic Diarrhea.—E. Gans,[1] of Karlsbad, who has made a special study of the treatment of chronic diarrhea treats his patients by giving them mineral waters internally, heat in the form of baths, douches and local applications externally, rectal lavage, regulation of mental and physical exertions, and above all, ordering a suitable diet. The quantity of the food is intended to improve the strength of the patient, but the quality he gives his individual attention for each case. He prefers easily assimilable substances, such as albumins, fats in the form of fresh butter and carbohydrates with the exception of sugar; substances which act as astringents because of their containing tannin, as current preparations, cocoa, acorn coffee, red wine, etc.; substances which prevent fermentation, as saccharin. He forbids substances assimilable with difficulty, as all fats with the exception of fresh butter, therefore lard, fat skin, fried substances, fat meats, smoked fish and meat, fatty oils, etc.; all substances inciting intestinal peristalsis such as ice water and ordinary fluids except those mentioned above, salted foods of any kind, and too much salt on anything, spices, vegetables with thick shells, also salads, cucumbers, rye bread; organic acids with the exception of tannic; all substances likely to ferment, as saurkraut, sugar, yolk of egg, carbonated waters. The following scheme is employed by him in many cases: Rise at 7; drink 4 oz. Karlsbad Sprudel; take a slow walk for 30 minutes and repeat the Karlsbad Sprudel. Breakfast at 9; acorn cocoa cooked in water or milk and sweetened with saccharin; zwieback with fresh butter, fatless ham. Rectal lavage with ¼ liter Sprudel at 11; must be retained for a half hour. Rest in bed with moor applied as hot as possible to abdomen at 12. Writing of letters, reading newspaper, etc., at 1. Dinner at 2; oysters and caviar; rice or barley soup cooked from beef or fowl; fish cooked in salt water with butter; fowl or meat cooked soft; potatoes, carrots, rice, noodles; rice pudding and red wine. Rest in bed at 3; lunch at 5 similar to breakfast; 8 oz. Sprudel at 7 as above; light supper at 8; hot applications at 10. Duration of treatment 4 to 6 weeks. [E.L.]

Serum Treatment of Toxemic Symptoms in Scarlet Fever.—There are three rough types of scarlet fever: (1) The simple form; (2) the septic variety, with severe anginal symptoms and septicemia; and (3) the toxic form, in which the patient is very early overwhelmed by a large dose of the scarlatinal poison. The mortality of this latter variety is probably about 80%. A. K. Gordon[2] has tried the use of polyvalent antistreptococcic serum in 55 such cases, with a mortality of only 23½%. By the use of this serum, he also succeeded in reducing the general scarlatinal mortality about half. It should be used in rather large quantities, and the whole amount to be given should be administered in one injection. [B.K.]

Treatment of Phlebitis.—Marchais[3] considers the puerperal type of phlebitis the most frequently occurring variety of vein inflammation. The principle of treatment, expressed tersely, is to immobilize as long as there is danger of embolism, and to begin massage as soon as this is out of question. Each attack of phlebitis is ushered in with a rise of temperature, and this occurs regularly with each relapse and exacerbation. Marchais has set up the rule for himself never to attempt either massage or passive movements of any type in phlebitis, until 14 days have elapsed since the last rise in temperature; the frequent taking of temperatures is, therefore, very important. It may occur that after apyrexia lasting from five to six days there is a sudden rise of temperature, necessitating renewed waiting until the patient has had two feverless weeks. This rule holds good not only in puerperal phlebitis, but also in those of typhoid fever, erysipelas, tuberculosis and many other infections; as, for instance, suppurative phlebitis, which is really nothing else than a periphlebitis. Cases of subacute relapsing phlebitis, as seen in varicose veins, gout, rheumatism, etc., are very persistent and concerning the time when massage should be employed to be watched more carefully still. Splints are to be employed only if both limbs are affected at the same time. Concerning motion of the parts, he advises for the first four days passive movements and light massage of the toes and the ankle without lifting the limb from the bed; on the fifth day the patient himself may make these movements, and at the end of the first week he may move his knees and have the calf muscles massaged. After 10 days the hip-joint is moved and after two weeks the patient may take a few steps; no cane or crutch is to be used, but if assistance is necessary, some other person should aid him in walking. Edema developing during the first few days disappears quickly. Of 57 cases thus treated, he has not seen embolism in a single one and believes that grave sequels of phlebitis will soon belong to ancient history. [E.L.]

Electric Treatment of Mucomembranous Colitis.—In the treatment of this condition, M. E. Doumer[1] recommends the use of strong continuous currents of electricity. He employs a current of at least 50 milliamperes, places the electrodes one in each iliac fossa, and passes the current for ten minutes at a time, alternating the direction from time to time, to avoid burning the skin. The treatment is repeated daily, and recovery usually results in six to eight weeks. The cure is permanent, provided the patients are careful to avoid a return of the constipation, which is the chief cause of the disease. During the treatment all other therapeutic measures are abandoned, and the patient may eat what he pleases. Together with the cure of the colitis, all other gastrointestinal symptoms disappear. [B.K.]

Möbius Antithyroidin Serum in the Treatment of Graves' Disease.—H. Hempel[2] reports the case of a woman of 55, who complained of tachycardia for about a year; during the last six weeks she developed free sweating, a pulsating goiter, nervousness, irritability, and exophthalmos. The cardiac disturbance was the most marked of the symptoms, the heart sometimes beating at the rate of 180 times a minute. She was ordered 5 gm. (75 gr.) of Möbius antithyroidin serum by mouth, at first every third day, then every second day. This serum is derived from sheep, whose thyroid glands have been removed. Even though the serum was given pure and without vehicle, it did not produce any gastric disturbance. Altogether, the patient received 90 gm. (3 oz.) of serum. Within a short time from the beginning of the treatment she complained less of the palpitation and reported herself otherwise improved; the neck became smaller and the thyroid gland softer; the pulse fell to an average of 96 and became quite regular. Her weight increased. She reported herself satisfied with her condition after the treatment had been stopped for four months. [E.L.]

Drug Treatment for Inebriety.—In this condition, J. S. Bolton[3] recommends the injection of strychnin, $\frac{1}{60}$ gr., with atropin, $\frac{1}{30}$ gr., twice daily. At the same time a nourishing diet is given, and the patient is told to take as little alcohol as possible. In the case described, the patient gave up the alcohol entirely in 10 days. The dryness of the mouth and dyspnea, produced by the atropin, soon wore off, although the treatment was kept up for 40 days. After discontinuing treatment, the appetite for drink did not return. [For how long? S.S.C.] [B.K.]

[1] Therapeutische Monatshefte, 1905, xviii, No. 4, 170.
[2] The Lancet, June 3, 1905.
[3] Gazette des Hôpitaux, 1905, lxxviii, No. 13, 148.

[1] Journal de Médecine de Paris, June 18, 1905.
[2] Münchener medicinische Wochenschrift, 1905, lii, 14.
[3] British Medical Journal, June 10, 1905.

American Medicine

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The Use of the Title, Doctor.—A letter recently received from a correspondent invites comment. He objects to giving pharmacists the title because of their lack of anatomic and medical knowledge. We fear that the objection will not hold, however much one may sympathize with the essentials of the criticism. The degradation of title is proof enough, of many things, as Carlyle would have said, but it is so patent and astonishing that all goes down before it. Our institutions of socalled learning are turning out Ph.D.'s, LL.D.'s, and athletes at such a rate, and so wholly oblivious of anything legitimately called erudition that these titles are fast becoming as meaningless as that of A.B., A.M., "Professor," or "Mister." All successful and busy politicians will soon be compelled to receive their LL.D. degrees *in absentia*, or by means of a double, like Dr. Hale. By the cynical it may be called a silly and disgusting tendency of our colleges and universities to be thus foremost in their own shame, but the avidity of the degree hunters is so great that it may not be resisted. All dentists now have a right, legally and by courtesy, to the title of Doctor, and so do the thousands of Doctors of Philosophy. The D.D.'s and LL.D.'s claim the same honor, and why should not the pharmacists and politicians? Altogether those to whom it is accorded will soon outnumber the medical men. Like the English surgeons, all sensible men must soon prefer the simple title, Mister, which can be applied to any male biped. But not even this high distinction can be given women physicians, so that theirs becomes a sad fate, at least if they ever grow as thirsty after empty honors as the footballists, professors, druggists, and the rest.

To rescue the honorary degree men, Yale is now considering a proposition that recommendations as to honorary degrees hereafter come from the faculties of the various departments to be considered by the corporation's committee on such honors. By such a method, it is argued, the names of men proposed for honorary degrees would have their claims to the honor more thoroughly sifted than now, and by bodies of men in a position to know and to appraise records. Of late years there has been complaint that the honorary degrees have been granted without enough consideration, and "mistakes have certainly been made in several cases." This plan does credit to the strivings of the sentimentalists, but the wise will smile with ironic scepticism. Against the rising tide, Mrs. Partington and her broom were fully as successful. Everybody is learned nowadays and all are doctors. We medicos may be proud that we have the reality of learning in at least one branch of science, but we must also admit that a knowledge of the price of peruna, of the cure of corns, and of the ways of politics also brings amazement to the "rustics ranged around." As regards the flummery of A.B., President Schurman is hopeful—but in sad and in a democratic way. He sees no reason to despair of liberal education because its constituents have changed, and its symbolic certificate—the A.B.—has suffered depreciation because of the reduction in time of study for the degree from four to two years by some educational institutions. "All A.B. degrees soon will be worthless as symbols of a liberal education," he added. "The American A.B. is gone, or is going; let it go; the American remains." And the American should not be discouraged because knowledge has been increased and there are today many subjects to study of which nothing was heard a generation or two ago. Hans Breitmann gif a barty; where ish dot barty now?

The mental phenomena connected with anesthesia are being investigated by Dr. Joseph Jastrow, professor of psychology in the University of Wisconsin, whose request for data is published on page 202. This is an exceedingly rich field, though it is practically unexplored. What little has been published has not been systematically correlated to allied phenomena observed in similar states, where consciousness is more or less submerged. Unfortunately, an investigator of one line of facts rarely has the opportunity to glean in other directions and must depend upon other workers, without whom his view is so onesided as to warp his opinions. Where cooperation is possible, it is often easy to obtain a clear view of a phenomenon from many directions and to make generalizations of value to many branches of science. In this particular field the physician, and especially the anesthetizer, can gather many data, useless to himself, but which in the hands of such an investigator as Professor Jastrow, are quite likely to develop unexpected value, and the whole medical profession will be the ultimate gainers. It is one more illustration of the fact that every physician in general practice is con-

stantly digging out facts of great value to theoretic science, but that through lack of time, or perhaps, ignorance of their value, they are lost. No other biologists have such grand opportunities as the physicians, compelled, by their daily work, to study each individual of the race, while the botanist or zoologist can study but one specimen in untold millions. Many problems, particularly those of heredity, could be cleared up, if not solved, if our observations could be recorded and correlated by a capable generalizer. It is desirable, therefore, that there shall be a generous response to Dr. Jastrow's appeal for facts, and that every physician will look upon himself, in this as in all other scientific matters, as a field collector, assisting in gathering and preserving facts now wasted. As practitioners, we have unwittingly neglected the three great laws of organization—cooperation, division of labor, and mutual aid, without which science cannot be properly developed nor our particular branch increased in practical efficiency.

The Effect of Tobacco on the Human Economy.—From the exultant chronicle of the death from old age, at 110, of the constant tobacco user, to the triumphant citation of the small boy dropping dead as the result of smoking cigarets, we find the whole gamut of denunciation and approval of the tobacco habit. Critics who conserve the golden mean in speech and writing possibly are fewer than the users of tobacco who occupy a similar enviable position in the employment of the weed. For this reason the temperate and authoritative discussion of the subject by a half dozen writers in the July *Practitioner* is particularly valuable. Sir Lauder Brunton, in speaking of the effect of tobacco on the heart and circulation, says smoking in moderation does not seem to be injurious to adults, but there is a general consensus of opinion that it is distinctly harmful to growing boys. What to some would be sufficient justification for its use is his statement that in adults it stimulates mental activity and exerts a soothing effect in conditions of excitement. Impaired vision, tremor and giddiness often are caused by excessive tobacco smoking, but it is difficult to say to what extent they are due to nervous or circulatory changes. Irregularity of the heart is very common, and seems more often due to an inferior quality of tobacco. These and accompanying nervous symptoms may be relieved in severe cases only by complete abstinence from tobacco for several months, mere diminution not being effectual. Regarding the gastrointestinal tract, Dr. Norman Dalton says that apart from the action of the saliva, and its added content, which is swallowed, we do not know if smoking affects the secretion of gastric juice, pancreatic juice, or bile. It is so difficult to exclude other causes of gastrointestinal affection that great caution must be exercised in drawing conclusions. Dalton believes that in some persons smoking causes hyperchlorhydria. Little is known as to the influence of tobacco on the intestine, but patients with diarrhea should not smoke. Tobacco should never be used as a remedy; death has resulted from its use in an enema.

Effects of Tobacco on the Nervous System.—The effects upon the nervous system of tobacco in excess, according to Dr. James Taylor, are tremor, giddiness, vasomotor disturbances and sleeplessness. The question of what constitutes excess is a difficult one and must be decided by each individual. Some are not affected by large amounts, empirically an excess, and assert with show of reason that they require such quantity in order to do good work. Dr. W. G. Spencer says untoward effects of tobacco upon the mouth and tongue appear clinically as (1) excoriations; (2) superficial glossitis; (3) whitish patches (leukoplakia); (4) warty nodules with indurated bases. The last is almost certain quickly to be followed by epithelioma. Epitheliomatous ulcer of the lip, especially from smoking a clay pipe, is still not uncommon. Dr. H. Lambert Lack believes the effect of tobacco smoking on the throat is greatly exaggerated and considers it safe to state that moderate smoking never gives rise to any affection of the throat worthy of the name; at most it causes a slight hyperemia or insignificant catarrh. Yet the influence of tobacco cannot be altogether denied. It exerts a mild stimulating effect upon the upper air passages with which the smoke comes directly in contact. When otherwise healthy, these parts are harmed only by excess; when catarrhal affections are present, smoking should be forbidden or strictly limited. Upon the eye, Dr. H. W. Lyle says tobacco acts in one of two ways: (1) As a catarrhal conjunctivitis from dense tobacco smoke; (2) as tobacco amblyopia. The latter is found in heavy smokers of strong tobacco, though chewing may produce the affection, and it has been observed in workers in tobacco factories, though nonusers of the weed. It is more liable in those who also use alcohol. Poverty, underfeeding, overwork, worry, bad sleeping and chronic dyspepsia predispose, and the affection is also invited by smoking late into the night or when the stomach is empty, and by inhaling the smoke.

General Considerations Regarding the Use of Tobacco.—Most of the writers previously quoted assert specifically that the cigaret is the most baneful form in which tobacco is used, chiefly because its convenience so easily leads to overindulgence, but also because inhalation of smoke from it is more common. In commenting upon the tobacco question in general, the editor of *The Practitioner* makes merry over the "storm of fanaticism" against the cigaret in this country, as evidenced by the drastic laws in many of our States. A bill in Parliament to prohibit the sale of tobacco to all persons under 16, he denominates as praiseworthy, but predicts its failure because in it "the spirit of the maiden aunt is too manifest." While uncalled-for opposition to a habit by some persons is in a way no more defensible than its excessive indulgence by others, we cannot look lightly upon the movement against the cigaret. Children are by law forbidden the purchase of firearms and other articles, which not to them, but to their elders, appear harmful. Why not extend the principle to the cigaret, which, unquestionably, is inimical to their best welfare? And if, as the editor says, the effect of the crusade against cigarets is to drive the boys to the use of "big, black cigars," then prohibit the cigars. In regard to the tobacco habit, as in many other affairs, the adult

must determine his own weal or woe, but to the child, this liberty must be denied. Several of the writers, whose papers we have abstracted, emphasize the added dangers from tobacco which come to those who are also addicted to the use of alcohol; they refrain from expression as to whether the latter is engendered by the tobacco habit. We have to thank the editor of *The Practitioner* for furnishing this authoritative discussion of a question regarding which there is so much honest difference of opinion.

Sanitation and Expectoration.—In recent years there has come the definite realization that all the excretions of the body (and in a certain sense the fluids of the throat and nose are excretions) may be and often are harborers of many kinds of pathogenic microorganisms. There is no doubt, then, that a very practical element in modern sanitation is the enforcement of regulations against public spitting. Owing to bad habits formed in previous generations, it is not going to be easy to break up the spitting nuisance, but even severe measures are justifiable, since so much good can be accomplished, and physicians must be leaders in the movement. In New York City, the deathrate from tuberculosis among the sweepers in the street-cleaning department is so much in excess of that of the rest of the population, as to make it very clear that the spitting habit is an unfortunate source of serious evil and an important element in spreading one of the worst of modern diseases. English sanitary statistics show that a correspondingly high deathrate exists among the scrub women of the English metropolis, and especially among those who are employed in cleaning large office buildings. A distinct lowering of this deathrate has been brought about in recent years by the distribution of cuspidors throughout the corridors of such buildings. As can readily be realized, this custom is only of comparative recent origin, but its effect serves to show how much of suffering even a trivial amelioration in sanitary matters may accomplish. In New York City the arrests of a number of violators of the city ordinances against spitting on the streets has led to many protests in the newspapers, and the assertion by not a few intelligent people of the necessity for expectoration. The answer to this would seem to be that only one sex finds it necessary to spit upon the street, and that this is due rather to a bad habit fostered in early years than to any special liability of the male sex to catarrhal conditions, requiring the ejection of oral discharges. Perhaps, however, for a time at least, or until there has been an education of the next generation in this matter, the provision by city authorities of receptacles for expectoration on each block may be a desirable addition to the sanitary precautions necessary for city life.

If handkerchiefs are to be used, as is counseled by those who insist on preventing all street expectoration, it must not be forgotten that another danger is then likely to ensue to members of the community whose lives are quite as precious as the workmen of the street-cleaning department. Statistics have shown over and over again that washerwomen are much more likely to contract tuberculosis and actually suffer from the disease in much larger proportion than other working women of the same grade of life. This is due to the fact that the expectoration of the tuberculous patients clinging to their various articles of clothing is not rendered nonvirulent by antiseptics or by boiling before they come into the hands of the washerwoman. It is particularly handkerchiefs that are the most dangerous in this respect, and the enforcement of sanitary regulations with regard to expectoration is sure to add to this danger. It would be well if the Chinese custom of using a paper handkerchief (which the Chinamen of the better classes would disdain to carry with him once it has been soiled, but which he hands over to his servant to be disposed of by burning) could become the rule in this country. Until it does, however, physicians should call the attention, especially of those suffering from tuberculosis, to the necessity for having their handkerchiefs soaked for some time in a suitable antiseptic solution before allowing them to be sent out to become a possible danger for the overworked and underfed poor. There is scarcely any sanitary regulation, the enforcement of which does not bring in its train, considerations requiring further development of sanitary precautions. The effort to stop the spitting nuisance is only another example of this, and if it will serve to bring home to the minds of the inhabitants of great cities generally the necessity for care with regard to nasal and oral secretions and excretions, then an extremely important lesson in public hygiene will have been learned.

Free Luncheons for School Children.—The experiments made in this country in supplying the pupils of public schools with free luncheons has not proved successful, and it is well that it is so. Undoubtedly many poor children in cities are so ill-fed at their homes that better health and progress in studies are sometimes secured by the custom, but other evils soon arise which more than counterbalance the gain. The experience of Paris should give us warning. Originally, in 1882, it was settled that the municipal subvention for this purpose should never exceed $100,000 annually, the understanding being that all children who could pay for meals should do so. But year by year the number of free meals increased, and the number of paid meals diminished, and it became necessary to increase the subvention yearly, until it reached $200,000, when the municipality decided that this sum must be the limit. Nominally, the *caisses des écoles*, of which there is one in each *arrondissement*, were supposed to contribute to this fund, but actually most of them paid nothing, while the remainder gave negligible amounts. Only two of them gave as much as $1,500. In course of time, the meals came to be regarded as a right, not as a privilege, and the municipal authorities now seem to take this view of the case, for they have decided that the cantines are not benevolent associations, but are simply established in order to encourage good attendance at the schools. The free luncheons thus become an official bribe. In our country, with its political corruption so rampant in our large cities, the custom, if unchecked, would soon become a terrible abuse. In New York, for

instance, the part-time pupils already number some 60,000, and the population is rapidly increasing. The public should, therefore, spend its money for true educational purposes, providing buildings, and seats, and teachers, but not food.

The Ailments of the Aimless.—From the pen of a lady writer, and in the pages of a lay journal, there has recently appeared, on the other side of the Atlantic, some information and advice regarding the genesis of nerve ailments in women, which is of a far sounder quality than a goodly proportion of what we often read in pages of prominent medical journals. It is, also, we think, peculiarly appropriate to the illumination of a class of the lady neurotics—actual and potential—of our own great commonwealth. The writer of the article to which we refer is Florence Stacpoole. It was published in the *Evening Standard and St. James' Gazette.* Among its many well-thought-out sentences are the following:

Half the "neurasthenia"—*i. e.*, nerve exhaustion—is among the well-to-do women, who really need not massage and a "rest cure," but a vivid interest in life, which will fill their empty days and divert their minds from brooding over themselves and any little ailment to which they may happen to be subject. The maladies of aimlessness are nerve maladies, and these are more numerous than is generally supposed.

To call these conditions nerve-maladies of course is no explanation, and is in a way misleading. But the truth contended for is essentially true. One need not be a profound physiologist to know the effects of a keen prospective hope in stimulating the circulation; in quickening the heart and pulse; bringing color to the cheek, and luster to the eye. Also the contrary effect of disappointment. But the deadly monotony of the neutral plane of existence into which neither hope nor disappointment are encouraged to enter is one of uniform depression, and the fact is very generally overlooked. It is one in which the vitality is maintained at a low level. And, as life represents a continuous, even if not always exactly obvious warfare with the surrounding elements, the human body in a state of lowered vitality is like an ammunitionless army in an enemy's country. "We cannot prevent the mental from influencing the physical state. They are indissolubly united, and for weal or woe act and react upon each other. Therefore the fuller our life is of interest in things outside ourselves, the better for our health."

New Orleans Quarantined.—State Health Officer Taber of Texas has issued orders to all railroads having lines between New Orleans and Texas positively prohibiting the entrance of any person from New Orleans into Texas. Dr. Taber will go to New Orleans to make a further investigation before formally declaring a rigid quarantine against freight. According to his information, there are several cases of yellow fever in that city. The interdiction of the passenger traffic was made effective July 21. Drs. Goldthwaite and Moore, of the Mobile Board of Health, went to New Orleans on the invitation of the Louisiana Board of Health, to investigate two cases, which they subsequently diagnosed as yellow fever. The Mobile Board of Health immediately put on a quarantine against passengers and household goods. There will be no quarantine against merchandise, the shipments of which will be under regulations of the conference of Southern health boards. Dr. White, of the Marine-Hospital Service, has been ordered to New Orleans to take charge of a detention camp, which will be located at Avondale, where travelers may go and remain five days, and then, with a certificate of noninfection, will be admitted to any city.

AMERICAN NEWS AND NOTES

GENERAL.

Yellow Fever Record at Panama.—Three additional cases and one death is the yellow fever record of Panama cabled by Governor Magoon to the Canal Commission.

Indian Birthrate Increasing.—For the first time in the history of Canada, the Indian returns published by the Dominion Government show that the birthrate among Indians last year was considerably greater than the deathrate. This may be taken to indicate that the Indians of North America will not become extinct in time, as some suppose.

The postgraduate course at the naval medical school, for the benefit of assistant surgeons who have been in the service and who did not have the advantage of special instruction here at the beginning of their careers, has been completed, and the officers detailed to Washington for the benefit of the lectures have returned to their posts. There was no examination of the officers who had attended, and no ceremonies marked the end of the first of these special courses. It is likely the instruction will be continued each year, because the benefits are manifest. Some difficulty attaches to making this course a fixture in the instruction of naval medical officers, for the reason that there is such a demand upon the personnel of the corps for duty on shore and at sea, at home and abroad. The medical corps is not increasing beyond the bare necessities of the case, and hardly keeps pace with the development of the service in other respects. There are at present 14 vacancies in the junior grade of the corps, and the active officers find themselves hard pressed for time on account of the numerous and important duties devolving upon them.

Personal.—Arthur R. Reynolds, former health commissioner of Chicago, has been appointed medical director of the French Lick Springs Hotel Company, French Lick Springs, Ind.—**Ross V. Patterson,** assistant in the department of insane of the Philadelphia Hospital, has been appointed chief resident physician of the Philadelphia General Hospital. He was graduated from the Jefferson Medical College in 1904. He succeeds Frederick G. Johnson.—**Nicholas Senn** has been elected professor of surgery in the University of Chicago.—**William Turner Wootten** has been appointed a member of the Federal Medical Board at Hot Springs, Ark., to succeed Captain Samuel L. Steer, of the regular army, who has been transferred.—**William F. Whitney** has been appointed to succeed the late Dr. Edward S. Wood as blood expert for Massachusetts. Dr. Whitney has been a member of the faculty of the Harvard Medical School for a number of years and is curator of the anatomic museum. He has devoted himself to analytical chemistry and is an authority on blood; for years he has ranked second only to Dr. Wood.—**F. W. Brown** has been notified of his dismissal as County Home Physician at Franklin, Pa. The County Commissioners assign no reason for their action, but Dr. Brown says it is the result of his disregard of their instructions to visit the home but once a week. He contends that many of the patients need more frequent attention.—**General Leonard Wood,** who recently underwent an operation at a private hospital in Boston, expects to sail early next month for Manila.—**The Senn Medal** of the American Medical Association for an essay on some surgical topic has been awarded to John L. Yates, of Chicago.—At a special graduation ceremony at Edinburgh University, Scotland, the honorary degree of doctor of laws was conferred on **Professor William Stewart Halsted,** surgeon-in-chief of the Johns Hopkins Hospital, and professor of surgery in the Johns Hopkins University of Baltimore; **Professor Cameron,** of Toronto; **Professor Shepherd,** of Montreal; and **Professor William Williams Keen,** of Philadelphia, all of whom are attending the celebration of the quatercentenary of the Royal College of Surgeons.—**William Marshall,** of Milford, a son of Dr. George W. Marshall, insurance commissioner of the State, who has been appointed resident physician at the Delaware Hospital, is of the third generation of the Marshall family to be a physician, the insurance commissioner's father also being a practitioner.—**University of Virginia** has chosen the following new professors: Richard H. Whitehead, professor of anatomy; Bruce R. Payne, professor of secondary education in the Curry Memorial School; Albert Le Fevre, professor of philosophy in the Curry Memorial School.

NEW YORK AND VICINITY.

Increase in Deathrate.—The effects of last week's hot wave are strikingly set forth in the figures issued by the Bureau of Vital Statistics of New York City for the week ending last Saturday at noon. The total number of deaths during the week was 2,119, as against a total of 1,726 for the corresponding week in 1904. Of deaths due directly to the heat, there were 151, as against only 8 during the same week a year ago. Intestinal troubles, more prevalent during a heated term than any other, last week caused no less than 685 deaths, an increase of 132 over the corresponding week last year. The same deadly showing is furnished by the record of deaths from heart disease. Last week there were 109 fatal cases of heart trouble, while the

week before there were but 88. For the corresponding week of 1904, the record showed 70.

Typhoid in New York City.—Although a little early in the season for typhoid cases to be reported in large numbers, 87 have been recorded at the Health Board's office this month. Dr. Darlington is taking precaution to prevent a spread. Milk drinkers and oyster eaters are warned to beware, for statistics bear out the assertion that 62% of the cases of typhoid reported last year were of users of milk and oysters in large quantities. The milk dealers and dairymen are being put under the severest test by the Health department officers, and the samples of milk are examined every day. Those dealers who do not pass muster for cleanliness and purity are having their places advertised as unclean, and on a second offense their licenses are revoked. Meat markets, fruit markets, dairies, restaurants, and, in some cases, ice cream parlors are inspected every day.

PHILADELPHIA, PENNSYLVANIA, ETC.

Sanitation in Camden.—There has been a marked decrease of typhoid in Camden since 1897, when the artesian well system was introduced. During that year there were 104 cases. According to the health report for the month ending July 15, there was but one case, in a population of 85,000. In all, there were but 32 cases of contagious disease, including 15 cases of scarlatina, 14 of diphtheria, and 2 of tuberculosis.

109 Babies on Ocean Liner.—When the liner Haverford reached its pier at Philadelphia last week, 438 steerage passengers went ashore, and of this number 109 were babies. It seemed as if every other woman had a baby. Some had two and three, and one woman was struggling with five children, none of whom was out of babyhood. The immigration authorities declare that never in the history of the port have so many babies been passengers upon one ship.

Object to the Tuberculous.—A movement is on foot to prohibit patients at the White Haven Sanitarium from entering the town, because it is feared their presence will cause the spread of tuberculosis in the place. A number of physicians has declared tuberculosis contagious and infectious, and it is this which has caused alarm among the White Haven property owners and residents, some of whom have gone so far as to demand the removal of the sanitarium to another part of the State.

SOUTHERN STATES.

Doctor Destroyed His Books.—Dr. Michael K. Warner, who died last week in Baltimore, Md., is found to have destroyed all books containing accounts with his patients in order that they be not pressed for payment by his administrators. A great many of his patients were poor persons.

Library of the University of Maryland.—The ninety-second annual report just presented to the faculty shows that the interest in and growth of this collection has been well kept up. During the year 700 volumes, 300 pamphlets and 12 pictures were added. The largest gift was the collection of the late Dr. Alfred H. Powell, 217 volumes, presented by his widow. A rare volume added was Harvey, "On Generation," 1653. The number of volumes now in the library is 5,200; pamphlets, 4,000; 53 journals are regularly received. There are 86 registered members; 102 books were borrowed by 35 members and many hundreds were used in the rooms. There has been great improvement since the rooms were devoted exclusively to library uses. The library belongs to the department of history of medicine and is under the charge of the professor of that branch. This is believed to be the oldest medical college library in America.

WESTERN STATES.

Move for Free Hospital.—Citizens of Valparaiso, Indiana, have started a movement which if followed by the counties of the State will provide each of them with a free hospital of the most modern character. A law passed at the last session of the legislature provides for such institutions, if local hospital associations will furnish the sites and equip the institutions, which are to be managed by boards of eleven trustees, appointed jointly by the association and the county judge. Each institution becomes the property of the county. The Valparaiso committee has started to raise $4,000 with which to establish such an institution in Porter county.

Improved Water—Decreased Deathrate.—The weekly report of the Chicago Health Department finds cause for congratulation in the improvement in health caused by improved water-supply. The report quotes at length from the recent report to Commissioner of Public Works Patterson, which shows the dates of improvements in the water system and also shows that marked decreases in the deathrate immediately follow each marked improvement in the water-supply. The present waterworks system is capable of supplying water for a population of 1,850,000 people, while the present population is about 2,000,000. Improvements and additions authorized and under way, which will be completed in 1908, will be sufficient to supply water to a population of 2,370,000. The total number of deaths reported to the health department in the week was 420, a decrease of 19 from the preceding week.

FOREIGN NEWS AND NOTES

GENERAL.

Personal.—Paul Richet, member of the French Academy of Medicine, has been elected to fill the vacancy in the Academy of Fine arts, caused by the death of Baron Alphonse de Rothschild.

The Bissett-Hawkins gold medal of the Royal College of Physicians has been presented to Sir Patrick Manson for the services he has rendered to science and humanity by his researches on tropic diseases.

Fifty Deaths Daily from Smallpox.—One hundred and eighty cases of smallpox developed at Valparaiso, Chile, during July 9 and 10. The fatalities are about 50 daily. It is estimated there are 1,000 patients in the city. Schools and churches are still open. The streets will be sprinkled with a solution of copper sulfate.

New Red Cross Society.—A new Red Cross Society was formed in London last week under the name of the "British Red Cross Society." The society will include all organizations in the empire having similar aims. Queen Alexandra delivered a speech outlining the objects of the organization and appealing to the women of the empire to take up the work. Lord Rothschild moved a resolution authorizing the appointment of an executive committee, of which it is expected Sir Frederick Treves will be chairman.

New Tuberculosis Hospital at Rome.—The new hospital, Humbert I, built at Rome for indigent tuberculous patients, has begun operations. Without the intention of establishing a true sanatorium, the institution being designed as a refuge for patients suffering from chest troubles of every degree, the commission has been able to solve the problem of hospital care for the tuberculous poor of Rome. The institution consists of five pavilions, of galleries for open-air treatment, of cottages, and of special booths, all fitted out according to the modern system of hospital hygiene.

Dogs in the Ambulance Service.—The Austro-Hungarian War Dogs' Club has just held its first show of dogs for war and ambulance service. The highest officers in the army witnessed the performances of the dogs. Soldiers had dispersed all over the field of action, and were concealed behind hedges, among shrubs and bushes. These were supposed to be the wounded. The dogs found them all, and either stayed with them and barked if the trainers were near enough to hear them, or ran for the trains when the distance was too long. Then they were sent with messages contained in a locket fastened to their collars, to which they had to bring answers.

The Author's Rights.—The International Medical Publication Association, in its recent meeting in Berne, discussed chiefly the author's rights in medical journals. It was declared desirable that a medical savant should not simultaneously publish his researches in different languages, but should issue the authoritative text only in his native tongue and have all other publications of it appear as translations. It was further decided to issue an international bibliography of medical publications. As the American medical press had hitherto not participated in the work of the association, it was invited to join. The next congress will be held in Lisbon in April, 1906, with the Spanish Minister of Education as chairman.

Medical Evidence in Italy.—At a meeting held on June 20 the medical faculty of the University of Rome, on the proposal of Professor Baccelli, passed the following resolution: In view of the painful spectacle presented by differences of opinion between medical witnesses testifying on one side or the other in criminal cases, leading sometimes to unseemly disputes in public, a radical reform of the system of medical evidence is necessary in the interests alike of science and justice. It is urged that a single board of experts should be established, whose special knowledge should be impartially at the service of both sides. The Rome faculty invites the cooperation of all the other medical faculties of Italy in bringing about this reform.

Plague Increasing in India.—The bubonic plague is chiefly prevalent in Asia, says the *Public Health Reports*. In India morbidity and mortality from the plague are constantly assuming increased proportions. The disease has so far baffled every effort to stamp it out. The report quotes recent statistics given by the British Secretary of State for India, showing a steady increase there since 1901, and a total of 1,022,299 deaths from the plague in 1904, and that it is still prevailing with unremitted violence. At Aden, in Arabia, where there were nearly 2,000 cases in six months, the disease appears to be dying out. In Japan there recently have been cases at Osaka and Tokio, and there is an extensive epidemic in the Japanese insular possession, Formosa. From Bangkok, Siam, cases have been reported recently. In China, the plague was present at Amoy in May. A plague epidemic is running concurrently with cholera in southeastern Russia.

Quackery in Prussia.—According to official statistics recently issued, the number of unqualified persons practising the healing art in the Prussian States in 1903 was 5,148, as against 4,104 in the previous year. These figures do not, in regard to many administrative districts, include unqualified dentists, masseurs, and barbers, practising minor surgery. The 5,148 quacks are distributed in 488 districts. Only 149 dentists are free from unqualified practitioners. On the other hand, in many districts there are more quacks than legally qualified practitioners. Of the provinces, Westphalia has the lowest proportion of quacks to doctors (9.78%) and Posen the highest (36.56%). In the Berlin district there were 1,013 non-qualified to 2,875 qualified practitioners. Of the quacks about a fourth were women. About one in ten of the whole number of unqualified practitioners had been prosecuted for various offenses.—[*British Medical Journal.*]

The arrest of national physical deterioration is the object of a League for Physical Education and Improvement established at a meeting held last month in the Mansion House, London, at the invitation of the lord mayor. The movement, which is on strictly non-political and undenominational lines, and is furthered by many prominent persons, including the lord chief justice and the bishop of Ripon, is to stimulate public interest in the physical condition of the people throughout the kingdom, and to start organizations for physical health and well-being wherever none exist. Territorial branches are to be formed in the various towns and parishes, to see that instruction is furnished on the laws of health, the nurture and care of children, the methods of domestic and personal hygiene, and of cooking and housekeeping. Physical exercises and opportunity for open-air games will be provided for both boys and girls. The medical profession is strongly represented among those who favor the purposes of the league.

New Hospital for Bermuda.—Although a lunatic asylum was established in Bermuda as long ago as 1846, and has a daily average of 52 patients, a small cottage hospital in the outskirts of Hamilton, the capital, which is kept up by voluntary subscriptions, is the only provision in the way of hospital accommodation. There has been, however, so large an increase in the population of recent years, and the islands have become such a favorite holiday resort for tourists from the United States, that —as we learn from a recently published Blue Book—it has begun to be realized that the time has arrived for the establishment of a general hospital, to be supported partly by a subsidy from the general revenue of the colony, and partly by the fees of paying patients. A committee of the General Board of Health and others have accordingly drawn out a scheme for the consideration of the executive, and as soon as the question of site for the extension of the existing hospital, or for the erection of a new one has been decided, it is the intention of the Governor to place the matter before the Legislature.

International Medical Congress.—The next meeting will be held in Lisbon, April 19 to 26, 1906. It is expected that it will be one of unusual importance, for a meeting which will be held in what has always been considered as an out of the way country. Already the titles of papers from some of the most distinguished men of the medical profession have been received. Some of the topics for discussion that have been selected by the Executive Committee are the following:

Section of Physiology: The role of leukocytes in nutrition; the thyroid secretion; renal permeability; the nutritive value of alcohol; the physiology of the cytotoxins; the blood ferments. Section of General Pathology, Bacteriology and Pathological Anatomy: What are the present scientific proofs of the parasitic nature of neoplasms, especially of cancer? preventive inoculations against bacterial diseases; preventive inoculations against protozoic diseases; preventive inoculations against diseases from an unknown specific agent; the pancreas and fat necrosis. Therapeutics and Pharmacology: Local therapeutics in infectious diseases; separation, from a physiologic and therapeutic point of view, of the different radiations produced in Crookes' tubes and of those which are sent out by radioactive bodies; the therapeutic value of bactericidal serums; the relation between the molecular constitution of organic bodies and their physiologic and therapeutic action. Section of Medicine: The pathogenesis of diabetes; the pathogenesis of arterial hypertension; the treatment of cirrhosis of the liver; cerebrospinal meningitis; international defense against tuberculosis; meningeal hemorrhages. Section of Pediatrics: Spastic affections of infancy, classification and pathogenesis; cerebrospinal meningitis, etiology and treatment; the social struggle against rickets; orthopedic surgery in affections of nervous origin, spastic and paralytic; congenital dislocation of the hip; the treatment of abdominal tuberculosis (peritoneal). Section of Surgery: Septic peritoneal infections, classification and treatment; gastrointestinal and intestinointestinal anastomoses; recent additions to arterial and venous surgery. Section of Medicine and Surgery of the Urinary Organs: Surgical intervention in Bright's disease; surgical treatment of prostatovesical tuberculosis; progress of urology in the diagnosis of renal disease; painful cystids. Section of Ophthalmology: Blepharoplasty; serotherapy in ophthalmology. Section of Obstetrics and Gynecology: Conservative surgery of the ovaries; tuberculosis of the adnexa; symphysiotomy; pregnancy and cancer of the uterus; therapy of puerperal infections. Section of Hygiene and Epidemiology: The intermediary of yellow fever; the cooperation of nations to prevent the importation of yellow fever and the pest; watering the streets as a means against tuberculosis; recent additions to the etiology and epidemiology of epidemic cerebrospinal meningitis. Section of Military Medicine: Portable ration of the soldier during campaigns; the purifying of the country water; emergency hospitals on the battlefield. Section of Legal Medicine: Signs of death from drowning; ecchymoses in legal medicine; epilepsy in legal medicine; organization of medicolegal services. Section of Colonial and Naval Medicine: Etiology and prophylaxis of beri-beri; etiology and prophylaxis of dysentery in hot countries; mental diseases in tropic countries; hospital ships and their function in time of war; tuberculosis in the navy and its prophylaxis.

OBITUARIES.

William W. Bass, aged 95, the oldest graduate of Middlebury (Vt.) College, July 21, after a long illness. He was graduated from the Berkshire Medical College, Pittsfield, Mass., in 1835. In 1864 he enlisted in the volunteer army as surgeon, and had headquarters at Beaufort, S. C., where he was in charge of several hospitals. After the close of the war he returned to his practice in Vermont. Subsequently Dr. Bass moved to Dorchester, where he remained until the time of his death.

Michael K. Warner, of Baltimore, Md., July 22. He was graduated from the Washington University School of Medicine, Baltimore, Md., in 1876. Aware of his approaching death, he destroyed all his books, fearing that a bill for services might be presented to some poor person, and unwilling to allow anyone opportunity to enforce payment.

A. T. Mitchell, at St. Joseph's Infirmary, Lexington, Ky., July 18. He was a prominent young physician of Vicksburg, Miss., and was graduated from the Virginia University in 1894. He had been in declining health for a long time and visited various localities in search of health, but in vain.

T. G. Johnston, aged 56, of Ottawa, Ont., Can., July 4. His death was due to pyemia following infection contracted while performing an operation. He was esteemed highly as a public man, and was a Liberal Member of Parliament for the West Riding of Lambton.

Benjamin Edge, aged 54, at his home in Jersey City, N. J. He was graduated from Bellevue Hospital in 1878. He was at one time a member of the New Jersey State Council of Charities and Correction, and of the New Jersey State Reformatory Commission.

Michael K. Warner, aged 49, of Baltimore, Md., July 22, from carcinoma. He was graduated from Washington College in 1875. He was the son of Dr. J E. Warner, who was a surgeon in the United States army, and later in the navy.

Anna S. Donoghue, suddenly, July 20, in her apartment, at the Hotel Grenoble, New York City. She was graduated from the New York College and Hospital for Women, 1894. Dr. Donoghue was well known as a fast ice skater.

William O'N. Mendenhall, aged 71, at Richmond, Ind. He was graduated from the Rush Medical College, Chicago, Ill., in 1870. He was one of the founders and a former president of the Illinois State Medical Society.

George B. Lockwood, aged 31, born at Oxford, Me., at Albuquerque, N. M., July 21. He had gone to Albuquerque to recuperate. He was at one time assistant physician of the Medfield (Mass.) Insane Asylum.

Joseph Burr Bennett, aged 89, of Brooklyn, N. Y., July 23. He was one of the oldest homeopathic physicians of Brooklyn, beginning his practice 60 years ago, but had been retired for the past 20 years.

Clarence G. Kiefer, aged 37, of Baltimore, Md., at the Baltimore City Hospital, July 11, after a long illness. He was graduated from the Baltimore University School of Medicine, 1892.

Walter McCandless, of Pitisburg, Pa., suddenly, July 10, while having teeth extracted. He was graduated from the University and Bellevue Hospital Medical College, 1899.

E. H. Yancey, aged 70, of Covington, Ga., July 1. He began the practice of medicine in 1870, and served in the Confederate army until the close of the war in 1865.

William Kennedy Carroll, of Queenstown, Md., July 18, at Arrow, Col. He was graduated from the University of Maryland School of Medicine in 1873.

Samuel Jackson, aged 88, in Washington, D. C., July 22. He was a Pennsylvanian by birth, entered navy in 1838, and retired in 1879, with rank of commodore.

Herman A. Newbold, aged 30, July 10, at his home in Morristown, N. J He was graduated from the Hahnemann Medical College, 1895.

C. E. Parker, aged 41, of Princeton, Mass., July 10, from carcinoma. He was graduated from the University of Vermont in 1889.

George H. Moran, aged 65, of Morganstown, N. C., June 23, at the Whitehead Hospital, Salisbury, N. C., after an operation.

Howard Ogle, July 12, at his home in Wilmington, Del. He was graduated from Jefferson Medical College, Philadelphia, 1869.

S. L. Sewell, aged 78, of Englewood, Mo., July 5, of heart disease. He had practised medicine in Jackson county since 1868.

Herman J. Schiff, aged 42, July 22. He was graduated from the College of Physicians and Surgeons, New York, in 1884.

Juan Pablo Rojas Paul, aged 60, July 24. Former President of Venezuela.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 22, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	Los Angeles	July 1-8	1	
District of Columbia:	Washington	July 8-15	6	
Illinois:	Chicago	July 8-15	6	
Indiana:	South Bend	July 8-15	1	1
Louisiana:	New Orleans	July 8-15	4	
			(two imported)	
Massachusetts:	Lowell	July 1-8	1	
Michigan:	Grand Rapids	July 8-15	6	
Nebraska:	Omaha	July 8-15	1	
	South Omaha	July 1-8	1	
New Jersey:	Jersey City	July 8-16		1
Ohio:	Toledo	July 8-15	2	
Oregon:	Portland	June 1-30	6	
Pennsylvania:	Altoona	July 8-15	1	
	York	July 8-15		1
Tennessee:	Memphis	July 8-15	2	
Washington:	Seattle	July 1-8	1	
Wisconsin:	La Crosse	July 8-15	1	
	Milwaukee	July 8-15	15	

SMALLPOX—FOREIGN.				
Africa:	Cape Town	May 27-June 3	2	
China:	Hong Kong	May 6-13	1	
Colombia:	Cartagena	June 17-24	1	1
Ecuador:	Guayaquil	June 13-20		1
France:	Paris	June 24-July 1	7	
Great Britain:	Birmingham	June 24-July 1	8	
	Bristol	June 24-July 1	2	
	Cardiff	June 24-July 1	4	
	London	June 24-July 1	1	
India:	Bombay	June 6-13	4	
	Calcutta	June 3-10	5	
	Karachi	June 4-11	8	2
	Madras	June 3-9	5	
Italy:	Catania	June 22-29	1	1
Russia:	Moscow	June 10-17	7	3
	St. Petersburg	June 24-29	9	

YELLOW FEVER.				
Africa:	Goree-Dakar	May 31		1
Ecuador:	Guayaquil	June 13-20		3
Guatemala:	Livingston	June 21-July 6	8	2
Honduras:	Puerto Cortez	June 8-July 7		12
Panama:	Colon	July 2	1	
Venezuela:	Maracaibo	June 22	Present	

CHOLERA.				
India:	Bombay	June 6-13		1
	Calcutta	June 3-10		5

PLAGUE—INSULAR.				
Hawaii:	Hilo	July 17		1
Philippines:	Cebu	May 27-June 3	2	2
	Manila	May 27-June 3	1	1

PLAGUE—FOREIGN.				
Australia:	New South Wales—			
	New Castle	May 13-27	2	
	Sydney	May 13-27	3	1
	Northern Rivers District	May 6-13	2	1
	Queensland—			
	Brisbane	May 27-June 3	1	1
	Ipswich	May 31		1
China:	Hong Kong	May 6-13	17	12
Egypt:	General	June 3-10	3	2
India:	Bombay	June 6-13		188
	Calcutta	June 3-10		52
	Karachi	June 4-11	67	63
Japan:	Kagama Ken	May 30-June 16	34	
	Tokio	Apr. 18-June 10	11	6

Changes in the Medical Corps of the U. S. Army for the week ended July 22, 1905:

FIFE, First Lieutenant JAMES D., assistant surgeon, is relieved from duty at Camp Gandara, Samar, and will proceed to Corregidor Island, reporting at the convalescent hospital at that place for duty.

HEYSINGER, First Lieutenant JAMES D., assistant surgeon, now at Tarangnan, Samar, will proceed to Gandara, Samar, P. I., for duty, relieving First Lieutenant James D. Fife, assistant surgeon.

PURNELL, JULIUS M., contract surgeon, now at Camp Warwick, Cebu, Cebu, P. I., is relieved from duty at that station, and will proceed to Gandara, Samar, P. I., relieving Contract Surgeon Clarence A. Warwick.

The following assignment to and changes of station of officers are ordered:

SHAW, First Lieutenant HERBERT G., assistant surgeon, will proceed to Fort William McKinley, Rizal, for duty.

HEREFORD, JOHN R., contract surgeon, upon departure of troops from Moron, Bataan, is relieved from duty at that station, and will proceed to Pumping Station, Rizal, for duty, relieving First Lieutenant Lloyd L. Smith, assistant surgeon, who will proceed to Santa Mesa, Manila, for duty.

BAILEY, EDWARD, contract surgeon, now at Cuartel de Espana, Manila, will proceed to Imus, Cavite, for duty, relieving Contract Surgeon Julius C. LeHardy, who will proceed to San Francisco de Malabon, Cavite, for duty.

HICKS, JOHN R., contract surgeon, will proceed to his home, Washington, D. C., for annulment of contract.

WATKINS, VICTOR E., contract surgeon, will proceed to his home, Washington, D. C., for annulment of contract.

WATKINS, VICTOR E., contract surgeon, is granted leave for two months.

HICKS, JOHN R., contract surgeon, is granted leave to include July 25.

AMES, ROGER P., contract surgeon, is relieved from duty at Fort McIntosh, to take effect upon the expiration of his present leave and will then proceed to Fort DeSoto for duty, relieving Contract Surgeon Oscar F. Davis, who will proceed to Jefferson Barracks for duty, relieving First Lieutenant Fred W. Palmer, assistant surgeon. Lieutenant Palmer will proceed to Fort Bayard for duty.

FOSTER, DOUGLAS E., dental surgeon, is relieved from duty at Fort Jay, to take effect upon the arrival of a dental surgeon at that post to relieve him, and will proceed to his home for annulment of contract. Leave for twenty days, to take effect upon his relief from Fort Jay, is granted.

PHILLIPS, Major JOHN L., surgeon, having reported to the chairman of the Isthmian Canal Commission, in compliance with orders heretofore issued, is relieved from further duty at Fort Jay.

GREENLEAF, Captain HENRY S., assistant surgeon, is granted leave for ten days, commencing June 29.

DAVIDSON, First Lieutenant WILSON T., assistant surgeon, will report August 1 to Lieutenant-Colonel George H. Torney, deputy surgeon-general, president of the examining board at the Army General Hospital, the Presidio of San Francisco, for examination for advancement.

MACY, FREDERICK S., contract surgeon, is granted leave for ten days, to take effect July 18.

GODFREY, Captain GUY C. M., assistant surgeon, is relieved from further station in New York City and will proceed to Fort McPherson for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended July 22, 1905:

BRAISTED, W. C., detached from special duty in connection with the Russo-Japanese war, and ordered to the Navy Department—July 14.

MARSHALL, E. R., MUNGER, C. B., assistant surgeons, appointed assistant surgeons, with rank of lieutenant (junior grade) from July 7, 1905—July 14.

MEARS, J. B., BROOKS, F. H., assistant surgeons, appointed assistant surgeons, with rank of lieutenant (junior grade) from July 14, 1905—July 19.

Changes in the Public Health and Marine-Hospital Service for the week ended July 19, 1905:

SAWTELLE, H. W., surgeon, to report at Washington, D. C.—July 19, 1905.

MEAD, F. W., surgeon, granted leave of absence for one month from August 1—July 18, 1905.

BLUE, RUPERT, passed assistant surgeon, to proceed to Ocean City, Md., Chincoteague, Wachapreague and Cape Charles City, for the purpose of making a physical examination of keepers and surfmen of the Life Saving Service—July 15, 1905.

COFER, L. E., passed assistant surgeon, granted leave of absence for two months from September 9—July 13, 1905.

FOSTER, M. H., passed assistant surgeon, granted extension of leave of absence for ten days from July 11—July 13, 1905.

RICHARDSON, T. F., passed assistant surgeon, to proceed to Brunswick Quarantine and assume temporary charge during absence on leave of Assistant Surgeon J. T. Burkhalter—July 17, 1905.

GOLDBERGER, JOS., passed assistant surgeon, to proceed to Atlantic City, N. J., for the purpose of making a physical examination of keepers and surfmen of the Life Saving Service—July 15, 1905.

BERRY, T. D., passed assistant surgeon, to proceed to Point Pleasant and Tuckerton, N. J., for the purpose of making a physical examination of keepers and surfmen of the Life Saving Service—July 15, 1905.

BURKHALTER, J. T., assistant surgeon, granted leave of absence, on account of sickness, for one month or so much thereof as may be necessary, effective upon date of arrival of relief—July 17, 1905.

EBERT, H. G., assistant surgeon, granted leave of absence for two months from August 4—July 13, 1905.

ADAMS, F. B., acting assistant surgeon, granted leave of absence for seven days—July 19, 1905.

BEAN, L. C., acting assistant surgeon, granted extension of leave of absence for five days from July 21—July 12, 1905.

GRUVER, F., acting assistant surgeon, granted leave of absence for thirty days from August 15—July 18, 1905.

MCCONNELL, A. P., acting assistant surgeon, granted leave of absence for six days from July 20—July 18, 1905.

SAVAGE, W. L., acting assistant surgeon, granted leave of absence for thirty days from August 7—July 14, 1905.

WELDEN, W. A., acting assistant surgeon, granted leave of absence for thirty days from August 15—July 17, 1905.

WILLIAMSON, S. D., acting assistant surgeon, granted leave of absence for eight days from July 22—July 17, 1905.

CARLTON, G. G., pharmacist, granted leave of absence for twenty-nine days from July 24—July 18, 1905.

HALL, L. P., pharmacist, department letter of June 23, 1905, granting him leave of absence for thirty days from July 10, amended to read thirty days from August 4—July 13, 1905

KEEN, W. H., pharmacist, granted leave of absence for twenty-four days from July 18—July 13, 1905.

Promotions.

Assistant Surgeon J. D. Long commissioned (recess) as passed assistant surgeon, to rank as such from April 14, 1905—July 14, 1905.

Assistant Surgeon Edward Francis commissioned (recess) as passed assistant surgeon, to rank as such from June 23, 1905—July 11, 1905.

Assistant Surgeon G. W. McCoy commissioned (recess) as passed assistant surgeon, to rank as such from June 27, 1905—July 14, 1905.

Assistant Surgeon B. S. Warren commissioned (recess) as passed assistant surgeon, to rank as such from June 25, 1905—July 11, 1905.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

FIRST SESSION (CONTINUED).

Walter Reed Memorial Fund.—The Committee on the Walter Reed Memorial Fund begs leave to make the following report: "The sum total in the hands of Mr. C. J. Bell of the American Security and Trust Co., Washington, D. C., on June 14, 1905, was $16,194.75. The total amount of subscriptions at that date was $18,065.75, leaving the sum of $1,871 still unpaid. Nearly the entire balance unpaid ($1,871) will be due July 1, 1905, on pledges given at the last session of the Association. There is little doubt that practically all of these pledges will be paid. As nearly as can be made out by the treasurer, Mr. Bell, the members of the American Medical Association have contributed almost $10,000 of the $18,000 subscribed. This is most creditable to the public spirit of the members of the Association. The committee would beg leave, therefore, to report progress as indicated and ask to be continued for at least another year." The chairman cheerfully acknowledges the admirable work done by the members of the committee.

The report of the Committee on Medical Education was deferred, since the committee was not yet prepared to report.

The report of the Committee on Senn Medal was also deferred for a similar reason.

The following amendments were read, and having been introduced at the last session, were referred to the Committee on Amendments to the Constitution and By-laws:

ORDER OF BUSINESS.

Chapter 7, Section 1 (page 7 as revised).—Nominations for office, except that of treasurer, shall be made orally, but no nominating speech shall exceed two minutes in length. Any nominee receiving a majority of the votes cast shall be declared elected. The treasurer shall be nominated by the Board of Trustees.

Section 1, Chapter 4.—Striking Section 1, and inserting in lieu thereof the following: *Time of Elections.*—The election of officers shall be the first business of the House of Delegates after the reading of the minutes on the morning of the last day of the session.

Section 3, Chapter 4.—Striking out said section and inserting in lieu thereof the following: Nominations for president shall be by ballot. All other officers shall be nominated by a committee of seven, representing the various geographic divisions of the country as nearly as may be.

Chapter 8. Section 1.—That the name of the section on Pharmacology be changed to the section on Pharmacology and Therapeutics.

Then followed the presentation of the report of the Committee on National Incorporation, the consideration of which was deferred. The report read as follows:

This committee was appointed at the session of the Association in New Orleans in 1903. The committee was empowered "to get advice of the best legal talent in the United States as to whether or not the Association could be incorporated under an act of Congress and to report at the next annual session of the House of Delegates." In harmony with this resolution, the committee submitted to your consideration and action at the session of the Association in June, 1904, two reports—a preliminary and a final report, the former being printed and the latter being read by the chairman of the committee in due order of business in the House of Delegates. But one (the preliminary report previously forwarded to the secretary) appeared in the *Journal of the American Medical Association.* In view of the fact that the unpublished final report was the one adopted by your honorable body, we are now prompted to present again their salient features of difference. The words "establish and maintain in the District of Columbia" of the preliminary report (*The Journal of the American Medical Association*, June 11, 1904, p. 1582) were eliminated and the words "anywhere in the United States" were introduced in lieu thereof. In both instances, however, it was provided that corporate business could be transacted anywhere in the United States. The difference between these propositions is evident. One contemplated incorporation in the District of Columbia, with the power of doing business anywhere in the United States; the other contemplated incorporation in the United States, with, of course, a similar power. The final report was accepted unanimously and referred to a joint committee for consideration and recommendation for final action, made up by the Committee on National Legislation, the Reference Committee on Medical Legislation, and the Board of Trustees.

The officers and members of the House of Delegates petitioned Congress for such incorporation, and to each member of the House of Delegates was given a like petition for signature by the members of the Association, within his jurisdiction, with the request to forward the same to the chairman of the Committee on National Incorporation as soon as suitably signed. About the middle of August, 1904, a petition embodying the charter as then amended by Judge Ray, and addressed to the judiciary committees of the House and the Senate, was sent by the Committee of Incorporation to the officers and members of the House of Delegates, requesting the signatures of members of the Association and of other physicians, and a prompt return of the petition to the chairman of the Committee on National Incorporation for compilation and presentation to Congress early in the fall. Occasionally appeals by the chairman of the Committee on Incorporation to the members of the House of Delegates of the respective States were made, and in most instances received prompt and productive response. As the result of these efforts 32 States, the District of Columbia, and Indian Territory responded in favor of incorporation, submitting a grand total of signatures of between 6,000 and 7,000, of which Pennsylvania provided the largest number (about 1,100), while Ohio, New Jersey, Michigan, Colorado, Kentucky, and Tennessee followed in consecutive order. It is both just and proper to say at this time that no State or Territory, whether represented by many, few, or no signatures, expressed disfavor of national incorporation. About January 1, and in accordance with a previous understanding with C. A. L. Reed, the efficient chairman of the Committee on National Legislation, Reed was requested to exercise the influence of his committee in aid of national incorporation. The request was promptly heeded, and resulted in securing about 4,000 additional signatures to the request for incorporation, making in all between 10,000 and 11,000 petitioners in behalf of this request. The response to this committee's request on the part of the Committee on National Legislation was prompt, comparatively prolific, and likewise persistent, extending somewhat beyond the time of adjournment of Congress. January 8, 1905, a bill for incorporation was introduced into the House. The introduction of the name of Lewis S. McMurtry, M.D., the president-elect of the Association, and the expression in full of the titles and the residences of the incorporators comprise the only differences between the petition as freely circulated by the Committee on Incorporation and the Bill of Incorporation as introduced at the above date. The seeming delay in the introduction was occasioned by special advice opposed to an earlier period of action, emphasized not a little because of the previous paucity of the signatures favoring incorporation. After introduction of this bill on national incorporation it was referred to Subcommittee 1 of the Judiciary Committee of the House. After considerable delay and not a little contention for the retaining of the much-to-be-desired privilege of "doing business anywhere in the United States," the bill as introduced (being regarded as unconstitutional by the subcommittee in charge) was amended by interpolation of "District of Columbia" and elimination of "United States" in the subcommittee and reported. As a bill of this obviously local character was not desired, measures were taken to retain it in committee pending an effort to enlist the support of the Senate in a bill more in conformity with our understanding of the desires of the members of the Association. Fortunately, Senator McComas, of Maryland, who was appealed to by our friends in Washington, gave to us an attentive ear and also prompt, earnest and efficient support. February 2 the original bill as introduced into the House (see above) was introduced into the Senate by Senator McComas, and called thereafter the McComas Senate Bill No. 7,040. This bill was a little later amended by Senator McComas by the introduction of a property clause and the elimination from its phraseology of all reference to locality of incorporatian. Also abbreviated statements of the addresses of the incorporators are noted. The announcement to the chairman of the Committee on Incorporation, by telegraph, of the proposed modification of the McComas bill by introduction of a property clause, along with a request to indicate the amount of real and personal property which might be legally held in this connection by the Association, raised at once new and important questions not falling within the knowledge and purview of the committee. With the idea of gaining enlightenment and support in this matter, the chairman hastened to Washington, stopping at Baltimore enroute, to consult with Trustee Wm. H. Welch, of that city. The difficulty of stipulating a definite legal sum, in the present prosperous condition of the Association, and the rapid increase in values, together with the apprehension that a safe legal stipulation might hinder the obtaining of incorporation, prompted both Welch and the chairman to think it wiser to omit all mention of any amount, if possible, and, if not, to place the figure at not less than $500,000. It was found, however, on arriving at Washington, that, because of the exigencies of the occasion, a $500,000 limit had been already introduced into the bill, which action was promptly sanctioned by your chairman. It is only necessary to add that the amended Senate bill was not reported from the Judiciary Committee (therefore not printed) because of the shortness of the time at its disposal (short session), the pressing demands of more important legislative business and a desire for further consideration of this measure on the part of some members of the committee. The author of the bill (Senator McComas) labored earnestly for its adoption and expressed belief in its final success. The belief of the unconstitutionality of the bill on the part of the Judiciary Subcommittee of the House caused the failure to secure the approval of the Judiciary Committee of that body. Yet Judge Ray, who but a short time before was the chairman of the Judiciary Committee, and on which he had served for many years, giving during the last nine years thereof his attention to the constitutional questions coming before the com-

mittee, unhesitatingly declares in favor of the constitutionality of the measure. Some members of the Judiciary Committee labored earnestly to secure approval of the bill as originally presented. Others declared that all bills of this character are unconstitutional and expressed strong disapproval of measures of this nature that had already become laws. Prominent members of the Judiciary Committee of the Senate approved the passage of the measure as amended by Senator McComas, others wished further time for thought, especially regarding the import of the high figure of property holdings. Your attention is called to the fact that bills of four forms of charters of incorporation have been brought to your attention. 1. A charter for national incorporation within the District of Columbia, with permission to transact business "within the United States." 2. A charter providing for national incorporation, permitting the transaction of business anywhere in the United States. 3. A charter providing for national incorporation within and presumably limited to the District of Columbia, at least so far as corporate business is concerned. 4. A charter providing for national incorporation without referring to geographic restrictions, and permitting the transaction of business anywhere within the United States. This bill, as already stated, was a little later amended by the placing of a limit ($500,000) on the property holdings of the organization (amended McComas bill not reported from Judiciary Committee). The members of your special committee are clearly of the opinion at this time that all further contention in Congress relating to national incorporation should be made by the Committee on National Legislation and not by a special committee appointed for that purpose. The resources of the former are greater, more promptly available, and seemingly of more emphatic scope than are those of the special committee. Moreover, two committees laboring for a similar purpose along similar lines of action cause a useless expenditure of time, energy, and money.

Wells, of Illinois, then introduced amendments to the by-laws to the following effect:

First, Each section shall elect delegates to the House of Delegates bi-annually.

Second, Each section shall appoint section lecturers, who shall occupy not more than 30 minutes of time, the subjects of the lectures to be determined by historic research; these lecturers to be chosen by competition or invitation. In case the lecturer shall be a foreigner, he shall be elected an honorary member of the American Medical Association.

Billings moved that another room be secured for the House of Delegates to use for meetings. The motion was carried.

[*To be continued.*]

General Sessions.

The first general session of the fifty-sixth annual convention of the American Medical Association was called to order at about 11 o'clock by the retiring president, J. H. Musser, of Philadelphia, who announced that the meeting would be opened with prayer by the Rev. A. A. Morrison, D.D. After the invocation President Musser introduced Hon. M. C. George, Judge of the County Court, who welcomed the Association in behalf of the State of Oregon, in the absence of Governor Chamberlain. President Musser then introduced Mayor Lane, who, in behalf of the city of Portland, tendered a warm welcome. He was followed by Geo. F. Wilson, M.D., president of the Oregon State Medical Society, who also made an address of welcome.

The annual address of the president was delivered by LEWIS S. MCMURTRY. It will be found in full in the issue of *American Medicine* of July 15.

SECOND SESSION.

At the second meeting of the general sessions, CHARLES G. STOCKTON delivered the **Oration on Medicine**, and JOHN COLLINS WARREN the **Oration on Surgery**. These addresses appear in the issue of *American Medicine* of July 15.

THIRD SESSION.

First Vice-president Edward Jackson (Denver, Colo.) presided over the third meeting.

The **Oration on State Medicine** was delivered by GEORGE BLUMER. It is published in *American Medicine* of July 15.

A memorial oration in honor of Nathan Smith Davis, founder of the American Medical Association, was delivered by Henry O. Marcy (Boston, Mass.) and was an eloquent tribute to the sturdy pioneer of medical organization.

Obstetrics and Diseases of Women.

SECOND SESSION.

Tubal Pregnancy, with Report of Instructive Case.—J. RIDDLE GOFFE (New York City) maintained that in cases in which we operate for ectopic gestation we find much clotted blood in the abdomen and that it is very hard to find the source of the same in many of them. Also we may have hemorrhage from the open end of the fallopian tube, but no rupture take place, and almost no evidence of development or organization of the embryonic tissue. He cited the history of a case to explain the source of blood in these cases. The patient in question was a woman of 33, married four years, who had had two children; the first one during the first year of married life, and the other, two years later, November 24, 1902. She nursed both children. The monthly flow was regular every 28 days following the birth of first child, but ceased six months after birth of second, then returned in September following. This condition was accompanied by unusual passions, etc. Patient was seen by Goffe September 20. Examination showed no evidence of pregnancy whatever. On October 1 she entertained company at dinner, and while sitting at table was attacked by sickening pain accompanied by fainting and nearly losing consciousness. October 9 there was some flow and on the following day patient was confined to her bed complaining of more pain situated in the right ovarian region which was reflected to the right shoulder, sensitiveness on the right side followed by collapse and weak pulse. Patient operated on following day (a curetment and perineorrhaphy being done at same time). Opened through the anterior fornix for ectopic gestation. The walls of tube were found to be enlarged and thickened, but there was no evidence of rupture and no blood from the fimbriated extremity. A small pin-like opening was observed in the center of the tube, of a valve-like nature. The right tube was removed, and an iodoform gauze drain inserted. Patient made nice recovery. Goffe next referred to Minot's paper on implantation of the ovum, which he said gives an explanation of the case. Continuing, he said, that all cell life is capable of dissolving and destroying living tissue, and especially is this function developed to a marked degree in embryonic cells. There is a layer of embryonic cells around the exterior of the chorion which have this function, *i. e.*, the ectodermic cells of the chorion, *i. e.*, the ovum erodes its way into position in the mucous membrane, and is not due to the growth of cells around the ovum. This is illustrated by Peter's embryo. Next, these large ectodermic cells undergo degeneration, may erode some bloodvessels, and hence we have hemorrhage. We also find a degeneration of the cells around the chorion and hence we have the formation of chorionic villi. If pregnancy occurs in the tube, the mucous membrane becomes very thin and hence may erode through the entire tube, and in so doing we have hemorrhage from the placental tissue into the peritoneal cavity. The patient referred became pregnant subsequently and was delivered of a son in May last.

Discussion.—BONIFIELD reported a case of extrauterine pregnancy in a woman who was admitted to Christ's Hospital, Cincinnati, in September, 1904, at 8½ months, with false labor pains, which were relieved by rest and morphin. The next morning abdominal section was made, and located in the right fallopian tube, which had prolapsed behind the uterus, was the fetus. No rupture had occurred and no hemorrhage or symptoms of the same were present. The uterus was removed with the placenta and the child recovered; a picture of the latter was exhibited.

Some Cases of Extrauterine Pregnancy.—J. H. CARSTENS (Detroit) said that many years ago we recognized extrauterine pregnancy and sometimes made a diagnosis of this form of cases and killed the fetus with electricity or by the injection of morphin. With the advance of abdominal surgery we make diagnoses by prompt operation, and we now have wellknown symptoms to guide us. Extrauterine pregnancy is more often met with than ordinarily expected. A careful study of the case, of onset of the disease, will throw light on the subject. Patients unintentionally throw the physician off his guard. He next cited two cases bearing upon the subject, one necessitating the abdominal and the other the vaginal treatment. Case I.—Mrs. O. B. P., aged 30. Three children, youngest aged 3. Well until 1904. In January, 1905, the patient experienced a slight "show." February 14, severe pain and an inflammatory swelling appeared on the left side, which were treated on general principles. Attack got better, then recurred, and so on for some weeks, the result being these repeated attacks of pelvic inflammation, with high fever, emaciation, anemia, etc. April 26, 1905, after long-standing sepsis, the doctor operated, finding extensive adhesions and a 4-months decomposed fetus situated in the broad ligament. Recovery and discharge followed in 25 days. Case II.—Patient, aged 24. Two children, youngest aged 2. Had a temperature of 104.5°, with symptoms of miscarriage and retained membranes, irregular menstruation and inflammatory symptoms of pelvic abscess. A diagnosis was made of abscess of the right broad ligament. The abscess was opened and a quart of pus and placental tissue was obtained. No irrigation performed and vaginal drainage was used. Recovery in two weeks. He concluded by stating (1) that extrauterine pregnancy must always be in the physician's mind in all cases of sudden onset of pelvic trouble; (2) that the least irregularity of menstruation is suspicious of extrauterine gestation; (3) that inflammation and sepsis following supposed miscarriage often are due to a ruptured ectopic gestation; and (4) that prompt operation is always indicated, the vaginal or abdominal route being selected, depending upon circumstances.

Discussion (papers of Goffe and Carstens).—DUNNING remarked that cases of extrauterine pregnancy at full term are rare, and in a tube not ruptured the sac would show no covering, *i. e.*, should be free in the abdomen like a fibroid. If the sac is covered posteriorly with peritoneum there is no extrauterine pregnancy present. Only two cases on record in which the case has gone to term without rupture. THIENHAUS (Mil-

waukee) suggested that when we have a case of extrauterine pregnancy there is a hematocele in the neighborhood of the uterus about which nature has not had time to form adhesions, etc., and in these cases it is absolutely inadvisable to transport the patient to a hospital, but that we should, in the house and under primary anesthesia with ether, use vaginal puncture as a means of diagnosis. PERKINS (Denver) stated that a number of tubal pregnancies are probably due to the fact that many women take medicines which cause the uterus to contract and produce the lodgment of the ovum in the cornua of the uterus. GROUND (Superior, Wis.) stated that the much talked of scrapings in the diagnosis of this condition are not of great value. HENRY, in supporting Goffe's position, stated that at the end of the tube when an abortion occurs the fetus and all membranes are extruded, but that such is not the case when the lodgment occurs further down. Did not agree with Theinhaus in not removing patient to the hospital. CARSTENS thought that once in a while the microscopic examination might throw some light upon the subject. It is a question of circumstances as to removing to the hospital or performing the operation in the home. Can't tell at what point the rupture is located, as the blood does not always get down into the culdesac. If adhesions are present the hemorrhage may be confined high up in the abdomen. If there is hemorrhage, shock, a pulse of 120 for a half hour to an hour, and no increase or absence of pulse, it is not necessary to operate at once; but if the pulse increases or is absent, operate at once. When you have a pelvic inflammation coming on suddenly without any apparent cause, there is sure to be some irregularity of menstruation, and we should look out for these cases.

[To be continued.]

Diseases of Children.

FIRST SESSION (CONTINUED).

Before taking up the regular program, the chair appointed A. C. Cotton, of Chicago, a member of the Executive Committee, in place of Hurley, who was unable to be present.

Amaurotic Family Idiocy.—A. C. COTTON (Chicago, Ill.). This subject is of importance because of (1) the relative infrequency of the cases reported; (2) the probability of overlooking the diagnosis; (3) the necessity for a thorough examination of the eye ground, and (4) the peculiar pathology. Only in recent times has the disease been recognized. Warren Tait, in 1881, first drew attention to it, and Sachs proposed its name in 1896. It is a rare but a fatal disease, beginning in the early months of infant life. It is characterized by great muscular weakness gradually progressing to paralysis and death at end of the second to seventh year. Its etiology is very obscure, there being no really good evidence that syphilis or consanguinity of parents are factors, though both have been brought forward by some writers. But there does seem to be a predisposition in some families, and it has been more noticed in children of Jewish parentage. Both males and females are attacked. The cases reported all seem to be in children that have been born in a seemingly healthy condition and at full term. The case picture is characteristic. Usually nothing is noticed until the child is old enough to hold up its head. It fails to do this, and later it does not seem able to sit up when it is old enough. There is a noticeable failing in sight and if the macula is examined it will present the definite, pathognomonic changes. The mentality is not interfered with and the hearing is hyperacute. In all of the author's cases, deglutition was considerably interfered with, though it is not mentioned in Sachs' reports. The deep reflexes tend to be exaggerated. Spastic paralysis is common. Convulsions are easily induced by any sudden noise, etc. Extreme pronation and abduction of the arms is characteristic, and opisthotonos common. The convulsions are peculiar. They last from 10 to 20 seconds, subsiding with a moan. They may be reproduced by the exhibition of some exciting cause, in rapid succession up to 10 or 20 times. Then the system seems to lose its power of response to stimuli and for an interval of 10 or 15 minutes the convulsions cannot be induced. The hyperacusis seems to be due less to changes in the sphenoidal lobe than in other places. A report of one case will illustrate all three cases in the group that was to be reported at this time: Rosa F., of Jewish parentage, had been treated previously for "rachitic malnutrition." Had been seemingly healthy up to the age of 11 months (but this is unusual). History of one other case in family, a cousin to this child. The mother's milk was carefully examined and found normal. Hirsch claims that the direct etiologic factor is abnormalities in the mother's milk. Expression of face was blank. Reflexes enormously exalted. Temperature normal, but pulse rapid. On examination of the eyes at the macula was seen a large, dark reddish-brown disc, the pathognomonic appearance. This was surrounded by a nebulous area. There was increasing difficulty in swallowing, and the patient died at the age of 27 months.

Discussion.—Chairman J. L. MORSE (Boston, Mass.) said he had seen in all five cases, the last being under observation at the present time. A striking peculiarity is the flaccid paralysis. The eye ground is absolutely characteristic, so much so that any one who can look into the interior of an eye successfully, whether an oculist or not, would have no difficulty in recognizing it. They are in a sort of stupid condition, usually, and that makes it easier to examine the eye than it would be in a healthy child. In his cases he had noticed that the convulsions were not at all prominent. In his last case, deglutition had been so difficult that the child could not swallow at all, and had to be fed by stomach-tube. Most of the patients were in a condition of good nutrition. COTTON said, in closing the discussion, that many analyses had been made of the mother's milk in the foregoing case and it had always been found normal. In a second case, the milk had shown a marked paucity of fat.

Rules for the Care of Young Infants in Public Institutions.—H. M. MCCLANAHAN (Omaha, Neb.) said that it is everywhere noticed that the average mortality of young infants in public institutions is far greater than in families. This has been the case in the hospitals of Omaha. It is to be expected on account of the crowding, the smaller amount of air space, and especially the opportunities for the spread of contagious diseases. One step in the right direction would be to invest the consulting physicians with greater authority. In most places they have little or no authority to do anything but advise. They should have the necessary power to carry their suggestions into effect. In this way the mortality rate would probably be greatly decreased. Trained nurses should be in attendance in infant hospitals. In many places this is not the case, and the care of the infants is placed in inexperienced hands. This fact does its share toward increasing the mortality rate. In a group of 62 cases in the Infants' Hospital at Omaha (in which institution McClanahan is consulting physician) there were 11 deaths. These were all infants under 6 months, admitted during the years 1902 and 1903. There were 32 deaths in another group of 102 cases. During this time there were no trained nurses in attendance. After experienced nurses were placed in charge there were very few deaths. In one of the wards, measurements demonstrated the fact that when there were 25 babies kept there each baby would have about 132 cubic feet of air space; when 30 babies were brought in, as was frequently done, the air space was reduced to only about 110 cubic feet for each one. As it was not possible to provide more room, the following expedients were practised with good results: Every morning for two hours all the babies were taken out of the ward and all of the bedding also removed. The room was thoroughly ventilated during the absence of the little occupants. Twice a week the ward was well fumigated. The walls were brushed and the floor washed daily, but sweeping was not permitted. Perhaps the chief source of infection for babies in institutions is careless handling of soiled napkins. It is probable this is a greater danger than is an uninspected milk supply. To remedy this the following routine practice was insisted upon: Galvanized iron buckets with lids were provided. These were about a quarter filled with a solution of sodium chlorid and zinc sulfate, and all soiled napkins were put into this at once. Every time a nurse touched a soiled napkin she was obliged to disinfect her hands. The food used was modified milk in every instance, none of the prepared baby foods being used. The milk was pasteurized and then kept in the ice chest at about 40° F. till needed. The bottles were washed every day in an alkaline solution. As soon as a baby became sick it was isolated. This rule was rigidly adhered to. The results of the above methods have proved to be very satisfactory indeed, and the mortality rate was reduced to almost nothing.

Discussion.—J. C. COOK (Chicago) said it needed a great deal of experience to appreciate the real value of the paper. The matter of trained nurses is very important. In an epidemic of pneumonia in a children's hospital in Chicago, he had removed the beds from wards until he provided 700 cubic feet of air space for each. He even had beds put in the corridors, and found these patients did better than those in the wards. He had two sets of nurses, one to attend to the removal of napkins and the other to give food and medicine. A. W. FAIRBANKS (Boston) expressed his interest in the thorough cleansing of the hands of nurses after each change of napkins. He thought another practical feature would be the exclusion of flies from the babies, especially sick babies. ALICE M. SMITH (Tacoma, Wash.) thought it would be well to caution mothers and nurses against putting anything out of their own mouths into the baby's mouth. This is often done carelessly. The washing and fumigation of the wards was very interesting to her. LINDSAY (Boulder, Colo.) thought the only solution to the problem in private practice was to have a trained nurse go around the neighborhood and illustrate the doctor's directions as to the proper care of babies. C. F. WAHRER (Ft. Madison, Ia.) said he had found it was not only possible, but practicable, to apply these sanitary rules of institutions to individual family life, mentioning, as a pertinent illustration, an incident in his own experience. He had been called to perform a curetment in a family where the regular attendant physician, for several years previous to this time, had been a painstaking man. To his surprise, they had provided sterile towels, bichlorid solution, hot and cold, etc., before his arrival, and he found everything about as handy and clean as in the average hospital. In closing the discussion, MCCLANAHAN said he thought it might be the medical world had gone too far in attributing all gastrointestinal troubles in babies to the foods used. He also emphasized the fact that he did not believe in the use of any prepared foods, and if milk could not be modified so it would agree with the little patients, he used whey for a time, then gradually introducing milk.

[To be continued.]

Section on Ophthalmology.

FIRST SESSION (CONTINUED).

The Correction of Exophoria by the Development of the Interni.—W. H. ROBERTS (Pasadena, Cal.) considered that oculists were guilty of an error of omission when they treated asthenopic symptoms as though all were accommodative and none muscular, and recommended the necessity of determining the muscle balance in all refraction cases, emphasizing a known and tried method of relieving the majority of cases in which exophoria exists. While not opposed to operative measures when indicated, the author believed they should only be performed when the lack of balance could not be cured or relieved by other measures. A routine examination of muscle balance should be made in every case of refraction. The method used for developing the adductors consisted of exercises at home, reinforced by regular visits to the office for supervision and additional exercises. He placed the proper ametropic correction before the eyes, and directed the attention of the patient to a point of light six meters distant. Weak prisms, bases out, were then put on, and the strength rapidly increased until the patient had difficulty in keeping the point of light single. He was then told to close the eyes, slightly stronger prisms inserted, and on opening the eyes he looked at an ivory ruler 12 in. to 14 in. from the eyes, the examiner's body shutting off the point of light. With the patient looking intently at the ruler, the examiner walked off back toward the light, and on reaching it stepped aside, the patient's gaze being quickly transferred to the point of light, which was usually single. If double, a weaker prism was used until the image could be fused, and then the strength increased. Prism exercises were also carried out by the patients at home. A number of cases were reported in detail to illustrate the author's views.

Discussion.—G. C. SAVAGE (Nashville) considered that the proper treatment of the condition was to correct the tonicity of the interni; that the muscles should be exercised; that accommodation is strong, but convergence is weak, and the prism exercises offer the proper remedy, exciting to activity the two basile centers and increasing the tonicity of the interni muscles. F. B. EATON (San Francisco) thought that the best way to cure the condition was to build up the general health of the patient; that otherwise it did not make much difference how much exercise they were given. He considered the condition a neurotic one. DUDLEY S. REYNOLDS (Louisville) agreed with the last speaker that systematic dieting and proper medication, the administration of full doses of nux vomica, etc., constituted the best treatment. W. C. POSEY (Philadelphia) thought the correction by prisms lasted only so long as the exercises were continued; when the exercises were discontinued the trouble returned. S. D. RISLEY (Philadelphia) referred to the cases dependent upon faulty or abnormal development of the orbit, in which faulty attachment of the muscles existed, and said that no amount of exercise would cure them. He doubted very much if any amount of exercise ever strengthened the ocular muscles in the sense that the biceps might be strengthened. JOHN E. WEEKS (New York) believed that there is a class of cases that may be benefited by these exercises, but that there is also a class of cases, as Risley had mentioned, that never could be benefited by prism exercises; each class of cases should receive its proper treatment, and the means of determining what that treatment should be could be found in the perimeter or the tropometer. C. H. WILLIAMS (Boston) said that in the use of the Maddox rod he found that there was always a tendency to bring the line and the light together; a tendency to fuse images. This could be avoided by the use of the apparatus which he had shown to the section at St. Paul, consisting of a series of green figures with a red line running through them, while in the spectacle frame was placed before one eye a red glass and before the other a green one, so that the line is seen with one eye and the figures with the other. WM. ZENTMAYER (Philadelphia) thought a great many cases might be relieved without prisms by putting on a very partial correction and relieving the disturbance caused by the correction of the hypermetropia. LEARTUS CONNOR (Detroit) believed that the essential truths of the paper could not be controverted. He had not been able to explain, however, why so many cases of muscle imbalance got along without any trouble. He also advocated the use of very deep massage over the medulla, and of the vibratory variety. Sometimes where he had not obtained results with the lower prisms, he had used as high as 100° or 120°. J. S. KIRKENDALL (Ithaca) said that aside from general systemic conditions there might be causes that should always be looked for. He had had one case which was relieved by the removal of a plug of cerumen from the ear. Nasal conditions were also to be taken into consideration, spurs of the septum, enlarged turbinates, etc. These reflex causes should always be looked for.

[*To be continued.*]

Nervous and Mental Diseases.

FIRST SESSION (CONTINUED).

Neurasthenoid Conditions—Socalled Neurasthenia.—ROBERT HESSLER (Logansport, Ind.) dwelt upon the nervous symptoms produced by the inhalation of a contaminated atmosphere, more particularly one in which the impurity was due to such substances as expectoration. These conditions are most likely to manifest themselves upon the resident of a country district, accustomed to pure air, etc., moving into the city, and in most cases a removal to an uncontaminated atmosphere will cure the trouble. Several cases illustrative of this contention were reported, prominent among which were the cases of farmers, who had been accustomed to the pure air of the country, coming into the city.

Landry's Paralysis, with Report of a Case.—ROBERT MCGREGOR (Saginaw, Mich.) stated that the pathologic condition was not always clear, and discussed at length the earlier and the later theories regarding the etiology, particularly the effects of toxic agents and septic conditions, and outlined the differential diagnosis between this condition and multiple neuritis and anterior poliomyelitis. He reported a case occurring in a young man of 23, with a negative family and personal history, in which complete paralysis of the lower and the upper extremities ensued within three days, and who after several months made a good recovery, the patient since taking the position of a letter carrier in the rural districts and has performed this duty for two years.

Types of Multiple Neuritis.—DAVID I. WOLFSTEIN (Cincinnati) considered this condition under (1) toxic cases due to poisons without the body, such as alcohol, mercury, lead and arsenic; (2) similar poisons within the body, due to infectious diseases, such as gonorrhea, influenza, puerperal conditions, etc.; (3) cases due to diseased states of the body, such as rheumatism and diabetes; and (4) cases due to exposure, etc., reporting a case illustrative of each of these groups.

Discussion.—H. T. PERSHING (Denver) reported the case of a metallurgist, who had contracted multiple neuritis due to arsenic from the ores in which he was working. In this case administration of small doses of potassium iodid markedly increased the pain, which the speaker explained by the fact that it probably rendered the arsenic in the body more soluble. He reported another case of a man, who, after unusual physical exertion, had indulged in beer, which he said was stale, and also some lobster, after which he suffered from indigestion and vomiting, with symptoms of ptomain poisoning, followed by multiple neuritis. Both cases made good recoveries, although the former experiences severe pains in the legs if he stands or walks too long. D. BROWER (Chicago) felt that too much importance was attached to the performance of the functions of the bladder and rectum in the differentiation between multiple neuritis and Landry's paralysis, and stated that in the latter he had seen much benefit derived from the use of large doses of quinin with strychnin to stimulate the respiratory and circulatory functions. H. G. BRAINARD (Los Angeles, Cal.) reported a case of leprous neuritis, in which the differentiation from multiple neuritis had been quite difficult. He also reported a case of multiple neuritis occurring in a young man, a cement contractor, who had taken considerable quantities of bromoseltzer, which he viewed as the causative element in the condition. He also reported a case of lead-poisoning from the use of water contained in bottles with lead stoppers. MCGREGOR, in closing emphasized the importance of the careful study of these cases, and the recording of the pathologic findings. WOLFSTEIN, in closing, dwelt at considerable length on the differential diagnosis of Landry's paralysis and multiple neuritis, and felt that a case should not be diagnosed as the former, merely because of the severity or acuity of the symptoms.

[*To be continued.*]

Hygiene and Sanitary Science.

FIRST SESSION.

Chairman's Address.—JOHN S. FULTON (Baltimore) dealt with the section on hygiene, (1) as a member of the body medical, (2) as a member of the body politic. The section on hygiene and sanitary science is in certain respects the most important division of the American Medical Association. Among its future possibilities, Fulton considers the distinction of becoming the chosen agent in bringing the power of medical common sense to bear upon public opinion. A mere perception that this section articulates the medical profession to the body politic will not of itself commend it to the Association. Works and deeds will develop its true organic function. Each division of the Association stands toward the remainder of the Association as a source of knowledge, a teaching body; and, conversely, the Association as a whole is a student body. To some of the sections, such as the hygienic section, the distinctions from the general medical and surgical body cut so deep that to attain the highest efficiency the individual pursuing the more technical lines of work may lose in time many of the attributes and almost the name of a physician. The pathologists, anatomists and physiologists, though receiving little popular fame, form the most important sections of the Association. These sections are central to the body of medical science; about them lie the other sections not wholly enclosed by the natural sciences, but having some contact with human affairs. The Section on Hygiene and Sanitary Science contrasts with the other sections, in that half its area lies in political science. From the reaction between American medicine and American politics, American hygiene results. All the virtues of the latter are not derived from medicine, nor all its vices from politics. All members of the profession who venture into this field, come to their task in all but nakedness, for medical education does not prepare them for its changes. He who de-

velops no political sagacity, is rejected by the people; he who acquires political sagacity of the wrong kind is rejected by the profession. The most notable fault of American hygiene is its ignorant poverty in the fundamental data of the subject. A country which swells its population by admitting a flood of immigration, with no more than a show of caution as to its physical and moral results cannot be expected to care about the minutiæ of loss and repair in its native population. Complete data on vital statistics justify many times the amount expended in collecting them, but the great majority of States do not even have approximate data. While the mortality returns in the United States are acknowledged to be 30% to 40% defective, the birth returns are scarcely approximate. Vital statistics originated in political science, but the advances made in this country have been almost wholly due to the medical profession. The value of statistical results depends not upon the number of observations, but on their accuracy; this is dependent in turn upon the prevailing standard of medical education and professional responsibility. Professional control of hygiene is not a guarantee of excellence. In one State sanitary government is and always has been in the hands of the State Medical Association. No State is more ignorant of its population, no State more destitute of the fundamentals of sanitary organization. The consent of the people to systematic registration must first be obtained, but the accord of the medical profession is necessary to effective registration. The data of vital statistics must be derived from physicians' certificates. Professional educational deficiencies are the primary cause of the inaccuracy of American vital statistics. A large part of these defects are due to defective training and discipline in the hospitals and medical schools in the subject of anamnesis. Only resident undergraduates in hospitals have any instruction in medical anamnesis. An unflattering measure of the standard of medical education may be taken by tabulating one year's death records in almost any American State. When accurate and complete registration of births and deaths has been attained in the United States an important question arising will be the publicity of these records. These records must be public to a certain degree. In some cities and States publicity is promiscuous. The laws usually allow inspection to "proper persons for proper purposes." The custody of records under such loose provisions is apt to be a merely nominal guardianship. In the chairman's first three years experience as a registrar, access to the records was refused three times, the information being desired once to prevent a marriage, once with the design of separating a married pair, once by a physician in order to injure another physician. Later copies were applied for by life insurance companies. Copies for this purpose have been refused though customary in other communities keeping records. Inquiries were sent out to determine the care with which the records were guarded, and injury or scandal following their use. In the cities, few chiefs of the health departments have any knowledge of their abuse. The records are open to anyone without question in nine large southern and western cities. The purpose of the inquiry is asked in six, but in only three do the registrars claim power to withold information. In Maryland registrars are liable to a fine for disclosing information contained in the records. The health officer of a northern city was compelled to abandon his attempts to protect the records on account of political opposition. The State of Michigan has a special act providing for a secret calendar of marriages contracted for legitimizing children conceived out of wedlock. The records of births and deaths are sold in many cities for commercial purposes. The list of purchasers includes milkmen, infant food manufacturers, nostrum vendors, undertakers, florists, etc. Sputum examination records were sold in one city to a quack. The list of notifiable diseases is lengthening and expresses a real need in hygiene through only a sham defense in many localities. The notification laws of most American cities are notoriously inoperative. Notification laws are brought to bear most heavily upon the sick. The American people still expect public health to be protected by punishing the sick. Political corruption is infrequent in health departments. The chairman mentioned only one instance from his own experience of a conspiracy to extort a bribe involving the health department of a great city. The body of a child dead of diphtheria was refused transportation to Maryland and was buried at the place of death. The father of the child returned some months later and was enabled to obtain the body by "shaking hands" (*i. e.*, the use of money) with certain officials of the city. The largest amount is stated to have passed into the hands of a prominent official of the health department. American hygiene is the offspring of American medicine and American politics. American medicine is partly responsible for its moral and scientific dificiencies. The medical profession has given small support and encouragement to its hygienists and feeble protection to faithful and efficient officers against predatory statesmen. The "exigencies of politics" has recently retired after more than twenty years' service a commissioner of health, one of the most active and successful educators of the public that the country has produced. The first exhibit of the section held this year illustrated the hygiene of water. The next exhibit will deal with vital statistics, the most neglected and necessary subject within the field of hygiene.

Discussion.—HEG (Washington) said the registration of births and deaths in Washington is practically nonexistent. A local registration law is on the statute books. In 1904 an attempt was made to change the local to a central system through the provisions of a burial permit law prohibiting the issue of a burial permit excepting on the certificate of a legally qualified physician. The Christian scientists modified it by inserting an amendment allowing a certificate of death from any member of the family. This bill was not acceptable, and was defeated. The improper use of records is not provided against by the Oregon law. A clause covering this point should be inserted. The notification of contagious diseases is satisfactory in some diseases, and not in others. There has been little difficulty in the case of the eruptive diseases, but in diseases such as typhoid and pneumonia the case is different. Heg suggested that following up these cases by instruction and literature would bring better results. He found that the circulars of instruction in regard to disinfection and prophylaxis issued by the State Board in cases of the contagious exanthemas; physicians receiving such literature were always more regular in reporting their infectious diseases. CHAPMAN (Ohio) mentioned the experience of the State Board of Health of Ohio in the reporting of contagious diseases. Smallpox cases were frequently not reported, and the Board received knowledge of many cases through the newspapers. Diseases such as typhoid fever were not, as a rule, reported. PRICE (Baltimore) stated that he thought many boards were unduly lax in prosecuting violations of the law for the notification of contagious diseases. In diseases such as smallpox, prosecutions should be invariably made. Several prosecutions made in Maryland were followed by excellent results. The confidential nature of reports of contagious diseases, as well as births and deaths were, as Fulton stated, essential in securing accurate returns. LINDSAY (Boulder, Col.) asked what procedure was followed by Boards of Health in dealing with whoopingcough. FOSTER (Cal.) said the notification of whoopingcough is made compulsory in California by a resolution of the State Board of Health. It is a misdemeanor to disregard the rules of the board. He referred to the want of properly educated sanitarians in the United States. He suggested a two-year university course. HEG (Washington) said the necessity for properly educated officers must be recognized by the public before physicians can be induced to spend the time necessary to secure this special knowledge. He believed that an unnecessarily severe method of quarantine prevented the report of many contagious diseases. The method of parole has been used successfully in smallpox in Washington State for the past two years. Tact is as essential in a health officer as a sanitary education. BROWN (Fargo, N. D.) believed that the method of quarantine was applied frequently with too great severity. Placing cards upon infected premises was resented by the family and was apt to influence the physician in reporting his cases. MORRISON (Spokane, Wash.) said the difference in results in public health work in different communities depends on no special laws. Very much depends on the health officer. The press usually obstructs the work of the health officer and does much to injure his efficiency. Professional fear of interference from the health authorities prevented the report of many cases. Morrison cited the practice of western communities to quarantine until two weeks after the disappearance of membrane from the throat. He did not believe this was always long enough. He mentioned a diphtheric, convalescent for several weeks, who had infected another person. The source in this case MORRISON believed to be an existing conjunctivitis and an ulceration on the arm. He believed it almost impossible to secure the reporting of typhoid fever and tuberculosis. FOSTER (California) discussed the execution of a vital statistics law in California. A good registration of death has been secured under the burial permit law. Returns of births are incomplete. California has been treating smallpox for several years by quarantine of the sick, vaccination and parole of contacts. Several physicians have been prosecuted for failure to report their cases with excellent results. CHAPMAN (Ohio) reported that the method of parole, vaccination, and quarantine had been in effective operation in Ohio for several years GENOWA (Wash.) believed the method of parole efficient and involving little hardship in treating smallpox. In diphtheria all contacts should receive an immunizing dose. He thought that the usual dose was not sufficiently large. Diphtheria should be quarantined for two weeks after the disappearance of the membrane, or until a negative culture had been made from the throat. DENSLOW LEWIS (Chicago) said many physicians object to reporting the common contagious diseases on account of the placarding of the house. Cards may be omitted in many cases. An elastic system of quarantine is necessary. The health officer should have discretionary powers to deal with the individual cases. As regards registration of births and deaths, several methods have been tried. In St. Louis physicians were paid for reporting births, but the returns were not improved. MORRIS (Los Angeles) considered a certain danger to lie in the use of antitoxin, inasmuch as it produces a mild form of the disease which does not confine the patient to bed. As a result he goes about his work carrying diphtheria bacilli in his throat, and may thus infect many healthy persons. As to quarantine, complete quarantine is impossible except under guard. For diphtheria two negative cultures should be secured before raising quarantine.

[*To be continued.*]

Laryngology and Otology.

FIRST SESSION (CONTINUED).

The Treatment of Empyemas of the Maxillary Antrum through the Nose.—GEO. L. RICHARDS (Fall River, Mass.) described the evolution of the operative treatment of these cases, which he believes has culminated in the adoption of the nasal opening in the absence of dental trouble. We should first determine whether a given case is of dental or nasal origin. Cases that are in doubt should be treated through the nose and the tooth should be let alone, unless it seems to show trouble. In dealing with diseased antrums of Highmore, the following principles should govern: 1. Whenever possible, direct the treatment at the point where the antrum has its natural communication with the nose, and especially avoid any long-continued direct communication with the mouth of the pharynx. 2. In cases which are not severe, the abscesses are always washed out in the beginning through a sharp canula introduced in the middle meatus. 3. If the empyema has lasted a considerable time and the secretion is thick, with considerable odor, this opening in the middle meatus is next enlarged, the socalled supraturbinal resection of Onodi being performed, to include also the inferior meatus as well, provided it is necessary. 4. Chronic and severe cases may also require a large opening from the canine fossa, the socalled radical operation, but this opening, after thorough inspection and cleaning out of the cavity and the making of a broad counter opening in the middle meatus, is carefully closed and the after-treatment entirely performed through the middle meatus. 5. The only cases that cannot be properly treated in this way are those in which there is a high degree of nasal stenosis, rendering this treatment impossible, and those cases that will neither continue in daily communication with the physician nor will learn the after-treatment through the nasal fossa.

Discussion.—OTTO T. FREER (Chicago) had made some remarks upon this procedure at the Atlantic City meeting of the Association last year, and encountered unexpected opposition to the operation through the nose, and in Chicago the subject had received a long discussion, in which most were in favor of the alveolar route, or the operation through the facial wall. He believes the nasal operation to be the rational method. W. L. BRYANT (New York) spoke in favor of opening through the middle meatus, removing part of the middle turbinate, using a probe to locate the natural opening, and following that with a curet. Bryant uses angle punches, and takes out sufficient bone to give adequate drainage. FRANK W. HILSHER (Spokane) asked whether the method outlined would be successful in cases that had undergone marked mucoid and polypoid degeneration. RICHARDS replied that the operation was not indicated for that class of cases, though it is of diagnostic value in such cases. G. P. POND (San Francisco) spoke of having worked up the subject in connection with Sharp, dean of the dental college in San Francisco. He advocated the nasal route, and the dentist advocated the dental opening. Possibly the best drainage is to be obtained through the floor of the mouth. Often good drainage may be obtained through the middle meatus, but it would seem more difficult to make the opening through the middle meatus than through the inferior, which would probably give as good results. L. C. CLINE (Indianapolis) spoke of the large number of these cases that followed the 1900 epidemic of influenza. An exploratory puncture may be readily made under cocain. C. F. WELTY (San Francisco) believes that the individual cases should be studied to determine the best route. By the alveolar route we probably do the least harm. W. S. ANDERSON (Detroit) holds that we should always try to save the inferior turbinated body if possible. S. L. LEDBETTER (Birmingham) observed that the acute cases got well readily after a small puncture and one or two washings. These are the cases that usually come under the observation of the dentists. The chronic cases, where the lining membrane has become diseased and there is often polypoid degeneration, do not get well with single washings. They require the application of some remedy that will destroy the diseased condition of the sinus. These cases require an opening sufficiently large to enable us to enter the cavity, which is not always regular and smooth. A. G. GREENSTREET (Seattle) reported a case in which nature had made an opening above the inferior turbinate, which probably would be a good route in many cases. A. DEVILBISS (Toledo) spoke of cases where the accessory sinuses are affected. Such cases, when of long standing, need a radical operation. J. H. MARTINDALE (Los Angeles) does not have an opportunity to treat the acute cases, since there are few such cases in southern California. In the chronic cases he prefers to enter through the alveolar region or through the canine fossa. ROBERT C. MYLES (New York) had operated by every method he had heard of during the past 15 years. These cases cannot be treated on the ordinary rules of surgery. We have here thin walls covered by thickened mucosa. The general surgical procedure would be to curet thoroughly, but we would then have a worse condition than before. The obliteration of the antrum has been recommended, but it is a long tedious process and not satisfactory, so we really have no radical operation. Therefore we should do the mildest operation that will give us the best results. The removal of the nasal wall of the inferior meatus is the most essential part of any operation on the antrum of Highmore. The acute cases rarely need operation. When we do operate upon them all they need is an opening to relieve the pressure from the fluid and gas. The chronic cases are frequently chronic because the pressure is not relieved and sloughing has occurred.

Collodion as a Dressing after Intranasal Operations: (A Preventive of Postoperative Hemorrhages).—KASPAR PISCHEL (San Francisco) says that after finishing the operation, all hemorrhage is stopped with adrenalin, and the field is carefully cleaned. Compound tincture of benzoin is then wiped over the wound and surrounding tissue with a cotton carrier. The wound is covered with a piece of sterilized gauze, just large enough to cover the abraded surface, which is carefully passed around the posterior end, from which point hemorrhage most frequently occurs. These pieces of gauze may be compressed so that they are stiffer and more easily introduced. After the gauze is applied the collodion is slowly dropped on, beginning at the posterior end, at the same time hot or cold compressed air is blown into the nostril by an assistant, to quicken evaporation. The collodion and gauze form a white, firm membrane, covering the wound against infection from the air and preventing secondary hemorrhage. As an extra precaution the patient is directed to keep a little cotton in the entrance of the nose. This absorbs any blood or serum, and should be changed as often as it is soaked. The collodion and gauze are left in from four to six days. In order to remove the dressing the nose is cocainized, and some hydrogen dioxid is applied, which loosens the membrane, so that it may be readily removed with a pair of small forceps.

[*To be continued.*]

Pharmacology.

FIRST SESSION (CONTINUED).

Report of the Committee on Proprietary Medicines was read by Prof. C. S. N. HALLBERG. The committee found that of the many proprietary medicine questions which had come before them, the one deemed by them most important was that of the nomenclature of this class of medicines. The report set forth the necessity for the systematic naming of substances used in medicine, and suggested that the names of new substances or newly discovered facts and subjects should have their origin or derivation for their basis. It further said that no physician, under existing conditions, can safely order any chemic substance without the possibility of error, except in correct chemic terms, and recommended the method of contraction of the chemic names as illustrated in the new United States Pharmacopeia. In conclusion, the committee expressed itself as feeling that manufacturers are short-sighted to ape the methods of the anonymous and pseudochemic companies in employing trade names, thus losing the prestige their names confer on any products they may introduce.

Discussion.—W. F. WAUGH (Chicago) commended the committee for its excellent work and recognized the importance of the adoption of their suggestions. THOMAS F. REILLY (New York) expressed himself as of the opinion that if there is any change in the nomenclature it must be in the schools; that old practitioners would never turn to the use of these Greek prefixes and suffixes. C. S. CHAMBERLIN (Cincinnati) deplored the use of fanciful titles, but, speaking from the standpoint of the manufacturer said that they could not get along without them, stating that after devoting years to the study of vegetable products and methods of manufacture, and the finding of a peculiarly successful combination of remedies they must have some return for their labor, and guard themselves against the counterfeiting of their preparation, and the substitution of inferior ingredients by other manufacturers. The protection which the responsible manufacturer has is the adoption of some name which need not be copyrighted, but is his property in common law. COTTEL (Portland) found no fault with the copyrighting of proprietary names, but objected to the manufacturers making the therapeutics. He stated that the doctors trusted too much to the advertising pages of the journal, and further said that the great fault with pharmaceutic houses is that they put up untried mixtures and sell them by advertising.

The Committee to Aid the Post Office Department in Excluding Objectionable Advertisements.—The report was read by HALLBERG, chairman of the committee. After instancing several cases of the distribution of deceptive circulars and poisonous substances through the mails it recommends that the public should be protected in some way from supposed remedies of a poisonous character, by suitable labeling, at least, and the encouraging by the American Medical Association of the Postmaster-General and the Secretary of Agriculture in this line of work, and informing them of the hearty support and full cooperation of the Association. LEWIS (Vermont) moved that a committee of three be appointed to consider these reports and to draw up resolutions founded on their recommendations, submitting them to the Section for its approval. The motion was seconded, put to a vote and carried. CHAMBERLIN moved that the representative of the Section on Pharmacology in the House of Delegates be directed to offer a resolution at the next annual meeting in the House of Delegates, to the effect that Section I, Chapter I, Book I of the by-laws be amended so as to exclude from membership in the Association, persons connected with the business of manufactur-

ing pharmacists. Chamberlin's object was to test his standing in the association, and particularly in this section, he having offered to read a paper, before the section, on Echinacea augustifolia, and, through some misunderstanding between the chairman and secretary, the secretary having notified Chamberlin that the chairman had ignored his offer, presumably on account of his (Chamberlin's) being connected with the company manufacturing the drug. Chamberlin was requested by the chairman to read the paper so offered, which he declined to do, withdrawing his motion, however. The secretary then expressed himself as feeling that under such circumstances papers of that nature should not be accepted for reading before the section, and Chamberlin renewed his motion, but no further action was taken upon it, and the matter was dropped. In view of the difficulty of getting papers from anyone who is attached to any of the other sections because of the by-laws prohibiting any member from contributing to more than one section, Hallberg moved that the representative to the House of Delegates be instructed to present a resolution altering Book IV, Chapter II, Section XII so as to read " before two (instead of one) sections at any annual session."

The chairman appointed Waugh, Dickinson and Reilly members of the Executive Committee pro tempore, in the absence of Butler, Cohen and Osborne.

[*To be continued.*]

AMERICAN SURGICAL ASSOCIATION.

Twenty-sixth Annual Meeting, held at San Francisco, Cal., July 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 138.*]

End-results in Surgery of the Kidney, with Report of 90 Cases and 123 Operations.—ALBERT VANDERVEER (Albany, N. Y.) based his paper on a review of 90 cases occurring in his own practice. The next largest group was composed of movable or floating kidney. These numbered 23 cases, exclusive of those where excision of the capsule for neuralgia, examination for stone, and decapsulation for Bright's disease was done. Of these cases, 19 occurred in the female, about two-thirds of whom were married, the lesion being on the right side. There were four males, the lesion also occurring on the right side, and the entire number recovering. One required removal of the kidney four years after, for abscess of the pelvis and stone; good recovery. He next presented a series of 24 cases of nephrotomies, in which there was a surgical lesion of the kidney, grouped under the heading of pyelitis, pyonephrosis, pyonephritis, or ascending pyelonephrosis. The series was divided as follows: Male, right side, two recoveries, one died. Male, left side, six recovered. Of these cases nine finally required nephrectomy, one of the latter resulting in death. Of the remaining 15 cases all made good recoveries, but one of them, after a period of four years, had a slight sinus, not deep, no pus, patient in excellent condition; the other patient recovered from the kidney complication, but developed a pelvic abscess, which was still draining, and she was gradually losing ground. In the cases of nephrectomies for hydronephrosis there were eight, as follows: Male, right side, two recovered. Female, right side, three recovered. Female, left side, two recovered, one died. The removal of the kidney by the transperitoneal incision was an exceedingly easy and convenient way of removing a large cyst or tumor, the patients doing nicely afterward. Of these, there were four cases. He then cited two cases of hydronephrosis in young women who were entirely cured by simple aspiration. Of nephrotomies, followed later by nephrectomies, there were nine cases as follows: Male, right side, two recovered. Male, left side, one recovered. Female, right side, three recovered. Female, left side, 3 recovered. All of these cases made a good recovery from the two operations, with the exception of two patients, one dying a few months after from multiple abscesses of remaining kidney, and the other, still alive, was gradually failing in strength. The author was greatly impressed with the study of tuberculosis of the kidney, as to whether the invasion occurred from below or from systemic infection. There were 7 of these cases, as follows: Male, right side, 1 recovered; male, left side, 2 recovered; female, right side, 1 recovered; female, left side, 3 recovered. There was a total of 8 cases of malignant growths in connection with the kidney, as follows: Sarcoma—male, right side, 2 recovered, 1 died; male, left side, 1 died; female, right side, 1 recovered; female, left side, 1 died; carcinoma—female, right side, 1 recovered, but died later from return of the disease; hypernephroma—male, left side, 1 recovered. Of decapsulation of the kidney for nephritis, there were 2 cases that recovered; results excellent. Of traumatisms and injuries of the kidney, there were 6 cases. Of cases of renal neuralgia, associated with suspected stone of the kidney, the author was not able to confirm his diagnosis by exposure of the organ. The entire group was made up of six patients, and in only one instance was the diagnosis confirmed by needling of the kidney. The author then reported some irregular cases, and concluded his paper by reporting two cases of abdominal surgery which illustrated errors in diagnosis, in which the real trouble was with the kidney.

Nonparasitic Cysts of the Spleen.—CHARLES A. POWERS (Denver, Colo.) stated that this subject had a twofold origin: (1) The few and comparatively recent clinical reports; (2) the somewhat more numerous accidental postmortem findings. In September, 1895, a young man of 18 was referred to him who presented a large right-sided abdominal cyst. The mass was of four years' growth. There had been a gradual loss of flesh and strength, anorexia, headache and general pressure symptoms. Fluctuation was plain. The diagnosis of splenic cyst seemed positive. A free incision was made over the prominent part of the tumor, the walls of which were found to be about a half inch thick, semicartilaginous and solidly adherent to all the adjacent structures. Extirpation seemed impossible. Later, autopsy findings confirmed this. The single cyst held several liters. A posterior incision was made with thorough drainage. The walls of the cyst did not collapse, and the patient died of septic absorption from the cyst wall on the twelfth day. The anatomic diagnosis was hemorrhagic cyst of the spleen. From the autopsy findings, the author could not see how the cyst could have been successfully extirpated. He presented a brief analysis of 32 tabulated cases. In considering the treatment, he spoke of puncture, incision and injection, incision and drainage, marsupialization, resection of cyst, and splenectomy.

Patent Urachus, with a Review of the Cases Reported; Operation on a Case Complicated with Stone in the Kidney.—GEORGE TULLY VAUGHAN (Washington, D. C.) explained the defective development in embryology which leads to the formation of patent urachus and of Meckel's diverticulum. He gave a short review of the literature, and stated that the older anatomists held different opinions as to whether the urachus was a tube or a solid cord. He divided cases of patent urachus into the complete, blind, blind internal, and blind external, and into congenital and acquired varieties, and explained the occurrence of some cases of acquired patent urachus by the pressure of urine in the bladder from obstruction to its normal outflow, causing Wut's valve (a small valve which guards the bladder opening of the urachus) to give way and permit urine to enter the urachus, when, if infection took place, abscess formed, and pus broke through the umbilicus or discharged into the bladder. He briefly recounted 52 cases reported in the literature and added a case of his own, of which 38 cases were operated on, with 32 recoveries, 3 deaths, and in 3 the result was not reported. He divided the methods which had been tried for closing the open urachus into eight classes, as follows: 1. The application of caustic or of the actual cautery to the umbilical opening. 2. The use of the cautery and of ligatures or sutures. 3. The use of ligature or suture only. 4. Plastic operations, the application of a flap of skin to close the opening. 5. To open or slit up the urachus, curet or cauterize, and pack. 6. Removal of sources of irritation from the urachus, such as stones, pus, etc., and keeping the parts clean. 7. Removal of obstruction to the flow of urine from the bladder through the urethra, as a tight prepuce, strictures of the urethra, hypertrophy of the prostate, and tumors or stone in the bladder. 8. Extirpation or dissecting out of the urachus and sewing or ligating the part next to the bladder, after the manner of treating the appendix in appendectomy. He did not approve of the method of simply closing the umbilical end of the fistula, lest an infected suppurating area be left which might cause septicemia or peritonitis. He considered slitting open and packing the abscess cavity a rational operation, but thought the operation of election was to dissect out the urachus with the entire diseased area. Vaughan used this method in his case—a man of 40, who had an acquired patent urachus since the age of 17. A month after the patent urachus had been cured, it was necessary to perform nephrolithotomy on the right kidney, and nine months later the same operation on the left kidney.

Status Lymphaticus and the Ductless Glands.—ROSWELL PARK (Buffalo, N. Y.) defined the term, status lymphaticus, and stated that the reason for bringing the subject before a body of surgeons was because the condition itself had so much to do with the question of toleration of anesthetics, and the matter of repair of wounds, that it really was one of exceeding importance. Not a few cases of sudden death during and after operation, were to be explained by the abnormalities constituting this condition. These had usually been attributed to the anesthetic or the anesthetist, and it might be that had the latter appreciated all the dangers offered by the condition, he would have guarded his anesthetic or perhaps abstained from giving it. Nevertheless, the anesthetizer was not always to blame, because he was often called in without previous knowledge of the case, it being really the function of the medical attendant to carefully study it and determine its peculiarities. The life history of the thymus was closely related to that of the testes. Atrophy of the former would seem to depend upon complete maturation of the latter. These statements could be corroborated by a study of cryptorchids and castrated animals. The status lymphaticus was also described under the terms lymphatism, lymphatic constitution and status thymicus, the condition having apparently more to do with the thymus than with any other isolated organ. Thymus extract produced in animals a fall of blood-pressure with acceleration of the heart, and, in fatal doses, collapse. Thymic enlargement might cause death by pressure on important structures, even distinct from the trachea. Thymic asthma, a condition known for some time, even one in which death sometimes occurred most unexpectedly and quickly. In these cases not

only was the thymus enlarged, but there was found a general hyperplasia of the lymphatic tissue, with enlargement of the lymph-nodes and of the spleen. The relations between status lymphaticus and rickets were frequent and pronounced. Nearly all cases of the former displayed the ordinary clinical evidences of the latter. The participation of the lymphatic system was most casually apparent in the involvement of the faucial, laryngeal and lingual tonsils, *i. e.*, the socalled adenoids of the throat specialists. It was notable that it was in these cases the death most often occurred during or after anesthesia. Thymic asthma was practically the same thing as laryngismus stridulus. The occurrence of this in children ought always to serve as a warning, as well as an indication for careful study and treatment. Should, then, chloroform be given to such a case inadvertently or unnecessarily, the agent would not be nearly as responsible for the death as the practitioner who employed it. The condition was to be recognized by the ordinary evidences of rickets which were usually present, by generalized enlargement of the lymph-nodes, the presence of adenoids in the nasopharynx, a history of laryngismus stridulus or special liability to spasm of the glottis, perceptible enlargement of the thymus or by notable enlargement of the thyroid or spleen. In the young these conditions simulated cretinism. Such a clinical picture as would afford the above features should serve as a warning and make one abstain from the use of anesthetics unless absolutely necessary, while it should also prompt carefully directed treatment. This treatment should consist in careful attention to elimination, as well as to nutrition, while thymus or pituitary extract should be administered internally, as well as the glycerophosphates or some similar upbuilding tonic. If, now, it should be necessary to clear out the nasopharynx in such a case, the parts should be first desensitized by cocain, to which a little adrenalin might be added, even previous to beginning anesthesia. If the patient be known to be subject to glottic spasm, one should be prepared to do a tracheotomy on an instant's notice, and especially so if the thymus be perceptibly enlarged. One might even have to use a long trachea tube. Operations of convenience should be postponed until the patients can be carefully built up. Operations of necessity may be practised with the above precautions, while in cases of impending or actual emergency one might depend upon artificial respiration after tracheotomy and the use of adrenalin.

A Summary of All the Cases of Fracture of the Spine (244) which were Treated at the Boston City Hospital from 1864 to 1905.—H. L. BURRELL (Boston) presented the following conclusions: 1. Fractures of the spine may well be divided into two classes: (*a*) Fractures of the spine with injury to the cord; and (*b*) fractures of the spine without injury to the cord. 2. It is not best to decide what the treatment of an individual case of fracture of the spine should be from the statistics, because the lesion varies so widely. 3. In many cases of fracture of the spine it is impossible to state primarily whether the cord is crushed or pressed upon by bone, blood, or exudate, except by an open operation. 4. Only by the persistence of total loss of reflexes, complete insensibility to touch and pain, and motor paralysis below the level of the lesion can total transverse destruction of the cord be diagnosed. 5. If pressure on the cord is allowed to remain for many hours, irreparable damage to the cord may take place. 6. Unless it is perfectly clear that the cord is irremediably damaged, an open operation to establish the condition of the cord and to relieve pressure is imperative as soon as surgical shock has been recovered from. 7. In certain cases of fracture of the spine, when the cord is not injured but is liable to injury from displacement of the fragments of a vertebra, rectification of the deformity and fixation of the spine may be used. 8. If the cord is crushed, no matter what treatment is adopted, there will of necessity be a high rate of mortality.

Case of Suture of the Spinal Cord Following a Gunshot Injury Involving Complete Severance of the Structure.—GEORGE RYERSON FOWLER (Brooklyn, N. Y.) reported the case of A. E., aged 18, clerk, born in America, single. The patient was admitted to the Brooklyn Hospital on April 28, 1903. He gave the following history: Shortly before admission he was shot in the back, his assailant using a 38-caliber revolver, at a distance of about 30 feet; the shooting took place somewhat from the right side. He suffered severely from shock, and paralysis of the lower extremities occurred at once. The bullet wound was located 1½ in. to the right of the median line and on a level between the tenth and eleventh dorsal spines. He was found to be paralyzed below the waist; sensation was absent over all of both lower extremities, and over the abdomen as high as an inch above the crests of the ilium on the sides, and about half way between the symphysis and the umbilicus in front. Bladder and rectum were also paralyzed. The bowels moved involuntarily and irregularly, and without the volition or cognizance of the patient. There was considerable twitching of the muscles of both legs, especially the toes. Operation, May 9, 1903; ether anesthesia. An incision was made, 6 in. long, over the spines of the vertebras, the middle of the incision resting upon the eleventh dorsal spine. The laminas of the tenth, eleventh and twelfth vertebras were removed by the chisel. The bullet was found lying transversely between the severed ends of the cord, concealed from view by a large blood clot. A very narrow, ragged, and contused strip of dura, scarcely more than a sixteenth of an inch in width, remained intact. The blood clot was carefully sponged away and the bullet removed. The ends of the cord were then sutured with three fine chromicized catgut sutures, the dura being included in the sutures. No special difficulty was experienced in drawing together the ends of the cord and closing the defect, the latter representing in width the diameter of the 38-caliber bullet. The dura was further secured with a number of sutures of fine catgut, and a drain consisting of a half dozen narrow strips of oiled silk protective introduced. The skin incision was sutured with silkwormgut. On May 30 the following note appeared on the hospital record: "Wound healed, upper line of anesthetic area from 1½ in. to 3 in. lower than before operation. Twitching of toes of both feet and occasional clonic muscular spasms of the flexors and extensors of the thighs; the patient says his 'feet jump up on him.' Can feel when the bowels move, but is without control of the rectum. Can feel distention of the bladder with urine, but is without control." The main points of interest in this case related to the possibility of regeneration of the spinal cord following a destructive lesion. Prior to the report of F. F. Stewart's case, in which R. H. Harte sutured the cord after it was severed by a bullet, it was the opinion of the majority of investigators that such regeneration in man was impossible. Mikulicz, of Breslau, endeavored to demonstrate the possibility of a successful regenerative process in the lower animals following section of the cord, but without result. Spiller and Frazier found that after division of a posterior root in the dog, followed by immediate suture, regeneration occurred, and that regeneration into the cord did not occur. In Fowler's case, 26 months after the injury, voluntary motion was practically lost in the affected area. The patient was able to stand when supporting himself by the hands resting upon an apparatus, and to make some locomotion by swinging movements in a special frame on wheels. The bladder and rectum control was doubtful, to say the least, the former acting automatically. The patient had the sensation that the bladder and rectum were about to empty themselves, and if the urinal or bedpan were brought to him promptly, soiling was prevented. The amount of urine passed in this manner probably averaged more than a pint in the 24 hours. The urine was sometimes voided during sleep. Sensation was practically abolished in the entire affected region, with the exception of an area about five inches in length extending down the outer side of the right thigh, where some sensation was present. He was not able to correctly distinguish between heat and cold. Tactile sensations were recognized, and were usually referred to a point two or three inches distant from the point touched. Marked rigidity and spasticity of both legs were present. Patellar reflex exaggerated; Achilles reflex marked. Ankle-clonus present on one side and absent on the other. The reaction of degeneration was absent. Bed sores developed in the third month; these extended to the muscles, and were six months in healing. The skin showed but slight, if any evidences of trophic disturbance. A final and important comment was suggested in comparing this case with the Stewart-Harte case, namely: The Stewart-Harte case was operated on three hours after the injury, while in Fowler's case upward of 10 days had elapsed before consent to interfere operatively was obtained. The prolonged separation of the divided ends of the cord and the presence of the foreign body had, in all probability, an influence in preventing a complete regeneration of the cord, as occurred in the first case, provided, of course, that regeneration did actually occur. While the case in hand was, therefore, not as striking in many of its features as the Stewart-Harte case, the author thought it presented some points of interest, and for this reason was offered as a contribution to the literature of the subject.

The Surgical Treatment of Intraspinal Tumors.—RICHARD H. HARTE (Philadelphia) said that the science of spinal localization was now so well developed that it usually was not difficult to determine with accuracy the location of an intraspinal growth. What was usually understood by the term tumor of the spinal cord was an extramedullary but intraspinal growth, like a sarcoma, a fibroma, or a myxoma, giving no evidence of its existence, except by the symptoms of medullary pressure which it produced. There had been found records of 92 operations for spinal tumors, among which number 43 patients died, a total mortality of nearly 47%. The nature of the tumor was recorded in 88 of the reported cases. It was sarcomatous in two-fifths of the whole number (37 cases); adhesions, thickenings, etc., hold second place, with 11 cases; then came echinococcus, 8 cases; fibroma, 6 cases; syringomyelia, 5 cases; endothelioma, 4 cases; psammoma, 3 cases; cyst, 3 cases; fibromyxoma, 2 cases; osteoma, 2 cases; and 1 each of myeloma, lipoma, lymphangioma, dermoid cyst, primary and secondary carcinoma, and 1 tumor of bone, whose nature was not stated. He reported an interesting case of paraplegia from Pott's disease, in which he resorted to laminectomy with great improvement. With very few exceptions, he said it was impossible to determine the nature of the tumor before operation. He reported a case of dermoid cyst of the spinal canal on which he operated, followed by recovery, the patient being a girl of seven. Of 82 cases in which the region of the spine affected was given, the upper dorsal region was involved in 33 cases, or over 40%. The tumor was found in the lower dorsal region in 24 cases, in the lumbosacral region in 14, and in the cervical region in 11 cases. The cause of death was given in 28 cases. Half of these were due to shock and hemorrhage,

or to infection and meningitis, there being 7 fatal cases under each of these categories. Eight patients died from exhaustion, 3 from recurrence of malignant growths, 2 from hypostatic pneumonia, and 1 from bed sores and sepsis. As regards the technic of the operation, it was essentially the same as when employed in traumatic cases.

Tuberculous Conditions of the Spine Requiring Surgical and Mechanical Relief.—DE FOREST WILLARD (Philadelphia) stated that the principal surgical measures employed for the relief of spinal caries were laminectomy for paraplegia; forcible immediate straightening of the kyphosis; forcible gradual straightening; erasion of carious bone; wiring of spinal processes; evacuation of pus accumulations; long-continued fixation of the column, and hygienic measures to prevent the necessity for operative interference. Complete, methodic, and long-continued fixation of the spine in the position of hyperextension, with healthful surroundings in the sunlight were the prime factors in securing new ossific deposit necessary to replace the carious bone. Laminectomy for paraplegia was advisable only after long-continued and patient treatment along the above-named lines from one to two years, since the prognosis, especially in children, under these conditions was favorable and good powers of locomotion might be confidently expected. The operation was justifiable in selected cases in which loss of motion and sensation were progressively worse and the symptoms threatened life. If the tuberculous masses within the spine could be removed, and if extradural pachymeningitic deposits or pus could be taken away, improvement might be expected, and in many cases relief occurred. The operation had a mortality of about 25% from immediate shock; 36% within a month, while half the cases died within the next year, their lives being probably shortened by the operative procedures; cases of nonimprovement and death equalled nearly 65%. Forcible immediate straightening of the kyphosis was an unsurgical and dangerous proceeding; it was liable to reawaken the tuberculous disease and to weaken the column. Forcible gradual straightening by supporting the kyphotic area upon a pedestal was a valuable agent in relieving deformity. The weight of the shoulders and pelvis could thus be utilized as straightening forces, and the weight of the column thrown upon the posterior arches. In this position it was permanently fixed by plaster-of-paris. Complete erasion of the carious bodies of the vertebras was an uncertain operation, in the dorsal region requiring section of ribs, with danger of wounding the pleura. Wiring of the spinous processes had never been sufficiently tried to demonstrate its helpfulness. Spinal abscesses which contained only liquefaction of caseation should be aspirated. When true pus formed, aseptic thorough drainage was advisable.

Tumors of the Spinal Cord.—J. COLLINS WARREN (Boston) read a paper on this subject, in which he reported three cases of tumor of the spinal cord, operated on with good results.

Spina Bifida.—JAMES E. MOORE (Minneapolis, Minn.) read a paper on this subject, in which he presented an analysis of 385 cases treated by excision. A careful study of these reported cases, illustrating the experience of many surgeons, justified him in drawing the following conclusions: 1. Operation upon children of very tender age is scarcely worth while, because it is accompanied by so large a mortality rate, and because it does not stop the advance of progressing cases. 2. Patients aged 5 or more can be operated upon safely. 3. Patients with large or rapidly growing tumors, with hydrocephalus and with paralysis or deformities of the extremities, are not cured. Finally, all we can hope to accomplish by operation for spina bifida is to relieve the patient of an unsightly and annoying tumor after he has survived the dangers of the affliction, *per se*.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine*.]

[*Continued from page 138.*]

A Case of Angioneurotic Edema.—O. B. DOUGLAS (Concord, N. H.). The patient was a man, aged 41, who recently came under the speaker's observation, complaining of a sudden swelling of his tongue. He stated that last Christmas he had had for the first time a similar experience. The swelling first involved one edge of the tongue, and gradually extended to the other, subsiding on the side first affected as it increased on the opposite side, and usually disappearing in the course of 12 hours. He had also had similar manifestations, involving the right arm, face, scrotum, etc., subsiding usually in 12 hours. There was never any pain nor rise of temperature, and usually no premonitions nor discoverable immediate cause. The patient was an habitual drinker of Bass' ale, and occasionally of whisky. His appetite was usually good, his bowels were regular. The case was interesting, Douglas said, on account of the possible occurrence of edema of the glottis during one of these attacks. Osler had reported a number of similar cases, in two of which death occurred from acute edema of the glottis.

Discussion.—WOLFF FREUDENTHAL (New York) said that from the history given by Douglas, he was inclined to regard the case as one of urticaria or giant urticaria. He had observed a number of such cases, and in one that he reported about 15 years ago, the larynx was affected. The usual history obtained from these patients was that the attacks followed some indiscretion in diet, and that fact should not be lost sight of in the treatment of these cases. THOMAS H. HALSTED (Syracuse, N. Y.) said he agreed with Freudenthal that Douglas' case apparently belonged to one of the varieties of urticaria, and was closely allied to angioneurotic edema. In three such cases that had come under his observation, two developed edema of the glottis. Halsted said that one of the most important features in connection with this condition was the possibility of its following the use of diphtheria antitoxin. It was well known that this remedy frequently gave rise to various types and degrees of urticaria and angioneurotic edema, and the possibility of its causing edema of the glottis, which might be mistaken for the presence of diphtheric membrane in the larynx, should not be overlooked. CHARLES W. RICHARDSON (Washington, D. C.) said he thought the case shown by Douglas was one of angioneurotic edema, and when it affected the larynx there was usually a great deal of infiltration of the tissues of the neck. In many of the cases there was a marked hereditary taint, and in one case that came under the speaker's observation the condition could be traced back through three generations. The father had had three attacks in which there was marked edema of the pharynx and larynx, with threatened suffocation, and the son had two similar but less severe attacks. One peculiarity of the hereditary factor in these cases was that the male members of the family were more prone to be affected than the female. The condition was often associated with errors in diet. It usually subsided very quickly upon purgation and free incision. WILLIAM L. BALLENGER (Chicago, Ill.) said that about eight years ago he reported a case of angioneurotic edema, which was apparently similar to the one shown by Douglas. The patient was a young woman of 23, who was on her way to the theater. While on the train she developed a severe headache, and after traveling about five miles, she had an attack of suffocation. She left the train at the next station, and was brought to Ballenger's residence. When he saw her, she was suffering from acute dyspnea, and upon examination he found the uvula, the lateral wall of the pharynx, and also the glottis somewhat edematous. In addition to that, both sides of the nose were edematous and much infiltrated, and the patient was in an extremely nervous state of mind. Under the use of astringent applications the condition practically disappeared at the end of 24 hours. In this case there was no history of any other member of the family ever having been similarly affected. The young woman was a teacher; she was of a neurotic temperament, and had considerable digestive disturbance. There had never been a recurrence. J. A. STUCKY (Lexington, Ky.) asked if there was any history of rheumatism in Douglas' case. He was inclined to believe that these manifestations were associated with the acute lithemic condition. LEWIS A. COFFIN (New York) inquired as to the condition of the stomach and bowels in Douglas' case, and said that while the causes of these manifestations were numerous, he thought that in the majority of cases the condition was due to gastrointestinal trouble. In one case under his observation, a woman, the immediate symptoms were quickly relieved by sedatives, and this, followed by lavage of the stomach and bowels gave relief for some time; in fact, until another attack was brought on by some indiscretion in diet. JAMES E. LOGAN (Kansas City, Mo.) said he had noticed that many of these patients partook liberally of cheese, especially in the form of Welsh rarebits. JOHN F. CULP (Harrisburg, Pa.) mentioned the case of a woman who developed this condition every time she indulged in eating nuts, and her last attack was produced by eating a small quantity of nut candy. The tongue and palate became very much swollen, and suffocation seemed so imminent that preparations were made to do a tracheotomy. Under applications of cocain solution, however, and the use of ice, she became comparatively comfortable in a few hours. This patient, Culp said, had long suffered from chronic indigestion, and had some trouble with her bowels. HARRY L. MYERS (Norfolk, Va.) mentioned a case in which the edema involved the eyes. This patient gave a distinct history of rheumatism and asthma. In another case the larynx was much affected. The treatment that seemed most efficacious in the cases he had seen was large doses of benzoate of soda and injections of pilocarpin. O. B. DOUGLAS, in closing, said that during the patient's first attack, adrenalin chlorid was applied, and apparently had some good effect. It was tried again in the second attack, with no effect whatever. Appreciating that the condition was neurotic in character, he administered whiffs of chloroform until the patient became unconscious, when, for the first time, the swelling remained stationary. It did not, however, immediately begin to subside. In reply to various questions, Douglas said that this man gave no history of rheumatism; he had never been poisoned by ivy or sumach; he was not constipated, and had never complained of any stomach symptoms. Douglas said that in another case that came under his care recently, the edema of the larynx was relieved by spraying with adrenalin chlorid solution, and recovery was very prompt. That patient was a woman.

[*To be continued.*]

ORIGINAL ARTICLES

EPIGASTRIC LINEA ALBA HERNIA AS A LITTLE RECOGNIZED SOURCE OF ABDOMINAL PAIN AND OF GASTRIC SYMPTOMS.*

BY

D. D. STEWART, M.D.,

of Philadelphia.

The occurrence of hernia in the linea alba above the umbilicus, hernia most frequently of small size, and often only apparent on minute examination and its importance as a source of gastric symptoms, has received far too little attention by both clinician and surgeon. The fact that a nodule of adherent omentum or of preperitoneal fat united to the peritoneum by a pedicle, a protrusion often so small as only to be discovered on the closest inspection or by careful palpation, may produce and continue symptoms simulating gastrointestinal disease, that gastralgia, enteralgia, gastritis, gastric ulcer and cancer, gallstone disease, and the like, have been erroneously diagnosed, and the hernia, the cause of the symptoms, has long escaped observation, renders the topic of considerable clinical interest..

My attention was first directed to the subject about ten years ago through a case in my service in the Polyclinic Hospital, the first, so far as I know, that I had seen, certainly the first I had recognized. The patient, a Russian Hebrew, was brought to the hospital with a severe attack of abdominal pain and was seen in the outwards by Dr. T. S. K. Morton and myself. He gave a history of a long-existing, unrelieved, gastrointestinal disorder, the chief symptom of which was recurring colic. Examination of the abdomen disclosed a small hernia in the linea alba above the umbilicus, which was acutely sensitive to touch, and which was evidently the cause of the symptoms. The case made a deep impression, and I have since had in mind the likelihood of the occurrence of this form of hernia as a source of obscure abdominal pain, and almost invariably as a routine procedure, have looked for it in the examination of patients with gastrointestinal symptoms. The knowledge of its occasional occurrence, and that existing, it may be the source of symptoms otherwise inexplicable, has been of considerable service to me. In the past decade, in hospital work, I have seen a number of these cases, and have had five in private practice. I wish now to relate briefly several recently observed instances which have about them points of clinical interest. I shall then refer to a few others bearing on these:

Case of small supraumbilical hernia of the linea alba, causing recurring, severe gastralgia:

E. A. F., slender build, nervous temperament, aged 27, clerk, consulted me July 1, 1904. He had been subject to spells of colic for several years, an attack lasting often four to five days, with intervals of from a few days to several weeks between. Pain had origin in the epigastrium, and thence spread over the whole abdomen. An attack was more apt to occur after eating, especially if he overindulged. The pain might occur without relation to eating, and apparently was very little influenced by the character of the food. Overeating, causing indigestion, would aggravate the frequency and severity of the attacks. There was more or less bowel flatulency; the bowels were quite regular without laxatives; had often been freely purged during an attack, with the idea of decreasing its severity; pain then was rather aggravated than ameliorated. There was no loss of flesh; poor appetite; he got very little fresh air and no out-of door exercise. Smoked eight to ten cigars daily; was somewhat addicted to venereal excess and late hours; moderate alcoholic indulgence.

Physical Examination.—Slender-built young man; handles yarns in his business; no blue line, no history of plumbism. Nothing abnormal in chest, save slightly irritable heart (tobacco). Abdomen rather thin, though firm walled. In the erect posture and in recumbency, there was evident only on careful scrutiny, but easily apparent to the palpating finger, a very small nodule in the linea alba, the size of half an ordinary-sized pea, 1½ in. above the umbilicus. It was firm to the touch, very sensitive to even delicate palpation; it was without impulse on coughing, and irreducible. The stomach was normally placed, liver and spleen outline normal, left kidney not palpable, lower pole right kidney barely so, no hernia elsewhere.

The patient was immediately told that the small nodule was the probable cause of his attacks, and operation suggested, but he was absolutely opposed to this, and desired medical treatment, especially since his family physician, a surgeon as well, was then in Europe.

Several examinations made to determine the condition of the stomach, showed mucus subacid gastritis.

July 2, 1904, an hour after, 60 gm. bread, 250 cc. water; 45 cc. removed. Largely ropy mucus; filtrate, amber; total acidity, 47; Günzberg, very faint response; Toepfer, 25; starch, imperfectly transformed.

Second test of this day: Fasting, two hours; same meal as above, 80 cc. removed; more remaining, as subsequent lavage showed. Considerable amount of ropy mucus; total acidity, 38; Günzberg, faint reaction; Toepfer, 20; starch, imperfectly transformed.

July 7.—Three hours after, half pound sirloin steak, potato, two rolls, half glass of milk, small amount only removed. Tube blocked by food and debris, and ropy mucus; total acidity, 50; no response to Günzberg or to Toepfer solution.

July 2.—Urine clear, amber, acid; specific gravity, 10,30; albumin, normal trace; glucose, absent.

Microscopic Examination.—Nothing noteworthy.

Patient was seen frequently in July; epigastric hernia always as above described, though less sensitive later to palpation. Adherent omentum noted in case history as the evident exciting source of the pain, attacks of which, perhaps, were maintained and aggravated by the condition of the digestion and patient's habits of life.

The following treatment was instituted: Discontinue tobacco; very little venery; more fresh air; diet and habits to be generally regulated; daily morning stomach douching; hot sodium bicarbonate solution, followed by cool normal salt; glass of Carlsbad water, drunk after lavage; occasional castor-oil capsule at night. Before meals, extract cannabis indica, 6 mg. ($\frac{1}{10}$ gr.); extract nux vomica, .02 gm. (¼ gr.); anesthesin, .19 gm. (3 gr.); after meals, pancreatin. If gaseous distention is marked at night, when attacks commonly originate, naptholated charcoal. The attacks had been very frequent before consulting me, and there was commonly daily epigastric pain. On the foregoing treatment there was immediate improvement. The pains were less frequent and severe, and it was noted September 15 that none whatever had occurred since July 22. The cannabis indica-anesthesin combination was only continued for a short time; the pancreatin, steadily.

September 20.—Examination stomach contents, an hour after 60 gm. bread; 200 cc. water, moderate amount removed, well solved; no mucus; total acidity, 45; Günzberg, trace; Toepfer, 20. Nitromuriatic acid, nux vomica and gentian ordered before meals. No pain from July 22 until October 7. Then attack at 11 p.m.: very severe abdominal cramp, lasting about 15 minutes; doubled him up; no nausea or vomiting; bowels regular, freely opened. Had been walking three to four miles after breakfast to his business place. He was again smoking to excess, and habits otherwise unhygienic.

On October 17, he reported pains and indigestion as formerly. Patient has relapsed into old condition; operation again urged, without result; improvement again followed care in diet, attention to general health, and resumption of morning lavage. No attacks from September 13 until November 30; then presumably due to marked indiscretion in diet.

January 11 and 12, severe attack each night; dietetic indiscretion. Hernia not apparent to eye, and but slightly to finger; much gaseous distention of the bowels. For a considerable time prior to this date sensitiveness had ceased about the hernia, and no pains occurred again until January 25. He then reported that for several days he had had repeated severe attacks of colic. Exquisite sensitiveness was now present on palpating the ring of the hernia; the hernia itself was not evident to the finger. Immediate necessity for operation was now made apparent to the patient and his family, to which Dr. Steinbach, his family attendant, to whom I now again sent him, agreed. Dr. Steinbach had seen the patient with me three months before, but in view of family opposition to surgical interference, had preferred to postpone this.

Operation was done by Dr. Steinbach, January 27. The following is the doctor's report as to the findings: "The hernia was occasioned by a somewhat oval opening in the linea alba, about ½ in. in its vertical, and ¼ in. in its transverse diameter. The peritoneum (sac) was adherent to the integument, and a portion of the omentum, in the shape of radiating strands, was adherent to the sac, and therefore, practically to the skin. I excised an elliptic portion of the integument with the adherent peritoneum sac, ligated the adherent portion of the mesentery, cut it off in front of the ligature, and closed the opening by through-and-through sutures, and separate sutures of the linea alba. There was no real strangulation, because the sac could quite properly be said to have had no neck, but the adhering of the mesentery caused it to thicken and form the strands which I mentioned, and this practically gave rise to the pains."

The patient made a good recovery, and at the present writing (May 8), he reports no attacks since the operation. Flatulency which had been a marked symptom prior to operation, has now disappeared.

* Read before the Twentieth Annual Meeting of the Association of American Physicians at Washington, May, 1905.

It is very evident how such a condition could originate attacks of abdominal pain, which, when the pain habit had thus been established, could be aggravated and continued by the gastric condition present, and the patient's unhygienic habits lowering nervous tone and accentuating the existing neurotic inheritance.

In the following case, so far as I can ascertain, the hernia had never been regarded in its consideration. The physician—an abdominal surgeon as well—whom the patient had seen prior to consulting me, although he had examined the abdomen, informed me that he had not noticed the hernia. In this case, the most prominent symptom, apart from very evident neurasthenia, is a nervous disturbance of digestion characterized by persistent, rebellious flatulency. I regard it as likely that the hernia, through long-continued reflex disturbance of the gastric functions, has been a factor in the production of the gastritis present, since no history of abuse of the stomach is in evidence.

M. M., Hebrew, aged 50; merchant; recently seen. Stomach trouble for many years, chiefly nervous in character; gaseous distention of the stomach and bowels constantly present; sensations of fulness and discomfort after meals; bowels regular; appetite good, occasionally "crampy" pains. He is about 10 pounds below his best weight; habits always good; never abused stomach; on the contrary, overcareful. Nervous and hypochondriac. Has been to many physicians in Europe and in this country without relief of symptoms.

Physical Examination.—Chest, nothing abnormal. Abdomen, epigastric hernia sensitive to touch, the size of half a small, flattened shellbark, evident in linea alba about an inch above the navel. Marked gaseous distention of the abdomen. This, he states, has been apparent for years. Stomach slightly dropped; inflation shows inferior border below umbilicus; no dilation. (Inflation and water tests.) Liver, spleen, and left kidney normally placed; right kidney palpable on deep inspiration, but not abnormally loose.

Urine, clear; light amber; acid; specific gravity, 1,008; albumin and glucose, absent. Microscopically, nothing noteworthy.

Examination Stomach Contents.—Cleansing lavage at 9.30 a.m.; 9.45 a.m., 60 gm. bread, and glass of hot water; at 11 a.m., 50 gm. bread, glass of hot water; at 12 a.m., stomach empty; 100 cc. thickish contents; much ropy mucus; total acidity, 55; Günzberg, strong reaction; Toepfer, 30; starch digestion, fair.

The following day cleansing lavage at 8.30 a.m.; 9.45 a.m., ½ lb. steak, 2½ oz. bread, 12 oz. weak tea. Three hours after finishing eating, emptied stomach; 200 cc. well solved; fluid; large amount ropy mucus; amber filtrate; total acidity, 100 (litmus); Günzberg, absent; Toepfer, 53.

Despite the presence of mucus, acid gastritis with atony, and the absence of direct symptoms resulting from the hernia, I regard the latter largely as the cause of the symptoms. The hernia had existed at least 16 years, about the time of the onset of the ailment. It is soft to the touch, at times a slight gurgle is evident in it, as if it might be a gastroepiplocele; it is irreducible. The patient has been under observation two months; the gastritis received active treatment; morning lavage with hot soda solution, followed by cool normal salt douche; silver nitrate douche, or silver vitellin employed two or three times weekly for a month. Menthol valerianate for the control of nervous belching used without result, as was napthol and charcoal, to discover if the flatulency was of fermentative origin. Bitter tonics and nervines were administered, all of which are usually helpful in the condition present. Although there was considerable improvement manifest in the gastric condition as concerns diminution in mucus production, and lessening in atony, the flatulency, nervous belching, and general gastric discomfort persisted. Despite urging, the patient refuses operation.

The following case was referred to me by Dr. B. Segal, for an opinion. The doctor stated in his note of reference that the patient "had been suffering from pain and distention of the stomach for a number of weeks. Treatment gives him temporary relief only. I suspect malignant trouble."

A. G., Hebrew, aged 50; attacks of cramp-like pain of great severity in epigastrium; through to the back; present for at least five weeks; then with onset of pains, at the height of their severity, he had spells of vomiting, which now no longer occur, although pains still as pronounced.

Examination of abdomen disclosed a small, fixed, epigastric hernia in the linea alba, a little below the xiphoid cartilage; it has a circumference about that of a silver quarter of a dollar; it is soft, and suggests a gastroepiplocele. Pain has origin in this spot, and then radiates through either hypochondrium to the dorsal region. The hernia is exquisitely sensitive to touch; there are no other gastric symptoms; appetite is good, and bowels regular.

The patient was returned to the doctor, with an opinion that the hernia was undoubtedly the cause of his trouble. The patient refused operation.

In these cases the hernia was small; in the first it was barely apparent to the eye, while in cases two and three it was, though small, fairly evident on inspection, with the patient in the erect posture. It is cases such as these which are the most troublesome, since the apparent triviality of the protrusion, even if it does not escape recognition, often does not suggest itself to the physician as a likely source of the malady.

The occurrence of epigastric hernia, the majority of which is in the linea alba, was originally described by Garengeot,[1] under the name of gastrocele. It furnishes somewhat less than 1% of all varieties of hernias,[2] and is far more common in the male than the female. It is more usual in adult life than in infants or children, and its occurrence in the majority of cases is believed to be due to a congenital or acquired defect in the fascia[3] of the linea alba, as a result of which trauma and strain produce a slight diastasis of the recti. Into this either a nodule of subperitoneal fat (preperitoneal lipoma united by a pedicle to the peritoneum) makes its way; or more commonly, a portion of omentum,* which rarely may be accompanied by a portion of the small intestine, and more rarely by stomach. A strain, as by heavy lifting, or some unusual form of exercise, violent vomiting, or coughing, producing a sudden rise in intraabdominal pressure, is the probable exciting cause. These forms of hernia, of which one is the rule, and of which two are unusual, whether preperitoneal fat or omental, through their nerve connections and especially through their attachments to the subjacent structures, and to the stomach† or liver, and their fixation by adhesions about the orifice of the ring, and its under surface, rarely fail to originate early symptoms after their appearance. There may be no apparent fixation of the hernia at the ring, a portion of omentum being intermittently incarcerated, and producing recurring pains only through its presence. With relaxation of the recti in recumbency the hernia may disappear, as in a case recently observed. The small separation in the linea alba, or immediately to one side, apparent on careful palpation, then furnishes the clew to its existence. The symptoms are commonly as described in the foregoing cases and in those to be related, and are usually referred to the stomach, whence a diagnosis of some form of gastric disorder, gastritis, gastralgia, ulcer, or even gastric carcinoma, is made by the unwary, or the case may be looked upon as one of gallstones.

I recently saw a case through the kindness of Dr. Deaver, in which the symptoms—severe recurring attacks of gastralgia and enteralgia, with vomiting and debility, and neurasthenia of high grade—had been previously attributed to gallstones by a wellknown surgeon, and the diagnosis was concurred in by a clinician of wide experience. On this account, in the operation for the removal of the epigastric hernia by Dr. Deaver, the gallbladder was also explored, but found entirely free from disease.

In this case there was slight reason for confusion, the hernia was large, and although it has existed for a long time without special direct symptoms, the recurring and persistent attacks of severe colic following immediately after exercise involving unusual physical strain, indicated the source of the pain. The patient was of neurotic temperament, and had become the subject of hysteroidal attacks while suffering from nervous prostration, the result of mental overapplication and family worry. Later, when in fairly good physical condition, an attack of intense abdominal pain immediately followed unusual muscular strain, as above stated, and these attacks had continued (and entirely replaced the former hysteroidal seizures) with increasing frequency for eight years. Morphin was required for their relief. The character of none of the seizures suggested gallstone disease; they were distinctly gastralgic and

* A comprehensive account of the pathologic anatomy of epigastric hernia has been given by H. A. Lathrop (*Boston Medical and Surgical Journal*, February 25 and March 4, 1897). Lathrop points out that as in the epigastric area there are no preformed openings, the hernia must make its way through a rent in the tissues of the linea alba and that a common point of origin is that between the umbilicus and the xiphoid cartilage at which the sound ligament and paraumbilical veins leave the abdominal wall, on their passage to the liver.

† It is especially the pull or drag of the omentum on the stomach in these cases which tends to originate the gastric symptoms.

enteralgic, and if not a result of the hernia, could only be regarded as of neurotic source. An interesting feature was the persistence of the attacks of abdominal pain for some months after operation, and then their gradual cessation; their long existence before removal of the hernia having, in a neurotic subject, established a pain habit not easily broken. The case in this respect seemed analagous to those of Jacksonian epilepsy, in which a too tardy, though thorough removal of a coarse brain lesion does not readily cure the firmly-established fit habit. The protrusion was still evident for some months after operation, but now has not been apparent for a long while, although its former site is still extremely sensitive to slight pressure. The attacks of pain diminished in severity following operation, but did not finally cease for some time. None has now occurred for over five months.

Lathrop [4] related an instructive case in which attacks of jaundice occurred complicating abdominal pain, the result of an epigastric hernia, and caused the diagnosis of gallstones to be made by several physicians.

The patient, when a rugged boy of 18, fell upon a sharp-pointed stick, injuring the epigastrium. Collapse followed, and for some weeks local pain. Six years later sharp pains in the epigastrium, with other gastric symptoms, especially after eating, appeared and continued with varying severity. For ten years from this time he suffered from moderate gastric symptoms, accompanied by pain and tenderness in the epigastrium. Twenty years before Dr. Lathrop's report, the attacks of pain and vomiting became more frequent and severe, and then a small tender swelling was noticed above the umbilicus. This tumor increased until it became the size of a fist, but was commonly reducible with coincident alleviation in symptoms. Five years later, in addition to the attacks of pain and gastric symptoms, coincident with the appearance of the hernia, he began to have chills, elevation of temperature, and a marked degree of jaundice. The attacks were without periodicity, from a week's interval to occasionally three months, provided the hernia was retained in position, although persistent distress after eating and a dull ache and occasionally sharp pains in the epigastrium were noted. Inspection with the patient lying on the back showed nothing abnormal, except a little fulness of the skin in the median line, half way between the ziphoid and the umbilicus, which became prominent on coughing, and when fully protruded formed a mass the size of a hen's egg. The mass could be reduced, except a small portion which was adherent to the ring. The ring admitted only the tip of index finger. Operation showed the omentum firmly adherent around the whole inner circumference of the ring, and continued inward toward the pyloric end of the stomach (greater omentum) and thence to the liver (lesser omentum) as a fairly firm band. On severing this from the ring it was found to contain the round ligament of the liver (obliterated umbilicus vein) and a portion of the falciform ligament and the great omentum.

Seven months after operation the patient was reported "entirely relieved of all his old symptoms, and only regrets that he was not operated on 20 years before.

Lathrop notes that jaundice has been recorded six times as a complication in epigastric hernia in cases in which at operation the gallbladder and ducts were normal. The patients were operated on for presumed gallstones. "In all the cases there was an adherent omental hernia, the tension of which may have obstructed the gallbladder at times."

Bergmann,[5] of Berlin, in a clinical lecture in 1894, stated that he had encountered more than a dozen cases of epigastric hernia "in which the best specialists of Berlin and Paris had diagnosed gastritis, gastric ulcer, and cancer, and had previously employed lavage, rigid diet, and other approved modes of treatment, without result." Hernia in the linea alba had later been discovered, corrected, with a cure in each instance; and König,[6] in his textbook on Surgery, relates similar instances.

In this particular, Davis reports a very interesting case, which for a number of years he and other physicians had more or less under observation, and in which he, throughout this period, without thorough examination, had treated for gastritis, presumably the result of alcoholism. The man had recurring attacks of very "intense gastric pain, vomiting, great nervousness, and cardiac depression. The ingestion of but a teaspoonful of water would aggravate his suffering and provoke vomiting. Morphin, hypodermically, alone gave relief. The seizures usually followed close upon the heels of debauches, lasted from three days to a week, when the symptoms disappeared as if by magic." But it was later noted that many of the seizures were dissociated with alcohol, and as he was rheumatic, it was presumed by another attendant, and in a measure then coincided with by Dr. Davis, that the affection might have origin in "a rheumatism of the muscular fibers of the stomach." Some eight years after he had first been seen by Dr. Davis, but when he had not been for some time under the latter's observation, an abdominal examination by Dr. Davis disclosed a small hernia of the linea alba "not larger than a butter bean," about 1½ in. below the xiphoid appendage. Of the existence of this, the patient had been aware for years, and had been told by previous attendants whose attention had been directed to it, that it was a small cyst and of no importance. Operation by Dr. Davis showed an adherent omentum continued in "the form of a band to a greater curvature of the stomach not far from the pylorus." There was no recurrence of the attacks, the patient making a complete recovery.

Aaron [7] relates a case in which the symptoms of presumed gastric catarrh had existed for four years. There were, with intervals of freedom from symptoms, recurring attacks of nausea and vomiting and epigastric pain; anorexia and a loss of 28 pounds in four months due to the persistent inability to retain food. The removal of an epigastric hernia, about the previous existence of which the patient was unaware, brought about a speedy recovery, with no return of symptoms in the lapse of five years.

W. H. Bennett,[8] in a clinical lecture entitled, "Deceptive Abdominal Pain in Latent Hernia, Especially with Reference to the Surgical Aspect of Certain Cases of Indigestion," recites two very interesting cases of long-existing and improperly treated "dyspepsia," due to unrecognized epigastric hernia in the linea alba, and cured by their removal.

One, a woman, aged 32, had "for 10 years been constantly a victim of very acute dyspepsia," as she described it. Cramp-like pain after food, especially that which was indigestible, was the most prominent symptom. She had consulted a variety of physicians, and by all had been treated for dyspepsia. Bennett, at the termination of an examination of the abdomen, and then somewhat accidentally, discovered in the linea alba, about half way between the ensiform appendix and the umbilicus, a small, rounded, movable nodule, about the previous existence of which she or her former attendants had no knowledge. From this the pain had origin and radiated. Dr. Bennett remarks as to the somewhat accidental discovery of the hernia, that he examined her as carefully as he could, and was bound to say he could at first find nothing to account for the symptoms. Finally, however, as he happened to be palpating the middle part of the abdomen, the patient suddenly exclaimed, "that is the spot at which the pain begins." The removal of the offending omental protrusion, which was of no greater size than a large pea, completely cured the long-existing indigestion.

The second case reported by Bennett is also well worth reciting:

It is that of a man in whom there was discovered about an inch above the umbilicus a small, rounded, movable nodule, the size of a cherry. The patient had suffered for a long time from "intense rolling and cramp-like pains about the middle of the abdomen, which always followed the taking of food." He had been treated for dyspepsia, and all sorts of drugs had been prescribed without relief of symptoms. Operation disclosed a rounded nodule of fat (a congenital lipoma) which, terminating in a thin stalk, was continuous with the subperitoneal fat and passed through a small opening in the abdominal aponeuroses not larger than a No. 8 English catheter. The special interest in the case is in the fact, as narrated by Bennett, that it demonstrated conclusively that pains and discomfort indistinguishable from those produced by an omental hernia in this situation may be caused by protrusion of a mass of extraperitoneal fat.

Lindner,[9] in a monograph on abdominal hernia, relates cases similar to the foregoing of previously unrecognized epigastric hernia in the linea alba.

In one, an army officer, the symptoms had existed for seven years, the hernia having probably been originated from a strain during violent exercise. His attendant then noted resistance in the epigastrium, and an ointment was prescribed. The patient continued to have violent epigastric pain, in one attack of which he fainted; in another there was considerable rise of temperature. He was often incapacitated, and consulted many physicians, all of whom diagnosed gastric ulcer. The symptoms continuing, he went from one physician to another; was put on various diets and bath cures, and had frequent lavage; for a year before consulting Lindner he had been given daily massage of the epigastrium under the most violent pain, with an idea to its amelioration. He grew progressively worse, and at the expiration of seven years after the onset of symptoms, he consulted Lindner, who found a small hernia in the linea alba, located "a hand's breadth above the umbilicus." Operation resulted in absolute cure.

Kuttner, an assistant of Ewald's in Berlin, in an instructive paper [10] on "Digestive Disturbances Caused

by Various Forms of Hernia, Especially Those of the Linea Alba," refers to the cases of Lindner and others, and cites the following very interesting instance of previously unrecognized small supraumbilical hernia, which had been productive of various ill symptoms:

A merchant, aged 56, for two years had had paroxysmal attacks of colic. Pain radiated from the epigastrium to the back, girdle-like; commonly one to two hours after food, especially after solid food; colicky pain on exertion, and especially on bending or lifting, ameliorated on assuming the recumbent posture. Lately gastric pain had been constant; no vomiting; bowels sluggish; tense abdomen, due to meteorism. Headache; vertigo; hypochondriasis were present. No tumor was ever noted by his physicians. Various forms of diet were tried. He was sent to a stomach specialist; normal gastric chemism found. Diagnosis: Nervous indigestion. Treatment accordingly; no benefit. As he had had lues 20 years before, inunction cure for syphilis was tried unavailingly. He was finally seen by Kuttner. A small hernia the size of a lentil was discovered in the linea alba, two fingers' breadth above the umbilicus, irreducible and very sensitive to touch. Operation resulted in restoration to health.

Kuttner remarks that these cases might readily be mistaken for various abdominal disorders, and especially for simple gastralgia and enteralgia, for gastric ulcer and carcinoma, for cholelithiasis, and for gastric neurasthenia and hypochondriasis.

Although I have long had in mind the importance of this subject, I was, until I began this report, unaware of the extent of the literature on epigastric hernia, and held with Davis, that its dearth was ample reason for non-recognition of these cases showing direct and reflected gastrointestinal symptoms. Davis remarks that "the leading American textbooks on surgery do not mention it at all, or dismiss it with a line. Careful search through a large number of American surgical works has failed to discover a word to indicate the severe gastric symptoms which a slight hernia in the linea alba may cause." This fact probably accounts for the paucity of knowledge on the subject shown by surgeons[11] and clinicians in this country. Abroad it has somewhat received the attention it merits, but not at all generally, either by clinicians or surgeons. Doubtless, nowhere is it commonly recognized that even a very small hernia in the linea alba may be the source of obscure and distressing abdominal symptoms, nor is the importance of a search for these small hernias as a routine procedure in the examination of the patient very generally in the mind of the clinician.

This review is purposely sketchy. In the brief confines of the paper, of value clinically, especially to direct attention to these cases, no attempt has been made at completeness of study of the subject. Such cases as have been cited other than my own have been taken for illustration from a considerable number of others very similar in the literature. A quite complete bibliography to 1897 is given in the paper by Kuttner and in that of Lathrop. Since these, a few other reports of cases have appeared, which are chronicled in the "Index Medicus."

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Rides 100 Miles to Patients.—Three men were killed and four were injured, July 17, by an explosion in the Kerwin gold mine, Wyoming. There was no doctor nearer than Thermopolis, 100 miles to the southeast, but Dr. Richards, at that place, covered the mountainous distance in a little less than 11 hours. Four relays were used by the doctor in making the trip, the ranchmen along the route supplying the horses.

PHTHIRIASIS.

BY

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The elementary considerations that there is none of the works of the Creator which man can afford to despise, and that there is none of which the study will not be found to yield material for intellectual improvement in its exercise and physical advantage in its subsequent applications, form, I venture to trust, an acceptable apology for an attempt to direct the attention of the readers of *American Medicine* to a subject which is generally dismissed by physicians with the minimum amount of scientific—and even clinical—comment. Vermin of all kinds—human and other, as some philosophic authority has before now observed—are prone to attack the weak and the failing, and to leave the strong and the healthy alone. In accordance with this law, pediculous troubles are usually observable in the very young and the aged; seldom in the intervening period of life, if the most elementary dictates of hygiene are respected, except in the victims of progressively weakening maladies, or of some form of disease of the skin itself; and the treatment is undoubtedly, in the vast majority of cases, easily carried out to success—for the well-to-do at home, and for the poverty-stricken, and otherwise helpless, in the wards of a hospital. But one occasionally meets cases in which the reproduction of these vermin is phenomenally rapid, and their aggressive tendencies far more pronounced than in the ordinary ones. The fact of having two such specimens under treatment at present has been my motive for collecting the principal available items of the unexpectedly interesting lore which has been bequeathed to us by our predecessors in this department of natural and clinical history.

The most remarkable, in many respects, of the cases I have seen, occurred in the person of a Scotchman, aged 34, who consulted me in the early part of April, 1896. His cutaneous surface suggested membership of the tribe of Esau, for he was hairy all over; the individual items of the hirsute investment were not, however, aggressively strong. But the startling fact was that at the root of every hair which I had time to examine, excepting those of the scalp, there was located a crab-louse. His occupation was that of an artisan; he was well dressed, and of respectable appearance and manners. He told me that he had been in the habit of taking a bath regularly once a week. He was a bachelor, and assured me that he had not had sexual connection for more than six months before that date. His home was in Scotland, but he had for some weeks been visiting various large cities in way of business. During that period he had always stayed at respectable hotels. He stated that about 10 days previous to his visit to me he had noticed dark specks at the roots of some of the hairs of his arms and thighs; that he had observed them increase in number from day to day; also, that he had felt great itchiness of the skin, which induced him to believe that the spots in question were the constituent items of a widely-spread eruption. But on the day before he consulted me he had, while scratching, noticed that one of the largest of these spots had separated and come away under his nail. A very natural curiosity induced him to place it on a piece of white paper, in order to be able to examine it more satisfactorily, when he found to his horror that it moved spontaneously—that it was alive. The nature of his condition at once flashed upon him, and he assured me that the shock was so great on realizing that he was dotted all over with those almost irremovable parasites, that it nearly unhinged his mind. I certainly have never seen anybody in a state of more intense trepidation; he indeed appeared to be, as he said he was, quite incapable of collecting his thoughts. He could suggest no possible source of contagion from which he would have been at all likely to obtain any of his unwelcome guests or their ovums. He had been in Dublin during the previous fortnight, and had stayed at a fairly good hotel—one largely patronized by commercial travelers.

About three weeks afterward, I saw another case of extensive dissemination of crab-lice in the person of a German, also a member of the respectable artisan class. He had lived in Dublin ever since his boyhood. His personal habits were far less tidy than those of the Scotchman; he rarely indulged in a bath, and frequently indulged in impure sexual intercourse, so that there was no difficulty in the way of accounting for infection in his case. His general cutaneous complexion also presented a contrast to that of my Caledonian patient—the latter inclined to dark brown, with moderately strong hirsute appen-

dages; the skin and hairs of my Teuton client were both of delicate structure, and of extremely light color. Indeed, in the case of the latter, the contrast of shade between skin and hairs was so slight, and the latter were so small and downy, that their presence could be appreciated—over the greater part of the body—only at very close quarters. I was a good deal interested on observing that the same contrast was presented by the hues of their respective parasites. The general color of the body of the insects in each case very closely corresponded with that of the hairs in contact with which they were placed. In the case of the German, the parasites were not so widely disseminated; the arms were not completely stocked, and I detected none in the eyebrows or eyelash fringes; whereas, in the case of the Scotchman, the hairs of those regions were as completely furnished as were those of the pudendal area. In the German, too, the crab-lice of the latter region were much larger than those of the general surface; such contrast was but slightly marked in the case of the Scotchman. The apathetic view of the former regarding his condition was also strikingly contrasted with the trepidation of the latter; the untidy Teuton seemed indeed to regard the presence of his parasitic visitors with a patient tolerance of what he had learned to look upon as one of the unavoidable troubles of everyday life—one to which he had always been accustomed.

My next case was that of a fellow-countryman. An Irishman, aged 26, of sandy-red hair and florid complexion, and who also belonged to the more respectable artisan class, consulted me for the relief of corresponding parasitic trouble. He directly attributed his trouble to impure sexual intercourse. He was affected to about the same extent as was the German. His personal appearance and general habits were much more tidy than those of the latter; hardly quite so neat, however, as those of my Scotch patient. The hairs of the limbs were profusely, but not universally stocked with parasites, and I found none among those of the eyebrows and eyelashes.

During the present year two very remarkable cases of what I may venture to call the crab-louse plague came under my notice; one of them is still under observation. The first patient was as completely infested as was my first Scottish pediculous client. The second was less so; but to a much more complete degree than either of the other two I mentioned. The distributive tendency in all was much more pronounced than in the frequent cases of invasion of the hosts of *pediculi capitis* or *pediculi corporis*.

I have, from time to time, in common with other medical men, seen cases in which vast numbers of body-lice appeared and reappeared with aggravating persistency; but they were almost all in elderly persons of the poorer classes. Accordingly, I have nearly always had fair reasons for attributing the unsatisfactory results of treatment to the want of efficiency in the carrying out of my directions for the application of the simple and obvious means of hygienic prevention. Such reasons are, of course, too obvious to call for discussion. On the other hand, whenever I have been consulted regarding the troubles of crab-lice I have always found the effects of treatment eminently satisfactory. The fact that they cling to the hairs and never wander about or deposit their ovums elsewhere, always makes them definitely accessible; and, accordingly, amenable to the application of remedial measures.

The connection between parasites and their hosts, which must be as old in date as the appearance of the earliest specimens of the animal kingdom, is one which will be found on examination to present a variety of features and facts of fascinating interest. In the prescientific ages, when the theory of spontaneous generation was universally accepted, it was—very naturally—made to account for the origin of any unusually large hosts of living parasites. Even in the progressively scientific nineteenth century, this theory has found able defenders in the persons of the eminent French dermatologists, Cazenave and Devergie. Aristotle, the great pioneer of natural history and of physical science, was an implicit believer in the doctrine of spontaneous generation of the lower forms of animal life—of lice, among the others. To those who are acquainted with the history of human thought it need not be told that any attempt to discredit the opinions—or any individual opinion—of the great Stagirite would, during the prolonged period of nearly a couple of thousand years, have been treated by the educated oligarchy of Europe as the grossest scientific heresy. The only predecessor which he appears to have had in the unlimited cultivation of the whole domain of attainable human knowledge was the Jewish King Solomon; and of the opinions of the latter on the life-history of insects none seems to have been preserved for the instruction of posterity. In the "History of Animals," which was compiled by the world's greatest philosopher under the auspices of the world's greatest warrior, we find the first scientific recognition of the φθείριασις of the Greeks. Aristotle attributed the pediculous disease to a plethora of the humors of the flesh, from which all lice were generated. Accordingly, the insects had to make their way to the surface through the cutaneous integument. His famous pupil—and succeeding leader of the peripatetic school of philosophy—did not, however, share this doctrine of his great master. Theophrastus advanced the opinion that lice were generated by putrefaction of the blood. The elder Pliny, in commenting on the phenomena of the *morbus pedicularis*, to which Sylla had fallen a victim, expresses the opinion that these parasites come from the flesh and also from the hairs. Indeed, his paragraph on this subject is so representative of the views of spontaneous generation which prevailed in his time, and which were maintained with apparently unquestioning faith down to the iconoclastic period of the Renaissance, that a glance at Philemon Holland's quaint version will interest every reader who has studied the progress of the human intellect:

Semblably there be some Insects ingendred of raine drops standing vpon the earth, and others also of wood: for not only the ordinarie wood-wormes breed in timber, but also certain Brees and horse-flies come of it, yea, and other such like creatures, whensoeuer the wood happen to be dotted with ouermuch moisture. Like as within one of our bodies there haue bin found broad wormes of 30 foot in length, yea and sometimes longer. Also there haue bin seen in dead carions many worms: and the very flesh of liuing men is apt to breed such vermin: and so is the haire of the head to harbor lice, of which filthy & loathsome creatures both Sylla the Dictator, and also Alcman (one of the most renowned Greeke Poets) perished. Moreouer, birds are much infested and troubled therewith. And as for Feasants, they will dy thereof vnlesse they bestrew themselues with dust. Of such beasts as carry haire, it is verily thought that the Asse alone and sheep are free from this kind of vermin. Some kind of cloath likewise is apt to ingender lice, and especially those which are made of wooll that sheepe bare which were worried of wolues. Ouer and besides, I find in some writers, That there is some water will ingender this vermin if we do but wash therein. For euen in wax there will breed mites, which are thought to be of all creatures that haue life, the very least. Also ye shall haue others again ingender of filthy dry dust, namely fleas, which vse to skip and hop with their hinder feet lustily like these tumblers and vautors. Last of all, there be that come of a certain moist ponder in cranies of the ground, and those be our ordinary little flies.

One of the principal arguments used against Aristotle's theory of the generation of lice was based on the unquestionable fact that the hairy scalp was one of the regions specially productive of pediculi, while it was of all parts of the body the uniformly poorest in flesh. Theophrastus also advanced as an additional argument against the view of his master, the fact that pediculi are prone to abound in the second and third stages of hectic, when the flesh is so far wasted that there would appear to be none left for their production. The doctrine of putrefactive genesis substituted by this philosopher was in turn assailed, in calling attention to the fact that in fevers—even of the most malignant type—in which the blood notably underwent the most unhealthy changes known to the practice of physicians, there was no tendency displayed to the generation of lice; the experience of all, indeed, being that it was quite the other way. And, again, that if these parasites were generated directly from the blood, they should present something of its color, whereas there was no approach in that direction. The more exhaustive of the commentators on the works of these philosophers from time to time discovered and criticised various weaknesses in their arguments on this subject, but did not succeed in substituting any more substantial theories of their own.

Galen, the great apostle of the humoral pathology,

was, of course, an ardent upholder of the theory of the spontaneous generation of these parasites. He, very naturally, introduced a modification of the teachings of his predecessors in this department of science—in placing the *locus* of their generation *inter cutem et carnem*—between skin and flesh. Paulus Ægineta declared his opinion that lice fulfilled a useful purpose in the human economy, by absorbing and consuming the corrupted humors, and thereby preventing the generation of various forms of internal, as well as of external, disease. The same idea was upheld by the famous Arabian physician, Avicenna, the unimpeachable infallibility of whose "Canon" may be said to have governed the medical teaching and medical practice of western Europe for about five centuries. With regard to the *locus generandi* of the pediculi, both those authorities followed the teaching of their great master, Galen. Hieronymus Mercurialis comments on their view with a good deal of philosophic ingenuity. According to him, in the conversion of the materials of the blood into the substance of the tissues many kinds of excrements are produced; some of these are "dissolved" by "insensible transpiration," others by sweat, while others are converted into "sordes," and others still are retained in the skin (*in ipsâ cute*). Of the latter, those which are retained in the superficial layer produce the phenomenon of desquamation; while those excrements which are entangled in the deeper strata produce effects which depend on their character and composition. If *prava et acria*, they produce ophiasis (falling out of the hair with the cuticle—the derivation having regard to the periodic casting of the skin of the serpent). On the other hand, those which *non sunt acria, neque prava*, are used up in the formation of lice. "Proxima sane, et continens causa pediculorum est materia putris callida, et humida, quæ in cute redundat." The theory enunciated by Averroes displays a certain amount of refinement on the philosophy of his predecessors: "Finem esse pediculorum, ut non ocietur natura, quippè quæ nunquam debet feriari, sed semper aliquid producere: ea propter etiam in generatione pediculorum, et aliorum animalium nullum finem alium habere videtur, quam ut non ocietur."

The extreme prevalence of these parasites among soldiers in the periods of active warfare—especially in very warm climates—and also among galley slaves, was noticed by many of the ancient writers. Also, that the head-louse was especially prolific on the persons of children and women, while the body-louse was the parasite of advanced age, and the crab-louse of the more vigorous portion of active life—and especially among prostitutes. "Scorta, et hi qui frequenter concumbunt, si non lavantur sæpe, si non detergant sordem, si eadem veste utantur, quæ ut inquit Lucretius, Veneris sudorem excitat, plattis vexantur."

We are told by Apollonius that it was observed by Aristotle that lice deserted the bodies of persons on the approach of death. This statement was frequently repeated, on the same authority, down to the time of the development of the new philosophy.

Q. Serenus Sammonicus has embodied in metric numbers his own very poetic notion that lice were produced by nature for the special purpose of interrupting sleep:

> Noxia corporibus quædam de corpore nostro
> Progenuit natura, volens abrumpere somnos
> Sensibus admonitis, vigilesque inducere curas.

This fanciful notion of nature's object in the creation of lice was attacked by Mercurialis: "Quod cum pediculi fiant maxime in pueris, sanè illis opus est multo somno. Unde natura si hoc tentaret, potius tentaret destructionem, et damnum illorum, quàm secus." The idea which was versified in the above quotation from Sammonicus may, however, have been suggested by the poetic fancy of Aristophanes, who introduced a similar notion in a speech of Chremulus (*Plutus*, 535–539).

There is no doubt that in the prosperous ages of the Greek and Roman empires the luxury of personal cleanliness was indulged in by the members of the wealthy and privileged classes to a very extreme degree of perfection. The presence of lice would, accordingly, in those times be regarded as loathsome to the utmost conceivable degree. In connection with this fact, it is of interest to notice—what will be seen more fully afterward—that most of the cases of phthiriasis of which accounts have been transmitted to us by the ancient Greek and Roman authors, occurred in the persons of those whose public conduct had made them so obnoxious to gods or men, or both, that the filth and degradation represented by that condition would appear to the popular judgment to have been the suitable reward of their merits. The other noted cases of classic times occurred in the persons of philosophers; these were, probably, in most instances, placed on record by members of some of the rival sects. "Suspicari tamen licet, dictum in sordidos, quod philosophi minimum indulgeant nitoribus externis, dum circa mentis cultum toti sint occupati." The tendency to personal untidiness, which has so frequently been pointed out as a characteristic of the contemplative section of every civilized community, always helped to give a color of probability to such accounts. It also, in all likelihood, gave origin to the proverbial Greek phrase, *οἱ πλάτονις φθείρες* ("the lice of Plato"); which, in its turn, eventually gave rise to the popular idea which long prevailed so widely among "the learned vulgar," that the "divine" philosopher himself was a victim of phthiriasis; an idea for which there does not, however, appear to exist any definite authority. The famous Roman Emperor, Julian "the Apostate," is well known to have aped the habits and manners of the Greek philosophers in every possible way; and his great admirer, the learned historian of "The Decline and Fall of the Roman Empire," refers to the "populous" beard which he assiduously cultivated, in terms which show that he was satisfied with the authenticity of the evidence of its existence.

The low cynicism by which the representatives of the inferior grades of intellect always endeavor in every possible way to drag genius down to their own level, is well exemplified in the invention of the story of the conundrum which was said to have proved fatal to the blind and decrepit author of the world's greatest epic. As the aged Homer basked one sunny afternoon on the seashore, some fisher boys came to land from a boat, and on being asked by the old man what fish they had been in pursuit of, replied that "what they had caught they left; what they had failed to catch they had with them." The hitherto unconquered intellect of the inspired poet failed to unravel the petty mystery involved in that statement, and the irritation produced by the unwonted disappointment brought on an attack of apoplexy which ended his life.

The immortal philosopher of Stagira has noted in his "History of Animals," the familiar observation of his time, that not only man, but every other animal of appreciable dimensions was preyed upon by characteristic parasites. Even fishes were not excepted. The only quadruped which was permitted by nature to enjoy the unique privilege of immunity from such parasitic infection was the ass. The teaching of Aristotle was, as is well known, regarded with the highest favor by the early and medieval Christian authorities; and the absence of pediculous parasites was explained, as the presence of the dorsal black cross is—even in the present day—by the peasantry of the remote districts of Ireland, by the inherited sanctity conferred by the contact of the hand of the infant Savior, when borne by an ass in his early flight into Egypt, and confirmed on the occasion of his late triumphant entry into Jerusalem.

The "plague of lice," which worried the stiff-necked Egyptians previous to the date of the Jewish exodus, has proved in the light of the higher, or more critical, criticism, a quantity of unreliable value; it being doubt-

ful whether the name given in the original Hebrew text really refers to lice at all. On the other hand, the "worms" which devoured the wicked Herod are believed by some authorities to have really been lice. It is interesting to note in this connection that the Jewish historian, Josephus, describes in the course of his narrative the melancholy death of Herod Agrippa, and that his story, up to a certain point, is very similar to that given by St. Luke; but he omits the ghastly circumstance of his having been "eaten of worms," although he expressly mentions the development of this gruesome phenomenon in the last illness of Herod the Great, the grandfather of that monarch—referring to it as *τον ἀιδδιον σηψις σκωληκας ἐμποιουσα.* And an apparently similar case was that of Antiochus Epiphanes, of whom we are told (2 Maccabees, IX, 9) that "the worms rose out of the body of this wicked man, and while he lived in sorrow and pain, his flesh fell away, and the filthiness of his smell was noisome to all his army." We are informed by Lucian that the impostor Alexander died "swarming with worms" (*σκωληκων ζεσας*). And Eusebius relates in like manner the similar fate of the Roman Emperor Galerius Maximianus, the terrible persecuting enemy of the Christians; "an inexpressible multitude of worms swarmed" (*αλεκτὰν πληθος σκωληκων βρυειν*) in the ulcers which formed all over the surface of his body. Many of the most competent of modern critics believe that the parasites indicated in each of those cases were really lice, and not worms.

Pherecydes, whose philosophic fame has been so well established by the classic record of his having been the tutor of the renowned Pythagoras, and the originator of the doctrine of the transmigration of souls, was, we are told, another victim. "Pherecydes Syrus, Pythagoræ preceptor, pediculari morbo correptus, primum emisit sudorem calidum, viscosum, et mucori similem; postea verò prorsus belluinum, tandem pediculi creverunt, cumque carnes in pediculos dissolverentur, ac fœda jam, turpisque facies evasisset, abstinuit, à consortio familiarum, et eos fugiebat." This dismal story has been referred to in verse by Q. Serenus:

> Sed quis non paveat Pherecidis facta tragœdi,
> Qui nimio sudore fluens animalia terra
> Eduxit, turpi miserum quæ morte tulerunt.

We are also told that "Alcman unus ex clarissimis Græciæ poetis hac etiam fœditate periit." And, according to Herodotus, Pheretima, Queen of the Cyrenæans, met with a similar fate. The following is Plutarch's account of the death of Sylla—as "Englished" by Sir Thomas North:

> Now, notwithstanding he had his fair young lady in his house, he left not the company of women minstrels and tumblers, and to have pleasant jesters and musitians about him, with whom he would lie wallowing and drinking all the day long upon little couches made for the nonce. For his companions that were in the greatest estimation with him at that time were these three: Roscius, a maker of common plays; Sorax, a prince of scoffers; and one Metrobius, a singing man, whom he was in love withall while he lived, and yet did not dissemble his love, though he was past his age to be beloved. This wicked life of his was the cause of increasing his disease, the original cause whereof had light foundation at the first. For he lived a great time before he perceived that he had an Impostume in his body, which by process of time came to corrupt his flesh in such sort that it turned all to lice; so that, notwithstanding that he had many men about him, to shift him continually night and day, yet the lice they wiped away were nothing in respect of them that multiplied still upon him. And there was neither apparel, baths, washing, nor meat itself, but was presently filled with swarms of this vile vermin. For he went many times in the day into the bath to wash and cleanse himself of them, but all would not serve; for the changing of his flesh into this putriture wan it straight again, that there was no cleansing, nor shifting of him that could keep such a number of lice from him.

And, in illustration of this loathsome condition, we are further told that:

> Some say, that in old time (amongst the ancient men, whereof there is any memory), Acastus, the son of Pelius, died of the lowsie evil; and long time after also, the Poet Alcman, and Pherecides the Divine; and so did Callisthenes the Olynthian in prison, and Mutius, a wise Lawyer. And if we shall make mention of those that are famous, although it be not in any good matter; we find that a bondman called Eunus, he was the first procurer of the wars of the bondmen in Sicilia, being taken and carried to Rome, died also of the same disease.

Reflection on the record above quoted must tend to neutralize the impression conveyed in the language of Byron, concerning

> . . . Sylla the manslayer,
> Who passes for in life and death most lucky,

and lead us to agree rather with the view expressed in the comment of Serenus:

> Sylla quoque imfelix tali languore peresus
> Corruit, et fœdo vidit ab agmine vinci.

In commenting on these cases, it is almost superfluous to observe that, as has occurred with all the recorded observations of ancient and medieval times in which the supernatural, or even the merely wonderful, forms a prominent feature in the representation, the accuracy of description and of diagnosis has been questioned in every one of them. The great French dermatologist, Rayer, refers to most of those which I have mentioned, and finally dismisses them with the observation that, "Une autopsie de ces hommes illustres eût probablement conduit à une tout autre conclusion." It is specially noteworthy that a large proportion of those celebrated victims of the pediculous plague were personages who had rendered themselves prominent objects of popular odium; the case was even still more pronounced if the hatred was literary; more emphatic still, if philosophic; and worst of all, when of theologic inspiration. One of the commentators on the history of Herodotus has the following note on the case of Pheretima, to which I have above alluded: "Antiochus Epiphanes, the persecutor of the Jews, died in a similar manner, 164 B. C. Then, also, died Herod the Great, persecutor of Christ and the infants at Bethlehem; Galerius Maximianus, the author of the tenth and greatest persecution, 311 A. D., and Philip II of Spain, A. D., 1598, as infamous for the cruelty of his persecution and the numbers destroyed by it, as any of the other three." Another example of probably divine vengeance is the case of Cassander: "Antipatri filius Rex sceleratissimus, qui Olympiadem Alexandri matrem, et Alexandri filios interfecit, ex hydrope in phthyriasim incidens periit." Speusippus, a famous Greek philosopher, "Platonis ex sorore nepos," who excited a great deal of jealousy among his brethren in his generation, is also said "effervescentibus toto corpore pediculis interemisse." Pleminius, who was proprætor in the time of Scipio, abused the opportunities afforded by his position so far as to plunder the temple of Proserpine, with the ultimate result that "vinctus Romam senatu jubente ductus est, carcerique inclusus pediculari morbo, miserè periit."

An uncle—and namesake—of the famous "Apostate," the Emperor Julian, profaned the holy table in the church of Antioch, and was in time duly punished by a visitation of this disease. Honorius, King of the Vandals, perished in Africa of phthiriasis, after a career of the most atrocious tyranny, during which he had sent no less than 444 Christian bishops into exile. The Emperor Arnulphus—seventh from Charlemagne—after conquering the Normans, became so puffed up with earthly pride that a similar fate was accorded him: "Ita contumax in omnes, tum vel maximè Ecclesiasticos factus est, ut Dei nutu pediculari morbo brevi consumptus sit." The Gallic bishop, Fulcherus, became inflated with worldly ambition, and yielded to the temptations of simony, with the result that "morbo pediculari interiit, cujus cadaver cum pediculis scaturire non cessaret, cervino corio insutum terræ mandatum est." Another victim to insolent want of deference to his spiritual superiors, was Leostanus, "adolescens famam de crinibus et unguibus Edmundi Regis Anglorum sensim

crescentibus in dubium revocans sibi corpus ostendi minis impetravit. Eo viso in amentiam incidit, et phthyriasi haud multò post periit." Lambertus, a bishop of Constantinople, is said to have fallen a victim to morbus pedicularis in the year 1017 A.D. Napus Turrianus, tyrant of Milan, was conquered by his enemy, Otho; "captus, elatratæque caveæ inclusus, narrante Jovio, post annum unum, menses septem, dies viginti tres, in eo squalore, fœda illuvie, et enatis subinde pediculis consumptus est." Antonius Picens is mentioned by Æneas Sylvius (afterward Pope Pius II) as a victim of phthiriasis. Pope Clement VII is also said to have died of this disease. The case of Philip II, of Spain, has already been alluded to; and there is no doubt that the ardor of persecuted Protestant heretics emphasized the features of this case, as did that of the early Christian Fathers the examples of divine wrath offered by the cases of the enemies of the Church to which I have referred.

As already observed, personal cleanliness characterized the privileged classes, at least, of the great pagan empires of Greece and Rome. But with the spread of Christianity, the louse commenced to enjoy most exceptional privileges. The self-denying and self-humiliating doctrines of the new faith, superadded to the fact that its first acceptance was with the members of the lowest stratum of society, tended to make the life of the louse a happy one—if everything in the way of material advantage could have this effect. "The dirtier the saint, the holier." It was contrary to the principles of Christian forbearance to destroy the life of so unobtrusive a creature; and there is at least one case on record of a saint who performed open-air penance for a period of seven years—living all that time in the forests, in nakedness, in sunshine and storm, in hail and rain, and snow and frost, seeking no protection from the weather, from wild animals, from thorns, or from pebbles—because he had *accidentally* destroyed the life of a single louse! For over a thousand years Europe swarmed with lice—to say nothing of other kinds of vermin. The so-called "Dark Ages" of European history quite as well deserved the name of the "lousy ages." When corporal filth was spiritually meritorious, the bath became an almost forgotten institution; and, knowing as we do, that the father of the inspired artist, Michelangelo, wrote pressingly to his gifted son when entering upon his professional career, cautioning him to "never wash," but rub his body over with a dry towel, we may allow imagination to picture the degree of personal "propriety" which prevailed among the lower orders of the home of the civilization of that intellectual age.

More creative and more romantic imaginations undoubtedly existed in the ancient and medieval centuries, during the ages in which the world was not so overcrowded with human beings, and when steam and electricity had not combined to keep the members of all up to-date communities in touch with all the leading facts and incidents occurring in every portion of the habitable globe. This consideration will help to explain in part the genesis of the extraordinary stories which were told in those ages of the generation of lice in the human subject. The healing of the sick had (and has) evermore been intimately associated with the supernatural; and many of the uneducated, and, as current history well shows, many of the educated and cultured, too, of our own twentieth-century contemporaries are found more readily disposed to apply for relief in time of serious illness to the proprietor of what Mark Twain would call a "miracle factory" than to the most skilled physician of the community. The love of the wonderful and the hankering after the unattainable, which are qualities so deeply rooted in the emotional hemisphere of the human microcosm, have always been among the most potent and prolific factors in the making of history; and have been as significantly demonstrated in the records of phthiriasis as in the growth of kingdoms and the founding of new religions. Ambroise Paré, the surgical monarch of his generation, who was a contemporary of Francis Bacon and of William Shakespeare, wrote that "les pediculi se peuvent engendrer par toutes les parties des notre corps, même dans la masse du sang." The time-honored belief in the "spontaneous generation" of pediculi has survived down to recent date, even among accomplished scientific clinicians. We are told, for instance, on reliable authority, that—referring to the nineteenth century—"dans le premier tiers de ce siècle, les dermatologistes de l'hôpital Saint-Louis n'avaient sur ce point la moindre hesitation." Rust published in detail the history of the case of a child, upon whose scalp a large tumor had developed, as a sequel of an acute attack of fever. The growth was accompanied by an intense itching, which could not be relieved by any available means. When at last it was freely incised, there swarmed from its interior myriads of white lice. At a more recent date, Bernard Valentin relates the history of the case of a man, aged 40, whose skin was thickly dotted with "tuberculous" elevations, which were accompanied by a most aggravated form of itching. The physician in attendance failed to cure this worrying symptom by all the means which came within the range of his knowledge. Having exhausted all the resources of his palliative armamentarium, he made an experimental incision into one of the small tumors. To his intense surprise, and to the almost paralytic horror of his patient, there appeared neither blood, nor pus, nor watery fluid at the lips of the wound, but contrary to all experience and expectation, an enormous number of lice of all sizes and variety of forms emerged from the opening. The effects of the fright upon the patient, on seeing the living parasites emerge from his body, seemed at first to threaten life; but these subsided after a time, and when all the swellings had been similarly treated and afterward appropriately dressed, the ultimate result was satisfactory. Forestus, Schenck, Heberden, and Wilmot have also published analogous cases; and down to the nineteenth century this belief in the subcutaneous generation and growth of pediculi would appear to have been entertained—tacitly, at least—by nearly all members of the medical profession; and remained, as a mere matter of course, entirely unquestioned by the credulous public. But Lieutaud—of immortal fame in the department of the physiologic anatomy of the central organ of the circulation—would appear to have (permanently) broken the record with a case in which he found living lice on the inner surface of the cranial bones, while others lay on the deep surface of the meninges, and others still were found burrowing in the brain substance! It is hardly necessary to point out that this case occurred in the palmy days of magic and witchcraft. But some readers may think it almost as unaccountable, having regard to the long period of time which had elapsed, and the progressive acceleration of the rate of scientific progress throughout, to find the able and experienced French dermatologist, Devergie, in the year 1853, affirming his unqualified belief in the spontaneous generation of lice in the substance of the skin:

> Sous forme de poches on tumeurs qui se crévent et mettent en dehors une véritable fourmilière d'insectes.

And he then proceeds to observe that:

> Presque tous les auteurs modernes nient ou mettent en doute l'existence de ces poches . . . mais nous avons été à même d'observer ces sortes de production exceptionnelles, nous avons vu ces tumeurs remplies de myriades de poux; nous nous en expliquons difficilement la formation, nous en admettens l'existence sans rien préciser sur leur siège.

He illustrates his belief by reference to crucial cases, in which neither Cazenave nor himself had the slightest doubt with regard to the *de novo* origin of the parasites present.

It is on the skins of persons who are naturally (or hereditarily) predisposed to the development of chronic

cutaneous affections, "especially those of the serous or heating types," that pediculi appear to find the most congenial soil. On such skins they certainly do multiply in some cases with a rapidity which is perfectly startling, and which would even appear to lend countenance to the belief that in certain instances the production of the parasites took place in way of spontaneous generation. A very pronounced case of this kind has been recorded by Bryant. It occurred in the person of a governess, aged about 30, who was admitted into Guy's Hospital. The whole cutaneous surface was literally covered with lice. The irritation and consequent scratching had, of course, produced diffuse excoriations, with formation of crusts and copious serous oozing. When brought into the hospital all her clothes were removed, and she was put into a warm bath. All visible insects and nits were removed with scrupulous care, and when dried, she was placed in a clean bed. Yet the skin was again covered with lice two hours after, and all the remedies which were employed for their extermination proved ineffectual.

A pruriginous eruption appears on the skins of all persons who have been attacked by lice for a certain time, when the number of the parasites has been sufficiently great to maintain a continuous irritation up to the requisite degree. But, on the other hand, when a predisposition has already existed toward the development of some other form of cutaneous eruption, it is very likely to appear under the influence of the same stimulus. Even a latent tendency to the outbreak of long dormant syphilitic disorders of the skin appears to have been aroused in some cases to active pathologic development by pediculous irritation. But eczema is the other cutaneous disease which is most frequently called forth by this form of stimulation. And its development repays the energies of the parasites with high compound interest; for an eczematous skin, with its continuous serous oozing, appears to form the most congenial of all soils for their cultivation and nurture.

The idea of Paulus Ægineta and of Avicenna, already alluded to, that lice fulfilled a special and useful function in the removal of peccant humors from the human economy, appears to be deeply rooted in the uneducated classes of most, if not of all nations. The peasantry of the remote districts of Ireland still think it injudicious to remove all the pediculi from the "scabby heads" of their more delicate children. The distinguished French dermatologist, Poignet, observes that:

"Enfin faut il le dire, un préjugé issu des vieilles théories et toujours très tenace dans le peuple veut qu'on respecte la phthiriase comme une sorte de sauvegarde pour celui qui en est atteint. C'est, dans certains milieux, un axiome de médecine que la présence de poux, tout au moins sur la tête, est un signe de santé, que les parasites ne sont là que pour sucer le mauvais sang et qu'il faut bien se garder de les détruire. Les médicins doivent savoir que, de nos jours encore, des mères sèment la vermine sur la tête de leurs enfants dans le but de les preserver ou de les guérir d'une maladie."

The semisuperstition which appears to have existed throughout all the ages regarding these parasites and their human hosts exhibited itself in many curious developments; among others in the genesis of the moral "crux" which was very carefully discussed by authoritative theologians and casuists in the logical days of scholasticism: "Why we love not our lice as well as our children?" Another moral excrescence derived from the same stem is indicated by an observation made by the illustrious author of the "Religio Medici"—in another of his works, that Satan, as represented by the magicians of the Court of Pharaoh, after displaying very creditable skill in the reproduction of the other miracles of Moses, "was wholly confounded in the conversion of dust into lice."

We know the maternal assiduity with which the monkey removes and destroys the lice of her young ones; and the peculiar method of destruction which she adopts. The human inhabitants of the vast Empire of China appear to favor the same practice even in the present day; and a corresponding personal habit was found by Sparrman to exist among the Hottentots (1772-6). It appears to prevail extensively among savage tribes in all quarters of the globe.

Whatever be the true explanation of the fact, it is undeniable that pediculi multiply much more rapidly on the skins of some persons than of others—under otherwise apparently identical conditions. This has been observed in children of the same family. Among the factors which specially influence the growth and reproduction of lice on the surface of the human body may be enumerated age, sex, state of health, and—very naturally—personal habits. The poetic imaginations of the ancient writers on natural history inspired some of them to attribute the development of pediculi to certain kinds of food—partaken of in quantity by the affected individual. The notion that the eating of figs to excess was a primary cause of the generation of lice received the sanction of the high authority of Galen, of Oribasius, and of Paulus Ægineta. We are informed by Dioscorides that the use of the flesh of vipers as food was believed by some to have the same effect; he did not himself, however, adopt that opinion. Pliny received the notion that the use of the juice of vipers sufficed to exterminate the parasites from the entire surface of the body. Even a change of the quality of the water used by an individual for the ordinary purposes of ablution was recognized by Aristotle as a cause of the production of lice. One of his "problems" deals with the query: *Cur mutationes aquarum faciunt, ut pediculi, in quibus haberi possint multi habeantur?* The inhalation of the vapor of Agalochum—*aloe* of the Bible, which was so much employed by the Orientals as a variety of incense—was also credited with the production of pediculi.

In the opening part of this communication I made a passing allusion to the differences in physical appearance which the parasites presented in some of my own cases, and which appeared to vary in great measure with the complexion of the host. The varieties which human pediculi present on comparison of those which infest the different races of mankind have been specially noticed by Darwin in his "Descent of Man":

In determining whether the supposed varieties of the same kind of domestic animal should be ranked as such, or as specifically distinct, that is, whether any of them are descended from distinct wild species, every naturalist would lay much stress on the fact of their external parasites being specifically distinct. All the more stress would be laid on this fact, as it would be an exceptional one; for I am informed by Mr. Denry that the most different kinds of dogs, fowls, and pigeons in England are infested by the same species of pediculi or lice. Now, Mr. A. Murray has carefully examined the pediculi collected in different countries from the different races of men, and he finds that they differ not only in color, but in the structure of their claws and limbs. In every case in which many specimens were obtained the differences were constant. The surgeon of a whaling ship in the Pacific assured me that when the pediculi, with which some Sandwich Islanders on board swarmed, strayed on to the bodies of the English sailors they died in the course of three or four days. These pediculi were darker coloured and appeared different from those proper to the natives of Chiloe, in South America, of which he gave me specimens. These, again, appeared much larger and softer than European lice. Mr. Murray procured four kinds from Africa, namely, from the negroes of the Eastern and Western coasts; from the Hottentots and Kaffirs; two kinds from the natives of Australia; two from North and two from South America. In these latter cases it may be presumed that the pediculi came from natives inhabiting different districts. With insects, slight structural differences, if constant, are generally esteemed of specific value; and the fact of the races of man being infested by parasites, which appear to be specifically distinct, might fairly be urged as an argument that the races themselves ought to be classed as distinct species.

Those who are acquainted with the history of scientific progress in general, and of the very undulatory advances of that of therapeutics in particular, know that one of the features of the present age is the rediscovery of lost knowledge. The practice of "animal therapeutics" prevailed for many centuries, and had even been reduced to a fine art. The rationale of this method of

healing often savored of the metaphysics of the reign of scholasticism; the complexities of its preparations taxed the highest available skill of the physics of the alchymist. The venerable popular notion that what is good is generally nasty is at least illustrated, if not confirmed, by the items of the pediculous pharmacopeia and their manifold applications. In Salmon's "New London Dispensatory" (1676) we find the following item in the chapter on insects:

25. *Pediculus, Pedunculus, φθειρ, Σάφραξ*, The Louse. They are eaten by Rusticks for the Jaundice and Consumption. Put alive into the meatus they provoke urine.

Rev. Joh. K'Eogh, in his "Zoologia Medicinalis Hibernica" (1739) gives a summary of the information which he had collected among the Irish peasantry regarding the curative powers of pediculi.

Lice are swallowed alive in an egg by the meaner sort of people in order to cure the jaundice. Being taken after the said manner they are by some esteemed useful against an atrophy or consumption. It is reported that if a louse be put into a blood-shot eye it will cure it. Put into the meatus they provoke urine, as Schroderus affirms.

The therapeutic virtues of the human pediculus were, however, far outshone by those of the familiar hog-louse. K'Eogh, in the volume designated, informs his readers that:

Hog-lice, reduced to powder, open all obstructions of the urinary passages and the bowels, therefore exceeding good against the stone, gravel, dropsy, cholic, pleurisy, and jaundice; dose, from one scruple to a dram; the said powder, externally applied with honey, is useful for the disorders of the eyes, the pains of the ears, quinsy, and a sore throat proceeding from the smallpox. Hog-lice wonderfully dissolve, digest, attenuate, and mundify; therefore they sweep out of the blood all tartarous and mucilaginous humours which generate the gout, stone, gravel, and dropsy; the said hog-lice are twice washed in urine, and twice dried before they are pulverized The ashes or salt made of them by incineration are most powerful diureticks; dose, one dram taken in the decoction of parsley. The tincture extracted out of these insects powerfully opens all opulations of the veins, bladder, and womb; also is profitable against the epilepsy, and most disorders of the brain and nerves. The volatile salt extracted out of them is a great sudorifick medicine, it purifies the whole mass of blood, expelling its impurities by transpiration, it mightily absorbs acids, upon which account it is esteemed proper to cure cancers, ulcers, the scurvy, consumption, rheumatism, dropsy, and all pains of the muscles and nerves; dose, from six grains to twelve. This is a little animal, contemptible in appearance, but abounds much more in spirit, volatile salt, and oil, than many other creatures, and, therefore, is more worthy to be taken notice of. An oil made of these lice is good against the noise and ringing of the ears, being applied to them. Take twelve of them, put them in a linen cloth, and infuse them forty-eight hours in four ounces of white wine, then strain it and give it to drink; this, often repeated, in a short time, cures a cough. They being pulverized, and often taken, are profitable for a fistula in the fundament. The powder of them taken, or swallowed down alive from number three to twelve, for several mornings fasting, wonderfully cures the jaundice.

I will here take the opportunity of calling the attention of my readers to a clinical observation of considerable interest to which little prominence has been given in English manuals of medicine. In the early 60's of the last century the observations of Professor Falot and his pupils (of the École de Médecine Navale of Toulon) signalized the relationship which they had found to exist between pubic phthiriasis and the "taches bleuâtres" which are present in some fevers. The subject was afterward investigated and discussed in turn by Drs. Gestin (of Brest), Moursou, and Besnier; each of whom added clinical evidence corroborative of the view which had been announced by Professor Falot. Notwithstanding all that, little attention appears to have been accorded to these observations—even by French writers—till the publication of the experimental results obtained by Duguet forced his confrères to recognize and accept this previously unsuspected etiology of the taches bleuâtres. This gentleman found that he was able to produce "les taches bleues" at will, "en inoculant dans la peau un magma obtenu par l'écrasement de plusieurs poux."

The anatomic structure and physiologic functions and habits of the louse were investigated with laborious care and ingenuity by Swammerdam, one of the pioneers of microscopic research, and original discoverer of the leukocytes in blood. His "Book of Nature, or History of Insects," was translated into English by Flloyd (London, 1758).

One of the most interesting pathologic entities which has been thought to display a relationship to the morbus pediculosus, is that of the socalled *plica polonica*, which was for some centuries regarded as one of the most mysterious of all cutaneous plagues. From the descriptions and allusions which we find scattered through the works of the writers of the sixteenth and seventeenth centuries, it would appear to have almost rivalled the pediculous Egyptian plague in the extent of its distribution, and the hopelessness as well as the severity of its symptoms.

Phthiriasis having always been, throughout all the presanitary ages, a disorder of the mass of the people, it persisted as an evil chronically (and simultaneously) epidemic and endemic. When there was no hygiene, and hardly a skilled physician, it naturally followed that an enormous number of popular and domestic remedies were devised and circulated. Some of these empiric remedies are found to be reliable in the present day. I extract a selection from James' Medical Dictionary, a fairly representative index of the knowledge of the time (1743–45).

"The lousy Evil is best prevented by wholesome Food, keeping the Body clean, and the Head carefully combed. When they breed in the Head, let it be well combed, and washed with the following Lixivium:

Take of Wormwood, Stavesacre, Rue and Horehound, each an Handful; lesser Centaury, half an Handful; Oak-ashes, five Ounces: Make them into a Lixivium, with Spring-water; in which dissolve, of Common Salt, two Ounces; Salt of Wormwood, one Ounce: With which let the Head be washed.

"Or anoint it with the following ointment:

"Take of the Oil of bitter Almonds, Rue, and Bays, each an Ounce; the Powders of Stavesacre, and Myrrh, each two Drams; Powder of Aloes, one Dram; salted Lard, two ounces: Mix them with a little Vinegar. Or,

"Take of Hogs lard, Oil of Bays, and black Soap, each half an Ounce; Quicksilver, extinguished with Spittle, a Scruple; Myrrh, and Aloes, each half a dram; Stavesacre, two Scruples: French Soap, two Drams: Reduce them in a Mortar, to the Form of an ointment.

"For Body-lice, the wiping the Body with Gilders cloths is reckoned an efficacious Remedy, on account of the Quicksilver which they contain. Or,

"Take of Stavesacre, and Powders of red Arsenic, each an Ounce; Common Salt, Olive Oil, and Vinegar, each a sufficient Quantity: Mix them together. Or,

"Take of Stavesacre, and Powders of Nitre, and White Hellebore, each equal Parts; Oil of Bitter Almonds, a sufficient Quantity: Mix them.

"Take of Wormwood, and lesser Centaury, each an Handful; Lupins, one Ounce; Stavesacre, and Birthwort, each half a Pound: Boil them in a Lixivium, to which add two Ounces of Salt.

"Take of Oil of Bitter Almonds, one Ounce; Oils of Rue and Stavesacre, each half an Ounce; the Powders of lesser Centaury, Myrrh, and Aloes, each a Dram; Quicksilver, half a Dram; rancid Salt Lard, two Drams: Make them with a little Vinegar, into a Liniment."

The principal remedial applications recommended by Sennertus in the evils of phthiriasis are as follows:

"Take of long Birthwort, Lupins, and the Leaves of the Pine and Cypress, each equal Parts: Boil them in a sufficient quantity of Spring-Water for a Lotion for the Head.

"Take of the Root of Elecampane, two Ounces; of Bryony, half an Ounce; Beet, and Mercurial Soap, each an Handful; Lupins, an Ounce: Nitre, half an Ounce: Boil them for a Lotion for the Head.

"Take of the Powder of Stavesacre, three Drams: Meal of Lupins, half an Ounce; white Agaric, three Drams; native Sulphur, two Drams; of the Gall of a Bull, half an Ounce; Oil of Wormwood, enough to make them into a Liniment.

"Take of Stavesacre, an Ounce; Wormwood and Rue, each half an Ounce; Sulphur, and Nitre, each two Drams: Mix and make them into a Powder, which reduce to the Form of a Liniment, with Oil of Bays."

Also the following, which is represented as much more energetic in its efficacy:

"Take of the Powder of the Seeds of Stavesacre, an Ounce; white Hellebore, three Drams; Quicksilver, extinguished with Spittle, two Drams; Hogs-Lard, and Oil of Bays, each a sufficient Quantity to make them into an Ointment."

It is pointed out, too, that in the cases of infants and children the quicksilver must be omitted as "too hazardous," and as "Milder Medicines will answer the Intention."

Ettmuller advises washing the head with a lixivium in which the seeds of stavesacre have been boiled; after which it is to be anointed with the following:

"Take of the Oil of Spike, two Drams; the Oil of Bitter Almonds, half an Ounce; the Ointment of Tobacco, six Drams: Mix and make them into a Liniment."

And we are encouragingly informed that the application "will destroy all those Animals in one Night's time."

Codrochius, who wrote a special treatise on pediculi and the troubles to which their ravages give rise, recommends sprinkling the powder of the Indian berries on the head as an infallible remedy for their presence in that region. He also states that small quantities of this powder mixed with hog's lard, a boiled apple, or some such medium, "miraculously destroys Lice more effectually than the Stavesacre, and more safely than Quicksilver."

The writer of the article in "James' Medical Dictionary" objects to the employment of mercurial preparations in the local phthiriasis of the groins or of the eyelids, as being unsafe. He pronounces black soap a perfectly effectual, as well as safe remedy; "for these and all other sorts of Lice are easily killed by anointing with" the same. He was, of course, wiser in his practice than he knew; for the delicate integument of the groin favored easy absorption when vigorous inunction was applied, and this facility was enormously augmented by the excoriation which inevitably followed the itching always present in these cases. The mercurial preparations, at least the nonirritant ones, may, of course, always be applied over limited areas.

And so of the methods of extermination which were applicable in cases of an appearance of the pediculous plague there was hardly a visible end. It must also be admitted that the curative items of the therapeutic armamentarium of the physician of the twentieth century can hardly be said to be better furnished in the antipediculous department than was that of Pliny. It is in the preventive methods and means that we specially excel; while our more accurate knowledge of the generation of these lower forms of animal life enables us to attack them while unprotected by the veil of mystery, which is always more or less dazzling, or distorting, or both, still, although now more limited in outline, the mystery of morbus pediculosus has not yet been completely solved. No naturalist, even in the present day, can tell why one form of the human parasite nestles in the clothes, while another limits its wanderings by the outlines of the hairy scalp, and a third hangs on, sloth-like, to the circumpudendal hairs—and, exceptionally, to those of the other parts of the body, but never to those of the head. I will venture in this connection to offer the opinion that the scientist who succeeds in plucking out the heart of the mystery of the triplex "natural selection" topographically displayed in the life-history of human pediculi will have done more toward establishing a true theory of parasitic and infectious disease than has hitherto been reached by bacteriologic pathology.

Asks Help of Clergy to Control Impure Beverages.—Dr. B. H. Warren, the commissioner of the dairy and food department, is sending copies of an appeal to more than 5,000 clergymen throughout Pennsylvania, asking them to adjure their congregations to abstain from all alcoholic liquors, at least temporarily, as a guard to their health. He says that certain unscrupulous dealers, confident that they are removed from the power and scope of the dairy and food commission, have begun to flood the State with liquors adulterated with poisonous drugs and declares that the safety of public health lies only in abstinence from all alcoholic liquors for a time.

MENINGITIS: ITS SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT, WITH REPORT OF A CASE.[1]

BY

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The clinical picture of meningitis was well known to the physicians of antiquity, but, owing to a lack of anatomic study, it could not well be differentiated from other diseases of the brain. These studies were begun and completed in the middle of the eighteenth, and, in the main, at the beginning of the nineteenth century. Robert Whytt, of Edinburgh, in 1768, was probably the first to clearly differentiate the clinical picture, and he described a number of cases in children, of acute diseases of the meninges which coincided quite accurately with our knowledge of tuberculous meningitis. By succeeding study, particularly on the part of the French and German investigators, the pathologic anatomy and symptomatology were developed to the point at which we find them today. In comparatively recent times attention has been chiefly directed to the bacteriologic origin of the disease. The tubercle bacillus, after its discovery by Koch, was readily proved to be the pathologic agent of tuberculous meningitis, and quite a number of other microorganisms were found in meningeal exudates and the cerebrospinal fluid. Among these the *Diplococcus intracellularis meningitidis* and the pneumococcus play the most important roles. The diagnosis of the affection has been greatly facilitated by Quincke's ingenious invention of lumbar puncture. This method has not only been of value in diagnosis, but in the treatment of the condition as well.

Clinically, we distinguish between epidemic, suppurative, tuberculous and serous meningitis. Meningitis from aural disease differs from that due to other causes chiefly in that the symptoms are more severe and may be relieved by operation. Jansen states that pachymeningitis externa purulenta is the most common variety. It occurs twice as frequently with chronic disease of the tympanum as it does with the acute form. In this variety of meningitis a large proportion of the cases are insidious and without symptoms, aside from those of the ear, and, therefore, it not discovered until after operation; but on the other hand, it may begin with a chill and fever. Localizing symptoms are rare. Extension to the meninges may take place in one of three ways: (1) Through carious openings in the skull; (2) through the natural communications, viz., the cochlea and semicircular canals, and (3) the infection may travel along the bloodvessels and connective tissue. The cerebrum is affected when extension occurs through the roof of the tympanum; the cerebellum when it travels through the inner wall or the labyrinth. The most common mode of infection is either through the inner wall of the mastoid or through the roof of the antrum or tympanum. Jansen states that chronic aural disease affects the posterior fossa twice as often as the middle and that acute aural suppurations affect the posterior fossa almost exclusively.

Leptomeningitis often occurs with sinus phlebitis, brain abscess, or pachymeningitis, but is usually complicated only by encephalitis. This latter occurs in two forms: (1) The apoplectiform, which is fatal in from a few hours to three days; and (2) the insidious form, lasting from two to three weeks. Diagnosis of the latter is very difficult until serious disturbances of the sensorium have presented themselves. According to Macewen, leptomeningitis may occur without any visible tract along which the inflammation has traveled. In these cases the infection has been carried by the vascular

[1] Read at the meeting of the American Laryngological, Rhinological and Otological Society, held at Boston, June 5 to 8, 1905.

system. Acute processes less frequently extend into the interior of the skull because the mucous membrane of the tympanum remains intact, but when this complication does occur it is due to the fact that the process has been sufficiently acute to cause thrombosis of the vessels.

Macewen further gives the mode of extension from the tympanum in chronic cases as follows: Caries of the tympanic cavity does not usually affect the bone equally on each side, but extends in certain directions. When the roof is attacked by the ulcerative process, a perforation is likely into the middle fossa of the skull. This osseous ulceration may go on for some time and perforation occur only after some injury has been received upon the skull in that region. Suppurative leptomeningitis of the basal ganglia and cerebellum may occur from extension along the sheaths of the facial and auditory nerves. The cochlea and semicircular canals, being surrounded by harder bone, are seldom attacked, although they may be in the tuberculous variety, and following this a tuberculous meningitis may be set up. Osseous ulceration may occur either in the carotid canal or in the roof of the jugular fossa. The most frequent points of perforation are the tegmen over the tympanum or antrum and the sigmoid groove. When the dura is exposed by these perforations, it throws out granulations to protect itself and assist with the absorption of disintegrated bone. This granulation tissue, when seen through the external auditory canal, may be mistaken for an aural polyp and removed with a snare, thus setting up an irritation which will produce a meningitis.

Meningitis serosa is a form of meningitis which can be distinguished from other varieties only after it has suddenly cleared up, either spontaneously or following operation.

Barker expresses himself as being of the opinion that hardly a tenth of the intracranial complications of aural disease are brain abscesses and that more than nine-tenths are made up of meningitis, septic phlebitis, and pyemia.

Meningitis manifests itself in a protean manner. Occasionally the symptoms are so typical that it is impossible to mistake the affection, and at other times they develop in such a latent form that only with the greatest difficulty and by the most careful attention to the etiology can a tentative diagnosis be made. This explains why at the autopsy the serous membranes of the brain are so often found involved when such a condition had not even been suspected intra vitam; and, on the other hand, the membranes are found pale and glistening in some cases in which the most marked cerebral symptoms have accompanied the affection. Since the disease, as a rule, represents a diffuse affection of the surface of the brain, it produces general symptoms; and, as in the preponderance of cases, certain portions of the cortex are implicated, or the affection is propagated to the cerebral substance, focal symptoms also develop. The diagnosis, therefore, necessitates the proper appreciation of both of these groups of phenomena. The general symptoms which may precede or accompany the focal symptoms are headache, fever, vomiting, slow pulse, respiratory disturbances, jactitation, epileptiform convulsions, general hyperesthesia, delirium, involuntary discharge of urine and feces, and phenomena which are almost focal, such as tetany, grinding of the teeth, rigidity of the extremities and retraction of the muscles of the neck.

Headache is the most constant symptom. It is due to pressure upon the dura, to inflammatory edema of the brain substance, or to an accumulation of fluid in the ventricles. It is always decided, and while the patient is conscious, his most persistent complaint is of excruciating and tormenting headache. Even when in a comatose condition, we often note that the patient grasps his head with his hands. Only in exceptional cases is headache absent or even less intense.

Convulsions and muscular twitchings are prominent. The muscular twitchings may assume the form of epileptiform convulsions; delirium is common, and, particularly in children, a peculiar cry with which they sometimes start from their coma, is characteristic; it has been called the hydrocephalic cry.

The pulse, especially at the onset of the disease, is slow, and this is all the more significant when fever is present; in the later course of the affection the pulse becomes more frequent, irregular and smaller. The temperature fluctuates markedly, varying between 101° F. and 106° F. The respiration is early influenced; it is increased in frequency, sighing, and finally becomes intermittent, and may assume the Cheyne-Stokes type. Vomiting is common, and shows the peculiarity that it is most prone to occur when the patient assumes the upright posture; as a rule, it is not accompanied by nausea, and often, with quite persistent vomiting, the tongue is observed to be clean. Vertigo is also a frequent symptom. Occasionally there is inability to swallow. Contraction of the pupil is often very decided. The latter is probably a spastic myosis, due to an irritation of the cortical origin of the oculomotor nerves.

A symptom which is almost invariably present is painful contraction of the muscles of the neck. This often confirms the diagnosis, and is produced by an irritation of the nerve supply of the muscles of the neck and particularly the spinal accessory nerves. Phenomena belonging to the same category as the rigidity of the muscles of the neck are trismus, grinding of the teeth, and spastic contraction of the abdominal muscles. The latter condition gives rise to the scaphoid retraction of the abdomen. Rigidity of the muscles, particularly of the extremities, and convulsions restricted to definite portions of the body are common symptoms. Hyperesthesia of the skin and muscles must be grouped with the most important diagnostic phenomena. This is particularly noticeable in the muscles of the neck and of the calves. The reflexes are at first increased, later decreased, and may finally disappear altogether toward the end of the disease. The presence of Kernig's sign has, in recent years, been included among the symptoms of meningitis, although its value should not be overestimated, as it is sometimes absent in wellmarked cases of meningitis, and is occasionally found in other conditions. Trophic and vasomotor disturbances in the skin are sometimes met with, and among eruptions herpes is the most common.

Constipation is the rule; later in the course involuntary evacuations occur. The urine is excreted in small quantities, and sometimes contains albumin. Sugar has been demonstrated in a few cases and, by some authors, a remarkable increase in the amount of phosphoric acid has been noted. Extreme emaciation, often very rapid, is common, and is probably due to the cerebral effect upon the processes of metabolism.

The focal symptoms relate to paralysis of the motor area; occasionally monoplegias and hemiplegias are observed. Motor aphasia is not infrequent. As soon as the meninges in the neighborhood of the optic nerve become implicated, the clinical picture of optic neuritis develops.

The symptoms naturally vary according to the principal situation of the meningitic inflammation. The convex portion of the brain is generally affected by suppurative disease, while basilar meningitis is much more likely to be of a tuberculous nature. It must not be forgotten that the spinal meninges are in many cases involved with those of the cerebrum, so that symptoms referred to the spinal cord are superadded to those developing from the brain. Suppurative meningitis is most commonly produced by contiguity, by way of the lymph-vessels or of the veins, and is due to caries of the petrous portion of the temporal bone and purulent inflammations of the middle-ear. It may also be due to purulent catarrhal inflammations of the frontal sinus, operations upon the nose, the orbits, or in the aural cav-

ity, to trauma, particularly fractures at the base of the skull, to wounds, to furuncles and to abscesses of the scalp.

The following differential diagnosis between meningitis, brain abscess and sinus thrombosis, compiled mostly from Barr, is interesting in this connection.

	Meningitis.	Brain abscess.	Sinus thrombosis.
Pain	Pain is an early, severe and persistent symptom; generally frontal and extends toward the vault, although it may be localized and correspond to the affected area.	Onset marked by sharp, severe pain in ear, which extends over side of head and develops into excruciating head pains, increasing on pressure or percussion; it does not disappear as long as patient remains conscious.	Pain is produced in this condition by pressure or percussion over the posterior part of the mastoid; this may extend down the neck, along the course of the jugular vein; headache is generally present, but is not characteristic.
Temperature	The fever in this condition does not attain a great height, nor is it characteristic.	Temperature is at first high, then drops to normal or subnormal, and so continues until abscess ruptures, which is followed by a rise.	Fever is very high, with great oscillations, ranging between 100°–102° F. and 105°–106° F.
Pulse	The pulse is in the majority of cases very rapid, but if there is local pus formation it will become slow.	In early stages pulse is rapid, but after second or third day becomes very slow, and again in the final stages increases greatly in rapidity.	Here the pulse is exceedingly rapid, and as the condition continues it becomes very small and weak.
Respiration	The breathing is very short and rapid, and takes on the Cheyne-Stokes variety.	Breathing here is very slow, deep and stertorous.	Respirations in this condition are not affected.
Rigidities	Rigidity of the muscles of the back of the neck and retraction of the head usually accompany meningitis; there may be convulsions, with loss of consciousness, to a greater or less degree.	May be local rigidity of certain groups of muscles in the extremities.	Rigidity is not, as a rule, present in uncomplicated cases.
Chills	Sensations of chilliness and shivering are present, but not to a marked degree, although the onset may be shown by a distinct chill.	Rigors present to about same extent as in meningitis.	Chills in this condition are very severe and are frequently repeated and may be of one-half hour duration; they are followed by profuse perspiration.
Gastric disturbances.	Vomiting is almost invariably present; it is of the cerebral type and does not depend upon the taking of food; the accompanying digestive symptoms are constipation and anorexia.	Vomiting of same character, but more severe and persistent; digestive disturbances are likewise sympathetic and abdomen may be retracted.	Vomiting in this condition is generally present in the early stages, but is not severe; the tongue is dry and heavily coated and there is severe diarrhea; these symptoms somewhat simulate enteric fever, except that headache is more severe.
Ocular symptoms.	Optic neuritis is not uncommon, but cannot be depended upon as a symptom of value.	Almost invariably present; in early stages photophobia, later inequality of pupils with dilation affected side; neuritis common later stages; very frequently lids do not close entirely and eyeballs roll upward.	No special ocular phenomena.
Nervous symptoms.	Dizziness may be present in the early stages; the patient is extremely restless and often lapses into an excited delirium.	Drowsiness and slowed cerebration; dizziness is usually present, being especially marked in abscess of cerebellum.	Dizziness is not infrequently found; the intellect is not, as a rule, interfered with except in complicated cases.
Course	It may end fatally in three or four days, or it may last for two or three months; the average case is probably about two weeks.	Abscesses usually continue for from two to three weeks, but may extend over longer period; death comes on by coma, unless in later stages it is complicated by meningitis.	This condition usually terminates in from two to three weeks, although the period may be much shorter; death is usually due to pyemia or metastatic abscess of liver, lung, kidney or brain.

As to the treatment, apart from employing general methods, such as the use of rest and the application of cold, very little can be accomplished. Surgical interference is naturally indicated in most cases of meningitis complicating aural disease. This procedure, however, is satisfactory only in a very small percentage of cases, chiefly from the fact that the serious nature of the ear disease is not recognized until the meningeal inflammation has become well established.

Some authorities claim that all cases of infectious meningitis terminate fatally. The writer's experience would not only seem to confirm this observation, but also to establish the belief that cases which recover after operation are those which have been termed "meningeal irritation" rather than cases of true infectious meningitis.

A recent addition to our therapeutic resources is the operation of lumbar puncture. According to Quincke, the inventor of this method, the operation is indicated in the following conditions:

1. In cerebral pressure, with threatening symptoms, where it is desirable to relieve the pressure.
2. In moderate, long-continued pressure.
3. In conditions in which increased pressure is assumed or suspected.
4. In cases in which it is desirable to examine the cerebrospinal fluid independent of the cerebral pressure and thus obtain an opinion as to the nature of the meningitis.
5. In cases in which the fluid is to be examined for diagnostic purposes (blood, toxins, agglutinins, etc.).
6. For the purpose of injecting fluids into the spinal canal as therapeutic agents.

In the treatment of meningitis, lumbar puncture is employed largely for the purpose of relieving pressure, and in some cases of noninfective meningitis, uremia, etc., actually startling results have been reported.

The writer's own experience leads him to believe that lumbar puncture is of value chiefly as a means of diagnosis. The cerebrospinal fluid has a normal specific gravity of about 1,010 and contains little or no albumin. In meningitis the albumin is greatly increased, while in cerebral abscess it is only slightly increased. It is claimed that the presence of more than 1% is pathognomonic of meningitis.

The history of one case which I desire to report is as follows:

A. S., female, white, aged 6. Three years ago the child had an attack of pneumonia, complicated by an acute suppurative otitis media involving both ears. The discharge ceased in about two weeks.

Six weeks previous to admission to the hospital the patient became peevish and irritable; complained of pain over the eyes, in the frontal region, and in the right ear. After three weeks of more or less severe pain, a spontaneous rupture of the right membrana tympani occurred, relieving the aural pain, which, however, exerted no favorable influence upon the suffering referable to the frontal and occipital regions. Prior to, or immediately following the appearance of the suppuration, the attending physician noticed some tenderness and swelling over the mastoid region; this, however, subsided within a day or two so completely as not to attract any further attention.

Following irrigation, the discharge ceased at the end of one week. By this time the headache had become general, the pain being especially severe in the occipital region and the neck.

On admission the temperature was 103° F.; pulse, 120; respiration, 24. The child was drowsy, stupid, and not easily awakened. Examination of the right ear failed to disclose any discharge or other evidence of tympanic or mastoid disease, except slight redness and bulging of the superior and posterior wall of the canal. Traction on the auricle, or pressure over the mastoid failed to elicit any outcry or other evidence of pain. The patient rested quietly that night and during the ensuing day, but on the second night became restless and started up from time to time with a shrill scream, relapsing into stupor. This condition persisted for most of the second day, when the patient became more quiet, but developed marked rigidity of the muscles of the neck with strong retraction of the head. Marked and almost continuous twitching of both arms and legs

now became prominent symptoms, as well as involuntary evacuation of bladder and bowels.

In this condition the writer saw the patient, and advised an immediate mastoid operation, his diagnosis of mastoid involvement being based on the history of the ear having previously discharged, more especially, however, upon the characteristic drooping of the superior and posterior wall of the canal. The cortex was somewhat harder and thicker than usually encountered in a child of her years; the tip was not involved. Neither pus nor other inflammatory debris was found until the antrum was reached. A small carious opening through the roof of the antrum exposed a moderately inflamed and pulsating dura. The radical operation was performed, but no evidence of further intracranial involvement was discovered. For two days following the operation the patient improved only in one respect, namely, the reduction of the temperature by two or more degrees. However, on the third day after operation the patient attained a gradual rise of temperature, starting at 103° F., at 2 a.m., reaching 107° F. and a fraction by 8 p.m., when death relieved her suffering. The moribund condition of the patient was so far advanced that little or no anesthetic was required. The postmortem findings would have been interesting, but unfortunately an autopsy was refused.

In conclusion, the writer would strongly urge on the part of the medical profession a more careful and better conception of the serious complications that frequently develop from diseases of the tympanic cavity that are regarded, from the symptoms presented, as simple in nature.

All suppurative processes of the organ of hearing should be considered a menace not only to the health but actually to the life of the individual thus afflicted. The importance of this doctrine is not in the least lessened from the fact that we see many cases of otorrhea that have persisted for years without having caused appreciable harm. The ultimate outcome of many such cases is too well known and appreciated to admit of any controversy. After all, the most reliable treatment for meningitis complicating aural disease and other intracranial lesions from the same cause, is to promptly recognize and properly treat the initial ear disease.

REGIONAL ANALGESIA IN THE SURGICAL TREATMENT OF ANORECTAL DISEASES.

BY

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Blocking the nerves supplying a segmented area is not new. I do not know of anyone, however, who has attempted to block the anorectal region in the manner presently to be described.

Corning[1] established about 30 years ago that the infiltration of a sensory nerve trunk with a local anesthetic abolished the sensations of the nerve to its most minute terminal distribution. Obers,[2] after arresting the circulation to a part, injected the analgesic agent directly into the subcutaneous tissues around the nerves, and found that the entire part distal to the injection was anesthetized.

Dr. George Crile,[3] in his monograph, "Problems Relating to Surgical Operation, 1901," has again laid emphasis on the physiologic blocking effect of cocain when injected into the peripheral nerves. He reports a case of interscapulothoracic amputation successfully performed by cocainizing the brachial plexus.

After some experimental work and reading these and various other articles on nerve blocking and local anesthesia, it occurred to me: 1. If the nerves supplying the anorectal region could be effectively blocked we would gain another step for proctology. Hence, with the assistance of Professor W. T. Eckley, of the medical department of the University of Illinois, I made some dissections and experimentations, and found that it is possible to surround the nerves supplying this region quite successfully with an analgesic solution injected hypodermically. The illustration shown in Fig. 1 was made from a specimen which I injected with a solution of

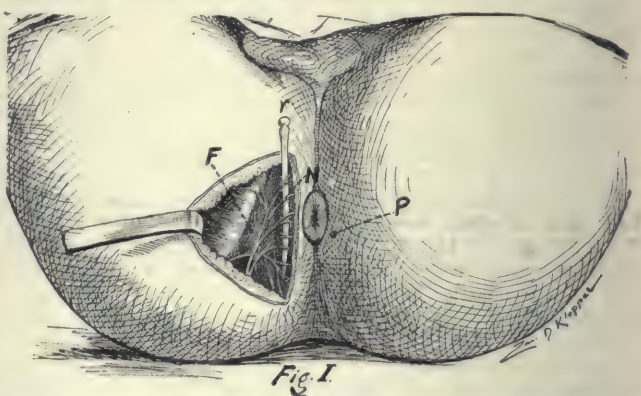


Fig. 1.—Was made from a specimen injected with methylene-blue solution. The inferior hemorrhoidal nerves (n) are supported on a rod (r) as they cross the ischiorectal fossa (f). The heavy shading represents the deposit of the methylene-blue solution around the nerves. P is the point in the opposite fossa where the needle would be introduced to make a similar injection.

methylene-blue and exhibited before the Chicago Medical Society,[4] April 12, 1905. It will be noted how well the fluid is deposited around the nerves. To anesthetize this area successfully necessitates an accurate knowledge of its anatomy and the distribution of the nerves supplying it. While the principal nerve supply to this region seems to be from the inferior hemorrhoidal, it is also innervated by a number of other smaller nerves. The inferior hemorrhoidal is usually a branch of the pudic, and is given off from it near the posterior part of the ischiorectal fossa. After piercing the wall of Alcock's canal, it divides into several branches and passes inward across the ischiorectal fossa, supplying the external sphincter muscle and the adjacent integument. At the anterior part of this canal the pudic divides into the dorsal nerve of the penis and the perineal nerve. The deep part of the latter nerve sends branches to the anterior part of the levator ani and external sphincter. Muscular branches from a plexiform loop formed between the third and fourth sacral nerves also send small divisions to the pelvic surface of the levator ani, coccygeus, and sphincter externus (Cunningham). The perineal branch of the fourth also sends twigs to the external sphincter, while the coccygeus plexus innervates the region posterior to the anus. The distribution of the pudic nerve is essentially the same in both sexes. The

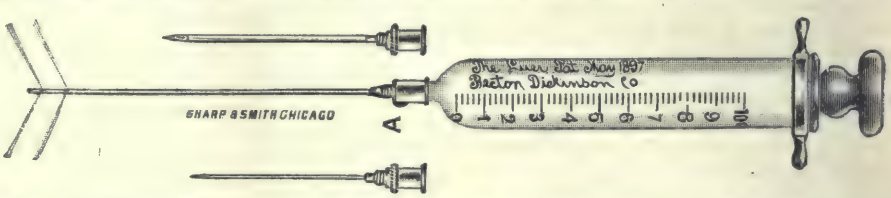


Fig. 2.—Lüers' syringe and my needle with holes in the side.

inferior hemorrhoidal arises sometimes from the third and fourth sacral.

To secure perfect analgesia of the anus and lower rectum would necessitate the complete blocking of all of these nerves. However, blocking of the inferior

hemorrhoidal, the perineal branches of the fourth and the muscular branches from the plexiform loop of the third and fourth sacral, seems to give very good control of the field; and, by supplementing this occasionally with slight infiltration analgesia, dilation of the sphincter and operations in this region can be quite satisfactorily accomplished. 2. It would afford valuable advantages in some cases requiring anorectal operation.

Solution.[5]—The following solution has served me very well:

Beta-eucain lactate	.2
Sodium chlorid	.75
Suprarenalin chlorid solution	.65
Distilled water	100

I have used this entire quantity with no ill-effects. Barker, of London, has used as much as .4 gm. (6 gr.) of beta-eucain hydrochlorate and 1.25 cc. (20 m.) of adrenalin chlorid without noting any ill-effects. Matas, of New Orleans, and others have used larger amounts. They are careful, however, not to allow more than .32 gm. (5 gr.) of the drug to remain in the system. To make the solution, put into an Erlenmeyer or Jena glass flask .2 gm. (3 gr.) of beta-eucain lactate and .75 gm. (11½ gr.) of chemically pure sodium chlorid, then add 105 cc. (3½ oz.) of distilled water. Boil for two or three minutes; when cooled to blood heat, add 10 drops of suprarenalin chlorid solution, and it is ready to use.

The suprarenalin solution is added because it is a heart stimulant and has the power of blanching the tissues. It has long been known that anything which retards or diminishes the circulation of blood in a part infiltrated with an analgesic agent, enhances the potency of the latter. H. Braun, of Leipsic, in the light of this knowledge, combined these agents into a solution and used it hypodermically. He found this combination not only enhanced the potency of the analgesic agent,

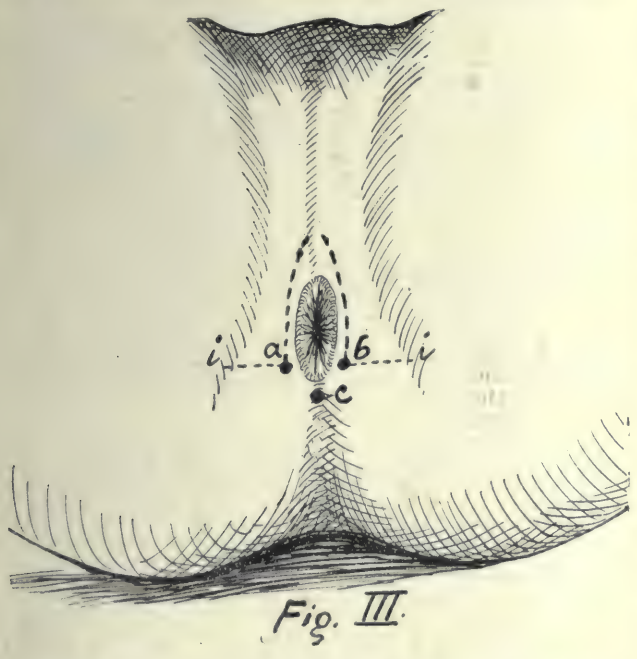


Fig. 3.—Diagrammatic. The tripod (a,b,c), illustrates the points where the needle may be introduced to "block off" the nerves of the anorectal region. The dotted lines indicate the direction of the needle.

but it was rendered less toxic and the analgesic effect prolonged.

Technic.—The patient's bowels having been prepared by catharsis and flushings, he is held on the table in the lithotomy position, the field carefully and thoroughly scrubbed. Nervous patients are usually given a hypodermic of morphin half an hour before beginning the operation. A drop of carbolic acid is frequently placed on the site for the insertion of the needle. The skin should be anesthetized first, then the deeper structures. A proper syringe and one that can be sterilized is absolutely necessary. I prefer the Lüers syringe, and use needles Nos. 25 or 27 for the skin, and No. 19 for the subcutaneous tissues. For the deeper structures, I have special needles of No. 17 gauge and 2½ in. and 3 in. in length, which are blunt and have holes in the side instead of the end, to avoid injuring the vessels (Fig. 2). To anesthetize the inferior hemorrhoidal nerve, a small puncture is made in the anesthetized skin and

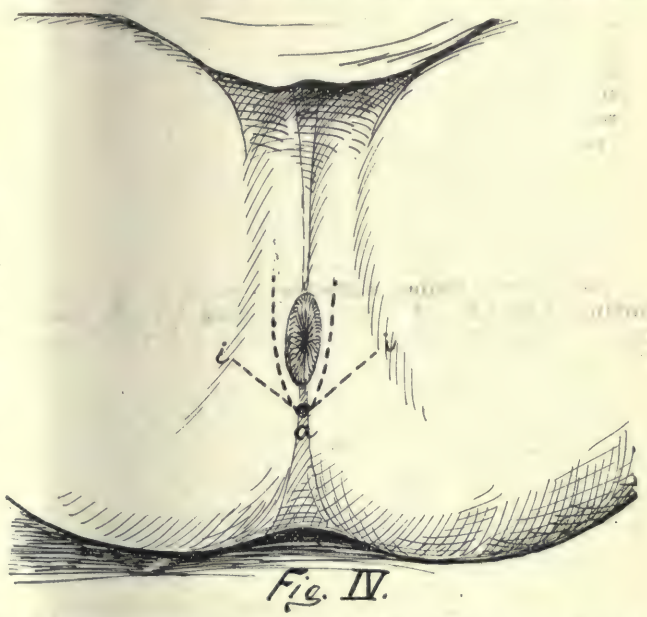


Fig. 4.—Diagrammatic. The unipod (a) illustrates a point where the needle may be introduced to "block" all of the nerves to this region. The dotted lines indicate the directions of the needle.

subcutaneous fascia, about an inch external to the anus, to facilitate the introduction of the blunt needle. The needle is then introduced and carried outward and upward toward the posterior border of Alcock's canal to a point about an inch above the inner margin of the tuberosity of the ischium, and the analgesic solution deposited (Fig. 3). Should it be desirable to refill the syringe, it may be readily detached from the needle, refilled and reattached without removing the latter. If the needle is carried into Alcock's canal and the solution deposited there, the pudic nerve and all its branches will be anesthetized. If not, then the needle should be carried forward to reach the deep part of the perineal nerve. The other ischiorectal region is treated in the same manner. This necessitates one puncture on each side of the anus. The perineal branches of the fourth sacral and other nerves posterior to the anus and rectum are then anesthetized. To "block off" these nerves, the needle is introduced in the posterior median raphe about three-fourths of an inch posterior to the anus, and carried first to one side and then the other. Thus it will be seen that this necessitates introducing the needle at three different points, which is unnecessary in many patients, as I have successfully "blocked" the entire anorectal region from the one puncture in the posterior median raphe[4] (Figs. 4 and 5). The field is then tested with the point of a needle to see if anesthesia is complete. If so, and the case is one of hemorrhoids, the anus is carefully dilated, and the technic of my hemorrhoidal operation,[6] as described by me in 1901, is carried out.

I have now used this method of producing analgesia in 20 hemorrhoidal cases. The first patients which I operated on under this method of analgesia were in my clinic, in the Chicago Polyclinic, and the Dunning institutions. The results were all that could be wished for. In one case operated on in a private residence, the dressings were allowed to irritate the parts, which slightly prolonged the recovery. One elderly lady complained of slight numbness of the entire body, just as I was finishing the operation. This, I think, was due to her age and the position in which she was held during the operation. She assured me the operation itself was painless.

Mrs. C., referred to me by Dr. C. C. Murphy, of Chicago, had had internoexternal hemorrhoids for seven years, and had been repeatedly advised never to have them operated on. She was very fleshy, and almost a nervous wreck. A ring of hypertrophied tissue about an inch in length surrounded the

entire anus (Fig. 6). It was intensely painful, and had been in that condition for months. Her suffering was so agonizing that she very frequently had spasms, which were attributed to the intense pain and the duration of her illness. She was without exception the most intense sufferer from hemorrhoids I have ever seen. I had an intuitive fear of giving her a general anesthetic. I operated on her under regional analgesia in the Chicago Polyclinic Hospital, April 15. On the night following

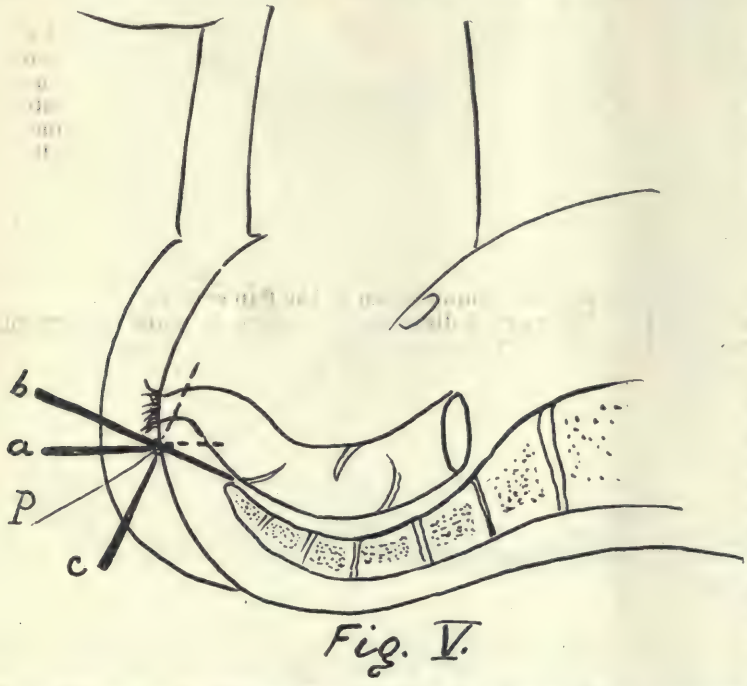


Fig. 5.—Diagrammatic. Lateral view. Showing the different directions (a,b,c) of the needle when introduced through the unipod (P).

the operation she dreamed her bowels were moving, and on awakening found she had pulled out the dressings. I thought it best, because of the extensive raw surface, to replace them, which I attempted to do under general anesthesia. She was taken to the dressing room, and after a few inhalations of the anesthetic, probably a minute after the anesthetic was begun, she stopped breathing, and it was with the greatest difficulty she was revived. The final result was ideal.



Fig. 6.—Illustrating the ring of hypertrophied tissue.

Miss ——, Michigan, was referred to me by Dr. George W. Webster, of Chicago. She was extremely nervous, had an extensive hemorrhoidal condition and would not go to a hospital. I operated on her at the Auditorium Hotel assisted by Dr. Barton, of Danville, Ill. The operation was successful and painless.

I operated on Dr. ——, of Mississippi, April 11, at the Alexian Brothers Hospital. On going to his room about a half hour after the operation I found him sleeping.

While it is really surprising how little operative and postoperative pain most of these patients have and how rapidly they recover, yet, in those hemorrhoidal cases in which there are only two or three small tumors, I would not resort to this method of analgesia and operative procedure, but would employ the one referred to in my paper [5] published in 1905.

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[5] J. Rawson Pennington: Normal Salt Solution and Other Local Analgesics in the Office Treatment of Anorectal Diseases, Journal of the American Medical Association, April 8, 1905.
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URETHRORECTAL FISTULA, WITH REPORT OF CASES.[1]

BY

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of Pittsburg, Pa.

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There has been rather a dearth of literature upon this subject until recent years. Writers on proctology have, with few exceptions, given it but passing notice. Allingham, Mathews, and Gant, in their splendid treatises do not even mention urethrorectal fistula. Tuttle describes the condition fully, and we find some description by genitourinary authors.

The difficulty attending our efforts to cure urethrorectal fistula adds to the importance of a consideration pathologically and surgically. The disease is not so rare as may be supposed. In every case of infiltration of urine about the ischioperineal region, there may develop a communication between the cavities, as expressed in the title of this paper.

Various methods may be resorted to for diagnosis. Besides the use of sound and the probe, the permanganate solution is an efficient means.

The victims of a fistulous tract between the bladder and rectum, or urethra and rectum, excite our deepest sympathy and exact our highest skill to relieve—not because they suffer any great amount of pain, but on account of the inconvenience that the communication between the cavities occasions by the passage of urine through the rectum, or gas per urethra.

Etiologically considered, urethrorectal fistula, unlike the ordinary rectal fistulas, is not always preceded by an abscess, but in the majority of cases abscess in the prostate gland marks the historic initium, which abscess is probably of gonorrheal origin. In four of my patients this was the case. In one patient surgical trauma was the causal factor.

CASE I.—E. K., aged 31, was admitted to the Presbyterian Hospital during my service, in January, 1897. He gave a history of a severe gonorrheal attack the previous summer, and said he had a rectal abscess which was opened by a surgeon in another city, but did not heal. The abscess had been superficially treated, since an examination revealed a communication between the prostatic urethra, rectum, and perineum. By laying open the rectoperineal sinus and cureting the urethral portion of the tract, I hoped by the aid of passing large sounds to eradicate posturethral strictures to close the urethral end of the sinus, but, after a month's effort with this plan, failure resulted. The patient was again anesthetized, and I incised the perineum in the median line, opened the urethra, having the sound for a guide, well toward the scrotum, splitting the urethral tract down to the sinus, trimming the sinal orifice; chromicized catgut (No. 3) sutures were placed, and, withdrawing the sound, a soft rubber catheter was inserted through the opening into the urethra. I was obliged to incise both anterior and posterior layers of the triangular ligament, since the urethrorectal sinus involved the prostate and was, therefore, behind the deep fascia. The procedure for some days promised a successful termination, but we were doomed to disappointment, for on the sixth day urine appeared in the wound. I hoped still to secure union by the application of silver nitrate and other

[1] Read before the Am. Proctologic Society, May 5, 1905, Pittsburg, Pa.

stimulants, and partially succeeded; the patient was allowed to move about the hospital; the discharge of urine gradually diminished, but did not quite stop; he left the hospital in May, 1897, since which time I have no knowledge of him.

CASE II.—Mr. A., aged 26, referred to me in 1903 by Dr. F., for supposed growth on the anterior wall of the rectum, seven years previously contracted gonorrhea. He said he had a number of attacks since, and gave a history of severe pain in the prostate two years previously, which suddenly terminated by a free discharge of pus by urethra and rectum, since which time he noticed a constant moisture about the anus.

This patient was cured by the use of stimulating applications in the rectal sinus following a thorough curetment and the cure of a urethral stricture, which, doubtless, was the origin of the prostatic abscess.

CASE III.—J. W. called at my office in September, 1903, having come from a hospital in New York, where he had been treated for gonorrhea and a rectal abscess. Infiltration of urine was quite evident, and it passed freely per rectum; said he noticed bubbles of gas from the urethra. Careful examination revealed a fistulous communication between the cavities, and the conditions were much like those in Case I; with that experience fresh in mind, I approached this case with much diffidence; however, much to my astonishment, with the combined use of the urethral sound and laying open the rectoperineal sinuses, the patient recovered in five weeks.

CASE IV.—E. S., referred by Dr. S., in 1904, presented a condition similar to Case II, and by the same line of treatment fully recovered.

CASE V.—J. R., aged 67, referred by Dr. N., in 1905. When a lad of eight, perineal lithotomy was performed without anesthesia, by a prominent Pittsburg surgeon, when he was relieved successfully of a large calculus. His recovery was uneventful, but soon after the patient noticed unnatural sensations which convinced him of a communication between his rectum and urethra. Urine passed in large amounts by the rectum, and gas by the urethra. He consulted various physicians, who assured him that such an opening was not probable nor consistent with his apparent good health, and after several years of futile medication, he suspended treatment.

On examination, the finger revealed a normal rectum except above the external sphincter anteriorly, where it passed into a deep sulcus. Passing a sound into the urethra and a speculum into the rectum, a probe readily demonstrated a rectourethral sinus, the urethral opening being in the membranous portion or between the planes of the triangular ligament. The fistula was fully a half inch in diameter, since the finger passed through readily. The wall of the sinus was dark and callous, and the rectal orifice more or less irregular in outline.

In January, 1905, I made an incision much as in Case I, and removed the indurated wall of the sinus. Two crescentic flaps were made about the rectal orifice, the primary incision about a half inch from the margin, going through the muscular coats of the bowel. The flaps were dissected up to within an eighth of an inch of the margin, between which and the opening, the flaps were to receive their blood supply; they were turned toward each other, the rectal mucosa becoming the urethral floor. A line of catgut sutures were placed about a quarter of an inch apart, a tube was placed in the rectum for the escape of flatus and a soft catheter retained for 10 days, through which the bladder was flooded with Schleich's solution three or four times daily. The wound has not yet healed, small amounts of urine still occasionally passing through the wound, but no gas from the urethra. We hope to succeed in completely obliterating the fistula.

The importance of the rectal tube cannot be overlooked in promoting the healing process. The neglect of this precaution may cause failure to cure urethrorectal fistulas, on account of gas infecting the wound.

Lithotomy is not without its danger in producing rectal fistula. Thrusting the knife through the membranous urethra, the rectum may be punctured leading to a permanent tract. This accident was probably more frequent prior to the use of anesthesia, which is so conducive to calm deliberation in surgical technic.

The question of attempting to close the wound by suture needs some consideration. In Case V, I used buried sutures, closing the entire wound with 20-day catgut, but, much to my chagrin, they became absorbed in seven days, and my work was apparently nil; however, I had not reckoned with nature, aided by a freshened wound, for the granulating process asserted itself generously in closing the gap.

My experience in dealing with fistula puts a limitation upon the use of suture to the single tract fistula, and even in this variety failure is liable to ensue. In placing the suture, one line must approximate the incised portion of mucosa, the other the skin portion. This was the plan pursued in Case V, because my dissection had reduced the condition similar to that following an incision in a simple fistula, after having united the flaps to obliterate the urethral end of the sinus. The operation might be considered complete at this stage of the technic, allowing the superficial portion of the wound to granulate. This is practically what occurred in this instance, since on the seventh or eighth day I opened the wound which had healed at the surface, for the purpose of gaining access to the tract and to stimulate the granulation. The Van Horne 20-day catgut No. 3 was used for suture, but in rectal wounds the 40-day catgut is better, since the inflammatory exudate is abundant in this region, thus being conducive to rapid absorption of the animal product. In the light of my own experience, I would recommend the suture in urethrorectal fistula, since the tract is usually single and opens above the rectal sphincter, and is easy of access; but if you have discovered your failure to close the sinus by first intention, the proper procedure is to reopen the wound down to the flap sutures.

By way of digression, I desire to state concerning multiple fistulous tracts that, while the use of the suture is ideal, the open method seems to me the safest and most certain, since drainage is thereby secured and inspection of the wound is easy. The complication most to be feared is incontinence, and this, added to a desire for rapid convalescence, impels us to use the suture. But if the wellknown rules governing incisions about the rectum are observed, incontinence would be rarely mentioned. The law of parallels and right angles must govern every incision. Never cut the rectal fibers obliquely.

In urethrorectal fistula, the incision is in the anterior commissure, at which point the sphincter and transversus perinei muscles conjoin, which being severed, will hold the wound apart, and for this reason perfect continence is more slowly consummated unless anchored by suture.

I wish to emphasize by these citations: 1. That urethrorectal fistula, though comparatively rare, is apt to be overlooked. When in doubt, use the permanganate test. 2. That it is generally of gonorrheal origin, generating prostatic abscess. 3. That it may be of traumatic origin by the use of sounds or the operation of lithotomy. 4. That the symptoms may point to cystitis, urethritis and proctitis, in addition to intercommunicability of the urethra and rectum. 5. This is a type of fistula in which suture must be used, and a No. 3, 40-day catgut. 6. Do not be surprised or discouraged at failure to close the tract. Your own care of the wound is of paramount importance. Never leave it to an assistant, for no one can possibly be so familiar with the wound as he who made it. 7. A certain number of cases of urethral origin will heal spontaneously, if recent and if the stricture is removed.

HEMATOMA OF THE STERNOMASTOID MUSCLE.[1]

BY

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of Philadelphia.

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Hematoma of the sternomastoid is a blood tumor within the sheath of one of the sternomastoids in consequence of the tearing through of some of the fibers of the muscles or injury to some of its vessels. The condition is rare, and reports upon cases few.

The etiologic factors in the production of this condition are: Breech presentation, especially when there is too much traction upon the after-coming head; misplaced forceps, where there is pressure upon the muscle resulting in a traumatic rupture; forcible rotation.

[1] Read before the Northwest Medical Society, June 5, 1905.

F. W. Kilmer[1] reports three cases. Two of these cases were vertex presentations, normal labor. In the third, no presentation is stated. The tumor is usually located upon the right side, elongated, varying in size from a pigeon's egg to that of the little finger, and occupying the anterior border of the muscle.

Henoch reports 27 cases in which the right side was involved 21 times and the left side 6 times.

Petersen suggests that there is a congenital defect in the development of the sternomastoid, which is shorter than natural, and therefore more easily injured. The tumor is hard and cartilaginous to the touch, but seldom tender. The clot is usually absorbed and a dense cicatrix is left. In the autopsy of a case in which death occurred from diarrhea six months after birth, Ashby and Wright report that around the torn muscle, a dense cicatrix had formed and a partial wry-neck had resulted from the contraction. There is no discoloration, and the skin is freely movable over the tumor. It can readily be diagnosed from an enlarged lymph-gland by its irregular outline and its connection with the body of the muscle. Pain is usually absent and an objective diagnosis required.

The following case was brought to my clinic for treatment:

Norman M., aged 2 months, breast fed. Father and mother living and well. No history of any specific disease. Grandfather and grandmother living and in good health, first birth. Mother states that it was a breech presentation and that labor was rapid, and terminated before the physician arrived. Mother was in standing position and child fell upon the floor. Grandmother assisted and placed mother and child upon the bed. Nothing was noticed until the child was 7 weeks old, when there was an apparent enlargement of the right side of the neck. A physician was consulted and enlargement of lymph glands was diagnosed and hot poultices applied. No apparent relief being given, treatment was stopped.

When I saw the child there was an irregular enlargement of the right sternomastoid about 5 cm. in length and 3 cm. in breadth. It commenced about 3 cm. from the mastoid attachment. It was within the body of the muscles and was dense and hard to the touch. Skin was freely movable over the tumor. Child suffered no discomfort upon handling it. There was no torticollis. Daily massage of the tumor with hot oil was advised and when mother reported five months later the swelling had decreased perceptibly in size and could only be noticed when the head was turned.

Stony Wold Needs Assistance.—The managers of the Stony Wold Sanitarium find themselves hampered by lack of funds in the work of caring for tuberculosis patients at their summer camp. The heat of the past few days told upon the sufferers from this disease, and there are several worthy ones who cannot receive the benefits of the sanitarium because the $1 a day necessary cannot be provided.

An Abrogation of Red Tape.—There is elation on the Isthmus of Panama, due to the facility with which official requisitions from the medical officers, under Colonel Gorgas, the chief sanitary officer, are acted upon, says the *Army and Navy Register*. There was recently sent from Colon by cable a requisition for a very large quantity of sanitary supplies. To the surprise of those most interested in getting this material, it was delivered at Colon within two weeks and was being distributed to the points in the canal zone where the articles were needed. When it is considered that it has always taken from five to seven months to get a requisition acted upon in the Canal Commission, and still takes a long period to have the numerous questions settled, it will be seen that the celebration by the medical officers on the Isthmus of promptness of the Washington officials was entirely justified. It is all due to the thoroughness of the system adopted by the army medical department. The requisition came through the Surgeon-General's office, the facilities of which were placed in operation with the result described. The requisition called for supplies which are not carried in stock by the government either, and to add to the unusual situation, some of the quantities mentioned were abnormal. The principal item, for instance, was for 38 tons of insect powder, and it was found that in all of New York City there were but 20 tons; it is probable that the Panama requisition exhausted the national supply of this useful article. Another item was that of 20 tons of sulfur, and other things called for included 1,000 iron pots, in which to burn the sulfur; 300 small pails; 15 tons of paper, manila and old newspaper, with which to stuff up crevices, and 7 tons of flour with which to make paste. Altogether, the business-like celerity in the handling of the call from Panama is a credit to the medical department of the army.

[1] Medical Record, Vol. v, No. 69.

MISCELLANY

AN INQUIRY IN REGARD TO MENTAL PHENOMENA CONNECTED WITH ANESTHESIA.

While in the deeper stages of anesthesia mental processes are usually so entirely submerged as to fall beyond the possibility of record, in the lighter stages and in the period of approach to, and most favorably of all, in the period of recovery from more complete anesthesia, the power of response to outward stumuli is sufficient to afford ample opportunity for a series of observations which furnish the motive to the present inquiry. The cooperation of surgeons and anesthetizers is invited to secure data that bear upon any of the questions summarized below, or upon the general problem thus suggested. Special attention is directed to the importance of tracing relations between the phenomena recorded during anesthesia and the normal, waking, mental traits of the subject. Indeed, the former can in many cases be interpreted only in the light of the latter; and observations become of value in proportion as the subject is able to account for the mental experiences of the unusual state by references to the normal source and trend of his mental processes. To determine these, skilful questioning controlled, where possible, by ingenious tests, will be the most effective instrument of inquiry.

1. *Analogies between the Lighter States of Anesthesia and Hypnosis.*—Of these the chief trait is increased suggestibility: Will the patient carry out automatically with enfeebled consciousness suggestions given by the operator to do thus and so, to feel or neglect certain sensations, to follow a train of thought, to carry out a code of signals between subject and operator? Is obedience to such suggestions apparent by facial expressions, involuntary cries, nods, etc., after more controlled forms of reaction have disappeared? Is there evidence that patients respond to similar suggestions not directly addressed to them? Do they react to the conversation of the attendants, to a vague knowledge of their surroundings, to interpretations, correct or incorrect, of what is actually going on? Are there any of these responses that reflect the normal habits, idiosyncrasies, etc., of the waking condition? Do they belong to the experiences immediately preceding or to a more remote past?

Next in importance are the automatic activities. Illustrations are desired of automatic talking, mechanical acts, and simple tricks of manner, of the type so common in sleeping persons who walk and talk in their sleep, answer questions without awakening, make movements as of knitting, counting money, etc., or other betrayal of their subconscious thought. In very favorable instances it may be possible to place a pencil in the patient's hand and secure by questioning a subconscious answer or scribble or drawing that throws interesting light upon what is going on in the mind, even when there is but partial consciousness of surroundings or direction of mental processes. Such observations have especial value and should be accompanied by the actual records.

2. *Analogies between the Lighter States of Anesthesia and Dream Life.*—If the patient be questioned as to what occupied his mind up to the moment of losing consciousness and again during the regaining of full consciousness, there will inevitably result a valuable collection of data regarding the waning and waxing states of consciousness. Many of these phenomena will be dream-like, and should, like dreams, be recorded with ample detail to make them intelligible. The nature of the impressions, whether visual or auditory, acted or felt, and most of all, the connections between the dreams and the recent or remote experiences of waking are important items. Just as ordinary dreams become interesting when they are connected with normal experiences, so in the dreams of anesthesia the patient alone can give adequate personal detail to give significance to the narrative.

3. *Other Points of Interest.*—The specific points enumerated are intended to make the matter definite rather than to limit the scope of the inquiry. Evidence is desired that bears in any degree of pertinence upon the general problem thus suggested. As additional points of interest may be mentioned the following: In cases of repeated anesthesia, after rather brief intervals,

is it possible to elicit evidence that in the approaching or receding consciousness, details are remembered (or recallable by suggestion) which though beyond the control of the waking consciousness, are thus shown to connect one state of abnormal consciousness with another similarly caused? The analogous fact is that in hypnosis the subject will tell in a second hypnotization what happened while he was formerly hypnotized, but cannot recall in the waking interval; or again, in changes of personality the relapse into the altered personality will bring with it the control of memories of the last states of abnormal personality, which were not recallable in the normal state. Dreams and the actions of drugs show similar phenomena. Where records of this kind are available through anesthesia, they should be recorded in detail, and a conclusive set of questionings and tests be made to elicit how far the two states are connected.

A further point of interest is the correlation of different types of mental states with different degrees of anesthesia. For this purpose it is desirable that some physiologic sign of the degree of anesthesia be recorded as evidence in general of the depth of anesthesia during which the mental phenomena were observed. The variations of susceptibility to an anesthetic are such as to make it important to estimate the susceptibility in each case, as well as to give such general data as the age, sex, occupation, condition in life, physical state, temperament, purpose for which the anesthetic was administered, length of period under its influence, degree of nervous shock accompanying the same, and so on.

The general use to which the data will be placed will be that of formulating a consistent account and interpretation of the range of subconscious mental states, including simple states of distraction, absentmindedness, reverie, trance, hypnosis, dreams, the actions of drugs, alterations of personality, lapses of memory, states of confusion, and the reactions to anesthetics. It is hoped that a sufficient series of data will be elicited by the present inquiry to throw important light upon processes as yet imperfectly understood, and the analogies of which to such artificially induced states as those accompanying anesthesia are of especial importance. The psychologist has naturally but little opportunity to observe these phenomena, and must thus appeal to those who are professionally engaged in their production, to step aside from their main interests to supply in a spirit of cooperation the data so valuable to students of a different and yet not unrelated science.

Full credit will be given to all contributions, and no direct or personal use will be made thereof in print without distinct permission. Those to whom this circular letter is addressed are hereby invited to send records of such observations and to further the purposes of this inquiry in such ways as may lie in their power. The undersigned will appreciate, both personally and professionally, favorable action upon this request.

Madison, Wis. JOSEPH JASTROW.

The University of Wisconsin: Department of Psychology.

Tuberculosis Congress at Paris.—An international tuberculosis congress will be held at Paris from October 2 to 7, 1905, under the auspices of the President of France. The sessions will be held in the Grand Palace at the Champs Elysées. The president of the congress will be Dr. Hérard, member of the French Academy of Medicine. The congress will consist of four sections, with sectional presidents as follows: Medical pathology, Professor Bouchard; surgical pathology, Professor Lannelongue; preservation and assistance in childhood, Professor Grancher, and preservation and assistance in adult life, Professors Landouzy and Senator Strauss.

Contagiousness of Leprosy.—The question of the contagiousness of leprosy is discussed in the report just published to the British colonial office on an investigation of the prevalence and distribution of the disease in Basutoland. The investigators gave particular attention to the matter of contagion as a means of spreading leprosy. There was a history, prior to contracting the disease, of more or less close association with lepers in 68 of the 148 cases studied. In 18 of the 68 cases the evidence was of a doubtful nature, but in 50 cases there was a fairly trustworthy history of close intercourse with other lepers, chiefly members of the same family or inhabitants of the same village. Four patients stated they contracted the disease by sleeping for one night only in huts where lepers were. In the remaining cases any intercourse whatever with lepers was denied.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 22, 1905. [Vol. XLV, No. 4.]

1. Intravenous Injection of Ergot: Effects on the Mammalian Circulation. TORALD SOLLMANN and E. D. BROWN.
2. Inguinal Hernia of the Bladder, Report of a Case: Remarks on Diagnosis. S. C. PLUMMER.
3. Fetal Death from Looping of Cord. HERBERT C. JONES.
4. Chronic Acetanilid Poisoning: Report of Two Additional Cases. ALFRED STENGEL.

1.—See *American Medicine*, Vol. IX, No. 19, p. 767.

2.—Inguinal Hernia of the Bladder.—S. C. Plummer discusses the diagnosis of the condition which, in the majority of cases, is unrecognized until operation and sometimes not even after the bladder has been injured. He thinks the reason of this is that we have been taught to consider it a pathologic curiosity and are not sufficiently on the outlook for it. The urinary symptoms should not be neglected, and conditions which lead to suspicions of the presence of the bladder during operation, such as the presence of an unusual amount of fat in the canal, the location of the tumor, the difficulty of separating it from the true hernial sac, the recognition of its musculature when present, the possibility of passing a catheter or sound into the hernia, the large size of the inguinal opening, the frequency of direct hernia, and the difficulty of finding a neck to the true hernial sac, should all be looked for.

3.—Looping of the Cord.—H. C. Jones estimates the condition of looping of the cord as rather greater than is usually alleged. He thinks it existed to a greater or less extent in nearly half of the cases he has attended, over 1,400 altogether. He reports a case that seems to him extraordinary. The signs of fetal life had ceased at the end of the seventh month, but delivery occurred at term, and a macerated fetus was born with the cord wrapped four times around the left leg and once around the right. Delivery occurred without rupture of the membranes. He thinks it possible that death of the fetus did not occur immediately at the time of strangulation of the cord. Its condition and the fact that it was carried to term suggest that a low degree of vitality may have existed for a part of the period. He says "it must be apparent that so complicated a looping about the extremities as shown in this case could only have been brought about by instinctive efforts to disentangle them" and compares the impulse here shown with that of animals to free themselves from a tethering rope.

4.—Chronic Acetanilid Poisoning.—Alfred Stengel gives the histories of two additional cases of chronic acetanilid poisoning, both of them of interest from a diagnostic point of view. The first had been regarded as an obscure vascular disorder, and even after the cause was suspected it offered some difficulties on account of the lack of morphologic changes in the blood. Another point of interest mentioned is the denial by the patients of the use of the drug which Stengel is inclined to attribute to a moral disturbance during the continuance of the habit; it agrees with his experience in other cases. After their recovery, the patients readily admitted the facts. The polycythemia in one of the cases was also of interest, perhaps the more so as there was with it no splenic enlargement, which is common in chronic acetanilid poisoning. Lastly he calls attention to the ease with which neuralgic symptoms were controlled after the withdrawal of the acetanilid. It seems, he says, that the continued use, instead of controlling the neuralgic manifestations, acts as a depressant, and that they occur with even greater frequency than before taking the drug.

Boston Medical and Surgical Journal.

July 20, 1905. [Vol. CLIII, No. 3.]

1. Some Facts and Fancies about Mind and Body. CHARLES A. DREW.
2. Report of Results in Nontraumatic Surgery of the Brain and Spinal Cord: Observations upon the Actual Results of Cerebral Surgery at the Massachusetts General Hospital. E. A. CODMAN.
3. Report on Results of Brain and Cord Surgery at the Massachusetts General Hospital. JAMES J. PUTNAM.
4. Results in Nontraumatic Surgery of the Brain at the Boston City Hospital. WILLIAM M. BULLARD.
5. Three Cases of Intraspinal Tumor: Operated on by J. C. Warren, M.D. WALTER B. ODIORNE.

6. Report on Operations for Cerebral Tumor at the Boston City Hospital. F. B. LUND.
7. The Operability of Brain Tumors from the Point of View of Autopsied Cases. G. L. WALTON.
8. Operation for Cerebral Abscess. F. L. JACK.

2.—The Actual Results of Cerebral Surgery at the Massachusetts General Hospital.—E. A. Codman classifies the cases according to the preoperative intention of the surgeon. Among the tumor cases, there has been a large mortality and large percentage of "not improved." A number of these operations had been delayed for the use of potassium iodid as a diagnostic measure. In some cases the lack of an autopsy has been most annoying. The writer thinks a permission should be signed as a condition of admission. To combat bleeding, Cushing has suggested the pneumatic rubber tourniquet, and to lessen shock, Frazier has suggested the dental engine in cutting out the Wagner flap. The edges of the scalp wound should be carefully approximated to prevent sepsis. To avoid hernia and strangulation of the important motor area, Cushing suggests, when the operation is for the relief of pressure, trephining over a "silent" area of the cortex. The writer prefers this to radical operation for tumors. Lumbar puncture for the relief of intracranial tension has failed. In no case has any good been accomplished by exploration in the brain tissue, unless there was surface indication of a cyst or tumor. [H.M.]

3.—Result of Brain and Cord Surgery at the Massachusetts General Hospital.—J. J. Putnam states that while none of the 36 patients operated on for brain tumor have been entirely relieved, considerable palliation has been secured in 9 cases. There are two directions in which there is fair prospect of gain from radical operation, in the removal of gummas and of tumors of the cerebellum, even those of the cerebellar-pontile angle. The cerebellum can be mutilated to a considerable extent without causing serious or uncompensated derangements of function and large portions of the occipital bone can be removed, the dural sinuses offering no serious check. In the surgical treatment of epilepsy, 9 out of 21 patients received benefit from the cleaning up of the results of old injuries to the membranes and skull and the securing of better conditions of local nutrition. [H.M.]

4.—Results in Nontraumatic Surgery of the Brain at the Boston City Hospital.—W. N. Bullard reports trephining for epilepsy in 18 cases; results unknown, 3. Traumatic, 12 cases: Not relieved, 3; doubtful, 1; relieved, 8. Nontraumatic: Apoplexy with multiple cysts, 1, relieved; idiopathic, 2, one improved; in the other only temporary relief. Of special interest is the long duration in some of the cases relieved; in one an injury had occurred 18 years previously and in another a cyst had existed for 25 years. [H.M.]

5.—Intraspinal Tumor.—W. B. Odiorne states it is impossible to predict in a given case the amount of improvement to be looked for as the symptoms and appearance of the cord give no accurate indication of the amount of injury done. In the process of repair divided spinal tracts are capable of regeneration. Paralysis may be due to conditions varying from localized anemia to actual necrosis. [H.M.]

6.—Operations for Cerebral Tumor at the Boston City Hospital.—F. B. Lund discusses the difficulty of locating the majority of cerebral tumors since there are often no localizing symptoms until after general and pressure symptoms have existed for a long time. When nothing but adhesions or scar tissue are found, except for the psychic effect, there is little benefit from operation. When it is impossible to find or remove a tumor, we may relieve pressure by taking away large areas of bone. The DeVilbiss forceps and electric motor have made it very much easier to do this. We need not waste time in attempting to restore pressure by suturing a tight fibrous membrane over the brain. The replacement of the bone flap is important, however, as a protection. [H.M.]

7.—See *American Medicine*, Vol. X, No. 1, p. 10.

8.—Operation for Cerebral Abscess.—F. L. Jack states that chronic middle-ear inflammation is the cause of a large proportion of cerebral abscesses, and the mortality is very great from failure to find the abscess, from secondary abscess, from meningitis, etc. That from ear suppuration is almost invariably situated in the temporosphenoidal lobe, from a fourth inch to an inch within the brain substance, and directly over the roof of the middle ear; sometimes it is in the cerebellum from perisinusitis. Imperfect drainage seems often the cause of a fatal result. The writer prefers a rubber tube to gauze wicks. [H.M.]

Medical Record.

July 22, 1905. [Vol. 68, No. 4.]

1. The Influence Which the Acquisition of Tropic Territory by the United States Has Had, and Is Likely to Have, on American Medicine. GEORGE BLUMER.
2. Sea Air Treatment of Surgical Tuberculosis: With Report of Cases. CHARLTON WALLACE.
3. The Prevention and Management of Summer Diarrhea among the Tenement Children. CHARLES GILMORE KERLEY.
4. The Treatment of Acne. CHARLES MALLORY WILLIAMS.
5. Treatment of Pertussis in Relation to Etiologic Factors. JOHN BOYD TYRRELL.
6. The Mental Symptoms of Neurasthenia. EDWARD LIVINGSTON HUNT.

1.—See *American Medicine*, Vol. X, No. 3, p. 115.

2.—Sea Air Treatment of Surgical Tuberculosis: with Report of Cases.—C. Wallace describes the results obtained in the treatment of 43 cases of surgical tuberculosis in children at the Sea Breeze experimental hospital at Coney Island. The object of the experiment is to prove whether out-of-door salt air is more advantageous for these cases than out-of-door inland air, and the author believes that the experiences of European authorities, who have found that sea air is especially efficacious in the cure of surgical tuberculosis, have been corroborated by the results obtained at Sea Breeze. The regime for the children comprises as much out-of-door life as possible, sleeping with open windows the year round, special efforts to render the whole environment as attractive as possible, and abundant feeding. The orthopedic treatment includes the methods in general use, except that as the ordinary extension braces allow the cross-bars to sink too deeply into the sand, plaster-of paris is used for fixation more than braces. Drainage-tubes and packing have also been omitted from the treatment of sinuses, with excellent results. The chief facts relating to each of the 43 patients are presented in a large table, and a few of the cases are described in detail in order to show that the good results obtained are not due to the selection of favorable cases.

3.—The Prevention and Management of Summer Diarrhea among the Tenement Children.—C. G. Kerley says that the reduction of the large infant mortality during the summer is to be accomplished by the education of the mothers and by the possibility of their procuring a reasonably pure milk supply, the latter to be effected by the establishment of numerous milk depots throughout the tenement districts under the management of the Health Department. Kerley's standing order in every household of children is as follows: With the first appearance of intestinal derangement give two teaspoonfuls of castor-oil, and stop milk. Give barley water or rice water until further advised by the physician. The further treatment is simple. The child should be kept as quiet as possible and in the coolest room in the house, and the quarters as spacious as are to be had. Boiled water is given as a drink, and frequent spongings during the very hot days are advised. The cereal water, plain or dextrinized, is to be continued until the acute symptoms have subsided in large measure, regardless of the age of the patient. Barley water or rice water is given in the strength of a half ounce of the cereal to the pint of water. When milk is resumed it is given skimmed, in small quantities, in cereal water; never more than a half ounce in the feeding. Condensed milk given in amounts of ½ dr. to 1 dr. in a feeding of cereal water is often well digested when fresh milk would not be. The author's experience is that just four drugs may be relied on in diarrhea, and these are calomel, castor-oil, bismuth, and opium. Bismuth must be given in large doses to be of service, and opium, which must be used with care, is best given in the form of Dover's powder. The technic of and indications for irrigation of the colon are then described, and it is stated that the measure should not be used indiscriminately. Kerley never washes out the colon oftener than once in 12 hours, and usually once in 24 hours suffices. In conclusion it

is urged that the matter of prophylaxis be taken up by the municipal government.

4.—Treatment of Acne.—C. M. Williams reviews the evidence in favor of each of the various theories of the etiology of acne, and believes that the view which embraces both the bacterial and the constitutional factors is the true one. Treatment must be both local and general, and the necessity for thoroughness in the search for and correction of all possible predisposing causes, and for minute detail in all efforts at treatment, is particularly emphasized. Of the predisposing causes, indigestion with constipation, disease of the sexual organs, the scrofulous type, and anemia, are mentioned as especially important, and their treatment, when complicated by acne, is outlined. The local measures are, however, the most important, and the hygiene of the skin is described in detail. Of topic applications, after the irritated skin has been soothed by the use of bland lotions, like milk of magnesia diluted, stronger preparations, of which the basis is usually sulfur, and of which lotio alba is a useful example, are to be employed. The treatment also includes the expression of comedos, incision of indurated or sluggish nodules, etc., and the minutiæ of these various phases are fully described. The author urges the adoption of a single drug as a main reliance and study of its possibilities, rather than shifting from one thing to another in the hope of finding a panacea, which does not exist. As the morococcus, which is responsible apparently for most of the inflammation and suppuration in acne, is exceedingly common, if not universal, in dermatitis seborrhoica, treatment of the scalp should go hand in hand with the other measures.

5.—Treatment of Pertussis in Relation to Etiologic Factors.—J. B. Tyrell says that although nothing positive concerning the cause of whoopingcough has yet been learned, the most rational view of the question is as follows: Pertussis is an infectious disease as regards its external cause; it is a neurosis in relation to its most prominent symptoms, and a catarrh in the anatomic localization of its most marked disturbances The disease is primarily a catarrh of the upper respiratory tract, and during the convulsive stage it is unquestionably an irritative condition of the nerves concerned in the respiratory function; but further than this we cannot advance at the present time. Prophylaxis is the first essential, and entails avoidance of contact with whooping-cough patients; schools and kindergartens being closed during severe epidemics. Disinfection of sputum and excretions is advisable, and good results in cutting short the disease have been reported by fumigation of patient's room with sulfurous acid. Of the drugs to be used, quinin stands foremost, and it may be given three times a day, as many decigrams as the child is years old, or as many centigrams as it is months old. Camphor is useful, but the coaltar products are less favorable than quinin, and are frequently dangerous. Careful dieting is necessary, and it is desirable to give small amounts of concentrated food at short intervals to avoid overfilling the stomach. For the paroxysms, belladonna and opium, bromoform, and moral suasion are advocated. The author reports encouraging results attending the use of the elastic abdominal belts recommended by Kilmer for the purpose of controlling vomiting and reducing the number and violence of the paroxysms.

6.—Mental Symptoms of Neurasthenia.—E. L. Hunt says that since Beard's definition of this disease as a neurosis, views as to its nature have somewhat changed, and the tendency now is to lay more stress on its mental aspects and to classify it among the psychic disorders. This, while being a step in the right direction, is somewhat too radical, and he believes that neurasthenia is better regarded as neuropsychosis. One may have a patient who is almost normal, and another who is almost insane, and between these two limits are found the neurasthenias. The mental symptoms are these: (1) Mental irritability; (2) weakened attention; (3) depression, deep pessimism; (4) introspection; (5) slow cerebration; (6) loss of memory; (7) obsessions, imperative ideas and impulses; (8) the phobias, morbid and anxious; (9) temptation to do wrong; (10) impaired judgment; (11) nagging and faultfinding; (12) excited emotional outbreaks. These symptoms are taken up one by one and their chief characteristics described.

New York Medical Journal.

July 15, 1905. [Vol. LXXXII, No. 3.]

1. Diagnosis and Treatment of Gastric Ulcer. CHARLES E. NAMMACK.
2. A Safety Röntgen-ray Tube. HENRY G. PIFFARD.
3. Report of Operations Performed at the Public Clinics for Students at the German Hospital, during the Session of 1904 and 1905. JOHN B. DEAVER.
4. Popliteal Aneurysm: Its Surgical Treatment. HUGH M. TAYLOR.
5. Bronchoscopy for Removal of Foreign Bodies from the Lungs. (Concluded.) E. FLETCHER INGALS.
6. Report of a Case of Papilloma of the Kidney with Nephrectomy. J. B. BOUCHER.
7. Lectures on the Diseases of the Blood. JOHN M. SWAN.

1.—Gastric Ulcer.—C. E. Nammack says that surgery has only to do with the complications of hemorrhage and perforation. Slight hemorrhage does not require surgical intervention, and even a single large hemorrhage does not demand operation until medical measures have failed to control it. Recurring acute hemorrhage and chronic hemorrhage always demand surgical treatment. Perforation of an acute gastric ulcer also demands immediate operation, as every hour's delay costs the patient 8% of his chances of recovery, and nothing is to be gained by waiting for the disappearance or amelioration of the shock which is usually present for some time after perforation has taken place. Absolute rest, an ice-bag, rectal feeding at the outset, followed by mouth administration of peptonized milk or other milk foods, expressed beef juice, or Leube's beef solution when milk cannot be taken, and raw or soft boiled eggs, constitute the measures most favorable to repair of the ulcer. Nutritive enemas must not be continued too long, as a patient may die from starvation despite their regular administration. Surgery promises more in chronic than in acute gastric ulcer, because the former is solitary in about 87% of the cases in which it occurs, while the acute variety exhibits a multiplicity in 54%. Again, chronic ulcer exhibits a marked proclivity (76% according to Fenwick) for the pyloric region of the stomach, where by extension and inflammation and adhesions it is apt to produce mechanical obstruction or displacements, or distortion of the stomach. [C.A.O.]

3.—Operations at German Hospital.—John B. Deaver gives a report of operations performed at the public clinics for students at the German Hospital during the session of 1904 and 1905. During the 23 clinics there were 182 operations performed, with a mortality of 5 deaths. There were 55 cases of appendicitis operated, of which 35 were acute and 20 chronic. In these 55 cases there was 1 death, that of an acute case. The average duration of the attack for which the acute cases were operated, estimating from the onset of the attack up to the time of operation, was 7¼ days. In 7 acute cases there was free pus in the pelvis at the time of operation, in 3 the intestines were covered with exudate or the serous coat very much inflamed. The appendix was subcecal in 14 cases, to the outer side of the cecum in 11, in 3 of which the organ ran up toward the liver, and in 5 cases to the brim of the pelvis or in the pelvis. In the remaining 5 acute cases the pathologic condition found was so severe as not to warrant searching for the organ. The organ was necrotic or gangrenous in 6 cases and perforated in 4 cases, the remainder being either adherent, congested, swollen, or covered with inflammatory exudate. There was one gastroenterostomy with enteroenterostomy for benign pyloric obstruction. There were 7 operations for cholelithiasis, in 3 of which the gallbladders were removed. Two operations were performed for cholecystitis. Among the other operations was that for biliary cirrhosis, chronic pancreatitis, hernia, hypertrophy of prostate, carcinoma of the breast, fibroids, movable kidney, hemorrhoids, etc. The deaths were: From acute appendicitis, 1; cholelithiasis, 1; biliary cirrhosis, 1; strangulated inguinal hernia, 1; removal of prostate, 1. Outside of the clinic operations there were 518 operations, making a total of 700 for the six months. [C.A.O.]

4.—Popliteal Aneurysm.—H. M. Taylor advocates the principles taught by Matas that in traumatic and in sacculated aneurysms we can and should preserve the lumen of the parent artery and that in fusiform aneurysms we should arrest the circulation through the sac and obliterate its cavity without disturbing the outside adhesions of the sac. In both innovations we lessen the danger of calling upon the collateral circulation too suddenly. [C.A.O.]

5.—Bronchoscopy.—E. F. Ingals discusses the subject of bronchoscopy for the removal of foreign bodies from the lungs. He takes up the technic of operation and the instruments necessary for successful work. Up to June, 1904, reports indicated that bronchoscopy had been done in 34 cases with successful removal of foreign bodies 19 times. The author has done 12 such operations, in several of the cases the patient was under the anesthetic from an hour and a half to two hours. The operation is a very difficult one, but also a very important one. He believes the dangers are no greater than those encountered in removing foreign bodies in the ordinary way through the trachea, and because when foreign bodies have passed into the bronchi or their branches, it is often impossible to reach them in the old way, and a transthoracic bronchotomy is almost sure to be fatal. The author reports two interesting cases. [C.A.O.]

6.—Papilloma of Kidney.—J. B. Boucher reports the case of a woman of 40, who for three years had suffered from attacks resembling renal colic. The attacks were becoming more frequent, and were so severe that it was necessary to resort to chloroform, as morphin would not relieve her. The left kidney was removed and found to be hard and somewhat smaller than normal. Extending into the ureter from the pelvis of the kidney two small papillary tumors were found, so attached that when the kidney was in position the tumors passed by each other in such a way that they apparently occluded the entrance of the ureter. Perfect recovery followed the nephrectomy. [C.A.O.]

Medical News.

July 22, 1905. [Vol. 87, No. 4.]

1. Clinical Features of the Benign Stenoses of the Pylorus. HENRY L. ELSNER.
2. On the Relations of Some of the Metabolic Diseases to Intestinal Disorders. THOMAS B. FUTCHER.
3. The Immediate Effect of Biliary Retention on the Secretory Function of the Stomach. JULIUS FRIEDENWALD.
4. Sulfonated Guaiacol Compounds. H. C. JACKSON and GEORGE B. WALLACE.

1.—Clinical Features of Benign Stenoses of the Pylorus.—H. L. Elsner describes certain functional stenoses. These are likely to be transitory and the patients highly neurotic. Gastrectasia may persist for months without symptoms, followed by periods of intolerance, peristaltic unrest, and hyperacidity in which pyloric spasm may be assumed. Whether acute dilation is due to pyloric spasm is still undecided. In the majority of cases of spasm there is associated organic disease. The symptoms of congenital cases cannot be long postponed. Persistent vomiting beginning after the ninth or tenth week is not due to congenital narrowing. Congenital incomplete stenoses cause chronic disturbances throughout life. The writer discusses cicatricial, fibrotic, hypertrophic, inflammatory, syphilitic and tuberculous stenoses and those due to ulcer, nonmalignant growths and distortion or traction. Among the manifestations are vomiting, changed appetite, intolerable thirst, constipation, malnutrition, peristaltic unrest, urinary changes, and tetany. The internist's labor ends with the diagnosis as the treatment is mainly surgical. Food should be given in small quantities at short intervals in concentrated mushy liquid form. Sweet or almond oil seems to relieve spasm or friction. Lavage helps to prevent stagnation and fermentation. Massage, room gymnastics, and electricity help to empty the stomach. Tetany may be postponed by lavage. Associated symptoms must be treated as they arise. [H.M.]

2.—Relations of Some Metabolic Diseases to Intestinal Disorders.—T. B. Futcher reviews the main facts concerning alkaptonuria, ochronosis, and cystinuria. In alkaptonuria, the urine acquires on voiding a deep brown color, becoming black, due to the presence of homogentisic acid, which is thought to be derived from tyrosin, a normal product of trypsin digestion of proteids in the upper part of the intestinal tracts. It is congenital in the vast majority, if not all cases. One investigator has found a large percentage in the offspring of cousins, resembling thus albinism, and possibly also cystinuria. This modifies the view that it results from putrefactive changes due to abnormal bacterial activity. There appears to be some congenital defect in proteid digestion, although the general health is not impaired. Ochronosis, or pigmentation of the cartilages, is probably due to the same metabolic disturbance. Cystinuria, in which hexagonal crystals of cystin are deposited in the urine, may be of surgical importance from the formation of renal calculi. Simon and Campbell believe that cystin is eliminated in the bile, combined with cholalic acid as taurocholic acid. In the cystinuric individual, taurocholic acid is possibly not formed at all. This, like alkaptonuria and albinism, may turn out to be a "chemic sport." It is doubtful whether intestinal disorders play any part in the etiology of diabetes mellitus or gout. [H.M.]

3.—Effect of Biliary Retention on Gastric Secretion.—J. Friedenwald concludes from his own observation of 11 cases and from those of others that in biliary retention there is a marked tendency to increased secretion of HCl. This is probably due to a disease or asthenic state of the secretory cells of the stomach from poisoning with biliary products. [H.M.]

4.—Sulfonated Guaiacol Compounds.—H. C. Jackson and G. B. Wallace present the results of their study of guaiamol. They find it is not antiseptic, is not broken up by the pancreatic juice, and after absorption is decomposed to so slight an extent that no action due to liberated guaiacol could occur. These results emphasize the fact that all attempts to increase the solubility of drugs by sulfonation are valueless from a therapeutic standpoint. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Essential Albuminuria.—R. Neukirch[1] had the opportunity of studying this condition thoroughly from beginning to end, in the case of his own child. The duration was about five years, the condition having its origin in an attack of diphtheria. About the eighth day of the disease, after the throat had become perfectly clean, the morning urine showed albumin. From that time on the albumin alternately disappeared and reappeared, but no formed elements could ever be found. There were never any subjective symptoms of urinary disturbance, nor any changes in the quantity of urine or in the heart. The albumin varied in quantity between 0.25 gm. and 0.5 gm., but increased during subsequent anginal and influenzal attacks. Diet had no influence on the condition, but the albumin completely disappeared in the rarefied atmosphere of St. Moritz. After five years the urine gradually became absolutely free from albumin, and has remained so ever since. The author believes essential albuminuria to be a disease *sui generis;* he has never seen it develop into a true nephritis. It may be caused frequently by an infection, and is probably an innervation disturbance of the kidneys, analogous to the albuminuria caused by venereal excesses, etc. The prognosis is always favorable, but the kidneys must always be regarded as a *locus minoris resistentiæ* during the continuation of the disease. Hence, the treatment consists principally in the avoidance of all harmful influences. [B.K.]

Clinical Significance of Occult Blood in the Feces.—J. D. Steele and W. R. Butt[2] report the results of examining 720 stools from 100 patients suffering from various affections. They also studied the stools of normal persons to determine the effect of food and iron upon the test. The aloin-turpentine test was preferred, although the guaiac was found to be almost as reliable; both were employed in every instance. The observers are convinced that rare red meats, if taken in sufficient quantities, will give a decided reaction for blood in the feces. The ingestion of iron need not be considered in regard to the test. Tables accompanying the paper give the conditions in which occult blood was present or absent. In general, the results agree with those of other observers, the principal difference being with Petrachi, who found occult blood 42 times in the stools of 8 of 18 cases of typhoid fever; Steele and Butt found it only 3 times in 3 of 19 cases. They failed to demonstrate a pre-

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 165.
[2] American Journal of the Medical Sciences, July, 1905.

hemorrhagic stage in the disease or a warning of large hemorrhages, though Petrachi found occult blood 1 to 5 days before visible blood appeared in the stools. [A.G.E.]

Dangers of Unrestricted Traveling of the Tuberculous.—J. W. Trask [1] quotes the strict regulations of the Illinois Board of Health as to the shipment of one dead of tuberculosis while the same individual in life was permitted to travel in the same train expectorating freely into car cuspidors or on the floor, spraying everything before him, using the same spoons, forks, glasses, etc., as the other pasengers and without subsequent sterilization. Every train running through the southwest carries at least one consumptive and most of them several. Some have not been taught how to care for their sputum and others are unwilling to take the trouble. The sleeping cars and smokers are perhaps the worst contaminated, but all the cars are bad due to their make up. What could be worse than plush and the immovable low seats? In traveling by water a careless tuberculous person, by expectorating on carpets and rugs can make his stateroom a constant menace to future occupants. In New Mexico, Colorado, and parts of Texas a considerable proportion of the population consists of consumptives. They expectorate broadcast in the streets; you meet them in shops, boarding-houses, and hotels. The people are beginning to find they are a source of personal danger. While it is true some persons are more easily infected than others, it is also true that it is simply a question of dosage. Among preventive measures that are essential are early diagnosis, informing the patient at once of his condition, notification of the health authorities, instruction by the latter, disinfection of apartments and of railroad cars, and the providing of special compartments in which those who cough and expectorate to any extent can travel by themselves, and a law requiring the boiling of all eating utensils used in public places. [H.M.]

Etiology of Meningitis in Childhood.—F. Hamburger reports a case of moderate hydrocephalus with eclamptic attacks, in a child with intestinal catarrh. A peculiar symptom consisted in the appearance of deep red, sharply circumscribed rings about both eyes, evidently due to a circulatory obstruction in both orbits. The occurrence of fever and phenomena of irritation shortly before death, led to the diagnosis of meningitis, which was confirmed by lumbar puncture. This procedure yielded a purulent fluid, which gave a pure culture of colon bacilli. At autopsy were found hemorrhages on the inner surface of the dura mater. These were evidently of intrapartum origin, and had given rise to the hydrocephalus. Later, this region of least resistance had become the seat of an infection with colon bacilli, which selected this weak spot for the development of greater virulence. [B.K.]

Destruction of Tuberculous Sputum.—To protect others from tuberculous infection through sputum, it is necessary to collect the expectoration in spit-cups, so it may be destroyed effectively, and to cleanse thoroughly clothing and handkerchiefs soiled with it. Effective destruction is brought about by boiling, steaming, and a number of different chemicals; the burning of cuspidors is undeservedly not employed extensively for a number of reasons. Noetell [3] discusses the different methods, declaring himself against the otherwise good steaming, because of its expense, the necessity of special apparatus and trained men, and the necessity of cleansing the receptacles after the steaming. Cooking he dislikes because of the nasty odors, the necessity and difficulty of cleansing the glasses, the sputum becoming tough and lumpy. Chemicals he disapproves of because some are ineffective, others not practical, others too expensive, etc. He approves of inflammable cuspidors filled with sand, sawdust, excelsior or coffee grounds; he considers dry contents as useful as a moist medium to expectorate into. A number of experiments performed by him have proved that sputum cannot dry up and fly away as dust, even if cuspidor is filled with dry material. These substances have the advantage over moist fillings of burning up with the sputum and the sputum cup. Sputum particles scattered over clothing are made harmless by formalin disinfection. The clothing is hung up in an ordinary wardrobe lined with zinc. He found that 180 cc. formalin dissolved in 700 cc. of water killed exposed tubercle bacilli within an hour, covered sputum particles within five hours; in some instances he found 135 cc. formalin in 500 cc. of water to suffice. The patient is thus deprived of his clothing only five and a half hours, and the cleansing is done at very little expense. [E.L.]

Diagnostic Significance of Protozoa in the Stomach.—J. B. Nichols [1] finds 22 recorded cases of protozoa in the stomach and adds 1. Flagellates were present in every case, and in a few amebas were found. The lesions of the stomach in the 23 cases were: Chronic gastritis, 2; gastric ulcer, 1; carcinoma, 19; undiagnosed, 1. In two cases of carcinoma of the esophagus, protozoa were similarly found. Nichols believes that systematic examination of stomach contents would reveal many more instances of the condition. More extensive observations must be made before a final estimate of the value of the finding can be given, but Nichols says the presence of protozoa appears to be strongly indicative of nonpyloric, or at least of nonobstructive carcinoma of the stomach. The kind of protozoon is immaterial, and absence of the parasites has no diagnostic bearing whatever. [A.G.E.]

[1] Journal of the Association of Military Surgeons, May, 1905.
[2] Zeitschrift für Heilkunde, Bd. xxv, Abth. für Chirurg., Heft 2, p. 188.
[3] Zeitschrift für Hygiene, xlviii, 1.

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

EDITORIAL COMMENT

Pleurisy Simulating Appendicitis.—Confusion of diseases of the respiratory system with appendicitis is more apt to occur in children who are subject to extremely sharp reactions. Thus, for example, pneumonia may be mistaken for this abdominal affection. A child is, for example, taken with fever, vomiting and pain, localized in the right side of the abdomen, the disease being taken for appendicitis, but in a few days one will detect localized dulness in the lung, with stethoscopic signs, showing that in reality the case is one of pneumonia. Pleurisy may be accompanied by abdominal symptoms, which give rise to the same error, and Comby has related the history of a child aged 8 who presented a serofibrinous pleurisy during convalescence from scarlet fever. The pleural lesions were ushered in by a high fever, with a painful point in the abdomen. The pleurisy being on the right side and the abdominal spot of tenderness likewise, caused some hesitation as to whether or not appendicitis was present. The abdominal symptoms were very marked, the abdomen being distended and painful, but the expression remained good. On the other hand, there was neither vomiting nor constipation. Auscultation revealed a pleuritic souffle in the lower part of the right lung, which showed that the pseudoappendicular phenomena could be accounted for by the process in the chest. Mistakes of this kind are more frequent than one would be inclined to believe and Garreau has reported 13 cases in which surgical interference for appendicitis was resorted to when in reality the cases were pneumonia. The appendix was always found in a normal condition. Certain pleurisies with a very marked reaction may give rise to a similar confusion, and, for this reason, one should be very careful not to rely too much upon McBurney's point as a diagnostic indication, because a careful general examination will reveal the true nature of the affection. This precaution is all the more necessary, because when not followed one is exposed to serious mistakes and the performance of a useless surgical operation.

REVIEW OF LITERATURE

Etiology of Primary Deaths from Burns.—H. Pfeiffer [2] has investigated this subject by elaborate animal experiments.

[1] American Journal of the Medical Sciences, July, 1905.
[2] Virchow's Archiv, Band clxxx, Heft 3, 1905.

He finds that death occurring two to six hours after a burn of the skin is due to the influence of the heat, and may be placed in the category of deaths from shock. Deaths occurring within the first day are in the first place due to an intoxication by poisons derived from heat-changed albumin molecules. Deaths after two or three weeks are not so directly due to the poisons generated, but they play a part by primary vessel changes and general lessening of resistance. The urine and serum of burned animals contain a poison which injected into other animals produces irritation, paralysis, or respiratory failure, and death. Intestinal hemorrhage and diarrhea may also be caused. Pfeiffer has not been able to demonstrate hemolytic or agglutinating properties in this poison. He is not sure that these conclusions apply to human beings, and says that further investigations are needed. [A.G.E.]

Splenectomy because of Aneurysm of the Splenic Artery.—V. Winckler[1] relates the case of an anemic woman of 25, afflicted with attacks of violent pain in the left hypochondrium; they existed to a variable extent for six years and were traced to a large tumor in the left side; this was thought to be an ordinary enlarged spleen. Operation revealed the enlargement to be due to aneurysmal degeneration of the splenic artery at the hilum of the organ. The splenectomy was not associated with any great difficulty, and barring the occurrence of a secondary hemorrhage on the second day, recovery was eventless. Pathologically, the spleen was found to be much enlarged, due to a constant overfilling with blood; the splenic pulp was moderately hyperplastic, the septums very much thickened. A cause for the formation of the aneurysm could not be found. [E.L.]

A Shadowgraph Ureteric Bougie in the Diagnosis of Renal Calculus.—In cases of supposed ureteric calculus, where the radiograph shows an ill-defined shadow, or one apparently away from the line of the ureter, E. H. Fenwick[2] passes along the ureter a bougie, which casts a shadow with the röntgen ray. Upon taking a radiograph, the line of the ureter can be readily traced, and it can thus be determined whether or not there is a stone in that canal. The author reports several cases, and exhibits excellent radiographs illustrating the value of this procedure. The use of these bougies is easy in the female, while but little difficulty is experienced in the male in introducing them through a Caspar ureter cystoscope. [B.K.]

The Membranous Portion of the Male Urethra.—L. W. Bacon, Jr.,[3] contributes a most valuable consideration of the membranous portion of the male urethra with regard to its bearing on the arrest of the curved sound anterior to the triangular ligament. The conditions tending to prevent entrance of the catheter to the membranous urethra are: 1. An abnormally small orifice in the anterior layer of triangular ligament. 2. Edematous infiltration of the wall. 3. Spastic constriction. 4. Unusual length of the preligamentary division of the membranous portion. 5. Pronounced development or unusual expansibility of the bulbar dilation. 6. An unusually deep intercrural space. 7. Pouting forward into the bulbar dilation of the mucous membrane of the membranous portion. 8. A short and stiff, or highly attached, suspensory ligament. 9. Defective development of the proximal portion of the fascia propria or sheath of the penis. 10. Failure of the surgeon to change the direction of the beak of the catheter at the right time and in the proper manner. [A.G.E.]

Diverticulums of the Appendix and Diverticular Appendicitis.—Lejars and Menetrier[4] have repeatedly come across various diverticular formations in appendices removed because of inflammation. Several of these deformed organs are carefully described and their appearance shown by pictures of macroscopic and microscopic preparations. One of them, two and a half inches long, is covered along its entire extent by a series of yellowish, ball-shaped masses the size of a raisin; histologically, they are made up of fibrofatty tissue, have a serous coat, are lined by epithelium, and communicate with the principal cavity of the appendix by means of small ducts; they possess no muscular tissue. Others of the appendices had similar excrescences, but they were not nearly as numerous. The diverticulums are probably not congenital, but rather due to small abscesses in the wall of the appendix, which form recesses and through pressure cause atrophy of the muscular coat. If such an appendix should become inflamed a perforation is very likely, as the muscular coat is already destroyed and the wall presents very little natural resistance. [E.L.]

Treatment of Fracture of the Neck of the Femur.—Royal Whitman[1] speaks strongly against the apathy, suggestive of neglect, with which such fractures are generally regarded, and seeks to correct the popular misapprehension which classes this fracture as an almost exclusive attribute of old age. He describes a treatment designed to improve functional results by immediate reduction of deformity and by effective protection during the period of repair. Reduction is accomplished by placing the anesthetized patient on a box of a size sufficient to support the trunk, the pelvis resting upon the sacral support of the Lorenz model. The fractured limb is gently abducted until abnormal resistance is encountered, and then under traction, the joint being supported by the hands of the operator, the limb is slowly abducted to the normal limit (about 45 degrees). The pelvis is prevented from tilting by simultaneous abduction of the sound limb to the same degree. While in this attitude a plaster cast is applied to the fractured limb, extending from below the knee to include the pelvis. A traction weight may be applied, and is of value in some cases. If this treatment is not followed by good results, and no method will always assure union, the parts are in the best position for the open operation. [A.G.E.]

Clinical Causes of Cancer of the Breast.—C. H. Leaf[2] thinks we should not regard a hypothetic organism as the sole cause of cancer, the resisting power of the tissues being of infinitely greater importance. His conclusions as to the clinical causes are based on 100 cases. It is five times as frequent in the married as the unmarried. In 39% there was a history of pulmonary tuberculosis, and 23% of cancer in one or more members of the family. In 51 cases, there was over-lactation from one or both breasts on one or more occasions. In 50 cases there was absence of or insufficient lactation from one or both breasts on one or more occasions. In 30 instances, over-lactation was combined with under-lactation or absence of lactation. There was some error of lactation in 71%. So large a percentage shows conclusively that these errors play an important part. Depressed or small nipples were found in 4 cases, sore nipples in 7 cases, and Paget's disease in 3 cases. In 37% there was definite history of injury; in 32 of these cases the injury and cancer were on the same side, generally the same spot. In 35% there was a history of unusual worry; in 30% a history of damp; in 17%, residence near a river or a canal. In 61% the general health was good; in 29%, bad or indifferent; it is more than twice as frequent in those previously healthy than the reverse. In 31% there is a history of possible infection with cancer, and in 12% with tuberculosis. From the above, it is evident that most of the cases are preventable. [H.M.]

[1] Centralblatt für Chirurgie, 1905, xxxii, No. 10, 257.
[2] British Medical Journal, June 17, 1905.
[3] Yale Medical Journal, June, 1905.
[4] Revue de Chirurgie, Vol. xxx, p. 469.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN — FRANK C. HAMMOND

EDITORIAL COMMENT

The Advantages of Expectation in Contracted Pelvis.—As a rule young practitioners resort to the use of the forceps with too great facility, and in cases of contracted pelvis it is quite impossible to foresee what the termination may be. Commenced under the most unfortunate circumstances, labor may end easily and without the necessity of any obstetric interference, greatly to the advantage of the mother and the child. Should one, however, be desirous of interfering, the forceps, without any question, do not necessarily present any very great disadvantage; but, in other cases, their application

[1] American Journal of the Medical Sciences, July, 1905.
[2] West London Medical Journal, April, 1905.

will disturb a physiologic labor. Their effect is to push back a head which had a tendency to descend in molding itself and accommodating itself to the shape of the pelvis. From the use of the forceps the head becomes wedged in, because they change its orientation by producing, for example, an excessive artificial deflexion, which no longer remains that slight physiologic deflexion so necessary for the passage of a head in a flattened pelvis, but which will too often be a deflexion characteristic of a presentation of the forehead. In both cases the basiotribe may be called upon to replace the forceps. Fruhinsholz has endeavored to draw conclusions of the results of the expectation method after a study of 200 cases observed at the Maternity of Nancy, from 1893 to 1904. It is known that normally the anteroposterior diameter of the pelvis, in other words, the minimum promontopubic, measures 11 cm. Relative to their contraction, three series of pelves may be distinguished, according to Tarnier and Bubin, namely: (1) Flattened pelves, from 11 cm. to 9 cm.; (2) flattened pelves measuring from 9½ cm. to 8½ cm.; (3) flattened pelves from 8½ cm. to 7½ cm. Now, in these three groups of pelves, labor may end spontaneously, and the clinic at Nancy showed the following figures:

83.33% spontaneous labors through pelves of 11 cm. to 9½ cm.
57.93% spontaneous labors through pelves of 9½ cm. to 8½ cm.
30.76% spontaneous labors through pelves of 8½ cm. to 7½ cm.

Still more striking figures have been given by Pinard, of Paris. In particularly narrow pelves, measuring from 8 cm. to 7½ cm, 63 out of 100 labors ended in a spontaneous delivery. This fortunate statistic is due to the renaissance of symphyseotomy and is, in point of fact, the only real result that this operation has furnished. Since the surgeon who is to perform a symphyseotomy is never in a hurry to operate, and awaits with calm, this very waiting has often resulted in a natural delivery which could not have been foreseen. The passage through the upper strait is the most laborious, and may vary from nine to 20 hours, according to the dimensions of the pelvis to be passed through. This simply means that if the indication of interfering is only furnished by tardy progression of the fetal head, one should patiently wait. It is from nine to 20 hours that should be allowed to pass by before interfering, if the uterine contractions allow it. The classic time of two hours after which dilation being complete, it was proper to resort to the forceps if the head no longer progressed in its descent, is erroneous both in theory and practice, and since it is far too short in a physiologic labor, it is all the more so in cases of contracted pelvis.

REVIEW OF LITERATURE

Septic Infection of the Umbilical Cord.—B. Salge[1] gives a short description from a clinical and bacteriologic standpoint of 34 cases of general septic infection with special localization in the intestinal tract. In all of them it could be clearly proved that the umbilicus was the portal of entrance for the infection, although the external changes were but slight in most of them: Slight redness with some swelling of the navel, moderate distention, slight moisture and probably a scab over the umbilical ulcer. Cases with gonorrheal or other purulent discharge were not as bad from a prognostic point of view. In many instances a probe could be passed for a short distance toward the symphysis, bringing to light a dirty brown fluid containing bacteria of suppuration. In all of the cases the symptoms pointed chiefly to the intestinal tract, and the children were brought to the hospital on that account. In 19 it was proved that these intestinal symptoms were but a part in the picture of the symptom-complex of the general infection, the spleen and heart blood containing the bacteria of infection; in the other 15 the conclusion could be come to by analogy, the general appearance and symptoms being about the same. A markedly mucoid stool, rich in cellular material and containing streptococci is almost pathognomonic. From the standpoint of prevention, alcohol dressings are warmly recommended; with them the cord dries up quicker, and germs are prevented from thriving in it. [E.L.]

[1] Charité Annalen, 1904, xxviii, 263.

A Comparative Study of White and Negro Pelves.—T. F. Riggs[1] reports a study of 1,500 cases, 779 white and 721 negro. In their order of frequency, the four types of pelvis in the whites are: (1) Normal; (2) generally contracted; (3) simple flat; (4) rachitic. In the negroes, the two last are transposed. The pelves of white women are low and broad as compared with the more narrow and relatively deeper pelves of the negro. Contracted pelvis is nearly four times more common in negroes, and in them the duration of labor is longer. The white child is larger than the negro by 1.5 cm. in length; 200 gm. in weight, and a few millimeters in the various cephalic measurements. There is a higher percentage of vertex presentations among negroes, and there is also a higher percentage of spontaneous labors among them. There is no definite law governing the relation of the size of the child at term to the size of the mother's pelvis. The higher the grade of the race, the greater is the proportion of male to female children. [A.G.E.]

Atropin in Gynecology—Atropin, by producing marked relaxation of the inflamed uterus, is of great value in puerperal fever and other inflammatory states of the uterus; it has been employed in such conditions, both after abortions and normal confinements, by Drenkhahn[2] during the last 10 years. He believes that atropin should occupy as prominent a place in gynecology as it does in ophthalmology. After relating several instances where it showed its great value, he concludes from his large experience that puerperal fever is primarily a wound infection of the uterus, a pure tissue mycosis. If the uterus and its adnexa can be kept absolutely quiet, this mycosis can be recovered from spontaneously without douches or other methods of treatment. Atropin is the best drug to bring about perfect relaxation of the uterus. Uterine contractions lead to toxemia and bacteremia. The bacteria, both those in the lymph and blood streams, can lead to mycoses of other organs. If such an infection has already taken place, atropin can still influence the uterine disease favorably, and may even check the toxemia by preventing the absorption of newly-formed toxins from the large surface of the puerperal uterus. It has not the power to influence the secondary mycoses. Atropin is also the drug which should be employed in cases where painful contractions of the uterus need be checked, being superior in such instances to morphin. He has employed it for this in the dysmenorrheas of virgins. The only unpleasant symptoms noted from the atropin are the disturbance of accommodation, and occasionally transient vesical paralysis; the latter must be guarded against, as the patients are not aware of the overfilled bladder. Dryness and mental disturbances are very rare, and last but a short time. The bowel is never affected by it. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Tabes Dorsalis, a Disease Due to Functional Overactivity: Its Early Diagnosis and Treatment.—Determann[3] agrees with Edinger that many cases of tabes are due to overactivity of and lack of repair in certain groups of muscles. The actual cause of the disease is the specific poison, f. i. syphilis, but the localization of the early symptoms is determined by the particular muscles employed most by the patient. In some few cases no such overactivity can be traced, so that Edinger is probably wrong in supposing that overexertion is necessary for all cases. It is, however, a valuable theory as a basis for the diagnosis of incipient tabes, this disease remaining latent as long as no special demands are thrown on the muscular power of any special part of the body. In all, Determann has employed the theory in 130 cases, and in all was the diagnosis

[1] Johns Hopkins Hospital Reports, Vol. xii.
[2] Therapeutische Monatshefte, 1905, xix, No. 2, 57.
[3] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 14, 532.

made before the classic syndrome had established itself. The practical use of the theory is seen in the treatment of the disease: As soon as the diagnosis is made, it should be our endeavor to remove the toxins underlying the condition, to prevent not only all excessive, but also a good part of the normal movements, so as to check the spread of the process; to regulate the nutrition of the affected nerves for the purpose of bringing about the recovery of some of them. The method of treatment which he suggests for early tabes is composed of hygienic, dietetic and physical measures. He has employed it in 40 cases, keeping the patient in comparatively good health. The patient's life is so regulated that all physical and mental overexertion is prevented; sexual and alcoholic excesses are forbidden; the day's work is so arranged that the patient will not be wearied. He must guard against catching cold. The patient's habits must be regulated for him, also his clothing. All the organs, but especially the affected ones, must be carefully guarded; the bladder should be evacuated regularly, and the patient should not be permitted to speak too loudly or too long. Against all intercurrent affections, precautions should be taken, and if once acquired they should be carefully treated. Plenty of rest, particularly in the open air, should be demanded of him; fresh air influences the patient's appetite, sleep, disposition, etc., very favorably. Several short graduated walks should be taken during the day, and hydrotherapy in different forms should be applied; centripetal massage is also useful. All suspected cases should be kept under supervision for two years and during that time the treatment should be so varied as to be thoroughly beneficial. A number of instances are quoted in which men of affairs were, through this treatment, permitted to retain their activity in the social and business world. [E.L.]

The Elimination of Uric Acid.—According to the more recent theories concerning the origin of uric acid, it is believed that this substance results from the splitting up of the nucleins in our food, or more specifically, the nucleic acid derived from the nucleins. Nucleic acid, by splitting up, yields ultimately uric acid and thyminic acid. It is the combination with thyminic acid which renders the uric acid soluble and nonprecipitable. In the normal organism, this combination is always formed, but in gouty conditions it is the absence of thyminic acid which causes the precipitation of uric acid. Based on this theory, R. Fenner[1] has administered thyminic acid in gout with considerable success. He calls the substance by this name, rather than by the "thymic acid" of Schmoll, or the clumsy "nucleotinphosphoric acid" of Minkowsky. The substance is an amorphous, tasteless powder, soluble in cold water. It may be given as a powder, in elixir, or in tablet form. The dose is 4 gr. to 7 gr., given immediately after meals. Its administration has been attended by no untoward symptoms. In acute cases of gout, the author has found its use most gratifying, and in chronic cases, its prolonged administration has led to marked improvement in nearly every case. [B.K.]

Medicinal Treatment of Acute Invagination in Infants.—Louis Netter[2] reviews the symptoms and treatment of acute invagination in infants calling attention to two stages according to symptoms, the first resembling gastroenteritis and the second, the classic symptoms of this condition. The author insists upon the importance of melena as a symptom of this condition. Treatment should first consist in the use of rectal injections, given by passing a soft catheter high into the rectum and allowing saline solution at the temperature of the body to pass slowly into the bowel. The reservoir should not be placed more than three feet above the patient. The solution should be retained for 20 minutes, during which time light massage may be practised over the abdominal wall. If reduction is accomplished, opiates may be administered to prevent recurrences and only a light diet allowed. If reduction is not effected at the first trial, a second attempt should be made after a short time. Great care must be exercised that the injection is given slowly as too great pressure suddenly applied may cause rupture of the intestinal walls. If reduction is impossible, operation is indicated. Netter states that if this treatment be instituted during the first six hours of the attack, 80% of the cases will recover. If given later, the results are not so favorable. [L.F.A.]

Treatment of Epilepsy by Röntgen Rays.—H. Manders[1] describes the theory and method of Branth, his own reasons for applying the rays not being quite the same. Manders believes that all cells are in a state of oscillation, the time period depending upon the mutual attraction of contiguous cells and the oscillations of a group of cells obeying the same laws as those which govern the oscillations of the spheroids in the celestial systems. If the nervous system is so constituted (as we presume it to be in health) that it is unfavorable for the transmission of periodic movements from external sources, then the oscillations of its parts will be almost imperceptible; but if through irritation its parts become favorable to the reception of impressed oscillations, as in epilepsy, then the derived oscillation will be much more perceptible. By directing oscillations of less than atomic dimensions to the part and compelling it to vibrate at a frequency consonant with that which obtains in health, we hope to restore the original harmony with other parts of the system. The aura should be carefully studied and the corresponding area of the brain submitted to the direct action of the rays. The writer reports a case originating in childhood manifesting both grand and petit mal, in which the treatment, the technic of which he describes, is proving successful. [H.M.]

Disappointment with Neuronal.—Euler's[2] experience with neuronal was not as satisfying as that of other investigators. He employed it in 40 patients suffering from different diseases, giving it to some daily, to others several times weekly for two weeks. The dose varied from 1 gm. (15 gr.) to 6 gm. (1½ dr.) daily, the smaller dose being given chiefly to women; it was found later that where 2 gm. (½ dr.) did not produce the desired result, it was not necessary to give the drug at all. Many of the patients did not react to neuronal at all, while those that did became quiet in a relatively shorter time than was the case with other drugs. Epilepsy was not influenced by it in the least. Neuronal sleep lasted from 5 to 6 hours; in 12 instances the patients soon became accustomed to the substance, and where good results were obtained first, none at all were obtained later. Vomiting was relatively frequent after its use, two of the patients developed diarrhea, four dizziness. It was not useful against pain. While Euler considers neuronal a good hypnotic he cannot advise it ahead of other substances because of the lack of reliability, patients becoming accustomed to it, and in some instances the unpleasant after-results. [E.L.]

Cold Affusion in Delirium Tremens.—In delirium tremens Sir W. Broadbent[3] strips the patient and lays him on a blanket over a waterproof sheet. Ice water is then dashed violently over the whole body by means of a large sponge, and he is then rubbed dry with a rough towel. This may be repeated two or three times, the patient being also turned over so that the water may be applied to the back of the head, neck and spine. By the time the patient is dried and made comfortable, he will be fast asleep. The cold affusion may even be employed if there is extensive pneumonia with the delirium tremens. [B.K.]

Phenosalyl in Laryngeal Tuberculosis. — Dempel[4] speaks very highly of the use of phenosalyl in the treatment of laryngeal tuberculosis. He employs from a 3% to 6% solution of this drug in glycerin. In using this solution, the parts should be first anesthetized with a solution of cocain after which the phenosalyl solution is applied. This treatment should be repeated two or three times a week. The results are as a rule satisfactory; the dysphasia disappears first, the aphonia later. The local treatment by phenosalyl may be advantageously combined with daily insufflations of orthoform, and the laryngeal ulcerations may be touched every day or every other day with a 10% solution of lactic acid. The strength of this solution may be gradually increased until the pure acid is used. The general treatment of the patient should receive careful attention. [L.F.A.]

[1] The Lancet, July 1, 1905.
[2] Journal des Praticiens, Vol. xix, No. 3, 1905, p. 42.

[1] Archives of the Röntgen Ray, April, 1905.
[2] Therapeutische Monatshefte, 1905, xviii, No. 4, 168.
[3] British Medical Journal, July 1, 1905.
[4] Journal des Praticiens, Vol. xix, No. 18, 1905, p. 282.

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The Yellow Fever Situation at New Orleans.—In the present epidemic at New Orleans, yellow fever is making perhaps its last serious demonstration on American soil. Stricken with pestilence, and harassed on all sides by the ignorant and brutish fright of her neighbors, the misfortune of New Orleans is indeed deplorable. Yet it is not unkind to say that, if nothing less than a great object lesson will suffice to quell the stupid panic and to prove the sufficiency of modern knowledge concerning yellow fever, New Orleans is the best place for that demonstration. The test might have been made where the lesson is more needed than in New Orleans, but hardly any city in the South would put the business through so well. Most of the weaknesses of American sanitary organization are exemplified in New Orleans. The most cruel havoc has been wrought in times past by yellow fever on that city. Physical conditions are today as favorable as ever for a great epidemic; the present outbreak has the advantage of a good start; and yet we do not expect a great epidemic. The sufficient armament of New Orleans in the present emergency is in the will and ability of her people to apply modern medical knowledge to the suppression of yellow fever. It is in an enlightened public opinion that New Orleans is strong, and on this rests our confidence that New Orleans will, in delivering herself from present danger, give the American people a convincing lesson in the prophylaxis of yellow fever.

The slow growth of popular knowledge concerning yellow fever has more than once been commented on by *American Medicine* and it has criticised especially the half-hearted leadership of southern sanitarians. The truth about yellow fever has not been earnestly and aggressively propagated by southern public health officials. Some of them have rejected this truth. Others have but partly accepted it. A majority have used their influence to prevent a public statement of scientific faith by the associated health authorities of the country, pleading that they should not be obliged to go on record in the present state of public and professional opinion in the South. Among southern sanitarians a few only have believed with all their hearts and the present emergency makes one of these exceptions conspicuous. The president of the city Board of Health of New Orleans, Dr. Quitman Kohnke, has been a vigorous and aggressive supporter of the truth about yellow fever from the time of its demonstration, and that without regard to the state of public or professional opinion about him. While this circumstance has not defended New Orleans against the panic which always follows the appearance of yellow fever in the South, it should go far to encourage the people of New Orleans, as it does to maintain the confidence of enlightened communities elsewhere. There is no doubt about the state of popular and professional opinion in New Orleans on the propagation of yellow fever. That opinion is sound and it will save the city.

The Quarantine Madness.—At New Orleans, in May, 1903, Dr. Stanford Chaillé, the veteran of many yellow fever campaigns, made a splendid address to the American Medical Association, readjusting his own experience to the new-found truth in a way that must have been as satisfactory to him as it was delightful to his audience. After asserting his belief that *Stegomyia* is the essential agent in the distribution of yellow fever, he pronounced the theory of transmission by fomites to be dead and ready for burial, and concluded with the words of a popular undertaker: "Gentlemen, please do not crowd the mourners." Some of the mourners, the official ones certainly, have received more consideration than was good for them. Since 1903, many of them have accepted the true faith, but the adherents of ancient superstition are still numerous and demonstrative. Quarantine regulations of the most stringent sort have been aimed at New Orleans. To prevent all travel to and from New Orleans is not nearly enough to satisfy some of the neighboring towns. They will have no fruit from New Orleans, no dry goods, no dressed meats. In some places freight cars must be fumigated before the doors are opened. Alabama, Arkansas, Mississippi, Tennessee, and Texas, have quarantined New Orleans. Through passenger cars from New Orleans must be locked while traversing Mississippi and Texas. Passenger coaches from New Orleans are not allowed to enter the State of Alabama. At the State line passengers must change cars. Passengers bearing the health certificates of the United States Public Health Service, granted after five days in the detention camps, are turned back by the health authorities of Mississippi. Louisiana, in order to avoid being quarantined, has imposed quarantine on her own chief city. It is noteworthy that some of the quaran-

tines have been imposed contrary to the advice of health boards. Memphis and Chattanooga have not been restrained by medical advice. In Baton Rouge, the capital of Louisiana, the medical members of the Board of Health resigned because their views were publicly denounced by a large mass meeting. In Texas all the possibilities of sanitary government, for good or evil, are entrusted to one medical man, and he has aimed at New Orleans a kind of quarantine that is best described as rabid. Hardly less ferocious is the quarantine by Mississippi, for which Governor Vardaman is the official sponsor. Those who are not firmly rooted in their belief that humane impulse is a dominant power in modern civilization, should turn their backs to the South until this fourteenth century spectacle is played out.

The Failure of Notification.—The present outbreak caught New Orleans without an effective notification law. The first half dozen or more cases went their several ways unknown to the authorities, but not unknown to other persons, and physicians among them, who saw their duty and did it not. In this way many foci of infection were established before the authorities were informed. Among large cities in this country, four at most are better off than New Orleans in respect to notification of infectious diseases. There are plenty of paper defenses, but few substantial safeguards. Governor Vardaman, of Mississippi, charges the authorities of New Orleans with concealment of the facts. They did indeed wait for autopsy findings before informing other health authorities, but since the first case notified was already fatal, this delay was probably of little consequence. Prevarication and concealment are not unknown in the past history of yellow fever at New Orleans, but there is no evidence whatever of bad faith in connection with the present epidemic. If, however, the truth had been withheld overlong, the guilt of the authorities would have been extenuated, if not quite extinguished, by the circumstance that most of the authorities in neighboring States are unable to make rational use of such information. The probable policy of Mississippi authorities in the matter of notification is indicated by an incident at Gulfport. A physician, who said that he had a case of yellow fever, was subjected to a severe cross-examination by the authorities and was obliged to make a written and signed confession that he had told an untruth. The council forthwith passed an ordinance imposing a fine of $50 to $100 upon any physician whose report of a case of yellow fever shall prove untrue. Governor Gage, of California, tried to secure the passage of a similar law during the invasion of plague in 1902, and in other parts of the country physicians have been publicly and severely criticised for reports made in good faith to the authorities. The weight of probabilities favors the view that the Gulfport physician told the truth in the first place, and that he lied only in saying, under duress, that he had lied. There is no escape from the conclusion that the local authorities desire him and all other physicians to lie about yellow fever until the truth can be concealed no longer. Nor is it remarkable if such a policy should prevail in Mississippi, where, under Governor Vardaman's leadership, medical knowledge is set at naught, and public opinion demands that yellow fever shall be handled like canine rabies—with the muzzle and shotgun.

The Cuban Quarantine.—According to newspaper accounts, Havana is operating a quarantine against New Orleans just as our own compatriots in the South are doing. Every day a chronicle is made in American newspapers of the vessels arriving at Havana, and of the disposition of people and cargo. Trisconia detention camp is said to be crowded, with 150 or so persons under observation. The quarantine operations at Havana are, however, in amazing contrast to those of the frantic American sanitarians. The huge cable which formerly closed the harbor mouth continues its everlasting rest on the bottom. The same calm and orderly procedures which were instituted under General Leonard Wood go on now under Finlay and Guiteras. Arriving ships from infected ports anchor midstream, within halloaing distance of Havana wharves. If a fever case is on board, the patient is placed in a screened boat and taken ashore, where he is transported in a screened ambulance through the streets of Havana, without haste or excitement, to Las Animas Hospital, and there he awaits the result in a screened room. Patients suffering with other diseases lie within easy conversation distance, and the only barrier is a double screened door. The ship's passengers are transferred to Trisconia, on the opposite side of the harbor, for five days' medical observation. Trisconia is not crowded, nor can its capacity be overtaxed by any pestilence of less than Oriental magnitude. The infected ship is fumigated for the destruction of mosquitos, and for no other purpose. The cargo is promptly lightered ashore. By these simple means Havana has been perfectly defended since the American evacuation. To the list of infected ports in Central and South America two ports in the United States have been added. This is all. There is neither fear nor surprise in Havana, nor a brandished club.

Ben Butler's Yellow Fever Campaign.—In 1862 General Benjamin F. Butler gave New Orleans such a cleaning up as the city never had before nor since. Like the Cuban insurgents, the people of New Orleans relied upon "Generals Junio, Julio, and Agosto" to put their foes to rout, and it was in preparation for these adversaries that Butler removed fabulous amounts of filth. Of his claims to admiration, there were few which Butler himself admired more than his sanitary operations in New Orleans. So late as 1888 he published in the *North American Review* an account of how he saved his troops and the city of New Orleans from yellow fever in 1863. It is not certain that he ever saw a case of yellow fever, but he professed to have been a profound student of the disease. The parasitic theory of infectious diseases confirmed to a nicety his views of the origin and transmission of yellow fever, and in 1888 he considered it his duty to publish his matured convictions. The medical science of 1888 supplied him with two facts. He was in possession of these facts long before, but in 1888 he considered them established in

medical science. Of these fundamental facts, the first was that the cause of malarial fever is always generated in the presence, and never in the absence, of decaying vegetable matter. The other is, that typhoid fever is always generated in the presence, and never in the absence, of putrefying animal matter. Yellow fever, he said, never appears where only vegetable decay or only animal decay is present, but requires, as a *sine qua non*, both sorts of decaying refuse. In an atmosphere charged with both malarial and typhoid germs, and not elsewhere, he says, the yellow fever germ will grow. By proceeding on this theory, General Butler believed it possible to prevent yellow fever everywhere. Among his very numerous observations, but one seemed not to fulfil the conditions of his theory, and this one at last gave up its secret. Yellow fever appeared in a wild and sparsely settled district, where vegetable decay abounded, but animal refuse could not be discovered. The mystery was finally solved when the General learned that a number of cattle had died in this district and their bodies had been deposited in a shallow pond. This pond was the focus of infection. General Butler's apparent conquest over yellow fever in 1862 profoundly impressed the public of that day, and his credit among medical men was but little diminished at the end of the century. With the proof that yellow fever requires an intermediate host, and that this host is the *Stegomyia* mosquito, all credit for the exemption of New Orleans from yellow fever during Butler's occupation was lost to the sanitary astuteness of the General, and transferred, as Chaillé says, to the blockade.

The recent meeting of the American Medical Association was considered successful in many directions. The attendance was fully up to expectations, the scientific work was valuable, the number of papers read not too great, and in the business of organization substantial progress was made. The selection of a far western city proved wise in more ways than one, for, though it prevented a few from attending, it probably stimulated many more to combine a needed outing with an equally necessary duty. The days of rest en route no doubt put the mind into a receptive mood and contributed to greater efficiency. Freedom from the excessive heat of the eastern cities is the marked feature of Portland's summer season and contributed in a large degree to the comfort of the visitors and enabled them to accomplish much more work than could have otherwise been done. The local profession with pardonable pride had arranged a series of elaborate and most enjoyable entertainments and receptions which will long be remembered, but the excessive expense which is thus voluntarily assumed by a few men has rightly been considered to be really an imposition by the Association. The local arrangements for meeting places have been suggested as proper duties for the Board of Trustees and appropriate amendments to the constitution and by-laws were recommended. This will relieve the local profession of a burden, which, though a pleasant and voluntary one, willingly performed, is the proper function of the Association itself and much too burdensome to be shifted to others.

The necessity for organization is probably the most important lesson to be derived from the late meeting. Physicians, by the very nature of their work, are isolated and have never been brought to feel that they cannot accomplish their whole duty unless they cooperate with their fellows. Their daily visits during the course of a year take them into almost every house in the land and give them more and greater opportunities for the dissemination of ideas for the public welfare than any other class of men, not even excepting the clergy. That they have accomplished so little in the way of influencing legislation for the betterment of sanitation and the suppression of public nuisances is due solely to their lack of organization. A disciplined regiment is powerful because it delivers a blow a thousand times as great as one soldier can do alone, and it is irresistible when brought against the repeated puny blows of a mob of rioters. The open contempt which law makers express for the medical profession is based on the fact that it has never shown its power. Hence, physicians really injure themselves as well as neglect their duty to the community unless they do bind themselves into compact organizations, wherein they become instruments of tremendous power for good. A most important part of the adopted report of the Committee on Education was that in which it was determined that the medical student should be instructed not only in ethics and in the proper methods of conducting himself and his business, but also in the necessity of organization. He must be made to feel that he is to become merely a unit in a great organism, and that his first duty is to ally himself with societies to make himself more efficient as a physician and more powerful as a citizen.

Organization demands surrender of some liberty, and the intensely American love of individual liberty always stands in the way of proper union. Every physician knows enough of biology to understand that with increasing organization individual liberty is less, and the survival of all is more certain. He should be perfectly willing to abide by the restrictive laws of his societies for his own good, for the time is not so far off when he will find that unless he does adjust himself to this relation he will fail of support and aid at the very time he needs it most. It was jokingly said of a certain physicians' club of 600 members, that its only value seemed to be that when one member was accused of malpractice by shyster lawyers, there were 599 witnesses at hand to swear he was right. It is the blow delivered by a regiment. But no one can get this support unless he becomes a subordinate, and obedient to the will of the organism. Organization is now so far advanced that he who will not join will be in the position of the "man without a country," on whose protection his life itself depends. In some sections the lawyers have formed Bar Associations whose laws not one of them would dare to violate for fear of ostracism, disbarment, and ruin. When the Bar Association speaks, judges listen and Legislatures comply. When the medical profession is so organized that no physician will dare to violate the code of ethics of his association, then will physicians elevate themselves to their proper position of influence. No

Legislature would then dare to ignore suggestions for the remedy of public sanitary evils, for at the word of the society the physicians could reach every family in the district and retire the dangerous law makers to private life.

Medical societies should be government instruments as they already are in one or two States. The Bar Association, here and there, is almost recognized as a part of the government machinery, though it never would be if it were not compactly organized. Equally compact organization of all the reputable regular physicians would soon bring about a similar recognition or even greater official authority. When that occurs, there is every reason why all matters connected with examinations for matriculation, course of study, graduation, and licensing should become the public official duties of the medical associations, and all matters affecting the public health would naturally come within their jurisdiction also, through Boards of Health. It is not, therefore, too much to teach our students, that they have really assumed public duties upon being licensed to practise, and that as units in an association, they become instruments for the protection of society. To do this they must sink some of their personality, when acting as a part of a bigger organism.

The proposed medical directory to be published by the American Medical Association met some opposition from the fear that it would be an official recognition of irregular practitioners whose names would necessarily appear. It was also feared that the Association was embarking upon a commercial enterprise not in consonance with the real purposes of its existence, though similar objections had been made years before to the establishment of a journal. There was also some fear that the directory purchased, as a basis for the Association directory, contained too many errors. Nevertheless, the necessity of having some authoritative way of determining "who's who" in medicine, overweighed all objections, and the Association will proceed to publish a list of the licensed physicians of the United States. This is bound to become valuable for all who deal with the profession as a whole. It will assist in future organization, and we hope that in time, its list of regular graduates will be the same as the list of members of some duly organized association for the uplifting of the profession.

Health conditions in Panama still occupy much public attention, and the subject will not down. The first fatal mistake has brought forth the expected fruit in the way of a panicky feeling at home, which is said to be the cause of the present difficulty of finding men of the proper caliber to do the work. Women are naturally more nervous about such matters than men, and probably induce many a man to stay away. When the wife pleads the helpless state of herself and babies should the husband die, he would be less than human to expose himself to tropic climates if he can find employment at home. Bubonic plague has now appeared to add to the difficulties of fighting yellow fever and to increase nervous tension among the employes. It is quite evident that for some time the difficulty of securing men of ability to take the risks will increase rather than diminish. The thought naturally arises whether it would not be wisest to announce publicly that all efforts to dig the canal will be temporarily abandoned and the whole zone turned over to the absolute control of sanitarians to render it fit to live in, construct suitable shaded houses and do all the other things which tropic experts advise. Not until this is done will it be possible to begin the serious work of construction.

The engineering plan to be followed is not yet known and cannot be determined for some time, probably a year or more. It is now impossible to decide whether it will be best to build a lock canal or tide-water one. The latter will probably cost double the other and take longer to build by some years, but by eliminating running expenses and delays of locking and the inevitable interruptions to traffic from accidents to machinery, it is quite likely to be far cheaper in the end. Until the matter is decided let the sanitarians be supreme in name as well as in fact. There is now no complaint as to interference with their work and the suggestion is therefore hesitatingly thrown out. It is this thought which no doubt is uppermost in the minds of those who repeat the rumors that General Leonard Wood is to take supreme control to repeat on a larger scale his Havana work, though no one doubts the ability of Colonel Gorgas to accomplish the desired end. There is a growing suspicion, that, with the usual American impulsiveness, work was begun wrong end foremost, and that instead of building hospitals to care for the sick, the first thing to have been done was to build houses and attend to other matters so that employes would not get sick. It is now only too evident that all employes should be furnished with houses, water, and proper foods and not left to shift for themselves and then burden the sick list. It is now stated that more strenuousness is to be expected of employes, though it is a wellknown fact that in the tropics it is not safe nor possible to force from men more than two-thirds or even half the work possible at home, and that manual labor in the sun is wholly inadmissible. The less haste, the more speed, was never so true as in this tremendous undertaking.

The Visit of President Roosevelt to Coney Island.—A very kindly act of President Roosevelt was his recent visit to the hospital for tuberculous children maintained on Coney Island by the New York Association for the Improvement of the Condition of the Poor. The presence of the chief executive of the United States could not fail to be an inspiration to the suffering children, their mothers, and the attendants in the hospital. To those who are supporting the institution there must also be satisfaction in knowing that its successful work is attracting the attention of persons other than physicians. The widespread efforts in behalf of the subjects of pulmonary tuberculosis, have, to a degree, obscured the needs of those afflicted with other types of the disease. The association in question has very clearly demonstrated the great benefit to be derived from seaside, or at least outdoor, treatment of the little victims

of surgical tuberculosis. The interest in the hospital shown by the President, another evidence of his broad views and his regard for humanity in general, will do much in attracting the attention of others to this most commendable enterprise and, we trust, aid in securing substantial assistance in furthering its work.

A section on tropic diseases in the American Medical Association has been proposed, and the suggestion is of such great importance that it deserves attention. Quite a number of American physicians are now engaged in practice in the tropic zone, not to mention the medical officers of the army, navy, and of the Public Health and Marine-Hospital Service, and there is scarcely a practitioner in the United States who does not come into contact with patients lately returned from the tropics suffering from diseases or conditions markedly different from the usual run of his practice. On account of the steadily increasing tropic interests of the United States, it is not too radical to state that a considerable acquaintance with these conditions is a necessary part of the equipment of every physician. Papers on tropic diseases are quite apt to increase in number, and under the present arrangement of the sections, they will be unduly scattered, and will not attract the attention to which they are entitled. If they can all be referred to one section for discussion, by men of special knowledge, the whole profession will be the gainers. Such an arrangement, indeed, will create a demand for papers, and this new branch of medical science will be properly cultivated. A similar departure in the British Medical Association is quite successful, and is, no doubt, responsible for the rapid advances now being made in the investigation of tropic diseases.

Tropic Investigations Profoundly Influence the Whole Science of Medicine.—Our present knowledge of malaria is based on work in the tropics by a French army surgeon, and it is safe to say that the long delay in recognizing the importance of this revolutionary discovery would not have happened if there had been a special body of men to be informed instead of the general profession who promptly rejected it. Finlay's twenty years of argument to convince the profession of the method of yellow fever transmission would not be another blot on our record and it is a waste of time to mention the profound influence this discovery has made on the very foundations of our science. Ashford's work on hook-worm disease has brought out the fact that the whole southern half of the United States is more or less infected with this enervating rural scourge. Investigations in bacillary dysentery have shown that identical diseases due to organisms of this group are very widespread and have in particular cleared up much uncertainty as to infantile diarrheas. We can confidently predict equally revolutionary discoveries in the future—discoveries which will profoundly affect the practice of medicine throughout the world. America must not lag behind in this new work—indeed, self-interest demands that it be encouraged in every practicable way and none is so practical as a section devoted to its interests. There are hundreds of physicians throughout the country who have had exceedingly valuable experience in the Philippines, and they should be drawn upon before they forget. The medical association of the Philippine Islands is a recognized part of the American Medical Association, and is almost wholly occupied with tropic subjects of interest to the general practitioner and it should have a special place to discuss its work.

The growing sanitary importance of tropic medicine is forcibly shown in the oration on State Medicine, delivered at the late meeting of the American Medical Association by Dr. George Blumer, of San Francisco, who mentioned in considerable detail the numerous diseases which are probably to be imported in steadily increasing numbers now that our relations with the tropics are becoming more intimate. He enlarges mostly upon the fact that tropic investigations have an invariable sanitary relation. There is scarcely a widespread disease in these places whose investigation does not disclose valuable preventive measures. The yellow fever discoveries are now under trial in New Orleans for the first time, and will probably save millions in money and thousands of lives. Cholera work has proved that this scourge will never be able to spread over this country again, at least, not with many victims. Plague has likewise lost its terror and its capabilities for great harm. These facts suggest the thought that the proper place to collect all reports upon tropic investigations is in the section on sanitation. The therapeutic discoveries of use to sections devoted to practice, though very great, sink into relative insignificance when compared with the vast importance of the sanitary discoveries now coming from the tropics. The biologists will, of course, capture the special investigations of the parasites of the tropics, and it is well that it should be so, as the busy practitioner is unable to discuss the details of this vast science. There is no doubt, nevertheless, that the change of name of the above section by adding the words tropic medicine will be the proper course to pursue, as it will meet the objection that it is not wise to increase the number of small sections, whose programs are notoriously difficult to fill. It is a matter of sincere regret that there should be the slightest opposition to the recognition of the special and overwhelming importance of tropic medicine.

Work of the Pasteur Institute for 1904.—During 1904 the Pasteur Institute in Paris treated 755 persons bitten by animals suspected or proved to be rabid. In 148 cases the biting animal was experimentally proved to have rabies; two of these persons died. In 330 cases rabies was diagnosed by veterinary examination; there were no deaths in this series. In 277 cases the biting animal was suspected of having rabies; one death occurred.

Endemic Foci of Plague.—An official report of an epidemic of bubonic plague that occurred at Kisumu, in the British East African Protectorate, last year, expresses the opinion that Kisumu, Africa, is an endemic focus of the disease and accepts as authentic the evidence collected among the natives of an extensive epidemic of bubonic plague about 50 years ago. The important commercial bearing of this conclusion rests in the fact that the railroad terminus and the port are situated in an endemic home of plague. Koch, as a result of his investigations some years ago, added East and Central Africa to the endemic centers of plague, which had been previously mentioned by Dr. J. F. Payne, namely, the district of Assyr in Arabia, parts of Mesopotamia, and Persia; the districts of Garwhal and Kumaon, in the northwestern provinces of India, and Yunnan in China. The endemic focus described by Koch includes the district of Kisiba in German East Africa and extends into Uganda.

AMERICAN NEWS AND NOTES

GENERAL.

A Medical Complication.—Weary Husband: "Doctor, I don't see why you can't cure my wife of her aches and pains?" Doctor: "Sir, I have great regard for the opinion of your wife, and if I should cure her of her aches and pains, she'd never forgive me!"—[*Detroit Free Press.*]

Diplomas not Necessary for Admission to Army and Navy Medical Corps.—No diploma is required of candidates who wish to enter the medical corps of the army and navy, the examinations being so rigid that there is no possible chance of anyone passing who has not studied medicine for a number of years. State medical examining boards should adopt a rule that anyone with sufficient attainments in medicine who can pass the required examinations ought to be given a license to practise, whether he is a medical graduate or not. It would be better to license such persons than to accept the diplomas of inferior medical colleges.

EASTERN STATES.

Object to Leper Colony.—The Executive Committee of the Old Colony Club, Boston, has adopted resolutions in disapproval of the taking of Penikese Island, Buzzards Bay, by Massachusetts, for a leper colony. The resolutions state that the carrying out of the scheme would be little less than to invite lepers from everywhere to come to the State that they might secure citizenship, and so receive the benefits of the treatment at Penikese.

NEW YORK AND VICINITY.

Lies 110 Days in Coma.—Charles Canepi has not moved or spoken a word for 110 days. This is one of the longest cases of coma in history. The case is one of spinal meningitis. The boy was stricken on April 8.

Water-supply of New York City.—The State Water-supply Commission will devote an entire week to a careful inspection of the watersheds on both sides of the Hudson river, as a preliminary to the plan to build a reservoir of 100,000,000,000 gallons capacity for the consumption of the city by an expenditure of nearly $100,000,000. Governor Higgins has specially directed that the first work of the commission be devoted to the relief of the situation in New York. The State Civil Service Board has exempted from competitive examination, by request, the consulting engineer and the secretaryship of the water commission.

Phthisiophobia in New Jersey.—Jersey City officials are disturbed over the transportation of patients from New York City to the farm for the tuberculous, which New York is about to open at Otisville. At the meeting of the Jersey City Health Board last week, a resolution was offered regulating the movements of the tuberculous while in Jersey City. The resolution requires the railroad company which will transport the patients to carry them across the river in boats specially set apart for their use, and forbids that they be allowed to make their way to trains through the station rooms or passageways, or to ride to or from the farm in the trains run for general traffic.

PHILADELPHIA, PENNSYLVANIA, ETC.

Decrease in Typhoid.—Ninety-one new cases of typhoid fever were reported to the health authorities last week, a decrease of 17 cases compared with the number the previous week.

War Declared on Flies.—Stringent rules to prevent disease germs being transmitted by flies and other insects were adopted last week by the Board of Health at the request of Director Martin, of the Health Department. Rules were also adopted as to sanitary precautions in stables. Subsequently the bureau was directed to notify all store-keepers who have meats, vegetables, cakes, candies, and other eatables exposed for sale to screen the same. The assistant medical, nuisance, milk, and meat inspectors will visit all places designated in the resolutions, and will make a thorough inspection of the establishments referred to therein, as well as direct the owners or agents that they will have to comply with the new regulations.

Lives with Sutured Heart.—Alonzo J. Currington, who was stabbed in the heart on Saturday night, lies in the Bryn Mawr (Pa.) Hospital in a most critical condition. The blade, which was about a half inch wide, perforated the left ventricle of the heart, and, despite the seriousness of the wound, the injured man walked over 50 yards at his natural gait before he fell unconscious to the ground. After his admittance to the hospital, the surgeons drew the heart cut together with five stitches. His condition has remained good, although he had a sinking spell, and for a time it was feared he would die. Although the pulse has been very rapid, his temperature has remained about normal, and unless some unforeseen complication sets in the physicians believe that their patient will eventually recover.

Schuylkill Water Polluted.—Inspection being made of Philadelphia's water-supply shows that sanitary conditions along the Schuylkill have not improved since 1902, the time of the last inspection. The Reading sewage plant has deteriorated, but Reading is so far from Philadelphia that the city is not affected to any great extent by refuse dumped into the river at that point. The inspectors, however, criticised the immense piles of refuse which have been permitted to accumulate for several years at the Reading sewage plant. They contended that there is danger of the stuff being washed into the river during heavy rains. The sanitary conditions were bad at Birdsboro and Hay Creek and very bad at Pottstown, where the entire surface drainage of the town empties itself into the river. The pollution of Manatawney Creek and Hubler's Run, which empty into the Schuylkill at that point, was such that no attempts at sanitation of any kind could have been made. At Spring City and Royersford excess dye refuse and numerous sewers discharging into the river were sources of pollution dangerous to Philadelphia. To those dangers were added unprotected cesspools and waste from private sinks.

SOUTHERN STATES.

Yellow Fever at New Orleans.—The record to August 3 is: Total deaths, 79; new cases, 21; cases to date, 78; new foci, 5; total foci, 57. Almost all the cases are in Italians. The authorities hope by the end of the present week to have the situation under comparative control, with a prospect of complete eradication by September 1. The system of inspection and report is becoming daily more perfect, and in a few days no more new cases traceable to the original infection may be expected. There was no accurate census of the population of the Italian quarter when the fever broke out, and it is impossible to find all who escaped from that zone when the presence of the fever became known. Communication with the infected quarter has stopped, except for those whose business requires their presence where the fever has raged most fiercely. Within the next week, therefore, it is probable that the health authorities will know just what to expect from the escaped persons who were exposed to yellow fever.

WESTERN STATES.

Dedicate Memorial Hospital.—The Reid Memorial Hospital, a public institution made possible by the gift of $75,000 by Daniel Reid of New York, was dedicated at Richmond, Ind., July 27. William B. Leeds, also of New York, gave $10,000, and there was $35,000 in other gifts.

No Race Suicide Here.—Census takers have found the largest family in Wisconsin at Little Christe. Mr. and Mrs. Anton Verkullen are parents of 27 children, all but three of whom are living and most of whom are still under the parental roof. Verkullen is 53 years old, and his wife is one year his senior. They were married June 1, 1875. In the family are three sets of twins. Five of the children are married, and the oldest is the father of four children.

Pure Water for Los Angeles.—Work is about to begin on a water system which will secure an unlimited supply of pure water for all future needs. The scheme is to bring mountain water from Owen's lake and river in Inyo county, across deserts, through mountains, and across plains, a distance of 240 miles, to give Los Angeles a supply sufficient for her needs when population reaches the million mark. Engineers have estimated that the cost of the work will exceed $23,000,000. The survey has shown that all the water can be conveyed there by gravity, no pumping plants being necessary. The construction of 30 miles of tunnel will be necessary.

FOREIGN NEWS AND NOTES

GENERAL.

Radium Substitute.—A discovery is said to have been by Herr Erfeurt, a chemist, of Berlin, succeeding in transmitting the qualities of radium to a substance he calls radiopher. This can be made cheaply, and if all claimed is true, it will be of great use in medical practice, since it can be injected under the skin and in other parts of the body. It is said to possess all the qualities of the original radium, but in lesser degree.

Quarantine in the Faroe Islands.—The British consul at Thorshavn, Faroe Islands, reports that notwithstanding the natural salubrity of the islands, situated north of Scotland in midocean, and swept by polar breezes, diphtheria and enteric fever constantly appear in epidemic form in the various villages. Sanitary arrangements are primitive in these communities, but the humanitarian practice is prevalent of having quarantine officers warn fishing vessels that approach the coast of the risk incurred in visiting infected places.

Personal.—Alan Green, bacteriologist, in charge of the vaccine lymph department, Lister Institute of Preventive Medicine, has been awarded a silver medal by the French Academy of Medicine, for his work on vaccine, published in the *Proceedings of the Royal Society* and in the report of the medical

officer, Local Government Board.—**F. G. Gade**, prosector in the University of Christiania, has given a sum of 150,000 kroner to his native city, Bergen, for the foundation of a laboratory of pathologic anatomy. For a long time there has been a feeling among the inhabitants of Bergen that the city should be the seat of a university, or at least of an institute of medical science. The laboratory created by Dr. Gade will, perhaps, form the nucleus of such an institute.—**M. Cambon**, the French Ambassador, on July 14, unveiled at the French Hospital, Shaftesbury Avenue, London, a bronze statue of the late Dr. Achilles Vintras, founder of the institution. The statue bears an inscription: "To Dr. Achilles Vintras, Founder and Physician-in-Chief of the French Hospital in London, from the grateful French Colony."

OBITUARIES.

James Hedenberg, aged 75, the oldest practising physician of Medford, Mass., July 27, from heart disease. He was graduated from the Castleton Medical College, Castleton, Vt., in 1852. He first practised homeopathy but later became an allopath, and joined the Massachusetts Medical Society. He was for many years instructor of pediatrics in the Boston University Medical School. He had written a number of books relating to diseases of children, which were used by the medical profession and as textbooks in medical schools.

Oscar B. Harriman, aged 68, of Hampton, Iowa, July 9, from cerebral hemorrhage. He was graduated from Dartmouth Medical School, Hanover, N. H., in 1861. He was the first president of the Franklin County (Iowa) Medical Society, a member of the Iowa State Medical Society, State and National Association of Railway Surgeons, and other medical organizations. He was coroner of Franklin county for six years and county physician for ten years.

Curtis Harvey Bill, aged 70, Bridgeport, Conn., July 24, from the effects of an abdominal operation. He was graduated from the University of the City of New York, in 1859. He was born in Tennessee but resided in Connecticut since the Civil war, in which he served as surgeon. He was a member of the American Medical Association, and various medical societies.

Thomas G. Horn, aged 72, of Colorado Springs, Colo., July 14. He was graduated from the St. Louis Medical College in 1868. He was a member of the American Medical Association, the Colorado State Medical Society, and the El Paso County Medical Society. He was noted for his philanthropy and work in behalf of good government.

Samuel W. Leeman, of Dallas, Texas, committed suicide July 5, by shooting. He was a graduate of the College of Physicians and Surgeons, St. Louis, 1895, and was professor of the principles and practice of medicine in Baylor University College of Medicine, Dallas, and a member of various medical societies.

William James Cox, at a hotel in Madison, Ga., July 3, from an overdose of morphin. He was a graduate of the Southern Medical College, Atlanta, Ga., 1892, Barnesville, Ga. He was a member of the American Medical Association, Medical Association of Georgia, and Jasper County Medical Society.

William H. Lyne, aged 32, of Richmond, Va., July 15, 1905. He was graduated from the Medical College of Virginia in 1896. He was on the staff of the Medical College of Virginia, and a member of the Medical Society of Virginia. He was a young man of exceptionally fine promise.

Melva F. Longfellow, aged 44, of Boston, Mass., committed suicide by inhaling illuminating gas, July 30. Dr Longfellow was of the poet Longfellow's family, and was a native of Australia. She practised in Boston for several years, making a specialty of spinal disease.

J. Frank Ross, aged 62, of Clarion, Pa., July 29. He was one of the most prominent physicians in western Pennsylvania for a quarter of a century, and in 1876 was president of the Pennsylvania State Medical Society, and later of the American Medical Association.

W. L. Bradbury, aged 29, a student in the graduating class in Tuft's Medical College, Boston, Mass., was drowned, July 31. He was physician in charge of the State Bath House at Nantasket Reservation, and met his death while bathing in the surf.

Albert L. Macon, aged 32, of Clarksville, Tenn., July 11, from typhoid fever. He was graduated from the medical department of University of Tennessee, Nashville, in 1893 and a member of the American Medical Association.

David P. Middleton, aged 74, of Louisville, Ky., July 4. He was graduated from the Kentucky School of Medicine, Louisville, in 1860, and was surgeon of the Fourth Kentucky Volunteer Cavalry during the Civil war.

Alfred C. Blevins, aged 75, of Dayton, Tenn., July 25. He was a graduate of the University of Nashville, medical department, 1861. He was a surgeon of the Third Tennessee Infantry, C. S. A., during the Civil war.

William P. Ewing, aged 83, of Charleston, W. Va., July 19. He was a graduate of the Jefferson Medical College, Philadelphia, 1843. He was formerly president of the West Virginia State Board of Health.

Earl Mathewson, aged 55, of Durham, Conn., July 6. He was graduated from the College of Physicians and Surgeons of New York, 1879. He was for many years medical examiner of Durham.

Sydney Jones, aged 30, of Cleveland, Ohio, July 12, after an operation on the glands of the neck. He was a graduate of the McGill University, medical department, Montreal, Can., 1901.

Charles Lowry, aged 64, of Topeka, Kan., July 11. He was a graduate of the University of Pennsylvania, 1863, and was for two years secretary of the Kansas State Board of Health.

James F. Graves, aged 58, committed suicide, July 4. He was a graduate of the St. Louis Medical College, 1878, and local surgeon of the Wabash Railway, at Montgomery, Ala.

John M. McDonald, aged 29, of Pittsburg, Pa., July 6, after a lingering illness. He was a graduate of the Western Pennsylvania Medical College, Pittsburg, 1897.

Horace Lathrop, aged 80, of Cooperstown, N. Y., July 11, from cerebral hemorrhage. He was a graduate of the Jefferson Medical College, Philadelphia, 1852.

Abraham Miller, aged 71, of Bloomington, Ind., July 11, from cerebral hemorrhage. He was a graduate of the Rush Medical College, Chicago, 1868.

Sarah A. Marshall, aged 61, July 14, of Elgin, Ill., after a long illness. She was a graduate of the Bennett College of Eclectic Medicine and Surgery, 1883.

Victor G. R. J. Rehm, aged 47, of Philadelphia, Pa., July 22, from nephritis. He was a graduate of Jefferson Medical College, Philadelphia, 1884.

Felix A. Gillepsie, of Hanceville, Ala., July 17, from typhoid. He was a graduate of the Medical College of Alabama, 1889, and mayor of Hanceville.

Charles A. Carroll, aged 60, July 14, from heart disease. He was a graduate of University of Maryland School of Medicine, Baltimore, Md., 1864.

Eugene E. Holroyd, aged 57, at Nilwood, Ill., July 10. He was a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, 1878.

John P. Sterrett, aged 79, of Pittsburg, July 18. He was a graduate of the University of Virginia, medical department, Charlottesville, 1843.

Gustavus Hoepfner, aged 69, of Davenport, Iowa, July 12. He was graduated from the University of Keil, Germany, 1862.

C. Wright Lindsey, recently. He was a graduate of the medical department of Arkansas University, Little Rock, 1900.

D. P. Hallock, for many years president of Mercer University, July 22, at Monroe, Ga.

FOREIGN.—**Ezio Sciamanna**, aged 55, of Rome, Italy, recently. He was a wellknown neurologist. He published a series of memoirs on cerebral tumors, which contained valuable observations and clinical deductions, and he contributed largely to the literature of psychologic medicine. He was a director of the Psychiatric Institute of Rome, and much of the result of his labors was published in the *Annali dell' Instituto psichiatrico di Roma*, of which he was one of the founders. He was held in high respect both as a teacher and a man. **Andrew Semple**, deputy surgeon-general, at Edinburgh, May 10. He was noted for his work in the army, serving in the Crimean campaign in 1854–5, receiving a medal with a clasp. **Lieutenant-Colonel Kaikhoso Sorabji Nariman**, at Bombay, India, April 24. **Daniel Murphy**, one of the youngest members of the English medical profession, was buried July 8. He was noted in army medical work, and was exceedingly popular professionally and privately.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 29, 1905:

	SMALLPOX—UNITED STATES.	Cases	Deaths
California:	Los Angeles.....July 8–15.....	4	
District of Columbia:	Washington.....July 15–22.....	1	
Illinois:	Chicago.....July 15–22.....	11	1
Indiana:	South Bend.....July 15–22.....	1	
Michigan:	Grand Rapids.....July 15–22.....	5	1
Missouri:	St. Joseph.....July 8–15.....	4	
New York:	Rome.....July 15–22.....	1	
Ohio:	Cincinnati.....May 19–June 23...	15	
Pennsylvania:	York.....July 15–22.....	11	
Wisconsin:	Appleton.....July 15–22.....	1	
	SMALLPOX—FOREIGN.		
Africa:	Cape Colony—Cape Town.....June 18–24.....	3	
Brazil:	Rio de Janeiro.....June 11–July 2....	32	21
Canada:	New Brunswick—St. John.....July 14.....	1	Imported
Chile:	At Ports.....June 14.....	Present	
France:	Lyons.....July 2–9.....	1	
	Paris.....July 1–8.....	10	1

Great Britain:	Birmingham	July 1-8	1	
	Bristol	July 8-15	1	
	Cardiff	July 8-15	3	
	Newcastle-on-Tyne	July 1-8	5	
Greece:	Athens	June 24-July 1		1
India:	Bombay	June 13-27		19
	Calcutta	June 10-17		2
	Karachi	June 11-25	3	1
	Madras	June 10-23		5
Italy:	General	June 29-July 6	8	
	Catania	June 29-July 6		3
	Messina	June 25-July 2	1	
	Palermo	July 1-8	1	
Mexico:	City of Mexico	June 24-July 15	20	10
Panama:	Bocas del Toro	July 1-7	1	
			Imported	
Russia:	Moscow	June 17-July 1	9	6
	Odessa	June 25-July 8	10	1
	St. Petersburg	June 24-July 1	13	2
Spain:	Barcelona	June 1-10		2
Turkey:	Constantinople	June 18-25		4
Venezuela:	Maracaibo	June 6-July 2	4	4
West Indies:	Grenada	June 15-29	5	

YELLOW FEVER—UNITED STATES.

Florida:	Tampa	July 28	1	
Louisiana:	New Orleans	July 21-26	73	22

YELLOW FEVER—FOREIGN.

Brazil:	Rio de Janeiro	June 11-July 2	84	40
British Honduras:	Belize	July 6-13	1	
Honduras:	Choloma	July 7	Present	
	Puerto Cortez	July 1-17	20	4
	San Pedro	July 15	200	15
Mexico:	Coatzacoalcos	July 9-15	2	
	Tierra Blanca	July 9-15	3	1
	Vera Cruz	July 9-25	5	
Panama:	Colon	July 2-11	5	1

CHOLERA.

India:	Bombay	June 13-20	3	
	Calcutta	June 10-17		8
	Madras	June 17-23		1

PLAGUE—FOREIGN.

Africa:	Cape Colony—			
	East London	June 3-24	6	3
	King William's Town	June 17-24	1	
Brazil:	Rio de Janeiro	June 18-July 2	6	2
China:	Hong Kong	May 13-20	20	19
Egypt:	General	June 10-24	25	16
India:	Bombay	June 4-27		221
	Calcutta	June 10-17		37
	Karachi	June 11-25		85
	Madras	June 10-16		1
Japan:	Formosa	May 1-June 20	947	806
Peru:	Callao	June 1-10	1	
	Cerro de Paseo	June 1-10	1	1
	Lima	June 1-10	6	2
	Mollendo	June 1-10	1	2

Changes in the Medical Corps of the U. S. Army for the week ended July 29, 1905:

LONG, CHARLES J., contract dental surgeon, is granted leave for one month and seven days, from about August 10.

EGAN, Major PETER R., surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Hamilton for duty.

NELSON, First Lieutenant KENT, assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort McHenry for duty.

FRESE, OTTO F., sergeant first class, now at the depot of recruits and casuals, will be sent to Fort Warren for duty.

EDWARDS, First Lieutenant JAMES F., assistant surgeon, is granted leave for two months, to take effect about August 10.

A board of officers to consist of Lieutenant-Colonel George H. Torney, deputy surgeon-general; Lieutenant-Colonel Louis Brechemin, deputy surgeon-general; Major William Stephenson, surgeon, is appointed to meet at the General Hospital, Presidio of San Francisco, for the examination of officers of the medical department for promotion.

KENNEDY, Captain JAMES M., assistant surgeon, will report August 15 to Lieutenant-Colonel George H. Torney, deputy surgeon-general, president of the examining board, at the Army General Hospital, Presidio of San Francisco, Cal., for examination for promotion.

GODFREY, Captain GUY C. M., assistant surgeon, will report August 15 to Major William H. Arthur, surgeon, president of the examining board, at the Army Medical Museum Building, Washington, D. C., for examination for promotion.

QUINTON, Captain WILLIAM W., assistant surgeon, having reported his arrival at San Francisco, Cal., will report for assignment to temporary duty at the Army General Hospital, Presidio of San Francisco, Cal. Upon the arrival of the Seventeenth Infantry at San Francisco, Cal., Captain Quinton will report to the commanding officer of that regiment for duty, and will accompany that regiment to Fort McPherson, where he will take station. Leave to include the date of the arrival of the Seventeenth Infantry in San Francisco, Cal., is granted.

WOODALL, First Lieutenant WILLIAM P., assistant surgeon, having reported his arrival at San Francisco, Cal., will report for assignment to duty at the Army General Hospital, Presidio of San Francisco.

ROBERTS, ERNEST E., contract surgeon, now on leave at Chicago, Ill., is relieved from further duty in the Philippines Division, and will proceed at the proper time to Fort Riley and report not later than August 12 for duty.

MARSHALL, JOHN S., examining and supervising dental surgeon, is relieved from duty at the Presidio of San Francisco, and will report at the Army General Hospital, at that post, for duty.

BERNHEIM, JULIEN R., dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Slocum for duty, relieving Dental Surgeon Douglas E. Foster. Leave for twenty days is granted Dental Surgeon Julien R. Bernheim.

LA GARDE, Major LOUIS A., surgeon, having reported to the military secretary of the army, in compliance with orders from the governor of the canal zone, will proceed to Manila, P. I., for assignment to duty. Leave for one month, with permission to apply for an extension of one month, is granted.

SANDS, JOHN R., sergeant first class, Jefferson Barracks, will be sent to the depot of recruits and casuals, Fort McDowell, at such time as will enable him to be sent to Manila, P. I., on the transport leaving San Francisco, Cal., about August 5.

FIELD, First Lieutenant PETER C., assistant surgeon, is relieved from duty at Santa Mesa, Manila, and will report at the Division Hospital, Manila, P. I., for duty.

SHAW, First Lieutenant HERBERT G., assistant surgeon, is relieved from duty at Parang, Mindanao, and will report to the commanding general, department of Luzon, for assignment to duty.

OWEN, First Lieutenant LAERTUS J., ZINKE, First Lieutenant STANLEY G., and CULLER, First Lieutenant ROBERT M., assistant surgeons, recently arrived on the transport Sherman, will proceed to Borongan, Taft and Llorente, Samar, respectively.

HARRIS, First Lieutenant JESSE R., assistant surgeon, is granted leave for one month, with permission to visit the United States, effective about June 15, on account of exceptional circumstances.

CRABTREE, First Lieutenant GEORGE H., assistant surgeon, will, in addition to his other duties, take charge of and perform, until further orders, those of attending surgeon, New York City, relieving Captain Guy C. M. Godfrey, assistant surgeon.

ROGAN, First Lieutenant CHARLES A., assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Hot Springs, Ark., and report to the Army and Navy General Hospital, for duty.

WING, FRANKLIN F., dental surgeon, is granted leave for one month and fifteen days, from about August 5.

Changes in the Medical Corps of the U. S. Navy for the week ended July 29, 1905:

HIGH, W. E. G., assistant surgeon, detached from the Naval Training Station, San Francisco, Cal., and ordered home to wait orders—July 22.

SMITH, C. G., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from April 12, 1905—July 24.

SHIPP, E. M., surgeon, orders of June 21 modified; ordered to the Naval Hospital, New York, N. Y.—July 28.

BACKUS, J. W., assistant surgeon, detached from the Southery and ordered to the Hancock—July 26.

DABNEY, V., acting assistant surgeon, detached from the Culgoa and ordered to the Southery—July 26.

Changes in the Public Health and Marine-Hospital Service for the week ended July 26, 1905:

SAWTELLE, H. W., surgeon, granted leave of absence for one month from date of arrival in Washington, D. C.—July 19, 1905.

WASDIN, EUGENE, surgeon, to proceed to Mobile, Ala., for special temporary duty in Mobile and vicinity—July 29, 1905.

WHITE, J. H., surgeon, to proceed to New Orleans, La., for special temporary duty—July 21, 1905.

GUITERAS, G. N., surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—July 22, 1905.

YOUNG, G. B., passed assistant surgeon, to proceed to Jackson, Miss., for special temporary duty—July 25, 1905.

CORPUT, G. M., passed assistant surgeon, to report to Surgeon J. H. White for special temporary duty—July 22, 1905.

RICHARDSON, T. F., passed assistant surgeon, orders to proceed to Brunswick quarantine station revoked, and directed to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—July 22, 1905.

GOLDBERGER, JOS., passed assistant surgeon, to report at Bureau, Washington, D. C.—July 25, 1905.

FRANCIS, EDWARD, passed assistant surgeon, to proceed to Mobile, Ala., and report to medical officer in command for temporary duty—July 20, 1905.

GUSTETTER, A. L., acting assistant surgeon, granted leave of absence for ten days from July 25, 1905.

SAFFORD, M. Y., acting assistant surgeon, granted leave of absence for three days from July 22, 1905, under paragraph 210 of the regulations.

SAVAGE, W. L., acting assistant surgeon, department letter granting Acting Assistant Surgeon Savage leave of absence for thirty days from August 7, 1905, amended to read thirty days from August 15—July 21, 1905.

GOODMAN, F. S., pharmacist, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—July 24, 1905.

WETTERS, M. H., pharmacist, granted leave of absence for fifteen days from August 7—July 25, 1905.

VANNESS, JR., G. I., pharmacist, granted leave of absence for thirty days from August 1—July 19, 1905.

BIERMAN, C. H., pharmacist, granted leave of absence for fifteen days from July 24—July 19, 1905.

Board Convened.

Board convened to meet at San Francisco, Cal., July 27, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon G. M. Magruder, chairman. Passed assistant Surgeon J. M. Holt, recorder.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

SECOND SESSION.

The meeting was called to order by President Musser, and the minutes of the previous meeting were read and adopted. In reply to the request of the House of Delegates for another room in which to meet, K. A. J. Mackenzie, chairman of the Portland Committee of Arrangements, announced that he had secured a commodious, well-fitted room in the Atkinson school, across the street from the Armory where the general sessions were held. This arrangement was accepted. The regular business of the session was then taken up, the first report taken under consideration being that of the Committee on Medical Legislation and Political Action, C. A. L. Reed, chairman. The report which follows, was most interesting, and showed evidence of arduous labor on the part of the committee in this most practical field of medical effort. Reed was not able to be present, and the report was read by the secretary, Geo. H. Simmons. After the reading, the report was referred to the Reference Committee on Medical Legislation.

Report of the Committee on Legislation.—The report of this committee last year set forth the extent of the auxiliary organization that it had effected for the purpose of making more valuable such agitation as might be necessary either for or against pending legislation touching questions of interest to the medical profession. This organization, theoretically, embraces the establishment of an official correspondent in each county in the United States, the object being to have every such correspondent in touch with the local medical organization wherever such an organization exists, or with the profession wherever it is yet unorganized. The profession has been very responsive to this movement, and as a result the office of your committee is now in possession of a directory embracing about 2,800 local correspondents, who comprise the National Auxiliary Legislative Committee. This extensive organization has been most effective in bringing the influence of the medical profession, and, through the medical profession, the influence of the respective communities to bear on such questions as legitimately concern not only the medical profession, but the public in general. This is accomplished by appealing to this large committee by formal referendum. During the past year, it has been necessary to issue only two general referendums. It has, however, been found expedient to issue a number of special referendums calculated to reach members of committees in both the House and the Senate. The committee is in possession of abundant evidence that the influence thus exerted commands the respectful consideration of the members of Congress in both houses. A number of members of the National Auxiliary Legislative Committee have suggested to the central committee that it would be a good idea in special cases for the central committee to be in direct communication with the dominant local political influences in the different localities. Acting on this suggestion, your committee undertook to secure, and it is very glad to be able to report that it has secured, a list of the local political leaders of every organized and recognized political party in the United States. The list already embraces the names of several political managers in each of about 900 counties, the entire list aggregating in excess of 11,000 names. Through this list the central committee is in position to bring questions of pending legislation to the serious and thoughtful consideration of the men who, in their respective localities, exercise a preponderating influence in determining political action. The National Legislative Council is to be recognized as one of the most important elements in the mechanism for national agitation. It is before this body that all questions of proposed or pending national legislation touching questions of interest to the medical profession are submitted for careful consideration, and it is only after affirmative action by this representative body, consisting of one member from each State and territorial medical association, that the committee assumes to foster any given measure. It is thus that the championship of a measure by your committee is accepted by the Congress as the championship by the American Medical Association, which, being the representative organization of the medical profession of the United States, makes its voice, in effect, the voice of the entire profession. Three measures of importance to the medical profession—measures which had received the indorsement of the National Legislative Council, the passage of which was advocated through personal and formal written representations by the committee, were taken under consideration by Congress at the last session. One of these, that for the establishment of an army medical hospital in Washington, was passed; the second measure, the Pure Food and Drug Bill, passed both houses of the Congress, but failed in conference. The third measure, that of the Army Medical Reorganization Bill, passed the Senate, was reported favorably after protracted hearings attended by your committee, by the House Committee on Military Affairs, and would doubtless have passed the House without discussion if it had not been arbitrarily excluded from the calendar by Speaker Cannon. The committee, acting under general instructions, made earnest representations to the President of the United States to appoint a medical representative on the Isthmian Canal Commission when that body was first organized. The circumstances attending this application and its result were laid before you in our last annual report. Since that time, namely, in the month of February, 1905, a convenient opportunity occurred for your chairman, while visiting the Isthmus of Panama on other business, to observe the results of the organization that had been effected. These observations were embodied in a paper, prepared by your chairman in his official capacity for submission through the official journal of the Association for the information of the general membership of that body. It is gratifying to record that the incident was shortly followed by the forced resignation of the commission, as urged in the report, and that other conditions complained of in the report have likewise been remedied as rapidly as time and circumstances have permitted. A number of measures of interest to the medical profession will come before the next Congress. The Pure Food and Drug Bill will again be placedon the calendar. This measure during the last session incurred the violent opposition of the whisky trust, embracing more particularly rectifiers and compounders of spirits; by the patent medicine trust, which made its boast that it represented $30,000,000 of capital, and that by that means it was able to control the United States Senate; and by the Retail Grocers' Association, the members of which imagine that they reap large profits by selling sophisticated articles of food. These forces will again be to the front, and it will require the active labor of every friend of the measure to thwart their influence. The Medical Reorganization Bill will also be introduced. This measure, like the preceding one, has the unqualified endorsement of the administration. Important and influential representations have been made to the members of the National Legislative Council touching certain provisions of this measure, which may make it necessary for the council to take the bill under further consideration. But as these criticisms belong only to a few subordinate features of the proposed legislation, the measure will undoubtedly again call for and receive the support of the medical profession. Measures are expected to be introduced in behalf of a naval hospital and certain recommendations touching the modification of the status of the medical department of the navy. In addition to this there will be some more legislation coming from the Bureau of Public Health and Marine-Hospital Service. It has been suggested that postal regulations governing the transmission through the mails of objectionable medical literature, or of alleged medical matter, ought to be enacted. These matters in due season will be taken up by the heads of the legislative departments of the government at Washington, and when properly formulated, will be brought before the National Legislative Council. In this connection, however, your committee begs leave to emphasize the fact that it is its policy to champion only a few bills, but good and necessary ones, rather than to divide its energies in promoting a number of measures, some of which may be of questionable benefit. It is proposed to establish a Bureau of Medical Legislation, to be located in the Association building, Chicago. It is intended that this bureau shall be in the immediate charge of the secretary of the Association, who in this matter will act under the supervisory direction of the Committee on Medical Legislation. Some person familiar with the work would have to be employed by the trustees to act as assistant secretary in charge of the bureau. Among other arguments in favor of such a step are the following: (1) It would place the legislative work of the Association on a business basis; (2) it would enable the assistant secretary in charge of the bureau to have the efficient cooperation of *The Journal* office; (3) it would expedite the printing for the committee, which is now done by the Association Press; (4) it would have the advantage of the mailing department; (5) it would be in close touch with *The Journal*, through which it is often desirable to promulgate information without a day's delay.

[*To be continued.*]

Practice of Medicine.

FIRST SESSION.

The Incidence of Heart Disease in San Francisco.—WILLIAM FITCH CHENEY (San Francisco) has made a careful examination of the records of 3,648 cases occurring in the Cooper Medical College Clinic since 1900. He considered the various forms of heart disease seen, the relation to etiologic factors, particularly rheumatism, and the ultimate outcome of the cases so far as traced. He concluded that heart disease was very common in San Francisco. The form of valvular trouble most frequently seen was mitral regurgitation; second, aortic regurgitation; third, mitral stenosis; fourth, aortic stenosis. The last named is a very rare condition. Myocardial disease, however, is quite common. Its etiologic factors are probably the same as arteriosclerosis, which however, is often more frequently seen.

The Secret Nostrum Evil.—FRANK BILLINGS (Chicago) discussed the cause and proposed remedies for the condition, contending that the best way to meet the evil was through publicity. He was in favor of the holding of special society meetings to consider the evils of prescribing remedies of unknown

composition and said that the utmost publicity should be given to these proceedings in order to educate the profession fully.

ALFRED STENGEL (Philadelphia) offered resolutions heartily commending the Council of Pharmacy and Chemistry of the American Medical Association and urging every physician to give the movement of reform his hearty support.

Studies in Röntgen-ray Diagnosis of Chest Diseases.—JAMES E. TALLEY and W. S. NEWCOMET (Philadelphia) dwelt upon the development of the use of the fluoroscope and skiagraph in the examination of chest diseases. There has been great improvement in fluoroscopic technic within the past two years. Recently instantaneous skiagraphy has become possible, adding greatly to the value of these means of diagnosis. The authors made a thorough comparative discussion of the value of röntgen-ray methods and quoted a number of illustrative cases.

[*To be continued.*]

Surgery.

FIRST SESSION.

Chairman's Address.—MAURICE H. RICHARDSON (Boston) took as his subject **Accidents and Mistakes Occurring in Practice.** These were inevitable in some degree and every surgeon was likely to have them at some time in his practice. Circumstances often lead to erroneous diagnosis. The author himself has frequently been led into error through very naturally-arising contingencies. These frequently occur in a manner entirely out of the control of the surgeon and yet the surgeon is always held responsible for the conditions occurring in the case, constituting one of the peculiar hardships of the surgeon's life. The most satisfactory training in the education of the surgeon can only be obtained under the preceptorship of experienced operators. Recent graduates should therefore spend a certain period of time assisting prominent surgeons before beginning practise for themselves. Care however, should be taken to avoid the attitude of dependence, likely to come about through too long holding of a subordinate position.

Cure of Inguinal Hernia.—HENRY O. MARCY (Boston) said that the study of the methods of cure of hernia should embrace close analysis of predisposing and exciting causes. In operation the fundamental problem is the reconstruction of the inguinal canal which must be restored to the normal oblique position. Marcy outlined the indications for and limitations of operation for the radical cure and laid especial stress on methods of suture, the kinds of suture material to be used, the closure of wounds without drainage, and the after-treatment of hernia patients.

Fibroid Growths of the Abdominal Wall.—CHAS A. POWERS (Denver) said that these socalled dermoid tumors were quite rare. They generally occurred in women from 25 to 35 and usually after a recent pregnancy. They occur most frequently in the right rectus muscle and below the umbilicus. In deciding on the plan of treatment the possible occurrence of postoperative hernia and recurrence are serious considerations. The speaker then discussed the etiology, morphology, development, and pathology of these tumors, the symptoms and diagnosis of the disease and finally gave an extensive review of the literature, closing by describing his own cases.

Splanchnoptosis from a Surgical Standpoint.—JAMES E. MOORE (Minneapolis) said that this disease might be considered as applying particularly to the province of a number of different specialties. Surgical interference should not be made until thorough trial had been made of all medical means and found unavailing. Surgery should not be held out to these patients as a sure cure for all conditions since neurasthenia might persist even after the mechanical defects had been remedied. The immediate prognosis is good, but the end results have not been sufficiently observed to give much definiteness as to the ultimate fate of these patients. The speaker detailed a number of various operative procedures of benefit in the condition.

The Early Diagnosis of Gastric Ulcer.—H. D. NILES (Salt Lake City) considered the different symptoms of the affection, particularly with regard to the relative frequency. The symptoms formerly relied on aid in diagnosis in only a small proportion of cases. No one symptom is sufficient to base a diagnosis upon. The writer made a special study of the differential diagnosis of gastric ulcer from other gastric diseases and advises careful study, grouping all symptoms before making positive diagnosis or deciding upon exploratory incision. The relative frequency of gastric ulcer should lead to a suspicion of its possible existence in all chronic cases of stomach disorder resisting conservative treatment.

Clinical Experience with the McGraw Elastic Ligature.—A. J. OCHSNER (Chicago) described in detail the various steps of the operations performed by himself in cases occurring in his practice. He then gave the results in a number of typic cases, the conclusions of the paper being favorable to the value of the ligature.

Ulcer of the Stomach and Duodenum.—W. J. MAYO (Rochester, Minn.) read a lengthy paper discussing the subject entirely from the standpoint of the surgeon. After giving the statistics of the postmortem records he took up the clinical aspect of the disease. Two varieties of gastric ulcer were described, the medical and surgical; and these should be retained strictly in the charge of their respective specialist. There is an increasing frequency of uncured cases in surgical clinics. Surgical ulcer invades all of the coats of the stomach and can be easily identified from the exterior of the stomach. Medical ulcer invades only the mucous coat, and cannot be located without opening the stomach. He then gave a detailed account of the operation of gastrojejunostomy as performed at Rochester, and made a report of 215 cases operated on in 27 months.

Acid Intoxication and Late Poisonous Effects of Anesthetics.—A. D. BEVAN (Chicago) directed particular attention to the effect of chloroform anesthesia on the liver. This is often quite harmful and sometimes causes death several days after anesthesia. The condition is as definite a pathologic entity as acute pancreatitis, or the poisoning of phosphorus. The paper made a careful report of the case in point, cited the literature of more cases and detailed laboratory experimental work.

Perforation in Typhoid Fever.—RICHARD H. HARTE (Philadelphia) considered this complication one of the most important in typhoid fever. He reported a number of cases, analyzing them in support of the contention that, taken in time, perforations were readily controlled by surgical interference. He was of opinion that the condition should be considered as purely surgical and that medical men should lose no time in calling in surgeons in case of the development of untoward symptoms during the case of typhoid. He preferred general anesthesia for these operations.

[*To be continued.*]

Obstetrics and Diseases of Women.

SECOND SESSION (CONTINUED).

Postoperative Pelvic Exudates.—W. FRANCES B. WAKEFIELD (San Francisco) said that there was frequent occurrence of the condition following operations for pelvic inflammatory disease and a lack of literature on this subject. Regardless of the cause, if the operations produce an inflammation which brings about adhesions, the resulting passive hyperemia, ordinary, etc., lays the foundation of postoperative exudates. Failure to recognize early will oftentimes result in chronic invalidism worse than the condition before operation. Hyperplasia of connective tissue and adhesions disturb the circulation and produce pelvic indurations, venous stasis, etc. Production unfavorable to the absorption of embryonic connective tissue, but actually increase the production of the same. These exudates may be prevented by prolonged convalescence, hygienic, and local measures, as massage, baths, hot douches, once or twice daily. If, some time after operation, examination reveals an induration, treatment should at once be instituted. Local treatment consists in addition to the above, of copious hot douches and tampons—the latter preferably made of lamb's wool. Local pelvic massage may or may not prove beneficial. Incision and drainage of the vault of the vagina are not necessary. Advocates the systemic postoperative examination of all patients, so that these exudates, if present, may be discovered and treated before the patient is discharged; thereby insuring better symptomatic results.

Discussion.—PANTZER (Indianapolis) took exception to the term exudate, as it means infection, and is invariably associated with temperature. Cases should be ascribed to postoperative hemorrhage. THIENHANS thinks condition due to use of silk and to incomplete operation. CRAIG asked for information in regard to a patient operated on 18 months ago, both tubes and ovaries being removed and the uterus left, not followed by a satisfactory recovery. A year after found a mass the size of a lemon in broad ligament, low down and easily perceptible through vagina. Had adherent retroversion and lacerated cervix. He operated, repairing the cervix and next opened the abdomen, suspended the adherent uterus. No signs or source of tumor in the region of the broad ligament—later, however, tumor reappearing. GOFFE supported Wakefield's views and remarked that slight cobweb-adhesions may be the cause of sterility. Advocated the postoperative treatment. Does not wait until we have exudate that can be felt, but begins treatment after the twelfth to fifteenth day. Uses mostly vaginal treatment. Believes success lies in preventing adhesions and prolonging convalescence. BACON (Chicago) thinks condition explained by of stasis or a nonvirulent infection as from the gonococcus or colon bacillus; agrees with essayist as to treatment. In mild breast infections we frequently have a beginning abscess and high temperature disappearing by proper treatment, *i. e.*, absolute rest and support of the breast. CARSTENS thinks the percentage of cases depends upon the surgeon. With "all around" practitioners it is about 4% or 5%—with specialists much higher. Much of the conditions due to leaving the end of the tube open in salpingectomy, therefore, we must absolutely cover the end of the tube over with peritoneum. Bad to break up adhesions—better to go between bladder and intestines, and you get no infection of the peritoneal cavity in simple cases. Drain through the vagina in infected cases, and we will have much fewer cases of these exudates resulting. Uses aristol to prevent adhesions. Most trouble follows partial removal of pelvic organs. Important to give plenty of water. Gives ⅛ gr. protiodid every three hours for some time. ANDREWS (Chicago) removes the whole tube into the horn of the uterus, and whipstitches the whole length of the broad ligament. J. H. CROWELL (Kansas City) believes that the solution lies in technic and the use of silk and catgut

which lasts too long. He gets his patients up on the second or third day, and claims the exudates are absorbed more readily by so doing. WAKEFIELD, in closing, stated that septic exudates occurring in the first week after operation were excluded in his considerations. Do not find these tumors while in bed, but after getting up. Stated that Craig's case was exactly one in question. Sepsis has nothing to do with the case; tis more of a mechanical nature, probably some circulatory disturbance. He uses the term exudate because it is customary to speak of tumefactions as such, but he does not believe them true exudates—cases invariably occur in those that get up early.

Hernia of the Fallopian Tube.—FRANK F. ANDREWS (Chicago) reviewed the history of the literature on the subject, and classified and recorded new cases. He discussed the variable contents of the sac in hernias, and brought out the fact that obturator hernias and femoral hernias occurred in persons over 36, and inguinal hernias in the young and middle aged; the oldest reported being 46.

Discussion.—EASTMAN (Indianapolis) reported a case diagnosed as a right labial abscess which had been incised several times but continued to discharge. Incision later showed an appendix discharging pus and the appendix down in the canal. GOLDSPOHN (Chicago) reported a case of left femoral hernia which later became irreducible. On operating an ovary was found adherent in the sac, with a small quantity of omentum.

[*To be continued.*]

Diseases of Children.

FIRST SESSION (CONTINUED).

The Prevention of Summer Diarrhea.—MAURICE OSTHEIMER (Philadelphia) said during the summer months there has always been a very great mortality from summer diarrhea, due primarily to bacteria, and always depending upon two direct causes, unclean or unsuitable food and hot weather. Bacteria in the intestines is, of course, always the exciting cause, but an exhausted vitality is also necessary. The physician must try to overcome the effects of the hot weather. At the first sign of gastrointestinal derangement, stop all milk at once. Insist upon baths regularly and often and plenty of fresh air. See that the milk supply is clean. Give special attention to taking care of soiled napkins. There might be special courses introduced into the public schools treating on proper modification of milk. There should be widespread distribution of municipal pamphlets containing instructions to mothers for care and feeding of infants in hot weather. It would be a great step in advance if the municipal health departments would organize public dairies and laboratories, that should be modern in every respect. These would permit the distribution of clean, wholesome milk and modified mixtures, free to the poor, to others at a nominal price. If this is impossible, these dairies and laboratories might be run by public subscription. This plan was tried at St. Louis last summer, but was not entirely a success because there was no rule for standardizing. It was also tried in New York and Philadelphia by Nathan Strauss. If absolutely clean milk is used, neither pasteurization nor sterilization is necessary. It has been demonstrated that there are more bacteria in milk that has been pasteurized more than six hours before than there is in fresh milk. The following are some of the instructions for care of infants that should be given in any pamphlet for general distribution: The infant should wear very little clothing. A bath every day, and if very hot weather, two or three times a day. Bathe before, not after feeding. Use talcum powder freely. Keep the windows open, but protect from strong light, strong wind and flies. Do not sweep the rooms, but mop with a damp cloth. Infant should sleep two hours every forenoon and two hours every afternoon, outside if possible, in a crib or coach. Change soiled napkins at once and never cover with an oilcloth. The mother should nurse the child if possible, giving careful attention to keeping the nipples clean. She should drink no tea, coffee, or alcoholic liquors. In very hot weather the first few drops of milk should be thrown away. If necessary to use cow's milk use certified milk if possible. Never leave in uncovered bottles. Keep milk cool. Feed milk and barley water, equal parts with 10% lime water, to make the barley water, boil an ounce of barley flour in a pint of water for 15 minutes, add hot water to a pint, filter and cool. Cream should be added to toleration. Cleanse the mouth before and after feeding. Milk remaining after a feeding should be thrown away. Cleanse the bottles with hot water and soda. All children should be weaned at 10 to 12 months. Do not give meat until 2 years of age, and then cautiously. Never give tea, coffee or alcoholic liquors. Too much food is worse than too little. Do not disturb infants unnecessarily with too much fondling, etc. If a diarrhea comes on, stop all milk at once and give whey. Call your doctor at once.

Discussion.—C. F. WAHRER said each case is a separate study. There are two reasons why babies are affected by hot weather: (1) Because heat increases putrefaction changes in food, and (2) heat increases tension on nervous system, causing baby to worry. In support of this last statement it was cited that in many cases of this nature the administration of bromids does good. He could see why thousands of infants were poisoned by impure milk if many dairies were as one he saw near the Yellowstone, in California, where the cows were corralled in a pasture knee deep with mud and manure. He also thought a great factor is the social condition of the mother, who is often compelled to do hard menial labor while nursing a baby in the heated season. The keynote of progress is education. LINDSEY (Boulder, Col.) said her experience of 40 years of a country practice has taught her the average poor farmer would willingly pay more for doctoring a sick colt than a sick baby. FAIRBANKS (Boston) asked the essayist to state just how long he would advocate keeping the sick child on whey. Also to state exactly what he considered proper indications for stopping milk. COTTON (Chicago) emphasized the value of circulating pamphlets among the laity. Said they might appropriately be illuminated, framed, and hung up along side of the family pictures. Always look for the little things that cause the trouble, it may be a faulty method of feeding, a habit of nursing too rapidly, regurgitation, etc. It was to him a significant fact that mothers' milk in summer does not contain more water than in cold weather, hence he questioned the propriety of adding a larger percentage of water to the milk given during heated season. Make the baby take its food slowly. WELLS (Yakima, Wash.) asked essayist to state just how long he would keep baby on barley water. Instead of condemning all use of alcoholics in any form, he advocated the use of panopeptone with a few drops of brandy for a few days, and thought it had done well in his service. Chairman MORSE (Boston) objected to the title of the paper, saying he thought it should read "Diarrhea of Children in Summer," because he thought that "Summer Diarrhea" was no different from diarrhea in winter. He said pasteurization in open vessels favored growth of bacteria, but in closed vessels it did not. He did not favor putting a sick baby on whey, because whey has the same composition as milk. In closing, OSTHEIMER said it was his custom to keep the child on barley water, etc., to the exclusion of milk, for from 24 hours to 48 hours, and then begin to add milk cautiously. It was not usually necessary or desirable to use brandy with the panopeptone. His rule was to stop all milk at the very first signs of gastrointestinal disturbance.

[*To be continued.*]

Ophthalmology.

FIRST SESSION (CONTINUED).

The Physiologic Action of Dionin.—W. H. SNYDER (Toledo, Ohio), after explaining the pharmacology and the physiologic action of dionin, described a number of experiments bearing upon its action on tissue and cells. The albino rabbit, medium size, was used; dionin in powder placed in each eye in larger quantities than would be necessary if the eye were abnormal; rabbits killed; globe and tissue enucleated, placed in formalin 4% for 48 hours and later sections made from cornea. Control specimens were also made from normal rabbits' eyes. Pictures of the findings were projected upon the screen, showing the usual signs of general edema, vacuolation of the cells in the epithelial layer, the sections appearing waterlogged and hazy. The lymph spaces were changed in shape and dilated. No absorption of cells as in edema of long standing. The surface uneven and the general picture that of edema of the cornea. He concludes that the action of the drug is purely local—greatest where the drug has actually rested; that its most marked action is in eyeballs where the tension is increased; that it has some disassociating action on the intracellular cement substance, allowing a transudation of serum from a globe under pressure; that its analgesic action is explained by its lessening of tension and the wellknown action of the derivatives of opium. In iritis with adhesions, plus tension, the use of dionin lessened tension and permitted absorption of the mydriatic with prompt relief of pain and dilation of the pupil. In corneal ulcers the repair process begins as soon as the ulcer is cleared. The more recent the inflammation and higher the tension the better the results. In beginning pannus he had cleared up the cornea and resisted permanent opacity more satisfactorily than with any previous treatment, the lid, of course, being treated for the cause. In glaucoma he preferred it to eserin, relief from pain being very marked, due he thought to relief from pressure. In old vitreous opacities he had had poor success.

Discussion.—E. V. L. BROWN (Chicago) called attention to the fact that a recent German investigator had found that dionin did not affect all animals. Experiments had been made with dogs, rabbits and cats. The cats were not affected at all. SNYDER, in closing, said that the effect was very slight in rabbits, requiring a great deal more of the drug than the human eye.

[*To be continued.*]

Nervous and Mental Diseases.

FIRST SESSION (CONTINUED).

The Localization of the Higher Psychic Functions, Especially with Reference to the Prefrontal Lobe.—CHARLES K. MILLS and T. H. WEISENBERG (Philadelphia) divided the cerebral cortex physiologicly into the following areas of representation: (1) Of sensations and of movements; (2) of concrete memories; (3) of abstract concepts and higher psychic functions in general. The authors commented on the views of Gail and stated that he confused the fundamental cerebral function and cerebral epiphenomena. Detailed evidence from comparative physiology and histology, physio-

logic experiments and clinicopathologic records and the study of biologic principles were presented, and the significance of the localization of centers for speech, writing, etc., and the bearing of general psychic localization considered in detail. The work and views of Hughlings Jackson, Ferrier, Schafer, Phelps, Wundt, and others, was reviewed and commented on and a case of lesion of the prefrontal region occurring in a man of 71 was reported.

Discussion.—H. A. TOMLINSON (St. Peter, Minn.) stated that his experience confirmed that of the authors of the paper, and that the degenerative symptoms were first noticeable in that portion of the brain which had been most active. He then referred to the postmortem findings in a number of cases of this character which had come under his observation. WILLIAM HOUSE (Portland, Ore.) reported four cases which had come to autopsy under his observations, illustrating and confirming the points made by the authors. In one of these cases the injury was caused by a bullet wound and in three others the condition was due to a foreign growth in the cerebral region, one of a sarcomatous and another believed to be of the carcinomatous variety.

[*To be continued.*]

Stomatology.

FIRST SESSION.

Address of the Chairman.—VIDA A. LATHAM (Chicago) said: The oral cavity bears an important relationship to medicine and surgery. Many pathologic conditions of the mouth are due to constitutional causes, and many constitutional disturbances are directly due to neglect of the mouth and teeth, and consequent autointoxication. Many gastrointestinal diseases and respiratory affections are due to infections of the mouth. Tuberculosis of the tonsil in children, adenoids, and mouth breathing are all antecedents of tuberculosis. Proper care of the oral cavity will lessen stomatitis, gastric and intestinal outbreaks in public institutions. This should emphasize the necessity of a dental staff for all public institutions. The mouth should be very carefully sterilized before operations, otherwise infection and very serious results may follow. Parotitis has been known to follow laparotomies. Deformities of the jaws and teeth are often the cause of indigestion and disturbances of nutrition, due to interference with mastication. Decay of the teeth and pyorrhea may cause deformity by allowing the teeth to change position. Jewish children have much better teeth as a rule than Gentile children. The percentage of carious teeth is vastly greater among the Gentiles. The care and development of the teeth in childhood are most important. Nerve-end degeneration is often the cause of carious teeth. There should be a central bureau for the study of scientific and pathogenic specimens that might be sent from various parts of the country.

Discussion.—M. L. RHEIN (New York) was in thorough accord with the idea of a central bureau for scientific study of pathogenic or other specimens that might be sent from various parts of the country. EUGENE S. TALBOT (Chicago). The average dentist does not see anything in relation to his specialty but the mechanical side. Within the last few years certain men in this country have demonstrated that there is hardly a pathologic condition of the mouth that is not due to some constitutional cause. Perhaps the most important point in regard to this question is the treatment and care of the mouth during development of the child. Almost all of the deformities and pathologic conditions of the mouth can be produced by a want of proper nourishment. The first period of stress is probably the most important in the development of the child, and deformities of the jaws, irregularities, etc., are apt to occur when the tissues begin to form. Autointoxication and mouth infection are important causes of disease, and the time has arrived when if our specialty is to take rank with the other specialties of medicine, that these important points must be considered. M. I. SCHAMBERG (Philadelphia) does not advise extraction of abscess teeth invariably, but they require active and prompt handling, and no good can follow delay. There are few children in school whose teeth are not badly neglected, and there is necessity for united effort throughout the country. MARSHAL (Atlantic City, N. J.) said diseases of the mouth are usually those of neglect. We make the mistake of not beginning early enough with the children. Many gastrointestinal diseases and many diseases of the respiratory organs are due to infections from the mouth. G. V. I. BROWN (Milwaukee) said stomatology is in a state of evolution; there must be education in five different directions; the stomatologist must himself be educated; the members of his profession must be better educated; the general practitioner of medicine should be educated in this direction; the people should be educated and the patient should be educated. LATHAM, in closing, said every student should be trained as a physician, and then let him specialize. Her experience with girls about the age of puberty is that many cases of chlorosis come with inflammation of the gums, and ultimately lead to pyorrhea. If the medical man could be trained on early symptoms of pyorrhea she believes much good could be done. She believes some day the need of dental bibliography will be seen. None of us know the etiology of half the mouth infections, and it is only by cooperation of both the medical and the dental branches that the best results can be obtained.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 184.*]

Presentation of Instruments.—CHEVALIER JACKSON (Pittsburg, Pa.) exhibited a number of new instruments, including a bronchoscope, an esophagoscope, a tracheoscope, a laryngopharyngeal speculum, and a long forceps, and gave a practical demonstration of their use.

THOMAS J. HARRIS (New York) asked Jackson whether the lamps in the instruments he had shown worked properly. He had heard the criticism made that because of deposits of mucus, or for other reasons, the lamps frequently went out in the course of the manipulations, and on that account some operators had gone back to the use of a good reflected headlight.

A New Septum Cutter.—WILLIAM L. BALLENGER (Chicago) showed this instrument, and demonstrated its use. It was devised for the purpose of facilitating the submucous window resection of the nasal septum. The mucous membrane was first incised and elevated, and then a small incision was made in the septum. The septum cutter was then introduced, and the operation was rapidly completed. By means of it, a window resection of the septum could be done in a very few minutes. Ballenger also showed an improved tonsillar snare for the partial removal of the tonsil.

An Improved Head Lamp.—J. A. STUCKY (Lexington, Ky.) said that one great desideratum in the nasal sinus and mastoid operation, as well as operations within the pharynx, was plenty of light without too much heat. He considered the lamp he showed an improvement on the Jackson lamp in that it did away (1) with the metal reflector; (2) it fitted the head comfortably and could be worn for hours with ease; (3) the 16-candle power lamp used did not produce as much heat as the ordinary 10-candle power; (4) the lamp could be removed or adjusted by an assistant without the operator touching it.

[*To be continued.*]

AMERICAN SURGICAL ASSOCIATION.

Twenty-sixth Annual Meeting, held at San Francisco, Cal., July 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 184.*]

Exophthalmic Goiter Treated Surgically.—THOMAS W. HUNTINGTON (San Francisco, Cal.) said that during the past three years he had treated surgically nine patients suffering from exophthalmic goiter. In each instance partial ablation of one or both lobes of the thyroid was done, and one patient was subjected to three operations successively. Seven were females and two were males. The ages ranged from 28 to 56, the average age being 42. In five patients the development of symptoms of Graves' disease was associated with preexisting enlargement of the thyroid. Two of these were cysticocolloid. In four, the development of characteristic symptoms was simultaneous with glandular hypertrophy. All of these were colloid. In the five cases in which the exophthalmic condition developed secondarily, preexisting glandular hypertrophy was noted during a period of 6, 10, 34, 35, and 13 years respectively. In this series, exophthalmic symptoms had been noted 1, 2, 3, 2, and 2 years prior to operation, the average being 1¼ years. Duration of symptoms in the primary or pure Basedow cases prior to operation was 2 years, 3 months, 2 months, and 1 year, the averge being 7¼ months. In this series, eight patients survived the operation and were now living. One patient died on the twelfth day. The eight living patients were carefully watched and their status definitely recorded up to date. The author gave a detailed account of each case as it occurred. A wider experience in this particular field had increased his faith in the value of surgical interference in carefully selected cases, and in conclusion he repeated what he wrote in an earlier communication, namely, the argument for early operation in malignant disease applied here with equal force. Extirpation should be undertaken before destructive changes had occurred, before the function of important organs was seriously, perhaps permanently injured, and the patient's vitality lowered by chronic thyroid intoxication.

A Review of 500 Cases of Gastroenterostomy, Including Pyloroplasty, Gastroduodenostomy, and Gastrojejunostomy.—WILLIAM J. MAYO (Rochester, Minn.) stated that this included all the cases operated on by Charles H. Mayo and the writer during 14 years, in which an incision was made in both intestine and stomach, and plastic union established to increase gastric drainage. The deathrate gave every patient dying in the hospital without regard to the cause of death or the length of time after operation. Of pyloroplasty there were 21 cases with no deaths, and 7 reoperations. Pyloroplasty had only a small field of usefulness. Finney's gastroduodenostomy, 58 cases, 4 deaths—2 from other causes at a late date; only 1 death in the first 46. The author said that there was a large field of usefulness for this operation in narrow stricture follow-

ing healing of ulcers, but it was less useful in unhealed ulcer. Of gastrojejunostomy there were 421 cases; benign, 307; deathrate, 6%. Last 140 cases, 4 deaths. Malignant, 114; deathrate, 18%. In the last 40, including radical operations for cure of cancer, 5%. Murphy button, 157 operations, 139 anterior, and 18 posterior. This was the operation of choice after pylorectomy and partial gastrectomy. McGraw ligature, 36 operations. This was the operation of choice by the anterior method in gastrojejunostomy for inoperable cancerous pyloric obstruction; 228 posterior suture operations. Robson's bone bobbin, 16 operations, with 1 death. Mikulicz operation, transverse incision, 43 operations, with 4 deaths and 4 secondary operations. Moynihan operation on 9 in. loop, 53 operations, with 3 deaths; 7 reoperated for chronic bile regurgitation within 15 months. Roux-Doyen operation, 48 cases, 2 deaths, 2 secondary operations. Operation of choice was the Moynihan-Peterson without a loop; made by suture within 3 in. of the origin of the jejunum and obliquely on the posterior wall of the stomach with the inferior margin at the greater curvature near the junction of the pyloric end with the body of the stomach. Last 80 gastrojejunostomies for benign disease, only 1 death.

A Simple Aseptic Surgical Technic.—DUDLEY P. ALLEN (Cleveland, O.) related observations which were based upon a series of 377 bacteriologic examinations of the hands, made at the close of operation, and upon the clinical results obtained in 3,500 cases. The bacteriologic investigations were conducted in five series. In series "A" the cleansing of the hands was with soap and water, scrub brush and nail cleaner. The hands were then sterilized in Harrington's solution. In operating, the hands were encased in rubber gloves in which was sterile water. Twenty-six observations were made by taking cultures from the hands at the close of operation. In each case the cultures were negative. In series "B" the washing of the hands was as in series "A." Twenty-four observations showed that cultures were negative in each case. In series "C" the washing was as in series "A," with the addition of thorough subsequent washing in 70% alcohol. In 42 observations *Staphylococcus pyogenes albus* was found in 8 cases, or in about 20%. The conclusion reached was that alcohol was not efficient as a disinfectant and did not prevent the development of bacteria within the rubber gloves containing no germicide but simply sterile water. From these observations it would seem probable that if bacteria developed upon the hands sterilized by alcohol, when in gloves containing simply sterile water, they would develop in the same manner upon the hands prepared in the same way if encased in dry gloves with powder, as the hands became moist with perspiration. In series "D" the hands were prepared as in series "C" and then washed in a solution of mercuric chlorid 1 to 5,000 and encased in rubber gloves containing the same solution. Sixty-four observations were made. All were negative except one. In this were found *Staphylococcus pyogenes albus*. In series "E" the hands were washed as in series "A" and then thoroughly washed with a solution of mercuric chlorid, 1 to 5,000, and encased in rubber gloves containing the same solution. One hundred and two observations were made. The hay bacillus was found in one case. In series "F" the hands were washed as in series "D," and then cleansed in a solution of mercuric chlorid, 1 to 3,000, and encased in gloves containing the same solution. Seventy-five observations were made. *Staphylococcus pyogenes albus* was found in a single case. The clinical observations were made upon a series of 967 laparotomies. Of these 687 were clean, and 288 were septic before operation. There were 2,533 operations other than laparotomies. This gave a total of 2,139 clean operations. For the purpose of study, the clean cases only were taken, since the question of asepsis evidently could not be studied in cases septic before operation. Tables were presented showing the results obtained in all of the various series of operations, as in hernia, varicocele, varicose veins, and laparotomies of all kinds, and other miscellaneous operations. The results showed from the whole series of 2,139 clean operations but two deaths from sepsis. Erysipelas developed but once. Stitch abscess occurred in 58 cases, or in about 2.25%. The method of cleansing the hands finally adopted was to wash them thoroughly with soap and water, using the scrub brush for the palms of the hands but only slightly upon the backs of the hands, and never upon the arms, the object being to avoid irritation of the integument. The nail cleaner was used only beneath the nails, and not around the bases of the nails. The hands and arms were then washed in a solution of mercuric chlorid, 1 to 5,000, and encased in rubber gloves containing the same solution. His belief was that the continued action of the solution of mercuric chlorid in the gloves was a fundamental safeguard in preventing the development of bacteria within the gloves during operation. That this was true in practice was shown by the results obtained in the large number of cultures taken at the close of operation. The conclusions reached from the various series of cultures and clinical cases were: (1) Harrington's solution, although efficient, was undesirable, since it caused marked irritation of the hands and arms; (2) washing of the hands and arms should not be too violent, and the use of the scrub brush should be confined to the hands. The arms should be washed by rubbing with gauze or a towel. The use of the nail cleaner about the base of the nails was unnecessary. Alcohol was not adequate as a germicide when used upon the hands. A solution of 1 to 5,000 mercuric chlorid used after washing to disinfect the hands and arms, and then used in the rubber gloves, was thoroughly satisfactory in protecting against the development of bacteria within the gloves during operation. The rubber glove was a guarantee of safety, not only to the patient but to the operator himself, when operating upon infected wounds. A mask over the face was not necessary.

Intussusception.—MAURICE H. RICHARDSON (Boston, Mass.) reported a case of intussusception in a boy of four. Vomiting and pain, with intestinal obstruction and a tumor in the left abdomen, suggested very strongly the diagnosis. The operation showed an invagination of the small into the large intestine so firm that reduction seemed impossible. The child's condition was so bad that an enterostomy was performed, in the hope that a cure would be effected by spontaneous sloughing of the invaginated gut, life meanwhile being maintained through the enterostomy. Unfortunately, the child died at the end of 18 days, the immediate cause of death being a purulent bronchitis. At the autopsy no trace of intussusception could be found. A careful search through the literature showed no case of spontaneous reduction of an intussusception in which the chain of evidence was absolutely complete. In this case, the diagnosis made before operation, and demonstrated before the staff of the Massachusetts General Hospital and a large audience, was unassailable. The lesson taught by this case would seem to be that greater efforts should be made for reduction, either by hydraulic or air-pressure through the rectum or by manipulation after the abdomen had been opened. In the reader's experience, however, the results have been fatally compromised by just such efforts. It seemed, therefore, questionable whether, in view of the great rarity of spontaneous reduction and of the almost universal failure of the milder palliative measures, one will ever be justified in selecting any but those operative measures, which, undertaken at the earliest possible moment, cannot fail to remedy completely and effectively the disease.

Constriction of the Duodenum below the Entrance of the Common Duct and Its Relation to Disease.—A. J. OCHSNER (Chicago) said that in a series of cases operated for the relief of cholecystitis it was found that there was frequently present a constricted condition of the duodenum just below the entrance of the common duct. This was usually accomplished with dilation of the duodenum above this point. The dissection of a number of cadavers demonstrated the fact that there was present a marked increase in the circular muscular fibers of the duodenum beginning at a point from 1 cm. to 3 cm. below the entrance of the common duct, and extending for a distance of 1 cm to 4 cm. forming a broad sphincter. It seemed likely that this sphincter had much to do with the physiologic function of the duodenum, facilitating the mixing of chyme with bile. It also seemed likely that this sphincter served the purpose of establishing a condition of rest in this portion of the alimentary canal in case of irritation of the biliary or pancreatic ducts. The paper was fully illustrated, and the author gave a tabulated list of 14 cases of dilation of the duodenum which he had met with among his patients operated for the relief of gall-bladder disease.

Perforation of the Gallbladder.—ARCHIBALD MACLAREN (St. Paul, Minn.) reported 10 cases, and said that gallbladder perforations were comparatively rare, especially if observations were confined to ruptures due to violence, ulceration and gangrenous inflammations. But if we added to these the cases of cholecystitis in which inflammatory products had evidently escaped from, or passed through the wall of an inflamed gallbladder, even though we may not find the perforation itself, the number of cases was considerably increased. Such abscesses about the gallbladder either in the free peritoneal cavity or in the neighboring liver tissues were rare as compared with appendiceal abscesses; but were not uncommon and unquestionably should be included when studying perforations of the gallbladder. Fistulous passages between the gallbladder and duodenum, stomach or colon were, of course, due to perforation of the gallbladder. Most perforations of the gallbladder occurred in neglected cases where gallstones had been known to exist for long periods of time and where the patient had had ample warning through many attacks of biliary colic. Of Robson's 539 operations on the gallbladder and bile ducts, 25 of these cases could be fairly said to be perforative in character. Mayo, in 328 cases, found 16 perforative cases. Ochsner, in 48 cases operated upon, found one perforation. He had operated upon 80 gallstone cases, 9 of which were perforative in character and one postmortem, making a total of 10, which seemed a large proportion as compared with other lists of cases already on record. There were 8 recoveries and one death. In this fatal case, he believed that the result would have been the same even though the gallbladder had been removed because with gangrene of the gallbladder and neighboring liver tissue, and especially in the presence of a localized abscess, any operative work which disturbed the abscess wall would only have spead the infection and lessened the chance of recovery. He believed that in any perforative case which had gone on to the formation of a localized abscess, the wisest course was to open and drain the abscess, waiting until a later time to deal with the gallstones or the disease of the gallbladder.

EMMET RIXFORD (San Francisco) read a paper in which he discussed the subject of **excision of portions of the chest wall for malignant tumors** and reported cases upon which he had operated.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SEVERE CASE OF TETANUS CURED BY HEROIC DOSES OF TETANUS ANTITOXIN.[1]

BY

CHARLES F. DAVIDSON, M.D.,

of Easton, Md.

Formerly a member of the State Medical Examining Board.

I report the following case of tetanus, not only because of its severity, but because it was so promptly and so satisfactorily relieved by a vigorous, and I might say, fearless use of tetanus antitoxin after smaller doses had failed to give the desired results:

Henry Trax, aged 12, was brought to my office Sunday, July 3, 1904, with his left eyelid and brow swollen and red. He gave me a history of getting *poison oak* wrapped around his head three days before. An eruption appeared two days after he came in contact with the poison oak, and just after the eruption appeared he went in bathing in a pond which was frequented by cattle and hogs. I diagnosed poison oak eruption, and gave him treatment accordingly. Monday morning, July 4, he came again with both eyelids and brows swollen and red. Tuesday, at 5 a. m. I was called to see him; I found the front of his head not so red or swollen as the day before. He had just had a chill; temperature, was 105°; pulse 120. The family said he had had three chills since midnight. I found pus above and just external to each orbit; incisions at these places let out about a teacupful of pus; a small soft place in the middle of the forehead at the beginning of the hair was opened and another lot of pus was discharged; a flexible probe passed in this place could be felt at the base of the occipital bone, and I found the scalp on the whole right side of his head loose from the skull; the head was shaved and six or eight openings were made.

I began at once to use hypodermically antistreptococcic serum; that afternoon the temperature was practically normal; the next morning the temperature was up to 105°, and I found pus the whole length of the left arm; shoulder, elbow, and wrist were freely opened and a quantity of pus discharged; 20 cc. of antistreptococcic serum was injected four times a day during the next two days, together with stimulating and nourishing treatment, baths, etc.; from then until the following Saturday, July 9, the patient did well, temperature not running above 101°. That day, which was the ninth day after the bath in the pond, while I was dressing him I noticed a peculiar contraction of the muscles of the body, and particularly those around his mouth; the nurse said she had first noticed these contractions about 12 hours before this. Just as I was about to leave the room he had a regular tetanic convulsion lasting ten minutes; during this he was pulseless and covered with a cold clammy sweat.

I was unable to get the tetanus antitoxin until 12 o'clock the next day, and by that time the patient had nine convulsions. From the time I began the tetanus antitoxin (12 o'clock on Sunday) until 6 a.m. Tuesday, I gave him 20 cc. of tetanus antitoxin every four hours, and during that time he had seven convulsions. At 5 a.m. Tuesday I was called, and found him in opisthotonus, pulseless, cold and clammy, every muscle in his body moving. The temperature was 107.4°; the nurse said the convulsion had come on at 3 a.m. I gave him 60 cc. of tetanus antitoxin under the scapula, and in an hour after this I gave him 40 cc. more; in an hour after this second dose the convulsion ceased and the temperature was 100°, pulse 90. At 12 o'clock that day I gave him 40 cc. more; he had no more convulsions, and has had made a slow but steady recovery.

The condition of the boy today shows the virulence of the pus. Although I discovered the pus under the scalp within 24 hours after it formed, and made so many incisions that there was free drainage, yet the skull was attacked in that little while, and since his illness I have removed between 40 and 50 pieces of the external table of the skull; pieces are still working loose. Almost every week I take out a small piece. Only one piece, however, included all three tables, and that one but the size of my thumb-nail.

From the first convulsion until I began the tetanus antitoxin, 24 hours elapsed, and he had nine convulsions. During the next 40 hours I gave him 20 cc. every four hours and he had seven convulsions.

During the first 24 hours after I began to use antitoxin, the convulsions were not so severe and at longer intervals. After this they gradually increased, although the antitoxin was kept up until one came on that I thought must end his life, then I gave a 60-cc. dose, followed in an hour by one of 40 cc.; it was then I got the happy result of no more convulsions, and from day to day I have seen my patient gradually restored to health.

The case was one of interest: 1. Because I had a double infection with which to deal, streptococcic infection and tetanus. 2. The source of the infection; so far as I could determine, this was in the pond, and must have gotten into the system through the skin where the boy had the poison oak eruption. 3. The extreme virulence of the infection, as shown by the amount of dead bone taken from the scalp, although it was so thoroughly and so quickly drained. Another interesting feature was the satisfactory result obtained when large doses of tetanus antitoxin were used, after the ordinary prescribed doses had utterly failed to give the relief desired.

[1] A paper read before the Medical and Chirurgical Faculty of Maryland, April, 1905.

RACE SUICIDE.

BY

J. R. ALLEN,

of Covington, Ky.

The real reason for the decrease in the birthrate of this country lies in the slight value placed on human life in its early stages. That a human life begins at the moment of conception cannot be controverted. The human embryo at all stages of its development is a human being, the Church and science both agree on this point, yet all over the country are prospective mothers—otherwise moral, of good standing in the community, who are willing, even anxious, to murder their own children, or have them murdered in the most helpless stage of existence, merely as a matter of convenience, because "they want to enjoy life unhampered by the cares of maternity."

The ease with which the destruction of the human embryo can be secured is appalling; it is probable there are six persons in every city of 20,000 willing to murder the unborn child for a fee. In addition to this, the daily press widely advertises specifics for this purpose. A campaign of education on this subject is urgently needed, and it is too important to be avoided on the plea of modesty. Every girl, before maturity, should be taught the physiologic fact that a human life begins at the moment of conception, and that whoever ends that life, however early in its career, is guilty of murder, and whoever seeks to end that life and succeeds is accessory to murder.

The integrity and morality of our social structure are threatened because of the ease with which pregnancy can be interrupted. If a single unmarried girl is compelled to bear her child (which has a perfect right to live), she becomes an object-lesson that will keep hundreds straight; whereas one girl who escapes her responsibility may send others on the path she has followed. For the married woman who secures the murder of her unborn child there is no excuse and no palliation. We can only hope her sin against nature is due to ignorance. The number of reputable women who look with indifference and with indulgence on this crime is startling.

As to treatment, the nation should take a paternal form: 1. The use of the mails should be absolutely forbidden to all advertisements of doubtful character, whether carried in influential newspappers, or sent by circular. 2. All abortionists should be put under the surveillance of the National Secret Service Department, and all their cases be tried in the United States courts. Abortionists do more harm than counterfeiters, postal frauds, or moonshiners. 3. The legal ban should be removed upon socalled illegitimate children, for, naturally, one child should have the same right to live and to inherit as another, and if it is found these children cannot have proper care at home, they should become wards of the nation.

The Profession and the Aged.—The medical profession of the future will find its best exponent in the service of senectitude. An old age without illness or dementation, a ripening without decay, a completion of the functional activity without the breaking down of any organ, are steps toward which the medical profession of the future may well direct its energies.—[DR. H. W. WILEY.]

ORIGINAL ARTICLES

THE NORMAL MALAY AND THE CRIMINAL RESPONSIBILITY OF INSANE MALAYS.

BY

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Plattsburg Barracks, New York.

Surgeon United States Army.

The Judge of the Court of First Instance, in the seventh judicial district of the Philippine Islands, asked me to make a professional examination of a certain epileptic (E. H.), aged 15½, under trial for murder, and to give expert testimony, with the view of assisting the court to determine whether or not the accused was mentally responsible for his act. This paper is an outgrowth of the facts elicited in that examination.

About November 1, 1902, a boy of about 15 was missing from his home in Batangas Province and five days later his half-buried body was found about 100 yards from the house of the accused. By the side of the corpse was the sheath of a bolo (large chopping knife used in all domestic purposes like a hatchet), recognized as belonging to the accused, who was thereupon arrested. His mother testified at the trial that upon the day of the disappearance of the deceased, her son came home with bloody hands, and upon questioning, he told her that he had just killed the deceased. There was no witness to the act and the prosecution had to depend upon the above facts.

The accused stated, under oath, that he had met the deceased, who had accused him of stealing fruit from the orchard of the deceased's uncle, whereupon he charged the deceased with stealing fruit from him, the accused. The deceased then struck him with a club, and he struck back with the flat of his bolo, and in the ensuing fight he found he was being overpowered and he then struck the deceased twice on the neck with the edge of his bolo, felling him to the ground; the accused then went home, returning about an hour later to find the dead body, the victim having died in the interval. He then dug a grave, buried the body and went home. He did not seem to conceal any fact and was perfectly open in all his statements, which did not vary on cross-examination.

The accused had a couple of convulsions in the court room, and in one of these I was present and recognized an epileptic



seizure (grand mal) of ordinary severity. The testimony showed that he had had convulsions since about eight years of age, and that about the time of a fit he would often attack those near him, but in the prison, where he had a convulsion every day, he never showed this tendency. The mother stated to me that these attacks upon bystanders always occur after a convulsion and that he then falls asleep. It was very difficult to talk through two interpreters—Tagalo to Spanish and Spanish to English—and we could not elicit exactly whether it was a real attack on people, of the nature of a postepileptic mania, or was merely the struggling of a convulsion. But it was never before the convulsion, and at the day of the murder he did not have a seizure until two hours after the murder and a second one four hours later (2 p.m. and 6 p.m.). So the tendency to attack people can have no bearing upon the murder.

I saw in this case an illustration of the impossibility of applying medicolegal precedents found proper in dealing with higher races, and the necessity we are under in this, as in all other governmental matters in the Philippines, to strike out new paths. This paper is written with a view of calling attention to the extreme difficulty of administering legal methods according to our ideas at home.

Acts which we abhor are perfectly normal for these Malay people, on account of their savage brain. Most of them, by the way, have been in contact with civilization only about 50 years to 150 years, about as long as our savage Indians, and some have never had civilizing influences. There is no appreciable change in the brain in several centuries, so that they are still savages, with a brain capacity of from 60 cubic inches to 80 cubic inches, or thereabouts, authorities differing very markedly in their estimates. It is safe to say that Americans



on an average have 20 cubic inches or 25 cubic inches of brain more than this. So we must look upon Malays as savages in mind, though some of them have money, know how to speak Spanish, and wear fine clothes. One must not confuse their condition with that of our own savage ancestors, who were a very brainy race, and though we call them savages, and the Romans called them barbarians, yet they had a high civilization which archeologists believe extended back probably so far as 5,000 B.C. Rome was a sudden upstart of the same people, blood relatives of Teutons. The Germans, whom the legions met, were a well-organized, well-armed, brainy, civilized people, who subsequently made a more rapid and much greater stride in advancing civilization than the Roman branch did. But they all had the brain to work with, a brain which required many millenniums to develop by natural selection, but our poor Malay, as to higher mental functions, is of a very low type, has been so for many millenniums, and will remain so forever.

The savage brain functions in a way we have not yet understood, and our mistake has heretofore been to consider that it is the same as our own, but merely untrained. We seem unable to escape from our early view that men are born mentally equal, or will be made equal by education. If the Malay and the civilized man are given a series of facts upon which to base an opinion, they may come to different conclusions, wholly at variance. We call the Oriental a mystic, and we have long ceased to try to fathom the ways of the Chinese, or understand their reasoning, though the Chinese nation contains a large number of very intelligent men.

If some Malay soldiers are each given an anting-anting, or amulet to make them bullet-proof, and half of them are killed in the first battle, we conclude from the facts that there is no protection in an anting-anting. They conclude there must be something wrong with the string, or the amulet was turned wrong side forward, or it had been bewitched by an evil-minded person.

The savage cannot help introducing into each syllogism a false independent idea, and he is just as logical as an insane man with a systematized delusion

based upon a false idea. Every alienist knows that the logic of many insane, particularly the paranoiacs, is perfect, only it is based upon a preexisting false idea which is ineradicable. The logic of the paranoiac Guiteau was perfect, but it was based upon ineradicable false ideas which led him logically to commit the crime for which society said he should die, whether the alienists approved or not. Likewise, the savage does apparently illogical acts based upon false ideas which are not delusions, but are the product of a healthy though very inferior mind. For instance, when cholera appeared in the Philippines, and we fought it successfully in many places, we concluded our methods were good. Many of the Philippine physicians and priests concluded that, as so few people in the cities died, the disease was not cholera, and they logically advised that all precautions should cease. It is the commonest thing for Americans to deny the existence of contagious disease and allow it to spread, but it is a logical act, deliberately planned to avoid some inconvenience or loss, even if we do injure or kill others thereby. There are no false ideas about the matter at all, as it is the normal selfishness of human nature.

The false ideas of savage minds cannot be eradicated at present, and we cannot expect these men to do the right thing, for they are as dangerous to themselves and their fellows as the paranoiacs are among us. Yet it might be said that false ideas are very prevalent among us, and so they are. There are a million people in America with implicit faith in Christian science. There are millions who believe that if the Government stamps a piece of paper or base metal, that the stamp gives it value; indeed, one could write a book on popular false ideas. The point is this, it is generally only a very small minority which holds to any one false idea, and they gradually relinquish it. The weight of the majority convinces in the end, and fads disappear. In a savage race a false idea will become universal at once, and be held in spite of evidence. They cannot release the idea



any more than a child can release the idea that the stars are very near the earth, and that the world is small and flat.

The more absurd the proposition the easier it is, apparently, for the Malay to accept it. Consequently he is victimized by innumerable fraudulent schemes. Alleged holy images of the Virgin are manufactured to extort immense sums from the credulous, who believe any stories of their miraculous powers. Only recently an alleged society was discovered which for a fee promised the natives exemption from all taxes and all health regulations and guaranteed an honorable mention in Washington. Men convicted of crimes, but released by amnesty, have had no difficulty in convincing other natives that they were released through bribing the courts. In Batangas we noticed a native rain dance, evidently Malay in origin and modified by Christianity by having an image of a Christian saint to dance before, instead of the old idols. There is such a dread of famine that they pray for rain after the planting, which is done at the end of the dry season in May and June. They have probably done so for ages, and they were beating a tomtom exactly as American Indians or African negroes. They have implicit faith in the prayer or dance for rain, and my servant told me that when they dipped the Saint in the water the previous day it rained within thirty minutes. Among higher races we find now and then a few people who have the same childlike faith in prayer for rain in dry seasons, but among the Malays, all believe in its efficacy.

Malays are children scientifically, for their development is about that of a child of 10, and they behave as children. In the courts, their practices, subterfuges,



excuses, denials of facts, avoidance of the spirit of rules while obeying the letter of them, and inability to see the truth or know its value, are precisely what we find among white children at home, and added to this there is a wonderful ingenuity in concocting falsehoods. It is an axiom of anthropology that lower races are in a state of arrested brain evolution, and that civilized children pass through all the stages found normally in adult savage ancestors. The natural causes which stopped their evolution many thousands of years ago, are now under discussion by anthropologists, but we may say in passing that if they are to grow more brain by 20 to 40 cubic inches, by the same methods which made ours grow —natural selection of the brainiest in each generation and destruction of the stupid—it will take many thousands of years. As a matter of fact they will never be more intelligent, but the reverse, from our philanthropic methods of keeping alive the most stupid by charity, —men who would naturally perish.

No educational system can increase their brain weight, but will train them to use their defective brains to more advantage. Our pedagogs at home are bewailing their utter failure to increase national intelligence, because they believed that education was to make our skulls balloon out to accommodate bigger brains. They have really been highly successful, and have done grand work in that they have made it possible, by mental training, for Americans to use their brains to great advantage. The trained but poor horse wins the race over a better but untrained one. A college graduate has an immense advantage over a man of superior intelligence who cannot use it effectively by reason of lack of training. The same wail comes from our Indian schools, which are now pronounced to be flat failures because they did not make the red boys grow "white brains." When the teacher saw the boys go back to the reservation and take up blanket life, they were much discouraged, but it was a very natural thing for these

boys to do, as they had the same "red brains" they possessed before they went to school. It is very regretable that educators do not recognize the fact that education will never make the brain grow larger. Our universities are forever preaching the doctrine that education is a panacea for national stupidity, and that if we will educate the negroes a sufficient number of generations, they will become white men. The false ideas following from this are very far reaching. Professor Frederic W. Atkinson,[1] who was Superintendent of Education in the Philippines, has written a very able article, calling attention to the tremendous difficulties of grafting an Aryan government upon the Malay, but he seems inclined to believe that in time the Malay's brain will enlarge under the process. He mentions that our negro question is still unsolved, and he could have surmised that the negro



will always be a negro with a brain many cubic inches less than the average white brain, and yet he concluded: "We have scratched a Malay, and at some future date we need not be surprised to find an American, at least in spirit, initiative and capacity." On the contrary, we should surely be surprised at such a violation of the laws of heredity. Some thousands of years hence, Malays will still be Malays, and white men will still be white men. Nevertheless, education has accomplished very much for the Indian, and will accomplish wonders for the Filipino, but it will never make either of them think like an Aryan.

The jury system is wholly unsuited to Filipinos. Even if they were friendly to American methods, a jury would occasionally bring in verdicts wholly at variance with facts. Even now, we may have gone a step too far, because we have made no provision to have white men always tried before white judges for alleged offenses—a rule we have found necessary in all other oriental countries. It is only within a few years that we have permitted the Japanese to try Europeans, and the Japs are much higher in intelligence than the Malay of the Philippines. At all other places, we have consular courts for such trials. In Batangas province recently, a white school teacher was arrested for punishing a refractory pupil in a manner which so far as known would be allowed by any school board at home, and then without a hearing or trial of any description, was sentenced to 15 days' confinement and actually submitted to confinement until released on a writ of habeas corpus. In Pampanga province, a school teacher became an object of popular hatred and the town unanimously demanded his removal because he had expelled a boy for filling all the ink-wells one morning with human feces. In Mindanao, teachers were stoned because they were believed to have poisoned the wells and caused cholera.

We now see why these childish savages cannot possibly understand our legal methods. The laws of evidence are absolutely beyond the comprehension of their "brown brains." Our system of jurisprudence has been of very slow growth, and its rules are the survival of the fittest for intelligent Anglo-Saxon freemen, but wholly inapplicable to races of less intelligence. The English did not understand this fact when they first established courts in India and their judges made very unjust decisions, because they trusted the sworn evidence. They found eventually that false swearing was normal among the natives, and that the most solemn affidavit was more apt to be a tissue of falsehoods than to be the truth. Indeed, the presentation of manufactured evidence became a fine art—a trade even. A false deed to a property, or any other kind of document, can be obtained at any time, and there are men who have adopted a specialty of making legal blanks with even the watermark of any required year made in the paper. Their jurisprudence now consists in roundabout methods of finding out what sworn testimony is false and what is true. As a rule, manufactured defenses destroy themselves by too much childish elaboration. For instance, a native policeman, accused of murder of a man with whom he had previously had other fights, would probably have escaped if he had merely stated he had been fired at and shot back, but he introduced his hat in evidence to show the two bullet holes. These were simply two tears made by some sharp stick and connected by a black line on the outside of the hat, and the black mark on chemic tests showed no evidence of lead, as it would if it had been made by the bullet. Another policeman implicated in this murder showed his hat, too, claiming a bullet went through it, but the holes had been cut out by a knife.

Our system of jurisprudence is based upon our ability to elicit the truth by means of an oath, and it grew up because public opinion recognized the binding nature of an oath, and because he who ignored it lost caste and was otherwise severely punished. In other races, where the



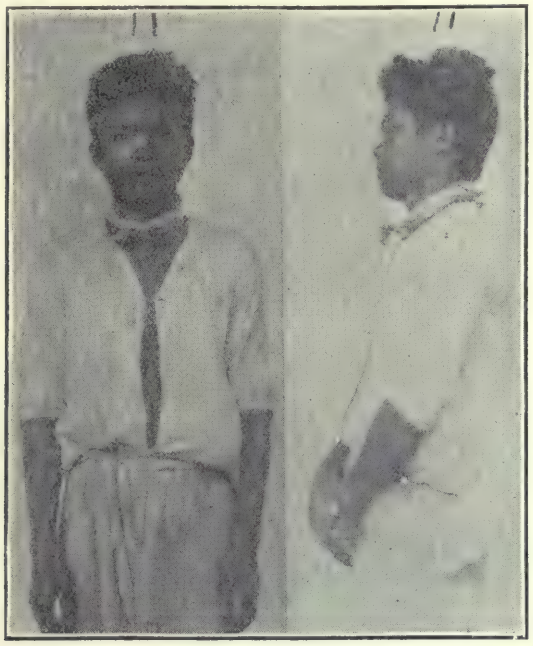
oath is not recognized as binding, other methods of eliciting the truth are evolved. These may be very cruel and brutal, as in China, but we cannot adopt such methods. Hence, we are without means now of getting at the exact facts in our courts, for the Malay considers perjury as a venial offence if not praiseworthy, and it is generally recognized that it is possible to buy with a few dollars any kind of testimony we wish and to convict innocent men. In course of time, of course, perjury will cease when it becomes too dangerous, just as murders of Americans are becoming very rare because it is too dangerous to kill white men. There is an interesting account of perjury among Hindus in Lord Macaulay's essay on Warren Hastings, which exactly fits the Filipino. It is said that the State of California had to pass ingeniously contrived statutes which prevented the accept-

[1] New York Tribune, October 30, 1904.

ance of the testimony of Chinese and Indians when opposed to that of a white man, and this subterfuge was scientifically correct and necessary.

Most of us went to the islands thoroughly imbued with the idea of the truthfulness of the downtrodden native, and it is even rumored that occasionally a judge would accept a native's sworn testimony in preference to an American's when their testimony was contradictory. When these judges found they had been imposed upon and the testimony upon which they had based their decisions was a tissue of falsehoods, they were much chagrined.

There has been an opinion expressed that for the trial of white men in the tropics there should be some kind of a jury of white American citizens in lieu of the consular courts elsewhere, possibly in the nature of a court-martial, but though it raises interesting psychologic questions, it does not concern us here, except to emphasize the fact that a jury of Malays to decide upon evidence is forever an impossibility. The sooner we recognize the differences between races of men, the sooner will we understand the new duties thrust upon us in the Philippines. The time is long past when one kind of legal procedures will fit all kinds of men in our possessions, and no one in the United States should insist upon such an unnatural uniformity.



The Malay, then, will commit crimes which are normal and natural for any childish savage. Captured soldiers have been roasted to death over slow fires; one is reported to have been spitted on a bamboo thrust through his body from mouth to rectum, roasted, and then fed to the pigs. Many a corpse has been found with the sexual organs cut off and thrust into the mouth. Many have been buried alive, others half buried, and something sweet smeared on the face to attract ants and flies. Suspected spies or American sympathizers have been hamstrung or have had their tongues cut out, cheeks split open or blinded by cutting the eyes open, and others have had their ears cut off. Many have been murdered for mere suspicion that they were American sympathizers and very many of these were not American sympathizers at all, but the lie was invented by a personal enemy in revenge for some past grudge. To have killed an Americanista (Malay, who sides with the Americans) is a great honor and our former native friends, in a few places, were subjected to persecution where the ex-insurgents secured local control of civil affairs.

Manduducot is the Tagalog word for professional murderers, who are sufficiently numerous to have required a special name and the demand for their services is great enough to keep the profession in existence. So far as known, they are engaged in other work, but murder is their occasional business, that is, whenever they have a call. They simply contract to receive a fee if a man dies and they dispose of him in any manner they please. A special small class of professional murderers are the poisoners called *Maglalason* (Tagalog). They are said to use a vegetable poison which acts something like rattlesnake venom, but very little is known as to the materials used. They are said to poison wells and streams, poison the fish, bows and arrows and the stakes used in pitfalls. The Malay thinks these are legitimate means of warfare and they were directed in general orders of the insurgent army. Malvar had to forbid poisoning the streams, because it was killing his own people. Poisoning is so well known that it must be a common procedure, a fact we should surmise from the necessity for a special word in a poverty-stricken language which has so few words that curious roundabout expressions are needed for the commonest objects. Murder is such an important matter that they have at least two other words for the crime, used according to the manner and instrumentality, and not as in English where the words indicate the relationship of the murderer to victim, as regicide, parricide, etc.

These facts illustrate the remarkable cheapness of life in all savage races. In their native state they must murder to live, for they are always encroaching on the hunting ground of others; and when they are subdued by a civilization which permits them to over-populate the country far beyond the means of existence, it is really a great advantage to have many killed off. A Moro Datto only voiced the general opinion when he replied to a white doctor's request for some volunteers to supply a little skin for grafting on a poor fellow of the tribe to save his life: "No, he is not worth it; let him die." Dramas in which murder is enacted seem to give exquisite delight to a Malay audience.

Like all savages, they delight in cruel deeds and seem to take pleasure in the sufferings of others. There are shrieks of laughter in an audience whenever a performing acrobat meets with a painful accident. If several men are carrying a heavy box and it slips from their grasp and crushes the foot of one of them, the others laugh inordinately at it as a fine joke. Cruelty to animals is also a normal trait. A carriage driver will try to run over dogs lying in the road and then laugh gleefully at the howls of the injured beasts. A Japanese driver or jinrickisha man will avoid a puppy in the road, even at the greatest exertion. A friend mentioned to me that he once heard prolonged agonizing groans, evidently from an injured cow, and upon investigation, he found one was being butchered. It is necessary to save the blood, as this country is suffering at all times from partial starvation, from lack of nitrogenous foods, and all animal foods are utilized to their utmost drop and they even dig up the dead horses we bury. So they had broken the legs of the animal to quiet its struggles, and had partly skinned it alive from the neck down, to form a pocket to hold the blood. The Igorrotes beat their animals (dogs and hogs) to death, claiming the meat is much improved thereby. All the details of savage cruelty in Malays have been long familiar to us as a normal trait of North American Indians. There is indeed a wonderful resemblance between some of these Malays and some of our Indians. I have seen Malay tribes which could not be distinguished from Apaches. They are branches of one main stock.

Now, in the arrested development of the white criminals who are degenerate, Lombroso and others have pointed out the numerous resemblances to savages.

Hence we see that acts denoting criminality at home are perfectly normal in the Malay, and this brings us to the point of the case at hand. There was no escaping the conclusion that the act committed by the accused showed no evidence of insanity, as it was one which is quite common among normal Malays. According to our home standards, we would conclude that such a cold-blooded manner after the offense was committed surely indicated abnormality of some kind, and so it would in a white boy, but not in a Malay. The story of self-defense is very shrewd, but it overreaches itself, for it fails to explain fully why the fatal wounds were in the back of the head and neck, though it was possible for them to have been thus inflicted in a fight. Fights are usually to death, even in an altercation which at home would merely result in a few black eyes. So that it is really normal for a man to kill his antagonist as soon as he can. Murders for trivial matters are so common among white criminals as to have elicited a great deal of literature in criminal anthropology.

To show the normal character of Malay criminals, I had a few photographs taken in the prison yard. No. 1 is a Manduducot, and he seemed to be the best looking and most normal man in the prison. I could find nothing abnormal about him. The same may be said of the two other murderers, Nos. 2 and 3, who also claim that their acts were defensive. This group of three are as good looking as average Malays, if not superior to the Malay workingman. It is to be noted that certain savage facial characters, high cheek bones, voluminous jaws, etc., mentioned by Lombroso as characteristic of his type of the born criminal, are seen here, but they are normal racial characters. Lombroso called them atavistic when found in whites, but in this he may have been mistaken, for we have but little or no evidence that our ancestors were ever exactly like existing savages, who have been changed by natural selection very much since they separated from the parent geneal-logic stem. Indeed, no pure-blooded normal savages look exactly like his type of the white "born criminal."

Nos. 4, 5, 6, and 7 are ordinary thieves who are charged with cattle stealing and such crimes. Here we have some evidence of abnormality, and it is likely that we have more or less difference from type and of the nature of degeneration. This is to be expected when we consider that their acts are antisocial and so harmful as to be looked upon as wrong by the mass of the people.

But in Nos. 8, 9, and 10 we have clear-cut evidence of degeneration in the evident stigmata, misshapen ears, etc. Curiously enough, there are no deformities of the teeth and jaws among the full bloods, their teeth are generally perfect in form and in the contour of the arches, and generally well-preserved, though the half-breeds, or mestizos, particularly the Spanish types, have excessively degenerate teeth and jaws. One of the group is believed to have white blood (No. 8), and a more villainous looking wretch can scarcely be imagined. His face can be duplicated in Lombroso's pictures of the "born criminal." These men are all professional ladrones, real parasites upon their kind. As soon as I had discovered the fact of degeneration in two ladrones, I was able to pick a third one of the crowd by his very evident stigmata, and found on investigation that such was his calling. Not all ladrones are degenerates by any means. Robbing neighboring tribes is a normal act among all savages, and this can easily be stretched to robbing as a profession, so there is no more disgrace attached to it as a business than there was in England a century or two ago, when highwaymen were often aristocrats. Ladronism has always been organized, supported, and led by the better classes of the people, the rich and cultivated, the mestizo, and it was precisely the same as the organized robbery which existed in London up to 1815. Yet it is curious that nearly all the degenerates in the prison were ladrones, and the murderers normal—a fact pointed out by Lombroso in Europe, also, as to the normality of many assassins. It is a remarkable fact that many, if not most of the Malay ladrones were guerillas in the insurrection, exactly like Jesse and Frank James, and the Younger brothers (Robert, Coleman, and James), who were members of Quantrell's band of guerillas in our insurrection of 1861. They took to ladronism after peace was declared, just as these Malays. No. 12 is another view of No. 6. He is afflicted with a form of insanity which is probably chronic mania in which there are peculiar cataleptic states, in one of which he was photographed.

The accused No. 11 shows the typic placid facies epileptica, but no marked stigmata of degeneration; nor could I find any account of nervous disease in his seven brothers and sisters, of whom five had died. Such high mortality of children is not unusual in Malays. His mother was a wellmarked degenerate with goiter, arrested jaws, bad teeth, and distorted dental arches, subject to headaches for two years, and all her life had had what was translated as "dizzy spells," but which were probably petit mal, as her mother and two cousins were epileptics. She was not pure blooded, there being a Spanish ancestor somewhere, which I understand was a grandfather. She was a tiny, frail, subdued thing, suffering greatly from dyspnea after climbing the steps, and with a serious cough and some evidence of tuberculous invasion of the lungs.



It is generally recognized that epilepsy is a symptom of an unknown cortical disease which may or may not cause an insanity, though sooner or later it always causes more or less dementia, according to the severity of the process. The disease attacks only those with some peculiar hereditary defect, which in the immediate ancestor may not necessarily have resulted in epilepsy. In this case the evidence and the examinations showed nothing which might be called insanity—that is, he possessed reason. He showed he knew the difference between right and wrong—the old standard of responsibility. He knew it was illegal and wrong to kill, though it was a natural act. When we come to the newer and best, and only test, for Anglo-Saxon responsibility—"free will or power of doing or abstaining," we have an entirely different problem in the Malay. I seriously doubt whether two normal Malays in a serious personal quarrel can resist their normal tendency to kill. They are normally in the condition to which an Anglo-Saxon's volition may be lowered by a mental disease which does not affect his intellectual faculties to an appreciable degree. When the Malay is similarly afflicted with a mental disease, whether acute or chronic, which weakens his savage and therefore feeble volition or inhibition, his normal bloodthirstiness flashes out, and he runs amok. His only desire is to kill as many as he can before he is cut down, and he therefore attacks mostly old men, women, and children. The only case I know personally was in Pampanga, and the murderer was known to have had dengue fever for several days, and a temperature of 104° to 105°. In the delirium of this he boloed about eight people, half of whom died. The Moros practise the amok also, but it is an entirely different matter with them, being a curious combination of religious and erotic exaltation in which they desire to be killed while

in the act of killing Christians. It is reported that the priest causes an erection, then ties a string around the base of the penis to retain the blood, and after certain ceremonies the man is decked out in special costume, shaved in a certain way, and sent forth to kill. Perpetual sexual pleasures in heaven are to be his reward as taught in the Koran.

The insurrection was a grand opportunity for the Malay bad-men, who joined the army *en masse*. The better class of Filipinos, who organized the forces, did not know that they were creating a terrible Frankenstein which would destroy itself. The Spaniards, by force and by religion, had kept the Malay element in fair control, and the prisons were always crowded with men awaiting trial. Pangasinan is said to have had 200 to 500, whereas at this writing it had but 15 or so. We may question their method, but it certainly was effective in keeping the worst men locked up, and to this extent it protected the community. The mestizo rulers did not really understand the extent of this bad element, so carefully shut up by the Spaniards. When they found out what an awful savage machine this army really was, many of them stood aghast at the results of their own work, and tried to undo it by bringing about subjection to American sovereignty, to obtain that security of life and property, unattainable by reason of their own army. The same thing happened in France, when during the revolution and also the commune, common criminals and even the insane were released only to rob and murder their friends. Hence, innumerable crimes were committed by Malay officers and soldiers, and as many of these had to be released under amnesty, they returned immediately to ladronism. At Naujan, some who had been sentenced to death returned, and the first thing they did was to capture and kill the town officials, including the justice of the peace, after torturing and mutilating them.

It is evident that inability to control themselves in the desire to do murder, is a normal savage characteristic, and cannot possibly be urged as a basis for acquittal. With Anglo-Saxons, we do not consider why we abstain from criminal acts; it may be natural desire or deterrent effects of future punishment; the only thing the law considers, is the fact that we have the power if we are in health, and that we must use it.

In the case at hand, we had this sure ground: "In true epileptic mania, the criminal act is usually unpremeditated, motiveless, and accompanied by impairment of consciousness and temporary loss of memory; conscious anger in an epileptic should, therefore, be distinguished from true epileptic mania." There was nothing left, then, but to report that there was no evidence of insanity at the time of the deed. If he had been in a psychic equivalent of the convulsion, his memory of the events would not have been as clear cut as his evidence shows, unless his statement was mostly fiction.

Under the intricacies of the Spanish law, which takes the age of the accused into consideration, and makes many fine distinctions in cases having few facts for the prosecution, but relying in large part upon a confession, the whole of which had to be taken or not at all, and which provides that the plea of self-defense, though imperfect, mitigates the penalty, he was sentenced to confinement for four years, and the court ordered his further detention as an epileptic, also a matter possible under Spanish law.

After the case was well under way, the *Medical Record* of November 15, 1902, came to hand, containing the article of Punton on "The Criminal Responsibility of the Epileptic." It was used as far as practicable, but it was an intense satisfaction to know that away out there in the tropics, on the other side of the world from home, our courts, in cutting out paths for these new problems, should instinctively take the pathway advocated by our best thinkers, but not always possible at home, because it necessitates moving the weighty courts out of the old ruts of precedent. The medical expert was called as an impartial agent of special knowledge to assist the court in coming to a just conclusion. It is also a satisfaction to know that in all such cases in which insanity enters as an excuse for murder, it is already possible to hold such persons "under rigid medical surveillance for the rest of their lives as too dangerous to themselves and society to be at large."

As an ethical matter, one might assert that it is wrong to punish savages for acts which to them are normal. Indeed, Manila native newspapers, on this ground, actually advocated leniency to criminals, and even liberating some of them. So long as the act is merely immoral according to our standard, it may be possible to ignore it and overcome the tendency gradually, though it must be confessed that two centuries of precept and example have not lessened to a marked degree the sexual or other immoral acts of our negroes. It can be answered that the welfare of civilized people demands that savagery must cease throughout the world. It must be safe to travel or do business wherever our needs compel us to go, and all people must abide by civilized rules, whether they like it or not. We, ourselves, are still immoral naturally, and would commit some crimes normally were it not for the restraint of civilization, as seen in mob actions when the restraints are removed for a little while. Only a few crimes are unnatural, and only a few degenerates commit them, but the great mass of moral white men are restrained from committing natural misdemeanors and crimes by fear of punishment, not by abhorrence of the act. Civilization is a complex system of checks upon our tendency to do evil, therefore, the savage merely exaggerates to a large degree what we have in a minor degree, and he must abide by the same laws. Civilization has been thrust on us too quickly for us to be adjusted to it perfectly, for it takes many centuries to change the brain, and we naturally like to act like our savage Teutonic ancestors, but we restrict our personal freedom and submit to law, and remove those who will not submit to it voluntarily. We apply these rules to American Indians and to the savage Malays, who will also be removed unless they submit to civilized law. They must be punished when they commit acts such as they normally committed before civilization reached them, but which are called crimes by us.

We must recognize the difference between a Malay and Anglo-Saxon brain, and must give full credit to the wonderful work being accomplished by the civil and military officers, both of whom have been confronted by conditions formerly undreamed of, and both of whom are hewing out new paths so different from the ones used at home for two centuries. The home people should be patient, and should not criticise until they learn what they are criticising. In the larger Philippine cities, where we can control the natives, life is already safer than in the larger cities of the United States, if we can judge by the proportion of murders to population. In the rural districts, where there is less American control, of course the conditions are worse, and the percentage of murders is quite high, but the American, nearly everywhere in the Philippines, is safer than he is in the slums of our cities.

As a side thought, we can well see that the time is not so far off when the civilized world shall demand that life and property be made safe in tropic America, and if we, by our Monroe doctrine, will prevent Europeans doing this work, and yet brutally refuse to do it ourselves, there is sure to be trouble. Our Philippine work, therefore, is the kind we sought when we migrated to America, and recent Panama history is a direct result of the spread of our northern civilization.

All that has been said here of the Malays refers to the full-bloods, whether educated or not. The half-breeds, quarter-breeds, etc., may be of any grade of intelligence, according to that of their white parents.

Among them are some of the gentlest and most lovable people I have ever met; some are highly intelligent, cultivated and refined; some are great artists, and others are prominent jurists, yet many are very low in morals and intelligence. The better element among them, who compare favorably with Anglo-Saxons, are such a small percentage of the population—much less than a tenth of 1%—as to be negligible in such matters as we have discussed. The commission of natives which visited the St. Louis Fair and toured the United States was composed mostly of these mestizos of high character and intelligence. In the insurgent government, the mestizos constituted, under the name of a democratic republic, an aristocracy, which attempted to establish an oligarchy, with pure-blood Malays as peasants and slaves.

The Malay characters come out strongly now and then, even in this upper better class, just as negro characters flash out in strong relief in our mulattos. Occasionally the mestizo shows the same inability to know or realize the truth as the Malay. For instance, some of the thin upper crust of educated people raised a great outcry against sending to the St. Louis Exposition any representatives of the 6,000,000 lower Malays, because they would give to the Americans a false idea of the real people of the Islands. They were perfectly honest in their belief that the Americans will know the Islands best by concealing from them the most, and really believe also that representatives of the small educated mestizo class will give the Americans a correct idea of the Philippine people. Gilbert H. Grosvenor's article upon the Filipinos[1] in this respect is very misleading, as it deals to a large extent with the characteristics of the thin upper crust, which is not Malay at all. He pictures mestizos, but our photographs are of Malays.

The Chinese mestizos are the most vigorous both mentally and physically of all the half-castes in the Islands, as they are descended from two allied types, and are the most nearly adjusted to the climate. They constitute the mass of the leaders. Yet they have an intense hatred of the Chinese. One of the most curious and amusing incidents of my residence in the Philippines occurred at a debate by some high-school boys at their graduating exercises. They were all mestizos, and it was in a part of the Islands where nearly all the half-castes are of Chinese extraction. Some of them had Chinese facial characters, and I was informed that two had Chinese fathers. They were much superior to the Malay because of that Chinese blood, for the latter race is, on the average, at a much higher intellectual level than the Malay who had originated a very poor and primitive civilization with borrowed alphabet prior to Spanish times, while that of the Chinese is very high and very old. Yet each of these Chinese mestizo boys had something mean and ungenerous to say of the Chinese, calling them barbarians, even savages without history or civilization, and intimating that they were mere animals. It was a reflection of the general trend of public opinion, or an intense racial hatred, somewhat similar to that fraternal hatred formerly existing between Americans and the English, in spite of the fact that nearly all of our early great men were of English blood.

From what has been said, it is evident that the mestizo insurgent government was correct in attempting to form an aristocracy, for it would have been more terrible to allow the Malay to control by rule of the majority, than it was to allow the negro to control in the West Indies. Nevertheless, what would have happened when this aristocracy, if successful, began to quarrel among themselves is really too terrible to contemplate. General Luna's death was a foretaste of the reign of terror which was to come. These medicolegal cases illustrate the tremendous difficulty of grafting upon a lower race forms of government evolved by Anglo-Saxons for themselves and shown to be good in our villages, where every man is able to take part in the town meeting, the modern descendant of the old folk-moot. Our Pilgrim fathers established an aristocracy as in Greece, and dared not admit the Indian to a share in the sovereignty, and the descendants of the first settlers cannot admit the Malay, who in so many respects resembles the Indian. The exclusion of most of the negroes from politics in our South, and Chinese in our West, and the exclusion of most of the Malays from Filipino politics, are as natural as the exclusion of the Indians from a share of the government of the New England colonies.

There is a curious similarity in the opinions which certain white men entertain as to negroes, American Indians and Malays. The man who understands these lower races the best expects the least from them, treats them gently but firmly, as children, though never as equals, is never disgusted with them when they act like cruel children, and, in their proper sphere, invariably loves them for their good traits—and they have good traits and plenty of them, too. But he who knows the least about them expects them to act like the highest races, and when he finds the poor things fail to live up to such a standard, he develops a hatred of them which is as unreasonable as his first attitude. The men who injured our negro the most were those who, through sheer ignorance of his abilities, forced upon him the civil powers he could not use, and who now hate him for his failure; and the greatest enemies of the Malay at the present time are these same men, who, through ignorance of his abilities, are clamoring as in 1860 to 1865 to give to him full civil powers which he cannot understand nor use. We deprived both negro and Malay of his protector, and let us not neglect the Malay as we did the poor emancipated negro. We must silence that foolish clamor to give to the Malay an independence which he can never sustain, and above all else, we must resist the clamor to give him a government fit only for a New England village.

Facts mentioned in this paper are matters of personal observation or have been certified to me as facts by those who have observed them.

[1] Nat. Geog. Mag., April, 1905.

WHY SURGICAL FIXATION OF A MOVABLE KIDNEY WILL NOT RELIEVE DYSPEPTIC AND NERVOUS SYMPTOMS.*

BY

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Surgeons have been perplexed by not being able to relieve patients of dyspeptic and nervous symptoms by suturing a movable kidney. It was thought the cause was that the kidney did not remain in its proper position after being anchored. On this account many different operations were devised to find the one *par excellence* for a good result. It was the opinion of some that the kidney was sutured too near the diaphragm, of others not far enough away, of others that the kidney tilted one way or another, of others that it turned upon itself, yet all have been disappointed in not being able to relieve the dyspeptic and nervous symptoms by this operation. Hardly a week passes but some surgeon suggests a better surgical method for anchoring a kidney. If the dyspeptic and nervous symptoms were controlled through this operation there would not be so many different methods promulgated. The many methods of operation are analogous to the many drugs recommended for seasickness, none of which is efficacious.

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Every physician of experience has observed patients who have had movable kidneys anchored and thus been made permanent invalids. Such cases in my own practice led me to endeavor to relieve this condition by properly fitted bands. It is not a question as to the success of the operation from a surgical standpoint, but whether the dyspeptic and nervous symptoms can be relieved. Many surgeons are beginning to realize that movable kidney is more a medical than a surgical disease.

Glénard,[1] as early as 1885, called our attention to the fact that in every case of movable kidney a careful examination of the abdomen would disclose a dislocation of the stomach, or part of the intestine. This has since been verified by many investigators. We now know that movable kidney is usually an incident to general ptosis, and symptoms referable to the kidney are mainly due to intestinal displacement. The starting point of a movable kidney is the sagging in the flexure of the ascending colon. This is followed by sagging of the transverse colon which brings about traction on the pylorus which may cause a displacement of the stomach. Ptosis of the hepatic flexure of the colon brings about traction on the peritoneum, and encourages a downward and inward displacement of the right kidney. For this reason whenever a movable kidney is found it is an indication of a dislocation of the stomach or part of the intestine.

Since my report on the "Treatment of 442 Cases of Movable Kidney without Surgical Intervention,"[2] others are beginning to agree that movable kidney is a medical and not a surgical disease, and that surgical intervention is called for in only a limited number of cases. Many surgeons, to whom patients with movable kidney are referred, refuse to operate upon them. Sir Frederick Treves[3] has abandoned the operative treatment for movable kidney, and says: "The time is not far distant when suturing the kidney will be one of the rare operations of surgery." He has made use of a truss with perfect satisfaction in 300 cases of movable kidney.

According to Israel,[4] operation for movable kidney is irrational because the symptoms attributed to movable kidney are only in a small number of cases related to this displacement. These symptoms are mainly caused by a displacement of some of the other organs in the abdominal cavity. This author, in his recent work on "Surgery of the Kidney"[5] says: "The modern treatment of movable kidney leads me to believe that there is too great activity regarding operation, but I feel that this tendency will not last longer than some other operations with which we have had experience. A short time ago it was thought that a large number of symptoms would be relieved by amputating the cervix or by removal of the ovaries, and now we are endeavoring to do the same thing by anchoring the kidney." He believes that surgical kidney fixation is superfluous, and refuses to operate in such cases.

A movable kidney is not a pathologic condition, for every normal kidney, on account of its attachment to the diaphragm, moves during respiration. It is only pathologic when it is palpable. We can readily see the irrationality of producing a pathologic condition by fixing a kidney that ought to be mobile. When a patient is in the dorsal decubitus position, gravity carries the kidney back to its normal position. This cannot take place when a kidney is surgically fixed, and under these circumstances we always have an abnormal condition. When the uterus is slightly adhered and immovable we may have dyspeptic and nervous symptoms. We advise radical means to relieve this condition. In cases of movable kidney, surgeons irrationally endeavor to bring about an abnormal adhesion, and in this way induce a condition that may aggravate the symptoms we are endeavoring to relieve.

Surgeons have not been slow to realize that other than surgical means must be utilized to attain a good result in cases of movable kidney. J. Ross Watt,[6] consulting surgeon to Ayr County Hospital, in a "Report of Successes in the Treatment of Floating Kidney by a New Method," records his results in 18 cases without surgical operation, rest, massage, or exercise of any kind. He arranges wing-shaped sheet-lead plates attached to corsets that so steady the floating kidney in its position as to fix it in three or four months.

Gallant[7] takes the position that from 90% to 95% of women who suffer from movable kidney and associated ptosis can be relieved without operation; while a large percentage of those operated upon do not regain their health, even when the kidney is firmly fixed. The mobility of the kidney alone does not explain the extremely variable symptom-complex found in this condition. Nearly always there is displacement of other viscera and subnormal nutrition. Treatment must aim at the replacement and support of all organs in their proper places, of correction of functional derangements, and improvement of the general health.

Gallant[8] in another article says: "Nephropexy, as carried out by the most experienced operators, shows a mortality of from 2% to 5%, a very considerable number of failures to anchor the kidney permanently in its normal position, even after it has been sutured a second time; many are but slightly relieved of the gastrointestinal and nervous symptoms; pain referable to the lumbar wound is not uncommon, though some claim it is avoidable if the lumbar nerves are pushed aside; and a few instances of kidney hernia have been recorded. These considerations have led many notable surgeons, and the author, who formerly endeavored to fix these wandering kidneys, to a more careful selection of cases."

In a report of 100 cases of different grades of movable kidney, Madsen[9] concludes: "In none of these cases could we consider that surgical interference was called for."

McWilliams[10] reports 61 cases of movable kidney treated surgically in one of the New York hospitals. On the subject of treatment, he believes that the profession has been too optimistic concerning results of operation, and he agrees with Israel in the belief, that the only absolute operative indications are the result of pulling and kinking of the pedicle, particularly if these attacks are accompanied with retention. The natural conclusion to be drawn from all the information at hand is that a comparatively small percentage of those with wandering kidney should be operated upon.

With selected cases and newer methods of surgical fixation of movable kidney, the results up to date are poor. Balch and Torbert[11] record "Actual Results at the Massachusetts General Hospital Following Operative Treatment of Ptosis of the Abdominal Organs, with Special Reference to the Kidney, between 1890 and 1904," as follows:

Cases: Male, 6; female, 86; total, 92.	
Relieved	28
Not benefited	13
Not heard from	51
Total	92

Such poor results lead Balch to believe that in private practice, where one can choose the cases for operation and for supporters, the results are much better than hospital work.

Why do we get such poor results in surgical fixation of movable kidney when it is performed by our best operators? It is because the kidney is not the organ causing the symptoms we want to relieve. A displaced stomach or intestine is the cause, and this must be rectified before patients feel better. Rose,[12] speaking of movable kidney as a cause of dyspeptic and nervous symptoms, aptly says: "Schleiden has shown that some natural philosophers have accused the moon of influences on events in nature of which she is innocent, and compares the role the moon is made to play with the role of the cat accused of having broken dishes, while the kitchen maid is the malefactress. This applies to

the role the floating kidney is made to play in regard to gastric and nervous symptoms."

It is true that patients seem to improve for a time immediately after anchoring the kidney. This is due to the patients lying on their back, when the viscera naturally fall into their normal position and thus functionate better. Soon after they begin to stand on their feet the whole list of dyspeptic and nervous symptoms return. Weir Mitchell more than 20 years ago suggested that we keep all patients with movable kidney in bed and treat them with forced feeding. In this way he succeeded in relieving his patients. The same thing can now be done without compelling the patients to go to bed, by having them wear a properly fitting abdominal band that replaces all dislocated organs.

The anatomic relations of the hepatic flexure of the colon to the right kidney show how its displacement may drag the kidney with it, yet its attachment is not strong enough to raise the hepatic flexure by surgical fixation of the right kidney. The left kidney is not as firmly connected with the splenic flexure as the right kidney is with the hepatic flexure. There is less likelihood for displacement of the splenic flexure, as this has an unusually firm attachment by means of the costocolic ligament,which has nothing like it on the opposite side. Besides, the left kidney is held firmly by the tail of the pancreas, which is firmly fastened to the posterior wall and therefore not so susceptible to being dragged down by a displaced colon.

Every condition that acts as an etiologic factor in producing a weakness of the kidney attachment, favors a falling of the abdominal organs. The kidneys are held in position by their attachment to adjacent structures and by intraabdominal pressure. Any displacement is due to weakening of the attachments and interference with intraabdominal pressure. This pressure is weakened by an enlarged liver, relaxed stomach or displacement of any organ in the abdominal cavity, relaxation of abdominal walls, injuries to the pelvic floor, abdominal section, labor, and acute diseases associated with emaciation. Bacon [13] believes there can be but little doubt that the displacement of the stomach and colon helps to cause a movable kidney. Stiller,[14] who was the first to note that the tenth rib was movable in these cases, declares that a movable kidney is a local manifestation of a general condition.

The study of several hundred cases in my own practice, leads me to believe that movable kidney in itself cannot produce all the dyspeptic and nervous symptoms of which patients complain, unless there is a displacement of some other organ in the abdomen. Many patients have a movable kidney without suffering any discomfort. I repeat what I have frequently said, that cases in which the kidney alone is movable, are those that give few or no symptoms. It must be remembered that the stomach may be displaced anywhere from its normal position to the symphysis; the same thing may take place with the intestines, liver or spleen. My results in over 600 cases, with a properly fitting band, have proved eminently satisfactory. Before fitting a band to patients with movable kidney, the location of all the abdominal organs must be accurately made out. This is done by palpation, auscultatory percussion, transillumination, inflation, röntgen ray, etc.

Location of the intestines is best made out by palpation. The transverse colon lies usually immediately beneath the large curvature of the stomach; when the position of the latter varies, a like variation in the position of the transverse colon takes place. The section of the transverse colon which is accessible to palpation, has either a horizontal direction, as is the case when the transverse colon is high, or it is bow-shaped, with the convexity downward. Prolapse of the transverse colon is quite common, and there are cases in which it takes the form of the letter V. In palpation of the transverse colon a dislocation can be easily made out. The transverse colon is felt in most cases as a soft rope; under pressure, low gurglings are heard; these suggest pulpy contents mixed with gases. In the majority of instances, when a movable kidney is found, it serves as an index that other organs of the abdominal cavity are displaced. All displacements must be corrected with a properly fitting band before we can attain a good result. The replacing of the abdominal organs gives the patients almost immediate relief. They stand more erect, breathe easier, pain in the back ceases, feeling of heaviness in the legs disappears, nervous symptoms subside, digestive disorders cease, abdominal pain stops and circulatory disturbances are regulated and patients continue to improve from the beginning.

To prove that a band is indicated in a given case, the physician should stand behind the patient, passing his arms on either side and placing both of his hands on the lower abdominal wall (Fig. 1). When the hands of the



physician are in this position, the abdominal mass just above the pubes can be easily raised. By supporting the abdomen in this way the patient will immediately say that he feels much better. Removing the hands suddenly allows the abdominal mass to fall, which produces a distressing sensation due to the falling of the displaced viscera. This is a positive test for the beneficial effects of a band. When the patient has no relief from lifting the abdomen, and feels better when allowing the abdomen to fall, the band is not indicated.

In a recent article Einhorn [15] says: "That a movable kidney may be entirely cured by medical means was first proved by Henderson. I have since observed such cases. Notwithstanding the importance of this subject, not much is to be found about it in literature, and the fact that prolapsed kidney may be restored to a normal position has certainly not become generally known to physicians." After reporting several successful cases, he adds: "As will be gathered from the above histories, the treatment consists mainly in the wearing of a properly fitted abdominal supporter and ample feeding." Stengel,[16] on the treatment of movable kidney, says: "The perirenal fat can be restored by forced feeding. Another plan to be used in the majority of patients is to support the kidney by a properly placed pad or bandage. A pad to be effective should make pressure upward, backward, and toward the right." Iapovski [17] says: "In cases in which the symptoms are the result of nervous irritability, it is better to use the expectant plan by strengthening the patient to overcome his nervous disturbance. The measures to be employed for this purpose are the wearing of a properly constructed abdominal support and proper feeding."

Glénard, Kuttner, Ewald, Boas, Rosenheim, Strauss, Riegel, Stiller, Kelling, Einhorn, and others, believe in a properly fitted belt. Rose, Weissmann, Rosenwater, Schmitz, Clemm, and others, recommend the plaster belt. They all agree that a proper support of the abdomen brings about a restoration of the normal diaphragmatic breathing, and in this way helps the cure.

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MANAGEMENT OF TRANSMISSIBLE DISEASES.

BY

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The management of cases of transmissible disease is a matter of such vital importance to the general welfare of a community that we cannot afford to be incompletely informed as to the development of our knowledge of this subject in recent years. It is no doubt futile to hope that we may be able to eradicate completely all of the transmissible diseases, but the important results achieved in some communities in arresting smallpox, and especially the magnificent results achieved by the United States authorities in eradicating yellow fever in Cuba, give ground for the hope that similar victories may be obtained against other transmissible diseases.

The general prevalence of some of the transmissible diseases may be attributed to two important causes: (1) The infection of large numbers of individuals through mild and often unrecognized cases; and (2) the failure to enforce the sanitary precautions that would prevent the dissemination of infectious materials.

The mild cases of all transmissible diseases are always the most dangerous from the public health standpoint. These cases frequently remain unrecognized and go through the community disseminating infectious materials. This condition is well represented in the extremely mild cases of varioloid which were encountered in the past few years. The true character of many of these cases remained unrecognized, and consequently no restrictions were placed upon the patients' movements. A similar condition was encountered by Koch in South Africa, where large numbers of apparently healthy persons were found to be giving off typhoid bacilli with their intestinal evacuations. In the same manner the importation into a community, of recent Italian immigrants, has served to give rise to general outbreaks of malaria because of the presence of the plasmodium in the blood of these individuals. Such conditions as these present great difficulties toward the complete elimination of the transmissible diseases.

In the control of recognized cases of transmissible diseases, the two factors which are of the greatest importance are isolation and disinfection. The more complete the isolation and the more thorough the disinfection, the greater is the probability that the infection will be limited to its primary source. In very few private homes is it possible to isolate a case of transmissible disease satisfactorily. This is especially true of the homes of the working classes, where an entire family lives in four or five rooms, and where the mother is compelled to nurse the sick as well as attend to the general household duties.

Even in houses where isolation is possible, it is difficult to maintain that rigid discipline so essential to the limitation of the infection to the room occupied by the sick individual. Very rarely is it possible for the physician and the attendants to improvise conditions whereby the carrying of infectious materials from the sick-room is positively eliminated. For these reasons it is necessary to place restrictions upon the movements of the inmates of the houses in which cases of transmissible diseases are being treated—*i. e.*, quarantine them.

Those inmates of a quarantined house that are not likely to contract the disease, may be allowed to leave the premises after they have been given an antiseptic bath and have been provided with sterile clothing. In this manner, the least amount of hardship is imposed, and yet the community is protected. For instance, school children belonging to a family in which a case of diphtheria has developed, may be given a prophylactic dose of 500 units of diphtheria antitoxin, followed by an antiseptic bath. If cultures have shown that they do not harbor the bacteria in their throats, after having having been supplied with sterile clothing they may be allowed to take up their residence in another household and continue attendance at school. The same regulations may be made to apply to wage-earners residing in the quarantined house, so that they are not hindered unnecessarily in following their usual vocations.

Greater restrictions should be applied to the communication of outsiders with the inmates of quarantined houses than is usually the case. The physician himself should exercise every possible precaution to avoid carrying the infection from the premises. In the more dangerous transmissible diseases the physician, before entering the house, should cover his clothing with a linen robe, and protect his hair with a close-fitting cap. Overshoes should also be worn. These articles may be carried in a tightly-fitting satchel, and on leaving the premises should be returned to the container and sprinkled with formaldehyd; or the robe, cap, and overshoes may be left in a room adjoining the sick-room and disinfected by sprinkling them with formaldehyd. The physician should also wash his hands, face, hair, and beard in an antiseptic solution on leaving the sick-room.

Similar precautionary measures should be employed by the nurse before leaving the premises, and visiting clergymen and undertakers should be subjected to the same precautionary measures. Clergymen and undertakers are no doubt the means of dissemination of infectious materials, and hence the precautionary measures which apply to physicians and nurses should also be made applicable to their communication with houses under quarantine.

The length of time that a case of transmissible disease should be kept under quarantine has been fixed at more or less arbitrary periods in at least some diseases, while in others it is possible to state definitely when the patients are free from danger. In diphtheria no patient should be released until cultures on at least two successive days have been free from the bacteria. This period of time varies greatly in different cases, sometimes extending over a period of 100 days or more. The average for more than 5,000 cases in Philadelphia has been about 28 days. Some simple and efficient means of disinfecting the throat is needed in order to reduce this period to the lowest possible limit. The method employed by Dr. Alfred Hand—strong solution of silver nitrate—has materially shortened the time of quarantine when it has been systematically employed.

In the eruptive fevers quarantine should be maintained until desquamation has entirely ceased, and all discharges from the nose and throat have been arrested. So long as there is any desquamation of the cuticle between the fingers and about the soles of the feet it is best to regard the case as dangerous. In these diseases we have no other means of determining the time when the patient may be safely released from quarantine. The period of complete desquamation usually requires about 30 days.

Typhoid fever patients are no doubt frequently allowed to go about without restrictions long before they have ceased to give off the bacilli with their intestinal discharges and urine. It has been found that many patients with typhoid fever continue to throw off very large numbers of typhoid bacilli with their urine far into the convalescing period. Such cases cannot fail to prove a serious menace to any community in which they may be.

Since convalescents from typhoid fever are often advised to go to the country for recuperation, it is probable that many obscure outbreaks of this disease in the rural districts can be explained in this way. With these facts in mind we should insist that all the discharges of those convalescing from typhoid fever should be disinfected systematically until bacteriologic examination has shown them to be harmless.

There is no doubt that the disinfection of houses as practised today is not always efficacious. Disinfection by burning sulfur in a room is almost valueless for the bacterial infections, since it is impossible to generate sufficient sulfur dioxid in this manner to kill the pathogenic organisms. In like manner the generation of formaldehyd gas by the different methods in use is rarely efficacious, since in practical experiments, under the most favorable conditions that can be improvised, only about 80% of the test objects are destroyed. The use of formaldehyd in solution by means of a large spraying apparatus gives the most satisfactory results, as by this means it is possible to destroy 100% of test objects. With such an efficient method of disinfection in use we may hope to see a more prompt subsidence of outbreaks of the transmissible diseases than has ever been the case. Moreover, this method of disinfection is unattended with the dangers of fire that always attended the older methods. Three pints of equal parts of formaldehyd (40% solution) and water is sufficient to disinfect a room having 1,000 cubic feet of space. This solution is sprayed over the bedclothes, furniture, walls, floors, etc., and is allowed to act for 24 hours, after which the room may be thoroughly aired.

The difficulty experienced in the satisfactory isolation of cases of transmissible disease in private houses calls for the more general treatment of these patients in proper isolation hospitals. Prompt removal of all cases of transmissible disease to such a hospital, and disinfection of the patient's premises, limit the possibility of disseminating the infectious materials by the inmates, the physician, attendants, and others, to those in the immediate neighborhood.

There is more or less serious objection on the part of most persons, to removal to hospitals for the transmissible diseases. These objections are based on two principal factors: (1) The hospitals are frequently mere temporary makeshifts, in which it is impossible to give the patients all the comforts that are supplied in general hospitals; and (2) the parents and friends are usually not allowed to visit the sick, and hence can form no personal opinion as to their physical condition and general welfare.

I believe it is possible to overcome these objections to the removal of cases of transmissible disease to isolation hospitals, at least in large part. The general welfare of the community demands extraordinary measures to prevent the dissemination of infectious materials, and hence patients of this class cannot be regarded in the light of other charitable patients, and, therefore, they should receive every attention and comfort that might be secured in the best regulated general hospital. In this manner it is probable that one of the serious objections to isolation hospitals may be removed.

The second serious objection to the removal of patients with transmissible disease to an isolation hospital might also be lessened in large part if permission were given to the mother or other near relative to visit the patient at stated intervals. Such visits could be made under the same precautions as apply to the movements of the physicians, nurses, and attendants in such hospitals. If the visitor were subjected to an antiseptic bath subsequent to the visit, and were supplied with sterile clothing, the danger of carrying infection from the hospital could be eliminated. There is no doubt that municipal authorities would object to such an innovation, but it seems to me that it could be enforced without danger to the community. It is evident that such a procedure would be less dangerous to the community than the imperfect isolation of cases in private houses, and far less dangerous than the clandestine treatment of such patients without reporting them to the health authorities.

The frequency with which parents or relatives may be allowed to visit patients in hospitals for the transmissible diseases, and the extent to which they may be permitted to mingle with the patients are matters of detail for future adjustment, but if the physician or nurse may safely leave the hospital and mingle with the outside world without danger of disseminating infectious materials, visitors may do the same if they exercise similar precautions with regard to disinfecting their bodies and clothing.

Visitors to the diphtheria wards should first be immunized by the injection of a protective dose of diphtheria antitoxin, while visitors to the smallpox wards should first be efficiently vaccinated before being permitted to enter. With these precautions the probability of the visitor contracting either of these diseases is greatly reduced, if not absolutely eliminated.

In the new Charlottenburg Hospital in Germany the parents and relatives of the patients are allowed to enter a covered corridor from which they can look through windows into the wards of the hospital and observe the patients. By this means the parents are able to observe the condition of the children. In the Pasteur Institute at Paris, each patient is isolated in a chamber with glass walls, and visitors pass along galleries on the outside of the building and observe the patients.

The general public is becoming more and more educated to the evident advantages of the treatment of all diseases in general hospitals. This condition has been won by the marked improvement that has taken place in the general management and in the equipment of hospitals during the last quarter of a century. The same degree of improvement in the management and equipment of hospitals for transmissible diseases cannot fail to lead to the removal of the serious objections to hospital treatment for these diseases. When our hospitals for the treatment of the transmissible diseases are brought up to the same standard that prevails today in our best general hospitals we will be in a position to demand that all cases of those diseases shall be treated in such hospitals unless the conditions in the home are such that all the demands of hygienic management can be met.

There is still considerable apprehension on the part of physicians and laymen with regard to the possibility of conducting hospitals for the treatment of the transmissible diseases in urban communities without danger to those living in the near vicinity. There are at least four important sources of danger from such hospitals, yet with proper equipment and management all of these dangers may be eliminated.

The four sources of danger from hospitals for the treatment of transmissible diseases to those living in the

immediate vicinity are: 1. The danger of the dissemination of infectious materials through the drainage. 2. The danger of the dissemination of infectious materials by means of air currents. 3. The danger of the dissemination of infectious materials by insects or vermin. 4. The danger of the dissemination of infectious materials by the physicians, nurses, attendants, visitors, or the convalescents.

The introduction of satisfactory sewerage into the hospital plant, and the careful disinfection of all the evacuations that might serve to disseminate infectious materials, would eliminate this danger.

None of the sewage of such hospitals should be allowed to flow over the surface of the soil. Where the hospital sewerage system can be connected with the general system of sewers of a large city or town such disposal can give rise to no serious objection. Where such a mode of disposal is not available some of the newer methods of sewage purification should be employed. This would necessitate the acquirement of sufficient ground to install such a system of sewage purification.

The danger of the dissemination of infectious materials by means of air currents is probably not a very great one, though even the possibility of such a danger should be removed. This can be done by the institution of the most scrupulous cleanliness in every part of the hospital. Ordinary measures to maintain cleanliness must be reinforced by all hygienic measures known to prevent the formation of dust. All dusting and sweeping should be prohibited and the use of moist floor-mops and cloths substituted. These mops and cloths may be moistened with water, though the cleaning will be more efficient if weak antiseptic solutions are used for this purpose. Great care should be exercised in removing soiled bedclothing and body linen, especially in the exanthematous diseases, so that the exfoliations of the body are not disseminated. This is best accomplished by carefully transferring such articles at once into receptacles brought to the bedside containing a mild disinfectant solution. By such means as these the dissemination of infectious dust can be reduced to a minimum.

The danger of the dissemination of infectious materials by insects and rodents is becoming more and more generally recognized. The greatest danger arises from flies, fleas, and roaches, and from rats and mice. Flies are believed to be able to carry the exciting factors of a great many of the transmissible diseases, either on the exterior of their bodies by coming in contact with the infectious materials, or by taking into the stomach and giving off with the feces the living infectious agents. Flies are believed to be concerned in the dissemination of the following diseases: Tuberculosis, typhoid fever, dysentery, cholera, pneumonia, erysipelas, also of suppuration, and possibly all of the acute exanthematous diseases. It is believed that fleas may also be able to disseminate some of the transmissible diseases. Roaches evidently serve to disseminate the diseases of the gastrointestinal tract because of their migrations. The danger of the dissemination of infectious materials by flies can be greatly reduced by careful screening of the doors and windows of hospitals, and the systematic destruction of all flies that gain entrance.

Rats and mice should be excluded from hospitals for transmissible diseases, as they are undoubtedly capable of disseminating the infectious materials. The exclusion of rodents from the hospital can be facilitated by means of concrete foundations and cellar floors and careful attention to the disposal of all refuse materials that might serve as places of refuge for these animals.

The danger of the dissemination of infectious materials by the physicians, nurses, attendants, and convalescents can be minimized by equipping the hospital with abundant facilities for bathing and the introduction of approved appliances for disinfecting clothing. No one should be allowed to leave the hospital without taking an antiseptic bath and putting on a full suit of sterile clothing. In addition to this, the administration offices of the hospital should be removed from the wards or pavilions in which the patients are being treated, so that entrance to this portion of the hospital may be permitted without danger of the dissemination of any of the transmissible diseases under treatment. Entrance from the wards or pavilions to the administrative part of the hospital should be made possible only after thorough disinfection of body and clothing. Moreover, the hospital ambulances should be disinfected after each trip, so that they cannot serve to disseminate infectious materials throughout the community.

There is no doubt that a hospital for the treatment of cases of the transmissible diseases, conducted on the lines outlined, would prove more costly than the system that is seen in many hospitals of this kind, but it seems safe to assume that the community would be more than compensated in the reduced incidence of cases of these diseases. In this respect the arrangements would undoubtedly prove a rich blessing in the saving of money to the municipality and in the saving of worriment and expense to the citizens.

With ample grounds surrounding it, and with suitable enclosure so as to prevent ingress and egress save through one or two well-guarded portals, such a hospital should be without danger to any community.

HYPNOTIC CUMULATIVE ACTION AS A THERAPEUTIC GUIDE.

BY

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The principle of aggravation of symptoms, as a therapeutic guide, was pointed out over 130 years ago by Storck, the eminent Vienna clinician and therapeutist. As employed by Storck, it proved of considerable value, but was carried to such an absurd extent by Hahnemann that it dropped into desuetude with the regular profession in the century just passed. The study of untoward effects has once more brought it into prominence, and it is the intention of the present paper to deal with it from the standpoint of therapeutic indication, so far as hypnotics are concerned. It is to be noted that hypnotics may be roughly divided into those having cumulative action, and those destitute of this. Almost all the synthetics have cumulative action, while vegetable hypnotics, as a rule, have none. Almost all hypnotics are more or less alterative and antipyretic. The alterative influence is excellently shown in the frequency with which erythema and its allies appear among the untoward symptoms. The same action is demonstrated in the frequency with which hematoporphyrinuria occurs through their untoward influence on the kidneys. This has been noted with chloral and its derivatives, with sulfonal, tetronal, trional, veronal, and allied synthetics. Paraldehyd and its allies have had similar effects. A peculiar anemia produced by chloral, paraldehyd, etc., has been noted by many observers after the use of these drugs. The mental states produced by them, moreover, belong to the stuporous and confusional types, such as result from the autotoxemias, whether produced directly from imperfect elimination or from this secondary to moral shocks, to traumatism, insolation, or the exanthems. The stuporous conditions are usually preceded by vertigo, numbness, ataxia symptoms, and allied phenomena before the full development of the mental state.

While it has been claimed by certain authors that some of the synthetics, such as veronal, for example, are destitute of these untoward effects, still the same persons state that on the day following the exhibition of this particular synthetic, hebetude, vertigo, and allied symp-

toms occur. This is in accordance with what has been observed with similar hypnotics, and is a feature which indicates cumulative influence of both alterative and hypnotic value.

The problem is suggested whether by suitable dosage at regular intervals and under settled conditions of the system, this cumulative action can be employed to the advantage of the patient in securing the habit of sleep, and in changing the general condition of the system, which predisposes to insomnia; such as, for instance, the influence of imperfect metabolism in the production of insomnia, and of what are practically states of coma vigil. These last conditions are frequent among insomniacs, but are unfortunately regarded as true sleep. Their nature is recognized in connection with typhoid fever, and the condition of toxic starvation allied thereto, but is ignored in ordinary insomnia. The neurasthenic type of insomnia is peculiarly allied to coma vigil psychically, inasmuch as the victim, while sleeping often four times as much as he admits, has no sense of rest from the sleep.

Behind this state is generally the condition of disturbed metabolism, which expresses itself as acidosis, glycosuria, etc. All of these conditions are frequent after severe nerve strains, whether arising from moral shocks of physiologic or other depression, insolation, traumatism, or the conditions produced by the exanthems.

All of these tend to increase the blood-pressure and predispose to atheromas and arteriosclerosis. This is particularly true of the exanthems, and of typhoid fever, as well as the allied states, which is why many cases of seeming neurasthenia produce apoplectiform conditions, followed by temporary or permanent paralysis. As these arterial changes are particularly apt to affect the bloodvessels concerned with elimination, as they do other vascular end-organs, there frequently appears the arteriocapillary fibrosis, which Gall and Sutton demonstrated 40 years ago, to underlie most of the nephritides. The problem, therefore, of insomnia is connected with the relief both of the symptom insomnia and of the irregular metabolism which underlies this, and which keeps up the vicious circle of vascular disturbance, prolonging the insomnia habit.

Normal sleep, moreover, has periods when it gives greatest rest. The period between one and five is the time when most rest is required. During this period the system is at its lowest ebb, and exertion, conscious or dreamy, produces its greatest strain. It is in consequence of this strain that nightmares and anxious dreams cause such vascular tension that the victim often awakens with what are practically attacks of tachycardia, often reaching the point of angina pectoris, accompanied with decided dyspnea and other evidences of disturbance of the monarchical medullary vasomotor center.

The aim, therefore, of any hypnotic should be to secure restful sleep, to correct or restrain the effect of disturbed metabolism, and likewise to restrain undue action upon the monarchical vasomotor center of the medullary center. In administering the cumulative hypnotics, certain methods can be employed which will secure the action of the hypnotic between the hours when the medulla, unrestrained by the forebrain, is pursuing its purely rhythmic action without interference. This method of administration, moreover, enlists the help of the rhythmic tendency of the nervous system in support of the lost habit of sleep. Habits are the product of this rhythmic tendency of the nervous system to repeat an action once engendered. The insomniac suffers from this habit tendency being turned to the aid of sleeplessness, which is particularly potent when the system is weakest and control of the central nervous system is absent.

Since the synthetic hypnotics all display cumulative tendencies, and since when given in a large single dose they produce an inclination to drowsiness, vertigo, or hebetude in the afternoon, as a rule, of the day following their administration, it is clearly obvious that given to secure cumulative effect at the time when most needed, in divided doses, the same effect will, under the rhythmic law of the nervous system, tend to be produced at the same time the night following their first administration. Furthermore, it is obvious that with the habit tendency of the nervous system aiding the sleep tendency, at a certain hour, smaller and smaller doses of the hypnotic will be required, and the problem of the drug habit from these hypnotics will solve itself. It has been found by neurologists that a third the quantity of a hypnotic needed to produce sleep in habit insomnia at the outset will secure restful slumber for a week.

In connection with the alterative influences of the hypnotics, the fact should be remembered that the problem of elimination is concerned not only with the products of irregular metabolism, but also with the products changed by the action of these drugs. For this reason it may be necessary to add as synergists to the cumulative hypnotics some of the vegetable hypnotics exerting a similar alterative action of a type which favors elimination. The best of these will be found to be conium, which for the last 20 centuries has been unrivaled as a motor sedative, and which does not affect the intellect or retard elimination. Among the other vegetable hypnotics which are found valuable as synergists are hyoscyamus, hyoscin, scopolamin, eserin, duboisin, and apocodein muriate. The last-named drug is the only opium derivative which does not affect intestinal action. These vegetable hypnotics, moreover, are synergistic in the highest degree, and act independently of any influence on elimination.

A study of the untoward effects of the different synthetic hypnotics gives a marked clue to their therapeutic action on the principles just described. Hydracetin, for example, produces collapse, syncope, fever, hyperidrosis, pseudoangina, vertigo, ataxia symptoms, numbness, amblyopia, conjunctivitis, erythema, purpuric eruptions, strangury and green urine. Methacetin, monobromacetanilid produces identical symptoms, as also does phenacetin, serosin, antikamnia, ammonol, antipyrin, and, more intensely, acetanilid or antifebrin, and exalgin. Chloral hydrate produces very similar symptoms, but in addition hematoporphyrinuria, icterus, albuminuria, and glycosuria, and the same is true of all derivatives of chloral. Paraldehyd produces dyspnea, gastralgia, diarrhea, cyanosis, nausea, vertigo, stupor, delirium, paresthesia, ataxic symptoms, amblyopia, erythema, purpura, hematoporphyrinuria, glycosuria, icterus and albuminuria. Practically the same untoward effects, albeit in a lesser degree, are produced by sulfonal, tetronal, trional and veronal. The bromids produce collapse, pseudoangina, lung edema, coryza, salivation, gastralgia, nausea, fetid breath, aphrodisia, amenorrhea, delirium, spasms, anesthesia, hyperesthesia, stupor, ataxic symptoms, amblyopia, diplopia, throat anesthesia, erythema, acne, dysuria, polyuria, glycosuria and icterus. The vegetable hypnotics which produce similar untoward effects are best calculated for synergists, and a description of these carefully collated from the literature can be found in my work on therapeutics.

The factors underlying insomnia are disturbances of metabolism, causing the circulation of toxic products which interfere with proper blood supply, and with the sleep habit by introducing an irritating factor on the monarchical vasomotor center at a time when this requires most regular rhythmic action. The cumulative effects of the hypnotics, as shown by their extreme effect hours after their first administration, indicate that this can be secured by broken doses given at intervals, so as to secure the acme of their influence during the hours after 12, midnight, when this influence is most needed.

The various alterative effects of the hypnotics serve as an indication that they will counteract the effects occasioned by the products of altered metabolism which are irritating the monarchical vasomotor center of the medulla. The synthetics, which are more potent in these particulars can be aided, and their injurious effects removed by the addition of vegetable hypnotics, like conium, and those derived from the solanacea, as well as certain opium derivatives.

SYSTEMATIC EXAMINATION OF THE EYES OF DEFECTIVES.[1]

BY

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The bearing which that broad term "eyestrain" has upon the functional activities of the system is now so generally recognized that when the physician of today finds on making his examination a condition of hyperchlorosis, of sluggishness of the secondary digestive tract, of deficient elimination of urea, or any of the several manifestations of defective working of the human mechanism, his first thought is of a nervous leak somewhere, and his experience has shown him that nowhere is this more likely to be found than in the eyes.

He realizes that man is so essentially a part of the physical universe that the law governing the conservation of energy applies as directly to his vital forces as it does to the forces in the inanimate world. He knows that cellular activity, whether it be in the stomach, the liver, or the blood cell, is dependent for its physiologic properties on the vital energy which it receives; that this energy is not kept in unlimited or invariable store, but is subject to fluctuations dependent upon the employment of the nervous forces, and that the voluntary or involuntary use of these forces in excess of the powers of the individual, results in every case—primarily in functional, ultimately in structural departures from the normal somewhere in the economy, usually in the point of least resistance. That this is not speculative, but that these conditions actually take place, he knows through the visible changes which the microscope has shown him when the cell is subject to fatigue.

Being a careful observer and a student of modern methods, moreover, he knows that either through inherited peculiarities or partially arrested development, asymmetries of form are far more common than bilateral regularities; that the two sides of the face are rarely alike and that in consequence one side is often higher than the other or more deeply set and that focally the differences are quite as marked. Hence it is that the ophthalmologist to whom these patients are referred frequently finds abnormalities and unlikenesses not only in the eyes of the same individual, but between each of these and the recognized standard of normality.

Now while it is one of the properties of correctly formed eyes to perform their functions without conscious effort, it is a curious fact that eyes having marked focal irregularities or easily demonstrated muscular insufficiencies, may still have perfect vision and do their work without giving the slightest evidence that more tension is being maintained than would be consistent with ocular symmetry and total absence of refractive errors. This is due to the inordinate demand made upon the general fund of nervous energy by which the imperfectly formed organs are still able to perform their functions easily and perfectly—but at a price which must be paid at another counter.

There are three ways in which focal defects manifest themselves: 1. The effort to see is not made; imperfect vision results, and in some cases permanent amblyopia follows. This is the case in monocular squint in which the eyes are usually comfortable and no nervous symptoms develop, but the suppression of a necessary function is maintained at the expense of sight. 2. Normal vision is maintained, but with effort. The eyes are painful and the lids are red. The burden of the strain is felt in the eyes themselves. Reflexes here are by no means common, although sometimes present. 3. Normal vision—often especially clear without the slightest discomfort in the eyes. With this condition are associated insomnia, gastric or intestinal indigestion, especially the latter, disturbances of nutrition, psychoses, and other reflexes world without end. These are the cases in which insistence is maintained with apparent show of reason that nothing is the matter with the eyes, and that a visit to the ophthalmologist is unnecessary and supererogatory, and in which indeed, the conscientious physician is sometimes at a loss to know whether he is justified in putting upon the already distressed patient the physical and financial burden of an examination of the eyes. Of all patients, however, these are the ones in which such a test is most imperative, and it should be made with



Case III.—Hyperesophoria associated with insanity restored by correction of eyestrain.

complete cycloplegia or the crux of the case will be missed.

The differential explanation undoubtedly is, that in the second class of cases in which the eyes suffer, there is little or not excessive demand upon the nervous energy, and the imperfect eyes compelled to do their work with insufficient power show their insufficiency for the task by growing painful and red; while in the third class, nerve force is prodigally supplied to the defective eyes, enabling them easily and unconsciously to perform their functions but with borrowed power.

All may go well under these conditions until a time of stress comes. It may be the oncoming of adolescence or of the climacteric, it may be an unusual emotional period, as a disappointment in love or a business reverse. It more often comes with presbyopia, when the hardening lens makes the strain more palpable and the effort greater; but in almost every case careful inquiry will show a lifelong history of nervous irritability, dyspepsia, or what not, that was erroneously supposed to be temperamental and incorrigible, but which, had the eyes been focally corrected in early life, need never have persisted.

The foregoing is intended to demonstrate the fact, probably perfectly understood before, but which the

[1] Read before the Erie County, N.Y., Medical Association, September 15, 1904.

logical sequence of my thought demanded should be formulated, that if in perfectly normal people eyestrain can undermine the foundations of the organism, interfering with nutrition and disturbing most profoundly the nerve centers, in an infinitely more far-reaching degree will its effects be shown in the case of those in whom the mental stability is less assured.

The term "defective" is a most elastic one when applied to a class. It covers the whole range from the somewhat dull boy in the school to the low grade idiot in the asylum, from the erratic girl or eccentric man to the lunatic. Nordau would have us believe it may apply to genius, and we know high intellectuality is compatible with moral idiocy. Now, if a great drain on the nervous energy may deeply affect the physical condition of the adult, is it not wholly within the limits of logical thought that a continued strain during the plastic developmental period of a child's life may produce or induce deflections which grow into physical or mental or moral deformities, becoming fixed and permanent?

The frequency with which this takes place is shown in part by the number of cases of squints that occur before the completion of the first year, practically all of which are curable at an early period without operation, but which if left are the *bête noire* of surgery.

The following typic case will illustrate the early period at which the effects of eyestrain may be recognized and corrected:

Case I.—*Nystagmus from Astigmatism.* C. C., aged 13 months. From a few days after birth Baby C.'s eyes have twitched laterally. It seemed impossible for him to fix them on any object, although it was evident the infant could see. The motion was increased when the focal effort was attempted. The child was otherwise apparently normal.

The nystagmus could have arisen from only one of two causes, an imperfect efferent impulse from the brain, due to some central defect and causing incoherent action of the lateral muscles, or focal strain, disturbing through an afferent impulse these same centers and producing a like result. The ophthalmoscope and shadow test showed vertical astigmatism of 1.50 D in each eye, and the infant was given spectacles, the bows of which were carefully incased in rubber tubing. He never attempted to take them off, as they seemed to give him complete comfort, and the nystagmus has gradually disappeared.

With a predisposition on the part of an infant to central disturbances as a result of eyestrain, what form of general chorea might not become manifest later?

Another illustrative case will show the extreme degree which a psychosis may reach as a result of anisometropia.

Case II.—*Complete Hysteric Amblyopia.* The patient, a girl aged 10, came under my care through the courtesy of a confrere in Rochester, N. Y. The child was brought by her father, a Methodist clergyman, who lamented in her presence that his little daughter had gone blind.

She was wearing strong glasses of unequal focus, but which had been correctly prescribed by means of the shadow test. With the right eye, however, she could read my largest test letter, which should have been seen 200 feet away, at only 4 feet. With the left, she could not tell light from darkness. A further test soon brought out inconsistencies. She could not tell when a strong light was thrown in the left eye, but the pupil immediately reacted. There were no eye-ground changes whatever. While she could not see a large four-inch letter, she could still pick up a small pencil from the floor rug of similar color. She could readily distinguish colors. Anesthetic areas could be traced on the face. It was evident that the amblyopia was purely functional. After covering the left eye, she was told that she *must* see with the right eye, the left being bandaged, and after an hour she was able to avoid large objects in walking. In six weeks her sight had fully returned in both eyes.

The course of development of the psychosis in this case is evident. She had noticed, owing to the different refractive values in the eyes, that with one the sight was dull, and had therefore said to her father she could not see. He had commented on the lamentable fact, in her hearing, saying his daughter was going blind, and she, equally emotional, immediately proceeded to meet the requirements by actually becoming so. The initial suggestion, however, came from the blurred vision, due to uncorrected hypermetropic astigmatism.

If it can be shown that a large amount of nervous energy is dissipated in the effort to make eyes perform work for which they are organically unequal, and if in connection with this, remote functional disturbances are found, which perhaps in only a few cases cease when the nervous leak is stopped, it is evident that eyestrain may be a contributing, if not an essential cause in the development of the neuroses in which these conditions appear and the corollary is self-evident: *The right of the patient in every case, to have such an examination made as will assure him of the relief of nervous tension that may be thus obtained.*

In the report of the Gould-Bennett examination of a large number of epileptics at Sonyea, and in the critical analysis of these findings made subsequently by Dr. Spratling, the real point seems to have been missed on both sides in that the one endeavors to prove with perhaps excess of zeal that eyestrain causes, and that correct glasses properly set, cure epilepsy in some proportion of cases; while the other equally endeavoring to defend a position already taken, brings the records to show that in none of the cases have the number of attacks been lessened, much less has any patient been cured by wearing spectacles.

It is necessary only to know nervous energy is wasted when focal or muscular defects are present, and when the central instability is so great as to develop confirmed epilepsy every unit of nervous energy that can be conserved tends to raise toward the normal the physiologic activity of the system, and if, as too often unfortunately happens in the older and established cases, the nervous equipoise is hopelessly gone, still a general bettering of the nervous tone is of immense importance, and may have results of far-reaching value.

As invariable in physiology as in physics is the law of the conservation of energy. Its manifestation in the living organism is only more obscure and its demonstration less obvious.

If, as occurs in the daily experience of ophthalmologists, nervous twitching of the eyes and face is relieved by glasses, every choreic is entitled to know whether his eyes may not be an important element in causing and perpetuating his unfortunate malady.

Since gastric and intestinal efficiency is lowered by eyestrain, and superalimentation is the cornerstone of the treatment of neurasthenia and pulmonary tuberculosis, the wise physician insists that the energy abnormally diverted from its proper work shall be turned in its proper channels—so that with better nutrition there is increased nerve power—with greater efficiency on the part of every cell in the body to perform its functions. If the mentality is confused or the brain excited by undue visual effort in any case, and in some form the ophthalmologist sees this every day—as in vertigo, nausea, brain fag, etc.—then in the more serious cases that come to the alienist it is reasonable and wise to eliminate this contributing element as we would chronic constipation or other form of nonelimination, bad sanitary conditions, or anything else that may help in retarding recovery. It probably rarely occurs that eyestrain directly causes insanity, but it is no doubt frequently an added burden for the tired nerves to carry.

The following case is an unusual, extreme instance, of insanity due to eyestrain:

Case III.—The patient, a gentlewoman of 24, a farmer's wife, was committed for the second year in the State Hospital at Gowanda. Her mind seemed quite clear in summer, but when snow came she grew confused, had difficulty in locating herself, and seemed to be in a dazed, uncertain condition. A glance at her face showed the presence of eyestrain, as is evident in her photograph. At my request she was given probationary leave of absence for a month, in order that she might come to Buffalo for treatment. It scarcely required a test to demonstrate the presence of several degrees of right hyperesophoria. She had marked anisometropia with hyperopic astigmatism. Under cycloplegia the asymmetry differed in degree and angle.

Correction with proper glasses followed by tenotomy of the right superior and left internal rectus gave immediate relief. Especially pronounced was the effect of the correction of the hyperesophoria. When the tendon was divided she said it

seemed as if a band that had been confining her brain had been loosened.

At the end of her probation she was so well that she was permanently discharged and has never had to seek relief since. Her whole difficulty had arisen from the abnormal condition of her eyes.

The fact that this could occur in a single case should make an examination of the eyes by a competent specialist a part of the routine on the admission of every patient having sufficient intelligence for the test, in all State hospitals for the insane.

The consensus of opinion is that among defectives of all classes, asymmetries of the eyes are exceedingly common. Indeed, this is one of the stigmata.

If it is so difficult as almost to unbalance the mental faculties of those normally constituted, to pull into focal fusion eyes organically unlike, how vastly heavier must be the burden for those mentally weak! It is not surprising that under the circumstances the tottering intellect gives way under the load.

The conclusions to which these facts give warrant are, that as nutritive, psychic and mental processes are all unfavorably modified by continued eyestrain, every dull or nervous boy or girl in our schools, every case of incipient pulmonary tuberculosis, every candidate for admission to a State hospital, every child summoned before a juvenile court or sentenced to a reformatory, every reasonably intelligent epileptic is entitled to an examination of his eyes, for while the large claims made of cures which can be no cures, in idiocy, organic brain disease and the like such cannot, of course, be justified, even in these cases comfort may be given; while in the young and impressionable, with normal brain power and organic completeness, but with limited or impaired mentality, the results are sometimes such as to surprise and gratify the most optimistic.

ARTERIOSCLEROSIS.[1]

BY

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Arteriosclerosis in persons of advanced age is generally regarded as more or less physiologic. It is well known, however, that some individuals have lived to an advanced age with normal bloodvessels. In arteriosclerosis of the senile there is a thickening and hardening of the middle coats of the vessels, this interferes with the circulation of the blood, predisposes to thrombosis, and may cause senile gangrene by interfering with nutrition and the functions of the vessels. Syphilis as a cause of diseased arteries is a diffuse process affecting all the coats of the vessels. It attacks the internal coat more especially, however, thus causing local or general sclerosis.

Causation.—Heredity plays an important part in the causation of arteriosclerosis. It is generally conceded that a disposition to arteriosclerosis can be inherited. Syphilis, alcohol, gout, rheumatism, and the various infectious diseases are prominent causative factors.

According to Thoma, the disease is primarily an affection of the muscular coats of the bloodvessels, the walls of the vessels lose their elasticity and contractility from overstrain, senile exhaustion, etc.; the vessels become overdistended from blood-pressure, the current is retarded, there is an effort by nature for readjustment, connective tissue is thrown out to restore the proper caliber of the artery. It is probable that consequent interference with the vasa vasorum accomplishes the ultimate ulceration, calcification, and general breaking down of the arteries. It is still largely a matter of hypothesis how these changes begin, and how they are accomplished. There is every reason to believe that they may begin in one of the internal organs, the heart, kidneys or brain, and become gradually generalized.

The age at which this disease begins varies. It has been noted in persons as young as 35, and occasionally in persons much younger. Sietz gives the results of 178 autopsies in cases of arteriosclerosis in which 17 ranged from 10 to 29.

There is still much room for the scientist and diagnostician for work on this important subject. Very marked sclerotic changes may take place, such as we have mentioned, in the brain, kidneys, etc., without causing symptoms for quite awhile in the aorta and the larger vessels. The increased blood-pressure is not always demonstrable in cases considerably advanced. The character of the pulse is deceiving or negative in the early history of these cases. Individual cases must be studied on their own merits. Arteriosclerosis of the coronary arteries and aorta is called the cardiac type of this disease. Dr. Adler,[2] in an article on arteriosclerosis, says in his opinion the degenerative changes begin in the smaller branches of the coronary arteries, and are associated in the beginning with indurative changes in the myocardium, and further that by the time the disease manifests itself plainly in the main coronary trunks and aorta, destructive changes have taken place in the smaller branches, extending to the heart muscles and the surrounding parts.

In cardiac arteriosclerosis the individual frequently observes that he becomes short of breath easily, that there is irregularity of the pulse, palpitation and precordial distress, slight emotional causes affect the heart action. Later on in the disease, when the aorta becomes badly affected, and heart muscles diseased, the patient may have an attack of angina pectoris, occurring after climbing a hill, or any unusual exercise; the pulse is hard and does not yield readily to compression. In the later stages, when calcification becomes marked the walls are so stiff and hard that no pulse can be felt at all, the artery having the socalled slate pencil feel. Among the symptoms complained of are a fulness about the head and a throbbing of the bloodvessels; organic defects of the heart may develop, due to the implication of the valves by the disease processes. The patient may become cyanotic and the attack end fatally in a few minutes. When the coronary arteries are badly affected by sclerosis not infrequently the patient feels a sharp pain under the sternum, extending down the left arm.

To recapitulate, in the early stages of the cardiac forms, physical examination is practically negative. Later in the disease, however, there is hypertrophy of the left ventricle, also of the heart itself; irregularity of the pulse, sometimes intermittent; accentuated aortic second sound, weak first sound, these, together with the angina pectoris, dyspnea, etc., confirm the diagnosis.

Renal Sclerosis.—In arteriosclerosis accompanying renal disease, the alterations in the bloodvessels in some instances are followed by renal complications, caused by changes, or a diseased condition of the excretory glands. In other cases the renal disease is primary, and causes arteriosclerosis, due to the fact that the kidneys do not eliminate the poisonous matter from the blood, and this necessarily exerts a morbid influence upon the arteries similar to any other irritant poison. Chronic interstitial nephritis is not always diagnosed in its early stages. Examination of the urine shows polyuria, persistent low specific gravity, the presence of hyaline casts, usually albumin; of this, however, there may be only traces. The disease may exist for a long time before it is recognized. It is often not detected until the patient is on the autopsy table.

Among the physical symptoms incident to chronic

[1] Read before the third councillor district society of the Ohio Medical Society, February 16, 1905.

[2] New York Medical Record.

interstitial nephritis, there is a feeling of weakness, loss of energy, inability to apply one'sself as usual, difficulty in remembering events that have occurred recently; occasionally a slight swelling around the ankles is noticed, there is loss of appetite, pain in the back of the neck and occiput, inclination to become irritable and fretful, sleep is disturbed. When the heart is examined in the later stages of the disease, there is found hypertrophy and enlargement of the left ventricle. Loomis gives an account of 12 autopsies in which the individuals had cirrhotic kidneys, and in 10 of these the heart was found diseased, apparently secondary to the kidney lesion. In these cases there is found increased arterial tension, firm pulse, a ringing second sound and a forcible apex beat; when the hypertrophy is fully developed, the apex beat will be more forcible than usual and heard displaced toward the left. Cardiac dulness is increased to the right and left. The second sound of the heart will be accentuated on account of the resistance of the blood-pressure in the aorta and the arteriosclerosis. The first sound is weak on account of the arterial changes and the dilation of the ascending aorta. So long as the compensatory hypertrophy keeps up the kidneys are protected, but soon degeneration in the heart muscles occurs, and cardiac insufficiency becomes marked, the pulse is weaker and more irregular, dropsical symptoms appear, the patient becomes anemic and suffers from dyspnea, fainting spells occur frequently, and emphysema and chronic bronchitis not infrequently add to the distress.

I have dwelt particularly upon the fact that arteriosclerosis is caused especially by this kidney lesion, for I regard it as very important. The entire vascular system may become affected. It has been demonstrated that the arteries of the brain are early affected from this cause. The walls of the capillaries become diseased and weakened, some unusual strain, or perhaps a cerebral hyperemia may cause a rupture of one of these vessels followed by apoplexy and sudden death.

In arteriosclerosis of the brain, the early symptoms are frequently noticed by the patients themselves; they complain of a general feeling of lassitude, they realize that they work under a greater strain than formerly, that their memory is not so good, that they are retrograding instead of advancing intellectually, they are not so keen of perception, become fatigued easily, fall asleep at their work, are disinclined to physical exertion.

The foregoing symptoms are not incompatible with a general appearance of health. As the disease advances, however, the symptoms become more marked, the mental weakness becomes more pronounced, the individual anxious and worried, suffers from insomnia, hypochondria, dejection of spirits, may have, though rarely epileptoid attacks, more frequently vertigo, eventually the mental faculties become more and more affected, resulting ultimately in a general wreck both mentally and physically.

In the early stages of arteriosclerosis of the brain it has not infrequently been diagnosed as neurasthenia. If a man is of full habit, and a hearty eater, if he is addicted to the use of alcohol to excess, if he is engaged in hard work, necessitating exposure to the weather, irregular hours, and on this account does not take proper rest or care of himself, should he develop vertigo, etc., associated with depressed tendencies and other symptoms found in neurasthenia, it is well to examine into his history very carefully before making a diagnosis.

It is only by recognizing arteriosclerosis in its earliest manifestations that we may be able to be of some service to our patient, and at least prevent rapid development of the mischief, and perhaps prolong the life of a useful citizen.

In such cases the condition of the bloodvessels should be investigated and the heart carefully examined; if there is an accentuated second sound, examine as to the tension of the arteries in other parts of the body as well as the radial pulse, and especially the temporal vessels. The urine should be carefully examined for kidney lesions.

Senile dementia is a progressive mental decay, occurring at the involution period of life, this may begin anywhere from 60 to 70, it rarely appears before 60. Heredity is a prominent predisposing cause, some authors claiming that about half the cases have their beginning in an inherited predisposition—arteriosclerosis takes a prominent part in the causation of this disease, defective circulation results in bad nutrition and often local degenerations are due to defective or obliterated vessels.

One of the earliest manifestations of senile dementia is failure of memory, especially for recent events; senile dements will frequently talk incessantly about things that happened in early life; soon they begin to fail to recognize their friends, call them by other names, perhaps of persons they have known years ago; their judgment becomes impaired, they lose all pride, become negligent, untidy in their habits, expose their persons, masturbate, sometimes attempt liberties with little girls. If intrusted with property they either become very miserly or squander it foolishly. They develop hallucinations, more rarely illusions; delusions of persecution develop; they imagine they are neglected and are being abused by their friends; not uncommonly they have fear of impending want, are inclined to become depressed, are very restless, especially at night, and are apt to imperil property by carrying around lighted lamps or candles. In the arteriosclerotic senile dement, paralysis agitans is very apt to develop early; patients complain of ringing in the ears, sparks before the eyes, vertigo, etc. They are apt to have apoplectic attacks, followed by hemiplegia. The disease is progressive and incurable.

Many of the patients may be treated at home. If they become unmanageable, the only alternative is a private sanatorium or State hospital.

Treatment.—Sodium bromid quiets the motor excitement to some extent; hyoscin and chloral are dangerous on account of their depressing effect on the heart. Trional and sulfonal may be used occasionally to produce sleep. They also have a depressive effect on the heart if used too frequently. In the chronic alcoholic who persistently overloads his stomach there is a hyperengorgement of the bloodvessels and subsequent arteriosclerosis. The precise mode of action of these causative agents we do not understand as yet. They probably produce toxic poisons, increasing the tension of the bloodvessels, finally resulting in permanent impairment.

Syphilis is no doubt the prime cause of paresis or general paralysis of the insane, which is daily becoming more and more prevalent. Overwork and exposure to intense cold, also extreme fatigue, are no doubt also factors in the causation. Overeating is regarded as a cause of arteriosclerosis; Osler unhesitatingly pronounces it as such.

We are often shocked by the untimely death of persons high in authority in our nation, perhaps an eminent jurist or some distinguished member of our own profession. They pass away in the prime of life, apparently at the acme of their usefulness. Apoplexy is the cause of death in a majority of these cases. In a large proportion of them arteriosclerosis is directly or indirectly the cause of the development of the disease. In these days of active competition when an individual sees before him the goal of success, he is apt to make his health a secondary consideration, and abuse his constitution and nervous system until they will stand the strain no longer. When sclerotic changes occur in the bloodvessels, there is probably no hope of restoration to a normal condition. Persons sometimes live to an advanced age in whom active sclerosis has existed for many years. The danger of kidney disease and cardiac complications must always be feared, embolism and cerebral hemorrhage may cause death at any time. Our efforts must be directed toward arresting the progress of the

disease as much as possible, and preventing the development of serious complications. The patient must be made to understand that he must be moderate or give up his work, at least it should be made as light as possible. The amount of food must be reduced, the quality is also of vast importance. Proteid food must be reduced, meat should not be taken more than once a day, and then in small quantities; food should be well cooked, and fats avoided, anything difficult of digestion should be forbidden, alcohol, tea, coffee, and cocoa, as well as tobacco should be interdicted, or used sparingly. Excessive water drinking and fluids of any kind in large quantities must be curtailed. For breakfast, fruit, cereals, with possibly eggs, are all-sufficient. Dinner should be eaten at noon, and the patient warned against overindulgence. Supper should be light, and very similar to the morning meal. Late suppers are very injurious, and eating between meals should be positively forbidden.

There is no disease in which the socalled rational therapeutics can be used to such advantage as in this disease. Special attention should be given to the secretions and excretions, for this reason baths of various kinds are of great value, each individual requiring a particular variety of hot bath. The Turkish bath with the shower is used with good effect in many cases, massage will also be of great advantage in certain cases.

It is often difficult to get patients to carry out your wishes; if they improve to some extent, they are apt to become careless and lapse into their old habits. It is well to explain frankly what they may expect if they do not follow directions. Mineral waters, especially those of laxative properties may be used to advantage in many cases. If the patient is financially able a residence at some mineral spring is of value, as in this way rest, relaxation, and therapeutic treatment may be combined. If there is a syphilitic history, iodids may be used; these drugs are indicated in any case in which there is a high arterial tension. If the patient complains of vertigo and dizziness, nitroglycerin will be found of value; it can be given regularly for some time without any untoward effect. Amyl nitrite may be prescribed with benefit to relieve the pain of angina pectoris. The best form for administering the remedy is probably the nitrate of amyl pearls.

Cholera Follows Famine.—A serious epidemic of cholera prevails among the refugees from the famine-stricken districts of British India, who have been crowding into Madras for weeks past. Numbers of victims have been found dead or dying in the streets. The deathrate is 89.7 per 1,000.

Experiments on Living Animals in Great Britain.—During 1904 the total number of licensed experiments on animals in Great Britain was 32,562, an increase over the previous year of 13,478. Most of the increase consisted of inoculations and hypodermic injections. Anesthetics were administered in 2,216 cases. In only four cases were irregularities observed; these were evidently due to misunderstanding of the law, and the operators were given only a reproof.

Mortality among French Medical Practitioners.—Louis Sentex, of Saint Sever, recently submitted a report on the mortality of members of the medical profession in France, says the *British Medical Journal*. He made inquiries of the departmental societies, and obtained replies from 39 of these. From the data thus gathered, he found that the collective length of days of 7,936 practitioners was 514,050, giving an average for each of 64 years, 9 months and 11 days. The average duration of life varied among the members of different societies, ranging from 58.30 in members of the Pas-de-Calais Society to 70.59 in the Society of the districts of Albi and Gaillac (Tarn). In five societies the mean duration of life was less than 60 years. Taking the other societies together, the average age was above 60, and in 12 of them, namely, Gironde, Gers, Dordogne, Indre, Landes, Nièvre, Deux-Sevres, Yonne, Vaucluse, Toulon, Meaux, Albi and Gaillac, the mean of life was above the common average. In the great majority of societies the proportion of deaths at ages exceeding 60 was much higher than the proportion of deaths below that age. In the case of practitioners over 60, the age period from 70 to 79 offered the largest number of survivals. On the other hand, there were very few (2.16%) deaths over 90. In the whole number there was but one centenarian.

SPECIAL ARTICLES

THE BUSY PRACTITIONER FROM A BUSINESS POINT OF VIEW.[1]

BY

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I trust I may be pardoned and not accused of commercialism for bringing before this association a subject, which, at first, may seem so foreign to medical science. This, however, is more apparent than real, for anything that will lessen the labors of a busy practitioner and help him to tabulate his cases so that he may be able to refer to them without waste of time, either for scientific or other purposes, and turn at once to an account and strike a balance, gives him more time, thought, and encouragement for the study of scientific subjects.

What busy practitioner does not meet with rare and interesting cases, which, if histories, bedside notes, and treatment were kept of them, would add very materially to the advancement of medical science? Heretofore, the keeping of these records has been left largely with the hospital physician and specialist on account of the former having internes as assistants to keep his histories, treatment, and do his detail work; and the specialist, whose work is done largely at his office, has at his command a regular history book where his records are kept with but little inconvenience, but at considerable time and expense. He, receiving large fees, can afford to keep elaborate histories. This, in part, is the way he earns his large fees; but the busy practitioner has not the time and could not afford for his meager fee, to do this work. If he could afford to, he would not be bothered by carrying a history record to the bedside of the patient.

Some physicians do make elaborate notes on the treatment, history, and interesting phases of their cases, but have no system of filing, so that they do not know where the same can be found when needed. Their accounts are kept in the same unsystematic manner as their clinical records. It is frequently said of Dr. A, B, or C, that he is a physician with a large practice and hosts of friends, but he is a poor collector, and his finances are in a bad shape. Many a physician dies and leaves his family in want because his accounts are in such a tangled up shape that no one but himself could straighten them out, and in a forced settlement would be thrown out of court as worthless, whereas, if his accounts had been properly kept, the conditions might have been decidedly different.

The Good Book says the "laborer is worthy of his hire," and this applies as distinctly to the physician as any other laborer. In no other way can a physician compete with capital and enjoy some of the good things of this world, but by practising his profession on a business basis, *i. e.*, using the same careful methods of bookkeeping, etc., as does the successful business man; but with his present method of keeping his books, it is quite impossible, as he has not the time to devote to it, and his bookkeeping is of such a nature that it cannot be properly kept by another.

By the laity, a physician's professional ability is figured not according to the amount of medical knowledge and skill which he possesses, but in accordance with the size of his practice, accumulated wealth, etc. It often occurs that the physician who knows the least about medicine, makes the greatest success in a financial way, and this physician, too, would be considered as possessing a greater amount of practical skill by the public, than one possibly far his superior. The laity, therefore, is not capable of correctly judging of the skill or ability of a physician, not even among the more learned, the lawyers. Not long ago, I was attending a child of a lawyer, for an eruptive fever, the temperature was running rather high, and I ordered a hot mustard foot bath and an ice cap to the head, but in my absence, he told the nurse he thought it ought not to be done, because

[1] Read before the New York State Medical Association, Erie County, March 13, 1905.

"the rash might strike in." This same lawyer thought a large dose of quinin would settle in his bones and was not safe to be taken for that reason. This had been told him, I suppose, by his mother or other ancestors and he believed it. So you will observe that those of the learned profession have ideas of medicine as absurd as some of the less educated. The moral of all this is, if you wish to be considered well up in your profession by the laity, have your bills in such shape that you can collect them and be able to give the appearance of thrift and prosperity.

In the present way of bookkeeping, if a physician wished to collect material from some of the records of his cases for a

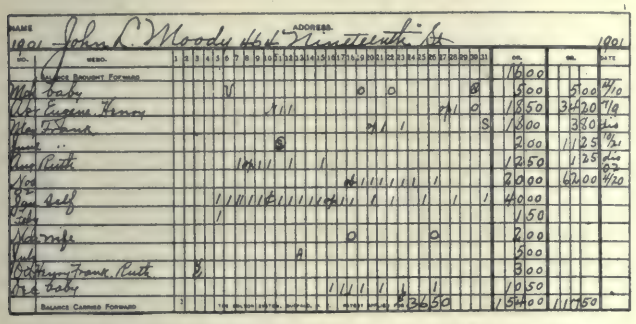


Fig. 1.—Card showing the ledger side with Dr. and Cr.; 1 = house visit @ $1.50; o = office visit @ $1.00; op, ob, $, c., etc., are special charges and found on the reverse side and added in with the totals at the end of the month.

paper or discussion, his subject-matter is so scattered that he cannot find it to obtain the desired information. The wife is usually the busy physician's first bookkeeper, and as well as she may be acquainted with the names of his patients, errors will frequently occur, especially when a physician may have patients with the same initial and surname. The physician would know at once which John Smith or W. H. Brown might be meant in posting his books or sending out his accounts, whereas, the physician's wife or any other bookkeeper would be at a loss to know, and not thinking there were two or more patients by the same name, would post the account or send the bill to the first John Smith arrived at in the index. And though she finally succeeds in getting his books posted correctly, she will be unable to make out the monthly or quarterly accounts, as the case may be, not knowing his charges. The physician's bookkeeping is not like the bookkeeping of any other concern. His bills cannot always be made out with a uniform price for each and every house or office visit. For instance, if a physician is sending out an account to a patient who has been seriously ill, and he has devoted much more time than usual with each visit, he does not send a bill for the same amount that he would if the illness had been trivial and only a short time devoted to each visit. But this his books would not show. The physician only would know this. Again, if a physician were attending a very well-to-do patient, his terms would, or at least in my opinion, should be different from that sent to a poor mechanic or laboring man. At least, if his bills were made out for the same amount, a more liberal discount would be given to the poor than the rich patient. These varying circumstances are details concerning which his bookkeeper would know very little. For the busy physician to keep his books in the usual manner where posting is required, would be out of the question.

It often occurred to me when keeping my books and bedside notes in the usual way what a boon to the busy physician if he could have a system of bookkeeping whereby he could keep his histories, bedside notes, etc., in connection with his accounts in a manner that would require no posting and then could be filed away for future and ready reference in his own original entry. This would prevent the danger of errors in posting, also give complete detail of his case with the account. For these reasons I have devised a card index system, whereby a physician can keep his own books as easily as he can keep the ordinary visiting list. I have tried various systems, but they have all been defective, in that they could not be accompanied by histories, bedside notes, etc., and that they all had to be posted. This, to be done right, had to be done by the physician himself or be subjected to a great many errors. Therefore, a doctor ought of necessity, to be his own bookkeeper.

The following are some of the points of advantage I claim for this system: It is a card index system, giving a visiting list and ledger combined. Its advantages as a visiting list are:

1. It is perpetual and does not require a new one each year.
2. It can be used for an indefinite number of patients.
3. The histories and clinical memorandums can be kept as part and parcel of your visiting list, hence, easily found and ready reference.
4. It is less cumbersome and more compact than the ordinary visiting list.
5. It is useful for keeping memorandums of appointments other than professional, such as medical meetings, committee meetings, and other necessary appointments.
6. No posting required.

Its advantages as a ledger are:

1. Original entry; therefore, best to prove accounts in court.
2. The books are always posted, and a balance can be given at a moment's notice.
3. Each physician is his own bookkeeper.
4. Histories and clinical memorandums a part of the ledger items.
5. Ready reference and more quickly referred to.
6. Greater accuracy and less liability of mistakes on account of no posting, and in the physician's own handwriting.
7. The ledger is perpetual.
8. If an error is made or ledger leaf defaced, it is easily replaced by another, without disfiguring the ledger.
9. The bills can be made out by the wife or bookkeeper as accurately as by himself, as everything will be shown in black and white.
10. In making out statements, no dead accounts to be handled over, therefore, bills can be gotten out more promptly and easily.

This system consists of an indefinite number of cards, 6½ in. by 3½ in., ruled on one side for keeping the account (Fig. 1),

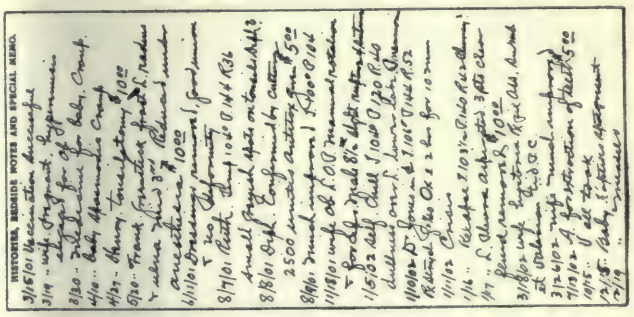


Fig. 2.—The same card showing the reverse side with the clinical record histories and special memo., such as charges for all operations. These special charges are added in at the end of the month on the ledger side of the card.

and the other side left blank for histories, bedside notes, and special memorandums (Fig. 2); and a special sheet called an emergency sheet. A tray (Fig. 3) with a 40-card index for filing away the cards, which serves as a ledger. A wallet (Fig. 4) for holding the cards, with the account and memorandums of the patient on whom he is calling, which serves as the visiting list, and when through calling on the patient, is filed away with the indebtedness for each month totalled.

The emergency sheet is to cover such cases as one meets with when not at his office. For example, if a physician while making his regular calls, is requested to make a visit, it can be entered on this sheet; or if he is paid something on account by a patient on whom he is not then regularly calling, it can be here entered until he reaches his office.

The box containing the card index system is kept in a convenient place in the consultation room during the day, and t night put in the safe like a ledger. When a call comes to the

office by 'phone or otherwise, the physician goes to the box, gets the card with the patient's account and puts it in his wallet, which forms his visiting list. If it happens to be a new patient a blank card is taken and filled out with the name, address, and date, placing a dot in the space underneath the date on which the call is to be made, the same as in the ordinary visiting list. At the top of the card is written the name of the person who is responsible for the debts of the family. On the ruled side, in

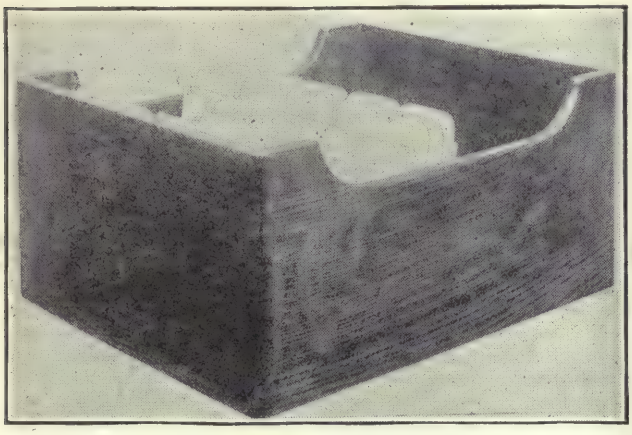


Fig. 3.—The tray in which the cards are filed after through calling on patient, and serves as ledger.

the column marked memorandums, the name of the member of the family treated is marked, as, for instance, under the account of John Smith, Edward, or Mary, or wife, or self, or servant, as the case may be. If a more special memorandum is needed, turn the card over, give the date in an abbreviated form, that is, for January 5, 1904, write 1-5-04. With this date write any memorandum you wish, such as name, a brief history, a diagnosis, and treatment. This can be made very intelligible to the physician within a very small space and little writing. I find in my

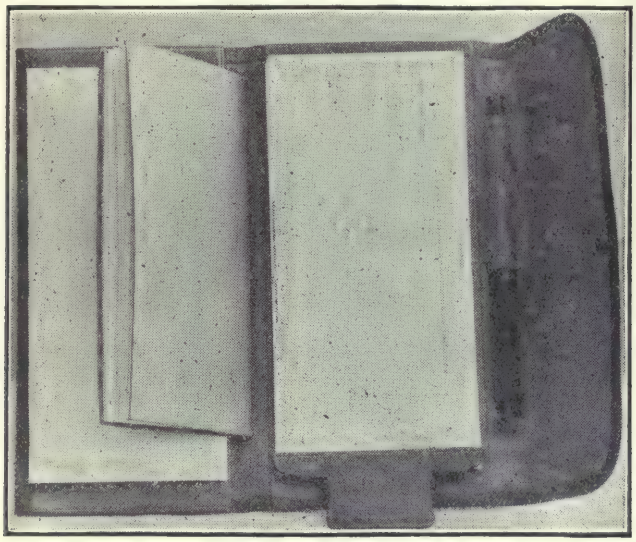


Fig. 4.—Wallet which holds the cards and serves as a visiting list, with a memoranda for obstetric engagements and nurses' addresses with emergency notes.

office practice it is quite important to write your diagnosis and treatment in an abbreviated way. If you are not positive of your diagnosis write a question mark after the same, thus showing that the diagnosis is not positive. It is very embarrassing to the physician to ask the patient, "Let me see; what have I been treating you for?" or "What kind of looking medicine did I give you last?" With such questions, the patient at once loses confidence in the doctor. If a patient whom you have not seen for some time calls at your office, and you have forgotten for what you treated him or her and what you prescribed, you simply take the card from the tray, which should be kept in a very convenient place in your consulting room, and look it up. You know at a glance what the case is, and are in a position to question your patient accordingly, without exposing your ignorance of the case; and this is quite important in the estimation of the patient, as he thinks the doctor should always remember the fullest details of his case. If he sees that you know at once what the case is, he is inspired with confidence. The patient may ask for the same prescription or medicine that you gave about six months or a year before. With a very few notes on the back of the card, that will be intelligible to yourself, you are able to tell at once what it was you prescribed, or what your diagnosis was. One of your patients may call and ask for a vaccination certificate after a lapse of several years, and you are able to turn to it with ease, as the account of Frank Moody will show that Frank, Henry, and Ruth were vaccinated on October 4, 1902, and by turning over the card you will know whether or not the vaccinations were successful. If you wish to write or discuss a paper on any particular subject, you can readily recall the patient who has suffered from the disease under discussion, and turn to the account and look up your notes on it.

From a financial point of view, this system is of much greater importance. If a patient calls at your office and asks for his account, you can give it at once and are not obliged to say, "my books are not posted and I will look it up and send it to you." The patient will not call a second time to get his

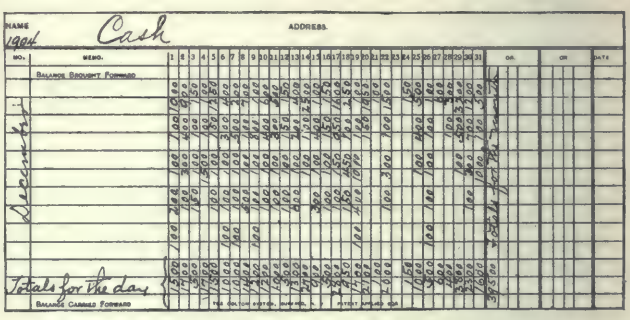


Fig. 5.—The ordinary ledger and special memo. card, showing the method of keeping daily cash receipts. Each day gives space for five cash entries. If more space is required two or more items can be added.

bill, neither will he be prompt about paying when he does get it, as he will think that he did his part once and if the doctor had done his, the account might have been balanced. A patient is always much more grateful for your services immediately after his recovery than he will ever be thereafter. The older your account gets, the less grateful will be the patient. If a special charge has been made, such as opening an abscess or doing a tonsillotomy, administering antitoxin, etc., the date on which it was done, instead of making a straight mark for a house visit or an O for an office visit, you mark it Op. for operation. Then turn the card over and you will know what the operation was and the charge made. At the end of the month it is added in with the totals for the month. If a discount is given off the bill, it is credited the same as the amount which is actually paid, and marked dis. for discount. This is quite essential in order to be able to balance your accounts. When your sheet is full, the balance is carried forward to another sheet and the old one filed away in another box for dead accounts. This saves you time in handling it over in making out your regular monthly, quarterly, semiannual or annual statements as the case may be.

I frequently hear doctors say their books have not been posted in six months, as they have been very busy and neglected it. With this system, this could not occur, as I have before stated, your books are always posted. There will be a great many extra charges in that time, too, that will have been forgotten and therefore you will be the loser of so much.

A business man takes no exceptions and wants his bills for professional services sent as regularly as he does his grocery

or meat bills, in order that he may know how he stands with the world. Bills sent promptly are decidedly more easily collected, less apt to be given to your collector, when he gets the commission instead of yourself, and you hold your patients and their friendships longer by this method as well.

Those phyiscians who are in partnership, and others wishing to keep a daily "cash" (Fig. 5) record, can do so readily by taking one of the regularly ruled cards and using it as follows: The year is placed in the usual place, the month is written on the vertical line separating month from memo, and the cash received written on the vertical lines. Under the day of the month, write the various cash items received for that day. This gives you space for five cash items for the day. If more space is required, two or more of the items can be added together and placed as one item. More than five cash items, though, are unusual for a general practitioner. At the end of each day and month these are totalled. The card is turned round and added horizontally and gives the total for the month. One card will be required for each month. In this way, you can compare each day's, month's, or year's collection with any other corresponding day, month, or year without any other figures. This card should be carried in the wallet instead of keeping it in the tray, so that you may enter at once on the card any cash received. At the end of the month it is filed away for future reference into the tray.

The only disadvantage that I have found in this system was that I missed the list of drugs, with their doses, antidotes, incompatibles, etc., that are usually found in the ordinary visiting list, as well as the memorandums for obstetric engagements and nurses' addresses, etc. This I now have overcome by compiling, with the assistance of Dr. L. E. Curtice, a small booklet memorandum, which is made a part of the wallet, though detachable, containing the drugs, their doses, as well as poisons and their antidotes, with several other emergency notes which the physician needs on the spot. It also has blank pages for nurses' addresses and obstetric engagements, etc.

This system was gotten out expressly for my own necessities and individual use, but as I have been frequently asked by physicians who have seen it where it could be purchased, and what was the price, I am considering the advisability of having it placed on the market. To have a single system made, would be quite expensive; but if put on the market in quantities, they ought not to cost more than a first-class ledger.

MISCELLANY

CEREBROSPINAL MENINGITIS.

[Inquiry by Public Health and Marine-Hospital Service.]

In order to obtain authentic material regarding the prevalence of cerebrospinal meningitis in the United States, a circular letter, dated March 16, 1905, was addressed by the Surgeon-General, Public Health and Marine-Hospital Service, to the secretaries of State Boards of Health and to municipal health officers, requesting them to furnish information concerning the disease, as follows: The number of cases and deaths by months which have occurred during the period from July 1, 1904, to April 1, 1905, in the territory under their jurisdiction; and these officers were requested to make weekly reports thereafter of cases and deaths from cerebrospinal meningitis, and appropriate forms furnished. The publication of the responses to this circular has since been printed in tabular form each week as received.

The factors which determine the diffusion of this disease over certain areas are not well understood, but reliable figures bearing on the distribution of the malady are of value as a possible means of studying the rapidity of travel of epidemics, and indicating the sections in which the disease has a tendency to prevail extensively or to become endemic. The epidemiologic history of cerebrospinal meningitis is divided into five periods, the present and fifth period having been heralded in 1899 by Jaeger in an article in the *Deutsche medicinische Wochenschrift*, when there was a beginning prevalence in Germany, France, Greece, and the United States.

In the first period, extending from 1805 to 1830, there were limited outbreaks in Europe, the first being at Geneva, Switzerland, February, 1805, and larger prevalences in the United States. In 1806 there was an epidemic in Medford, Mass. In those times, the diagnosis of the disease was confused with that of typhus fever. In the second period, 1837–1850, following its well-recognized tendency to recur after longer or shorter periods in the sections previously visited, the disease again made its appearance in the United States, as well as in France, Denmark, Italy, and Algeria, lasting 13 years, up to the middle of the last century. Four years later the disorder (in the meantime not mentioned in the mortality records of the world) entered upon a third epidemic period (1854 to 1875), making itself manifest over a great part of Europe and also appearing in the United States, Asia, Africa, and South America. The fourth period, consisting of more or less casual outbreaks, extends to the last six years, when a more decided tendency to widespread and fatal prevalences was shown.

The disease has been endemic in New York, Philadelphia, and many other important cities of the United States since 1863. It became epidemic in New York in 1904, not having prevailed there extensively since 1881. It was epidemic in Boston in 1897. Cerebrospinal meningitis has been known to break out on ships at sea, generally toward the end of long voyages. The relation of epidemics of cerebrospinal meningitis to temperature and altitude is not marked; and though frequently spoken of as a disease of the temperate zone, it has been known to occur in outbreaks in tropic and subarctic regions, such as Ashanti and Alaska.

In the period covered by the statistics published herewith the figures contributed by State and local health authorities show a maximum intensity in the Middle States. The States from which reports have been received form two main groups, with two isolated States. The larger group of States, all having contiguous boundaries, includes New Hampshire, Massachusetts, Connecticut, Rhode Island, Pennsylvania, Maryland, Ohio, Michigan, Indiana, Illinois, Missouri, Kansas, Nebraska, and Colorado. The second group comprises Mississippi, Louisiana, and Texas, and the isolated States are North Carolina and California.

The disease is well known in Canada, where a severe epidemic prevailed at Montreal in 1873.

Reports from Manitoba, not included in the table, show the presence of cerebrospinal meningitis at Winnipeg. It should be noted, in studying the tables, that they cover only what at present appears to be the declining period of the epidemic. Concurrently with the prevalence in the United States, an epidemic of cerebrospinal meningitis has existed in Austria, Germany, Italy, and Russia. In the month of January the disease appeared in the Ehrzanow district, Galicia. To the date of April 15 the disease was prevailing in 30 districts of Galicia, including the town of Lemberg, and since the beginning of the epidemic there had been 526 cases and 218 deaths. Most of the cases were among children under ten.

The latest reports show that in the Oppeln district lying on the river Oder, in Prussian Silesia, about 50 miles by rail southeast of Breslau, there were in 9 weeks preceding May 7, 1,647 cases registered, with 864 deaths, 802 cases remaining under treatment May 7. The same reports state that from January 1 to April 30, 1,935 cases and 994 deaths from cerebrospinal meningitis were recorded in all Prussia. Of these, 1,814 cases and 932 deaths were in the province of Schlesien, 13 cases and 8 deaths in east Prussia, 16 cases and 9 deaths in west Prussia; 27 cases and 11 deaths in Brandenburg, 6 cases and 2 deaths in Pomerania, 6 cases and 3 deaths in the province of Posen, 7 cases and 4 deaths in the province of Sachsen, 8 cases and 3 deaths in the province of Schleswig-Holstein, 9 cases and 6 deaths in Hanover, 4 cases and 2 deaths in Hessen-Nassau, 5 cases and 3 deaths in Rhenish Prussia, 1 case and 1 death in Hohenzollern, and 21 cases and 10 deaths in Westphalia. The mortality was 51.4% in Schlesien, 50.7% in the other provinces, and 51.4% in all Prussia.

In Italy a number of cases of cerebrospinal meningitis has been reported lately, and the Minister of the Interior has sent instructions to the prefects of the kingdom regarding notification and prophylaxis of the disease. The American consul at

Odessa, Russia, reports 3 cases, with 1 death, from cerebrospinal meningitis from April 30 to May 13 and 5 cases with 2 deaths, from May 14 to June 27.

TECHNIQUE, TECHNICS, AND TECHNIC.

The multiplication of medical terms with identical meanings is, in a sense, intellectually debilitating. The word technique came to us, like critique, from the French. A desire to Anglicize our terms led to the introduction of technics and technic. The first is formed from *τέχνη* art or craftsmanship, on the analogy of music, from *μουσική*, the art pertaining to the Muses; rhetoric, from *ῥητορική* the art pertaining to the *ῥήτωρ*, or speaker. The second comes also from the same source, *τέχνη*, but is formed after the analogy of politics, from *τὰ πολιτικά*, civic affairs, ethics, from *τὰ ἠθικά* things pertaining to custom, etc. Which, then, is the preferable form to use in the Anglicized adjective from *τεχνικός*? For the sake of uniformity, one form should be selected. The more correct form is undoubtedly "technics," for this reason. Music, rhetoric, etc., came from the *singular feminine* form of their respective adjectives, *ἡ μουσική*, *ἡ ῥητορική*, the word *τέχνη*, art, being understood. They therefore represent the art pertaining to the Muses or to the speaker respectively. Politics, ethics, on the other hand, come from the *neuter plural* form of their respective adjectives, *τὰ πολιτικά*, *τὰ ἠθικά*, the word *πράγματα* (affairs) being understood. (It is to be noted that in Greek, neuter plurals take a singular verb, hence it is correct to say politics, ethics, "is," not "are.")

Now it is quite clear that *ἡ τέχνη τεχνική* the artistic art, would be redundant; not so, *τὰ τεχνικά πράγματα* the matters pertaining to craftsmanship, which is exactly what we wish to express, whether we use the term technique, technic, or technics. Bearing in mind what was said above about neuter plurals and the verb, it is perfectly correct to say "the technics is."

While we are not pedantic enough to waste time over trying to oust philologically debased terms that are now acclimatized, we do think that it is desirable to direct language "in the making," if possible, into a proper channel. The nearest approach we are likely to have for many decades to come to an international language of science, is the use of the classic tongues as a base of formation. That being so (and also because no detail in anything that is worth undertaking at all, is too insignificant to make correctness beneath attention), it is desirable that word formation from such tongues should proceed on correct philologic lines that are universally accepted by those of all nationalities who know anything at all about the matter. For those who are not so conversant, the words have to be learned as mere symbols in either case, and if correctly learned from the start, the right way is invariably as easy as the wrong one, so that what is not worth the doing accurately is not worth the doing at all.—[*St. Louis Medical Review*, July 22, 1905.]

STATISTICS RELATIVE TO INOCULATION AGAINST BUBONIC PLAGUE.

When the bubonic plague epidemic is reaching so high a mortality in India, 60,000 having succumbed to its fatality during the week ended April 1, 1905, anything which throws further light on the protective value of inoculation is of great worth. An interesting report comes from the Punjab, and deals with the duration of immunity from plague as the result of the preventive treatment of inoculation, a point which has not been scientifically determined, although opinion is coming to the view that it is a good deal longer than was originally supposed.

An officer on plague duty, hearing that those inoculated in 1902 and 1903 were immune in the following year, instituted inquiries. Taking a group of 20 villages, he found that out of 34,680 inhabitants who had not been inoculated, 2,040 cases and 1,495 deaths occurred; whereas, among 11,059 inoculated there were 1 case and 1 death. Even if we assume that on a closer investigation the figures are not as superexcellent as this, and allow a liberal margin for error, they remain a striking illustration of the prophylactic effects of year-old inoculations.

The recently published reports of the correspondence between the government of the city and the presidency of Bombay brought out some important facts on the subject of inoculation for plague. The chief health officer of the municipality analyzed the present position as follows: (1) Those who are in the best position to know are positive that the prophylactic plague fluid now prepared at its research laboratory at Parel, Bombay, is sterile; (2) that it is harmless to healthy men, and that it is a protection against plague. The government of Bombay accepts these postulates, when they declare that they are convinced of the advantages of inoculation when carefully performed, and that if a considerable proportion of the inhabitants in a plague-threatened area is inoculated, thousands of lives must be saved.

As regards the degree of immunity assured, the health officer says that the case rate of plague among the population of Bombay for the past eight years is 23.2 per 1,000 per annum and the mortality is 19.5. That is, out of every 1,000 people, 23 were attacked and 19 died per annum; taking the population at 800,000, 18,634 were attacked and 15,643 died annually. It is estimated that the deathrate among the inoculated is 0.44% of the population, while among the inhabitants of Bombay it is 1.9%. Consequently had the whole population been inoculated only 3,520 people would have died every year instead of 15,600; or practically 12,000 lives would have been saved annually, or 96,000 in eight years. These are the facts in a nutshell. If the whole community had utilized a prophylactic, which had all the time been within their reach, nearly a lakh of lives would have been saved; if only half the population had been inoculated our grievous mortality records would be smaller by 48,000.

Judging from the experience of recent years there is every reason to fear that the plague epidemic will gain strength in the southern Deccan districts and States, and a little later in the northern Deccan and Gujerat, just as it has throughout northern India and the Punjab until the deathrate from plague becomes simply appalling. How is that danger to be met? We know that the measures hitherto tried have completely, hopelessly, and utterly failed, and that the epidemic has grown in intensity and virulence year by year. We know also that along the lines of practical sanitation, with our present knowledge, little more can be done with any prospect of success.

The native, by reason of his "caste rules," or "his religion," is prejudiced against any form of inoculation. Reason or argument has little or no effect on him. Coercive measures bring riots. The government rightly hesitates to use force, and also claims that it is not the province of administration to offer pecuniary inducements to persons to get inoculated, as was successfully done at Aden about a year ago, when a third of its population submitted to inoculation on being given a reward of 1 rupee a head.

Judging from the experience of late years the aspect of the future is not the most hopeful.—[*Public Health Reports.*]

Excessive Use of Proprietary Medicines.—The case of the Hoboken woman who, according to her husband's allegation in court recently, used up her dowry in buying 300 bottles of patent medicines, should by no means be regarded as a curious or exceptional happening. As a matter of fact, it is merely an extreme instance of one of the commonest practices. Great fortunes would not be made out of proprietary medicines if men and women merely bought occasional boxes of pills or bottles of cough mixture; if, in other words, they tried ready-made medicines on the occasions when they would otherwise have gone to a doctor for a prescription. The business thrives on those sufferers who buy a case at a time. Every country druggist has such customers. They take what makes them "feel good." And as the majority of the most popular proprietary medicines contains percentages of alcohol varying from that of beer to that of whisky or gin, any one of them will give a temporary sensation of well-being. This habit is merely the liquor habit under another guise, and the shame is that so many should be allowed to acquire it innocently and ignorantly. As for the particular case which brings the subject up, 300 bottles in four and a half years is not by any means extreme. It is less than a bottle and a half a week. Unquestionably there are thousands of chronic self-dosers who greatly exceed that allowance.—[*New York Post.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 29, 1905. [Vol. XLV, No. 5.]

1. Carcinoma of the Breast. Ten Years' Experience with My Method of Radical Operation. WILLY MEYER.
2. Tetanus. A Preliminary Report of a Statistical Study. JAMES M. ANDERS and ARTHUR C. MORGAN.
3. Splanchnoptosis from a Surgical Standpoint. JAMES E. MOORE.
4. Duty of Physicians to Patients with Perineal Lacerations. CLAUDE L. HOLLAND.

1.—Carcinoma of the Breast.—Willy Meyer reports 10 years' experience with his method of radical operation for this condition. He gives in detail the technic of the operation, and describes at some length the after-treatment of these patients. Meyer claims for this method of operating that the functional result is better than after other operations, as perfect mobility of the arm invariably follows. He reviews the results obtained in 70 cases.

2.—Tetanus.—J. M. Anders and A. C. Morgan give a preliminary report of their statistical study of 1,201 cases of tetanus, collected from the literature and by direct correspondence, with special reference to the incidence of the disease in the United States. They find convincing proof that tetanus is invariably the result of the introduction of the germ, and that the socalled rheumatic or idiopathic tetanus does not exist. They also find that it is endemic in all large centers of population, that in some localities where it was formerly common, it has become rare, and that occasional small epidemics, traceable to a definite source, occur in limited localities. Tetanus is more prevalent in the hotter part of the year, males are more subject to it than females, and it is less frequent in advanced age. The robust are more susceptible than the weak, and the nervous than the lymphatic. There is much evidence that the disease is transmissible and may give rise to epidemics. The germ, Nicolaier's bacillus, is rarely introduced by the alimentary tract, but usually through open wounds, all parts of the body being very susceptible. The diagnostic importance of the tonic contractions as opposed to the intermittent ones in certain other conditions that simulate tetanus, such as strychnin poisoning, is emphasized. The study showed clearly the value of immediate radical local treatment, and that the most important thing is to open the wound freely in all directions under general anesthesia. Many patients were more or less benefited by the local carbolic acid treatment, and some observers report good results from the local use of ice or freezing mixtures or treatment in a cold room. For palliative treatment, chloral and the bromids appear to have been most extensively used. Calabar bean has been much employed, and also morphin, which should be used with caution on account of its inhibitory action on the respiratory centers. There is no question as to the value of antitoxin as a prophylactic; the testimony is uniformly in its favor. It should be used in any case in which there is suspicion of tetanus infection. In a well-developed case of the disease it has no appreciable beneficial effect, neither reducing the mortality nor hastening recovery.

3.—Splanchnoptosis from a Surgical Standpoint.—James E. Moore states that gynecologists have learned that replacing misplaced pelvic organs and supporting them by mechanical means gives only temporary relief. He discusses at some length the nervous disturbances caused by ptosis of the abdominal and pelvic viscera, and refers to the confusion and misapplication of terms used to designate this condition. He refers briefly to the various etiologic causes assigned to this disorder in the literature, and states that a patient suffering from vague, indefinite symptoms of varying severity should never be pronounced hysteric, dyspeptic or neurasthenic till visceral ptosis has been eliminated. He discusses the differential diagnosis and reviews the literature on this subject.

4.—Perineal Lacerations.—Claude L. Holland advises immediate repair of these injuries, unless the condition of the patient positively contraindicates operation. He states that an anesthetic is generally unnecessary, as the parts are numb from stretching and pressure.

Boston Medical and Surgical Journal.

July 27, 1905. [Vol. CLIII, No. 4.]

1. The Surgeon and the Pathologist. A Plea for Reciprocity as Illustrated by the Consideration of the Classification and Treatment of Benign Tumors of the Breast. J. COLLINS WARREN.
2. Notes on Fractures and Their Treatment. F. J. COTTON.
3. Contribution to the Study of Spinal Surgery. One Successful and One Unsuccessful Operation for Removal of Tumor. G. L. WALTON and W. E. PAUL.
4. The Duties of the State with Reference to Epileptics. MAX MAILHOUSE.

1.—See *American Medicine*, Vol. X, No. 3, p. 110.

2.—Fractures.—F. J. Cotton has not seen any cases of nonunion from interposed soft parts. Failures are due to lack of primary callus or poor apposition. A neglected factor in disability is contractures of muscles and capsule from long fixation. Displacement is more often due to angular displacement or displacement of the line of weight bearing than to overlapping. Long fixation causes rigidity. We cannot use a damaged leg as early as a fractured wrist, but should begin active and passive motion of contiguous joints at the earliest opportunity, to prevent muscle shortening and capsular changes. The writer is not an enthusiast as to massage. Apart from compound fractures, the field for immediate operation is small. Secondary operations should be far more frequent than primary. All cases in which ordinary reduction and fixation do not promise a functionally good result should be operated on. In joint fractures bony union can usually be secured only by operation. The indications for late operation are remedial displacement and long delayed union. The writer believes a review of position (with röntgen ray, if possible) should be a routine measure at a time when correction is still readily possible by open if not by closed methods. He thinks the field for corrective operations is increasing. [H.M.]

3.—Spinal Surgery.—G. L. Walton and W. E. Paul believe there is a more favorable outlook for spinal than cerebral intervention surgically. In apparently hopeless cases they believe in giving the benefit of the doubt to operation, since without operation the case will certainly be lost, and since conditions may be ameliorated even if a cure is not effected. One successful case out of many failures justifies the endeavor, and if selected cases only are operated on one which would prove brilliantly successful might be overlooked. [H.M.]

Medical Record.

July 29, 1905. [Vol. 68, No. 5.]

1. Clinical Suggestions from the Study of 500 Cases of Pulmonary Tuberculosis. HENRY P. LOOMIS.
2. Suggestions for Reducing the Prevalence of Summer Diarrhea in Infants. THOMAS S. SOUTHWORTH.
3. The History and Basis of Dietetic Methods in Typhoid Fever. JOHN BENJAMIN NICHOLS.
4. Animal Remedial Preparations. JOHN W. WAINWRIGHT.
5. The Hypodermic Use of the Salicylate of Mercury in the Treatment of Syphilis. EDWARD F. KILBANE.
6. Carcinoma of the Male Breast Cured by the Röntgen Ray. SINCLAIR TOUSEY.

1.—Clinical Suggestions from the Study of 500 Cases of Pulmonary Tuberculosis.—H. P. Loomis presents a number of very interesting conclusions which are of especial value, because they are based on a series of cases selected because of the unusual completeness of the records available. The patients include people seen in private practice, in the large hospitals, and in sanatorium work, so that all classes and all phases of the disease are represented. The first point discussed is concerned with the manner in which the disease begins. Of 100 cases, it was found that in 80% the first presumable evidence of tuberculosis consisted in either coughs or colds (48%), run down condition (18%), or pleurisy, dry or with effusion (14%). The remaining 20% was about evenly divided between grip, chills and fever (malaria), pneumonia (prolonged recovery), enlarged cervical glands, and hemoptysis. In only 4% of the 100 cases was hemoptysis the first presumable evidence, but in 24%, this symptom ushered in the first demonstrable evidence. The author believes that the great majority of patients who apparently develop pulmonary tuberculosis after the age of 30 had an attack of the disease before. The analysis shows that three and a half months was the average time that elapsed from the actual beginning of the disease to the appearance of tubercle

bacilli in the sputum. The study of the features of value in prognosis is based on the records of patients admitted to sanatorium treatment, and shows, among other things, that the age between 25 and 30 is especially favorable, and that the general vitality and intelligence of the patient and the state of the digestion are of importance, whereas whether one lobe or more than one is involved, is of less significance than usually supposed. Fever, hemorrhages, expectoration, or bacilli in the sputum, are of little value in the prognosis, unless the case has been watched for a long time. An analysis of 55 cured sanatorium cases showed that the average age was high—29, and that the long-lived ancestry of the patients was a point of especial importance, but a tuberculous family history was of less import.

2.—Suggestions for Reducing the Prevalence of Summer Diarrhea in Infants.—T. S. Southworth says that a large part of the responsibility for the great infant mortality which recurs each summer rests on the medical profession, who have failed in their duty in anticipating such trouble by suitable prophylactic measures. These should date from the very birth of the child, and one of the most important is to urge breast nursing in place of bottle feeding. Errors in weaning, neglect of apparently mild attacks of diarrhea, and the common diagnosis of teething, which is used as an excuse for almost any evidence of bodily derangement, are factors that must be combated. The sucking nipple is another distributer of infection that must be abolished. The physician's day's work, even if he sees a child but once, is to seek out and correct errors in nutrition, to combat popular misapprehensions, to further the use of clean milk, to warn the mother that at the very beginning of loose movements in summer she should stop the use of cow's milk in any form, clear out the bowels with castor-oil, give water or cereal gruels only, and send promptly for the physician, since delay is so often fatal.

3.—The History and Basis of Dietetic Methods in Typhoid Fever.—J. B. Nichols leads up to the expression of his own ideas on the subject of feeding in typhoid fever by reviewing the history of the dietetic treatment of fevers from the time when the antiphlogistic treatment was in vogue. He takes the ground that the adoption of milk as the chief article of food for such patients has no logical justification, and he expresses himself in favor of a more liberal diet, which shall include solid food. Milk has many disadvantages, as coagulability, fermentability, bulk, etc., and while it is a complete food for infants, it is not adapted for the exclusive nourishment of adults, except in amounts that are practically prohibitive. It does not follow that because milk is fluid it is on that account more easily digestible, less irritating to the bowels, or leaves less fecal residue. The present method of feeding in typhoid has developed in a way that seems largely empirical, and the history of diet in fevers shows a progressive advance from a starving regimen in the direction of more and more liberal diet. The author, therefore, believes that the present fears of soft and solid food might on trial prove to be unfounded, and he considers that typhoid patients should be given a more varied and more abundant diet than is now customary.

5.—The Hypodermic Use of Mercury Salicylate in Syphilis.—E. F. Kilbane says that taking for granted that mercury in some form is indicated, we have in the intramuscular injection of mercury salicylate a mode of administration that is free from most, if not all, of the difficulties encountered in the use of the drug when administered in the ordinary ways (mouth, inunction, vaporization, etc.), in that it is cleanly, safe, efficient, entirely practical for office or dispensary use, easy of administration, and capable of accurate dosage. It is entitled to consideration and trial as the routine treatment or foundation of treatment, to which may be added, or for which may be substituted, other treatment when required by special indications or conditions. It is equally well adapted to the modified expectant, the interrupted, or the continuous method of treatment.

6.—Carcinoma of the Male Breast Cured by the Röntgen Ray.—S. Tousey's patient was a man of 33, whose right breast was excised on account of the presence of a hard swelling, which was not accompanied by any glandular enlargements. The pathologic examination showed the tumor to be carcinomatous. Six months later the man returned with a tumor of the left breast, which was somewhat softer and less adherent than the other, but more tender. Röntgen-ray treatment was begun, and after 5 months the tenderness had subsided, and in 11 months the growth had entirely disappeared. There has been no recurrence, though there has been no treatment for 13 months.

New York Medical Journal.

July 22, 1905. [Vol. LXXXII, No. 4.]

1. Operative Surgery at the Mayo Clinic. ROLAND HILL.
2. The Value of the Recognition of Errors of Refraction in Functional Diseases of the Nervous System. EDWARD D. FISHER.
3. A Case of Fulminating Peritonitis Complicating Pregnancy; Due to Ruptured Pus Tube at Eight and a Half Months: Cesarean Operation. P. BROOKE BLAND.
4. Private House Operations: The Preparation and After-treatment of the Patient; the Preparation of the Rooms, etc. CHARLES H. RICHARDSON.
5. Rapid Healing in Septic Cases, Including the Use of Iodoform Wax in Bone Cases. ARTHUR T. MANN.
6. A Case of Lithemic Gangrene, a Contribution to Haig's Uric Acid Theory. NATHAN ROSEWATER.
7. Congenital Absence of the Kidney. L. W. GLAZEBROOK.

1.—The Mayo Clinic.—The first steps in this hospital work were undertaken by the elder Dr. Mayo, now 86; about 21 years ago. The work is now carried on by his two sons, William J. Mayo and Charles H. Mayo. Ether, by the drop method, is the anesthetic usually employed. As an antiseptic, Harrington's solution is used both on the hands and on the field of operation. Horsehair is used almost entirely for skin closures, having practically supplanted the subcuticular stitch. In gallstone disease, more than 1,000 operations have been performed with a mortality of 50 cases, without taking into consideration the nature of the case. On analyzing these cases we find that in a series of 820, where the disease was confined to the gallbladder, and for benign conditions, the death-rate was only 3%. This group includes acute and chronic infectious, and local complications. In 416 cases of simple gallstone disease, the mortality was less than half of one per-cent. A review of the common duct cases showed that the stone was present in this location in one out of every 7 cases, and of the 137 operations for this condition, 11% of the patients died; 7% within three weeks, and 4% later, from anemia and general debility. In 4% of the whole series, carcinoma had developed, giving an operative mortality of 22%. Nearly 500 gastroenterostomies have been performed with a very low mortality. In 1904 between 500 and 600 cases of appendicitis were operated in, with only four deaths. Herniotomy is very extensively practised. The question of umbilical hernia has been carefully investigated, and the method of overlapping the aponeurosis, as now done, is believed to have originated in Rochester with the Mayos. The operation most in vogue for senile enlargement of the prostate is the median perineal method, closely resembling that recommended by Bryson several years ago. [C.A.O.]

2.—See *American Medicine*, Vol. IX, No. 20, p. 808.

3.—Peritonitis Complicating Pregnancy.—P. B. Bland reports the case of a woman of 21, who developed fulminating peritonitis near the end of the period of gestation. Cesarean section was performed, and a dead child delivered. Search was then made for the exciting cause of the peritoneal inflammation. A rent was found in right tube, which opened into a large pus cavity. This tube was removed, the abdominal cavity thoroughly flushed and drainage instituted, but the patient died 48 hours later. [C.A.O.]

4.—Private House Operations.—C. H. Richardson, in a very practical article, gives us the technic of private house operations. He takes up first the preparation of the patient, the field of operation, the room, operating furniture, utensils, water, etc., and finally the after-treatment of the patient. [C.A.O.]

5.—Healing in Septic Cases.—A. T. Mann advocates the use of 95% carbolic acid for one minute, followed by alcohol, in cases of subacute or chronic abscesses, infected glands, circumrectal fistulas, etc. These may be opened or dissected out, cureted, treated with carbolic acid, followed by alcohol, and the wound closed for first intention under a smooth, tight dressing. He also calls attention to the use of Von Mosetig's bone wax in the treatment of chronic and subacute osteomyelitis, both

septic and tuberculous. This wax is made of iodoform, 60 parts, oil of sesane, 40 parts, and spermaceti, 40 parts. Moorhof has shown us that we can clean out these cavities, fill them with the bone wax, and suture the soft parts over it for first intention. The wax is gradually replaced by the ingrowth of tissue, largely of bone. Some interesting cases are reported. [C.A.O.]

7.—Congenital absence of the kidney is reported by L. W. Glazebrook as occurring in a woman of 38. The right kidney was very large and there was bifurcation of the ureter. No trace of the left kidney or ureter was found. [C.A.O.]

Medical News.

July 29, 1905. [Vol. 87, No. 5.]

1. The Bacterial Content of the Railway Coach. J. J. KINYOUN.
2. The Cure of Leprosy. ISADORE DYER.
3. Primary Sarcoma of the Stomach. MORRIS MANGES.
4. Cystic Kidney and Liver. HERMAN A. REQUE.
5. A Comparison of Methods of Lavage with the Siphon Tube and Politzer Bulbs. JOHN P. SAWYER.

1.—Bacterial Content of the Railway Coach.—J. J. Kinyoun reports the bacterial content of carpet dust, bacteria from furnishings, from the air, and from the drinking cup, the methods of cleansing the coach, and observations on the health of employes. Of 196 animals inoculated with the material obtained, 73% gave negative results. Including those in which the tubercle bacillus was positively identified there remains 21% which died of infections other than tuberculosis. Possibly there were some animals included in this number which may have died of tuberculosis or of diphtheria, but were killed by rapid infection. If this is so, the percentage for these diseases may be increased. As a considerable number died very early after inoculation, many more experiments must, therefore, be made before we can arrive at a final conclusion. The fact which seems proved is that the bacterial content of the railway coach, in the majority of instances examined, was not infectious to animals. The Pennsylvania and Southern Railway Companies' coaches were cleaned far better than those of the Pullman Company. Those employed in the cleaning, from appearances and inquiry, seem to have good health. [H.M.]

2.—Cure of Leprosy.—I. Dyer believes leprosy, like syphilis and tuberculosis, is curable, according to the degree of infection and body resistance. No early case has failed to respond to his treatment and a certain number have recovered. The only remedies which have given him results are strychnin, antivenomous serum, chaulmoogra oil, and chlorate of potash. The oil more nearly approximates a specific for leprosy than any treatment as yet suggested. Full diet is best, restricting only indigestible foods. Hot baths twice daily, with or without soda, are essential. Tonics and febrifuges are needed. The patient should be watched for intercurrent affections. Strychnin is a *sine qua non*. Chaulmoogra oil is better endured before than after meals and should be given in capsules, hot milk, or milk of magnesia, beginning with 3 drops and slowly increased to 120 or 150 drops. It may be combined in pill with nux vomica and ordinary excipients. One patient now well did not show improvement for two years. Treatment should be continued after all evidence of disease is gone. [H.M.]

3.—Primary Sarcoma of the Stomach.—M. Manges thinks this occurs oftener than supposed. The results of operation are better than in carcinoma. The mucosa is involved only late, if at all. The growth may be diffused or circumscribed. The orifices are rarely stenosed and if the pylorus is involved the stenosis never reaches the degree found in carcinoma. Degeneration frequently occurs in these tumors. Metastases may occur or be absent. Skin metastases are more frequent than in carcinoma. The age range is very great. In most cases gastric symptoms are marked only toward the end. Vomiting and hemorrhage are less frequent than in carcinoma. The physical signs are inconstant. The stomach contents are identical with those of cancer. The writer quotes Fenwick's differentiating points. The prognosis is better in some cases than in carcinoma. Arsenic should be used; otherwise the treatment is surgical. [H.M.]

5.—Lavage with the Siphon Tube and Politzer Bulbs.—J. P. Sawyer refers to the importance of ascertaining the whole amount of residue in ectasia and finds that an error of over 30% is possible by the expression method. The bulbs are also of advantage in the case of tenacious mucus, as much shorter tubes afford less opportunity for retarding the flow by adhesion of the mucus to the walls of the tube. In siphoning in the sitting posture considerable quantities of water may remain in the stomach and the cardiac portion may escape washing altogether. By using bulbs these difficulties are overcome. The patient should recline. The bulb method is easier more cleanly and there is more freedom from straining and gagging. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Bacteriology and Treatment of Epidemic Cerebrospinal Meningitis.—In times of epidemics of cerebrospinal meningitis, it is customary to include under that category all cases of purulent meningitis not proved to be tuberculous in nature. H. Lenhartz,[1] however, believes that some cases are so classified, which are in reality caused by the pneumococcus. A study of those cases, in which a bacteriologic investigation has been made, shows that those caused by Fränkel's pneumococcus usually die very rapidly, while those due to Weichselbaum's *Diplococcus intracellularis* run a more protracted course, and often recover. The high mortality of some epidemics is probably due to the inclusion of many cases caused by Fränkel's organism. In the treatment of the epidemic form the author advocates the frequent and periodic use of lumbar puncture, in order to relieve the undue pressure on the brain and spinal cord. He believes that not only are many cases thus saved, which would otherwise end fatally, but also the sequels are often avoided, especially hydrocephalus. He usually removes only 20 cc. to 40 cc. of fluid at one operation, the removal being regulated by measuring the pressure. When the latter falls below 100 mm. water, the operation is discontinued, and repeated when the pressure symptoms indicate it. In the treatment of deafness and blindness following this disease, the author has derived benefit from the use of mercurial inunctions, together with a seton applied to the back of the neck. [B.K.]

The Secretive Function of the Parotid Gland.—E. A. Jebrowski[2] arrives at the following results of his experimental work: 1. The secretive function of the parotid gland is subject to great variations, and depends chiefly on the physical and chemic properties of the stimulant. The rapidity of secretion is nearly proportional to the square roots of the quantity of the stimulant. 2. Mastication has a marked effect on the secretion of saliva. The act of chewing appears to prolong the action of the stimulant on the mucous membrane. Without mastication the stimulant can exercise only a fleeting effect. 3. The digestive power of the saliva is great in proportion to its richness in organic constituents. 4. The digestion of starch by the parotid saliva in the stomach depends on the alkalinty of the saliva. 5. The salivary action on the digestion of proteids consists in the dilution of the gastric juice with the alkaline fluid of the saliva. In hyperacidity this dilution may be beneficial; in subacidity it is likely to be harmful. [L.J.]

Retention of Urea in Nephritis Compared with the Retention of Chlorids.—According to F. Widal and A. Javal,[3] the classic picture of uremia is a mixture of symptoms due to the retention of urea and of chlorids. Either of these substances may suffer retention separately, and give rise to distinct symptoms. The authors propose the terms "chloridemia" and "azotemia," to distinguish the two conditions. The condition of chloridemia can only be determined by a study of the balance between the chlorids ingested and those excreted. The chlorids do not accumulate in the blood, but pass to the tissues, where they attract water and give rise to edema. Urea, on the other hand, does accumulate in the blood, and the presence of

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 81.
[2] Russki Vratch, March 5, 1905.
[3] La Semaine Médicale, July 5, 1905.

an excess in the serum is the best evidence of its retention. The normal quantity is 0.2 gm. to 0.5 gm. per liter; in the terminal periods of nephritis it may rise to 3 gm. or 4 gm. The excretion of urea by the kidneys is regulated automatically by the quantity of urea in the blood. The retention of urea must be gauged by the proportion between the ingested proteids and the urea in the blood. The retention of urea alone never leads to edema, the latter being caused only by a retention of chlorids. Urea, in fact, has been shown to have a certain degree of diuretic influence. Both chloridemia and azotemia have certain symptoms in common, such as Cheyne-Stokes' respiration and epileptiform attacks. Azotemia is especially characterized by anorexia and torpor, the former gradually becoming complete, and the latter being a true narcosis. The proper treatment of chloridemia is a complete withdrawal of chlorids from the food, while azotemia must be met by a reduction in proteids. A diet of milk sugar is especially recommended for the latter condition, the amount being 100 gm. to 150 gm. daily. The authors decry the milk diet usually advocated in severe nephritis and uremia. They claim that it affords an excess both of water and of proteids. They advocate rather a mixture of milk and vegetables, especially the green and starchy vegetables. They do not prohibit meat altogether, but proportion its quantity to the amount of urea in the blood. These recommendations do not rest solely on a theoretic basis, but have been justified by practical demonstrations. [B.K.]

Experimental Anemias.—A. A. Wisotsky[1] reports on the results of his preliminary experiments. He attempted to produce anemia by injecting phenylhydrazin and pyrogallol into rabbits and found the following changes in consequence: Hemoglobin was diminished in quantity, the number of red cells fell considerably, abnormal forms appeared, especially myeloblasts; the leukocytes showed an increase of eosinophiles, and the appearance of myelocytes and small polynuclears. In general, the changes observed in the poisoned animals bear a remarkable resemblance to those found in persons suffering from pernicious anemia. The myeloblasts, considered so characteristic of this form, appear in the poisoned rabbits in enormous quantities. Thus the opinion of Ehrlich, that the myeloblastic degeneration of the bone marrow is pathognomonic of pernicious anemia, must be considered as refuted by these experiments, which will be continued. [L.J.]

Quantitative Estimation of Uric Acid in the Urine.—N. F. Surveyor[2] gives a method of estimating uric acid that is readily applicable, clinically. The urine is first freed of albumin and pus, if present, by the addition of acetic acid and boiling, followed by filtration. The urine is then rendered slightly alkaline by the addition of small drops of strong NaOH solution from a capillary tube; 5 cc. is then taken, and two minute drops of HCl added. The mixture is placed in a percentage centrifugal tube, which is then immersed in a freezing mixture of salt and ice for 15 to 20 minutes. The urates and uric acid are deposited along with other salts. The tube is rapidly centrifugalized until the whole mass is liquefied. When the temperature of the room is approached, the percentage of the deposit may be read off. This percentage is less than 0.5 for less than 0.04% uric acid; a reading of 0.75% to 1.0% corresponds to 0.05% to 0.08% uric acid; while 1.5% to 2.0% indicates higher amounts. If the urine originally contains a deposit of uric acid and urates, it must first be rendered slightly alkaline by strong NaOH solution and then boiled, after which it is treated as above. [B.K.]

Malta Fever in the Military Hospital, Valletta, Malta.—J. C. Kennedy[3] presents a study covering eight years and dealing with its infectiousness and seasonal incidence. Figures show slightly more cases contracted in hospital in proportion to strength (patients and Royal Army Medical Corps) than in a garrison as a whole (41 to 36 per 1,000 strength), this being due to the high percentage of medical corps men affected. Liability to contract the disease is greater among men living permanently in hospital than among patients. The liability of patients is increased in proportion to the length of stay in hospital. A study of corps cases shows greater liability of nursing orderlies and those brought in close contact with the sick. The writer believes that Malta fever is not infectious in the sense in which we apply the term to smallpox, scarlet fever, or measles. It occurs all the year round, but the "season" begins in June, rapidly increases till it reaches its height in August, and gradually dies down in September and October. [H.M.]

Experiments with Gonococci on Animals.—M. N. Moscoleff[1] reports his experiments on small animals made with a view of ascertaining their susceptibility to gonorrheal infection. He found that rabbits are affected by gonococci when these are introduced beneath the skin or into the peritoneal cavity. The same applies to white mice—in fact, white mice are the best animals for experiments with gonococci. An injection of the virus into the peritoneal cavity of a white mouse produces fatal sepsis. The gonococci multiply in the peritoneal cavity. The action of the cocci on the various animal tissues appears to be due to the production of gonotoxin, the latter showing a chemotactic effect on leukocytes and causing suppuration or exudation. The serum of immunized rabbits has certain curative and preventive virtues when used on white mice. The author advises further elaboration of this serotherapy on larger animals. [L.J.]

[1] Medizinskoe Obosrenie, lxiii, No. 4.
[2] British Medical Journal, July 8, 1905.
[3] Journal of the Royal Army Medical Corps, May, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Pathology and Therapy of Congenital Hypertrophy of the Colon.—The theories concerning the pathogenesis of this affection are grouped as follows: 1. Congenital malformation. 2. Primary abnormality in the length of the intestines, leading to stagnation of feces and secondary dilation of the colon. 3. Mechanical obstruction in the course of the lower bowel. G. Perthes[2] reports a typic case of this socalled Hirschsprung disease, in which there was a valve-like obstruction to the passage of feces. The patient was a boy of 15, who had never had a natural movement of the bowels. The abdomen had become enormously distended, embarrassing both respiration and cardiac action. The dilation of the intestines affected especially the sigmoid flexure, the descending and transverse colon. The peristaltic movements of the hypertrophied intestinal walls could be seen plainly through the abdominal walls. At operation, it was found that the hypertrophied part of the sigmoid passed over abruptly into the lower normal part, a valve-like fold having occurred at their junction. An artificial anus was made in the descending colon, and three successive different operations were unavailingly performed for the relief of the condition. It was finally cured by a resection of that part of the canal containing the valve, after which the bowel was emptied in normal fashion. The author claims that this valvular obstruction is a not uncommon cause of Hirschsprung's disease, although it is not always recognized. From a review of reported cases, in fact, he believes that it is perhaps the most important cause. The diagnosis may be made in cases where a marked accumulation of gas is relieved only in a certain bodily position of the patient, in which the valve is opened. In some cases, a high rectal tube will relieve the distention when it passes the site of the obstruction. In these cases, an operative removal of the site of obstruction is the only means of effecting a cure. Other cases of congenital dilation of the colon may be caused by defective innervation and lack of expulsive power. Here, the treatment should consist of electricity and massage, without operation. In cases requiring operation, the preliminary formation of an artificial anus is of great value, both in diagnosis and treatment of the causative condition. [B.K.]

Suprapubic Cystotomy in Children.—C. G. Cumston[3] discusses the anatomic position of the bladder in childhood and the objections to perineal cystotomy and lithotrity in the young. Operation should be deferred if the patient is weak or

[1] Russki Vratch, March 5, 1905.
[2] Archiv für klinische Chirurgie, Bd. lxxvii, p. 1.
[3] Annals of Gynecology and Pediatry, May, 1905.

extremely anemic. If the urine is alkaline or purulent the bladder should be irrigated for several days before. A milk diet with salol or urotropin is sometimes useful. With the patient in the Tendelenburg position the bladder should be inflated with air, and, after incising the abdomen precisely in the median line, it can be pushed into the opening by an assistant's finger in the rectum. After pushing out of the way the fibrous tracts and fat on its anterior aspect and peeling from below upward the peritoneal culdesac it should be opened in the median line, and the borders held by sutures while the calculi are removed by the finger. The apex should be explored and the bladder washed with sterile salt solution to remove sand. The writer classifies the methods of closing the wound into (1) partial suture of the bladder and abdominal wounds; (2) total suture of the bladder and incomplete suture of the abdomen (3) total suture of the bladder and abdomen with or without a permanent catheter. If there is no infection he prefers (3) with catheterization every three hours. The bladder sutures should extend somewhat beyond the incision and the viscus should be distended with sterile water to ascertain whether it is hermetically closed. After 24 to 48 hours most children will urinate spontaneously. Partial suture with drainage is indicated when the bladder walls are contracted, adherent, or rigid, or have been injured by the extraction of the calculus. [H.M.]

The Repair of Wounds in the Lung.—The conservative treatment of wounds of the lungs shows a mortality of over 40%. Death occurs from internal hemorrhage, from suffocation due to pneumothorax, or from wound infection. C. Garrè[1] believes that at least the first two causes of mortality can be avoided by operative treatment of chest wounds. With our modern technic we are enabled to enter the thoracic cavity, as well as all other bodily cavities. Since the lung is usually already collapsed, there can be no further danger from this source. Suture of the lungs has so far been performed in only nine cases, of which six were followed by recovery. Regarding the technic of the operation, the author advocates making a large thoracic opening, so the whole hand may be introduced if necessary. The position of the opening is determined by the external wound; but in subcutaneous rupture of the lung a lateral thoracic opening is made. After the pulmonary wound is found, it is carefully cleaned and foreign bodies removed. If there is much contusion or uncleanliness, the affected part should be excised with scissors. The wound is then closed with the finest silk or catgut, the stitches being introduced rather close to the edge of the wound, and not tied too firmly. If the wound is inaccessible, a tamponade may be used instead of sutures. Broad surface wounds may be sewed directly to the thoracic opening, and thus be cut off from the pleural cavity. After disposing of the wound in the lung, a careful toilet of the pleural cavity is made, and the thoracic opening closed, either with or without drainage, according to the presence or absence of infection. [B.K.]

Actinomycosis of the Appendix and Cecum.—R. Loewe[2] refers to the cecum and appendix as points of predilection for the beginning of the process, due chiefly to the ease with which grains containing the actinomycotic fungus lodge at these points. The diagnosis is impossible, unless the patient is seen after fistular development; but should the condition be thought of in every case of chronic infiltration of the abdominal wall, the diagnosis will be made oftener and the prognosis improved somewhat. The prognosis, in general bad, may be termed best in the rare cases in which the process, having produced adhesions between intestines and abdominal wall, has become localized in the latter and thus made operative interference easy. The author has collected 67 cases and divided them into three groups. The first group, made up of 47 cases, includes those in which the cecum or appendix is in all probability the portal of entrance for the ray fungus, but cannot be proved to be such. The cases are described in their main features. There were 32 males and 15 females; 25 were between the ages of 20 and 40; 19 had to do with grain in the course of their work, the others followed various trades and professions; in 26 the symptoms of onset were those of a stormy appendicitis becoming more or less chronic thereafter; in the other 21 the symptoms were very gradual, nothing of importance being noted until the tumor appeared; most of the patients were operated on; 19 died, 11 recovered (1 after spontaneous rupture of the abscess); the other 17 are still under treatment, but in none is the prognosis a favorable one. The second group, containing cases in which the cecum could be proved to be the portal of entrance, is made up of 5 cases. All of them, 3 men and 2 women, died after long lasting disease; in 4 the disease began acutely; in all 5 the treatment was operative. The third group, in which the appendix could be proved to have been the point of admission to the fungus, was made up of 15 patients; to these he adds a personal observation. Twelve of these died, in 2 the result is unknown, 1 recovered, and his own patient is still under observation, the chances of ultimate recovery being good. The male sex furnished 14 of the patients; 12 ranged in years between 15 and 40; 7 of them had to do with grain; the course of disease in all the cases was chronic; the treatment operative. In his case the diagnosis of appendiceal actinomycosis was made, the disease beginning with an acute appendiceal attack and the pus from the fistulas containing the ray fungus. The appendix was the seat of a perforation, numerous fistulas permeating the abdominal wall from there. [E.L.]

A New Method of Sterilizing Knives for Operation.—All previous methods of sterilizing surgical knives have been open to objection, as antisepsis has been secured at the expense of a sharp cutting edge, or vice versa. O. Grosse[1] proposes a method which claims to obviate both difficulties, based upon the method of sterilizing catheters in glass tubes. He uses a large, wide test-tube, provided with a cork, which is held in place by a fine chain, attached to a spiral spring that surrounds the end of the tube. Slight pressure on the spring permits of opening and closing of the tube. In the tube is a spring frame, supporting a knife rack, upon which the knives are placed. The tube is then placed in a steam sterilizer. The presence of the small amount of aqueous vapor in the air of the tube is sufficient to produce steam sterilization of the knives, without rusting them. When the tube is withdrawn from the sterilizer it is found that this vapor condenses on the colder glass, while the warmer, metallic knives remain absolutely dry. The author's experiments show that absolute sterilization may be depended upon after 10 minutes' heating in the steam sterilizer. In a second paper he describes a very convenient and efficient portable universal sterilizer, by means of which dressings, suture material, catheters, instruments and knives may all be sterilized at the same time. [B.K.]

New Operation for Hernia of the Pelvic Floor.—G. W. Crile[2] reports in detail a case of procidentia, in which recurrence took place in four months after anterior and posterior plastic operation, with repair of perineum, and in six months after a second operation, consisting of vaginal hysterectomy with fixation of the round and broad ligaments to the fornix. He then performed laparotomy and anchored the pelvic ligaments and vagina to the abdominal wall; three years have passed without recurrence. Since that time, 7 others by the same method have shown no recurrence; 16 by other methods gave 25% recurrences. The operation can be performed in cases of complete hernia (procidentia) only, as in others there is not sufficient length of ligaments and of vagina to reach to the external fascia of the abdominal wall. The technic of the operation is fully described and illustrated. [A.G.E.]

The Cure of Tuberculous Pyopneumothorax.—According to F. Penzoldt,[3] the ordinarily fatal complication of pyopneumothorax, with tuberculosis, is occasionally curable. He reports a case that is still well after an interval of four and a half years. In this patient the pyopneumothorax was accompanied by fever only during the first month, and the fluid completely filled the pleural cavity. The cure was accomplished by repeated tappings, with occasional iodoform injections, and a very strict open-air, rest cure. After a compression of nine months, the lung was still found to be perfectly expansible. The effusion contained no pathogenic organisms beside the tubercle bacillus. The author reports other cases, however, to

[1] Archiv für klinische Chirurgie, Bd. lxxvii, p. 209.
[2] Inaugural Dissertation Greifswald, 1904.

[1] Archiv für klinische Chirurgie, Bd. lxxvii, pp. 274 and 289.
[2] Cleveland Medical Journal, July, 1905.
[3] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 57.

show that a cure is not always attainable. In such cases the fatal termination is usually due to complications or to involvement of other organs. If the pleural fluid shows the presence of pus-producing organisms, it may be better to treat the case as one of ordinary pyopneumothorax, and adopt more radical local measures. In all cases, however, the open-air, rest treatment with forced nutrition is a powerful means of combating the disease. [B.K.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Alcohol as a Therapeutic Agent.—J. Barr[1] decries the widespread use of alcohol as a drug. His studies have shown him that it paralyzes the vasomotor system and produces a fall in the blood-pressure, especially in the vessels of the skin and muscles. There is a consequent loss of temperature control. The energy of the heart is wasted in pumping blood into the relaxed vessels, and its nutrition likewise fails through the poisonous action of alcohol on the cardiac muscle. The author claims that in this latter respect alcohol acts like the toxins of diphtheria and other diseases. The pulmonary, cerebral and splanchnic circulations are all affected deleteriously by alcohol, a venous engorgement being the result of its use. On the nervous system, alcohol acts as a sedative, rather than a stimulant. It lessens reflex action, assuages pain, and may be used as a soporific. Its effects on the stomach, liver and kidneys are well known. From this study of its physiologic action the author thinks it is evident that alcohol is of no use as a stimulant in those diseases where it is so frequently used as such, especially in pneumonia and typhoid fever. In the former disease he sometimes employs alcohol in the form of beer or stout as a soporific, especially in pneumonia complicated by delirium tremens. In convalescence a wine may be used to lower the peripheral resistance to an enfeebled heart. In typhoid fever he believes alcohol does harm by aiding the typhoid toxin in producing cardiac degeneration. As a food it has very little value. In tuberculous diseases it does harm by lessening vital resistance and leading to pulmonary engorgement with bronchial catarrh. It is of no use in chronic nervous diseases, in shock and collapse, in diseases of the respiratory or circulatory systems, or in gastrointestinal diseases. [B.K.]

Emesis and Sweating in Capillary Bronchitis.—O. Heubner[2] recommends the following procedure in threatened asphyxia of small children during capillary bronchitis: One pound of mustard flour is stirred up with three pints of warm water for 10 minutes. A sheath is soaked in this and the child wrapped in it; a woolen blanket, closed at the neck, is placed over all. After from 10 to 15 minutes, the patient, whose skin has become red, is taken from this and placed in a warm bath, and after this, wrapped in a warm sheath until free perspiration is established. If congestion or perspiration be marked, a second warm bath, followed by a cool douche, may be employed; after this the child is dried and put to bed. [E.L.]

The Therapeutic Use of Water Drinking and Some of Its Dangers.—E. H. Root[3] believes that the normal amount of water required can be regulated by thirst. Reduction of body water by 1% produces thirst. If water can be substituted for tea, coffee, etc., without increasing the amount of liquid the advice to drink it is good. The total water in a body weighing 165 pounds is 115 pounds, and 6½ of these are excreted daily, The weight, the amount of liquids already taken, the amount and character of the food taken, the activity of the skin, kidneys, and intestinal tract, the condition of the heart and arteries, and the occupation should all be considered before prescribing water drinking, and its effects should be as carefully watched as any other therapeutic measure. It is absurd to fill a man of sluggish activities, who is a large eater, with more water than he needs. When water is abnormally increased the heart is brought into greater action and the blood-pressure in the arteries is disturbed. If the skin is active, as in warm weather, the water may escape through it at the expense of the kidneys. The urine being thus concentrated irritates the kidney structures, and this is followed by lessened excretion of waste products that the skin cannot carry off. Retention brings on a train of symptoms referable to the heart, arteries, and nervous system, the results of which may be serious if there is previous impairment. While the blood is not an absorbing tissue and the muscles and subcutaneous tissues imbibe two-thirds and the skin a sixth of the water injected. the heart must exert greater effort to force the blood through the arterioles and capillaries of water-logged tissues. This will sooner or later cause first hypertrophy and then dilation. [H.M.

Treatment of Deafness Due to Lesions of the Internal Ear.—Chavanne[1] states that when deafness appears suddenly, together with vertigo and subjective noises, indicating lesions of the internal ear, it may be the result of traumatism, syphilis, or a general affection, such as diabetes, nephritis, and variola. 1. Traumatism: Two varieties of traumatism are distinguished, concussion and wounds. The deafness resulting from concussion may be slight and fleeting or it may be incurable. The patient should be isolated from external noises and should remain in bed. If after 24 to 36 hours no notable amelioration is produced, revulsives should be resorted to. If at the end of 3 or 4 days the symptoms persist, strychnin nitrate in the dose of from $\frac{1}{30}$ gr. to $\frac{1}{10}$ gr. daily should be injected hypodermically into the temporal region or the nape of the neck. If improvement is noticed under this treatment, it should be continued, otherwise it should be stopped, as the deafness is incurable. If the deafness is the result of a projectile or foreign body, it should be removed and antiseptic treatment instituted, in order to prevent inflammation of the meninges and brain. 2. Syphilis: During the secondary-tertiary and tertiary stages of syphilis the lesions of the labyrinth are most liable to occur. These consist of vascular lesions, periostitis, and exostoses. The deafness is usually bilateral. Treatment consists in the early administration of mixed treatment in large doses. The patient at the same time should be confined in absolute silence. 3. Deafness not due to syphilis or traumatism: Acute attacks may be combated by the use of purgatives and local revulsives and the maintenance of quiet. If rheumatism is present, it should receive specific treatment. Subacute or chronic deafness is best treated by the administration of pilocarpin, which favors the absorption of exudates in the labyrinth. It is employed by hypodermic injection. [L.F.A.]

Treatment of Ringworm of the Scalp by the Röntgen Rays.—H. G. Adamson[2] and T. M. H. Macleod[3] publish simultaneously their separate observations on the treatment of ringworm of the scalp by the röntgen rays, the method employed by each being the same. Previous methods of treatment have always been unsatisfactory and tedious, and consisted of the employment of parasiticides of varying strength. In rare instances it was noticed that when a folliculitis caused the falling out of the ringworm hairs, a cure resulted. The object of röntgen-ray treatment is to produce the same result, but the difficulty here has been to gauge correctly the dosage of the röntgen ray, in order to produce a complete falling of the hair in the diseased area without causing permanent baldness. The method employed by both authors consists in the use of Sabouraud's pastilles of platinobarium cyanid, which substance becomes darkened by exposure to the röntgen rays in proportion to the quantity of rays received. The tube is placed so that the anticathode is seven inches from the scalp, and the pastille is placed midway between these two points. A hard tube should be used, and the time of exposure is measured by the attainment of a certain standard fawn tint by the pastille. After the exposure nothing is done beyond the daily application of a weak parasiticide ointment to the surrounding scalp, to prevent spread of the disease. In from two to three weeks the hair falls out completely over the diseased area. New, healthy hair begins to appear about six weeks later, and its growth is completed in about five months. [B.K.]

[1] British Medical Journal, July 1, 1905.
[2] Therapie der Gegenwart, January, 1905.
[3] Woman's Medical Journal, May, 1905.

[1] Journal des Praticiens, Vol. xix, No. 3, 1905, p. 43.
[2] The Lancet, June 24, 1905.
[3] British Medical Journal, July 1, 1905.

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Addresses at the British Medical Association.[1] —The addresses delivered at the seventy-third annual meeting of the British Medical Association, held at Leicester July 24–28, are well worthy of more space than our crowded columns permit. Retrospective, critical, hopefully suggestive, these scholarly productions merit careful reading at first hand. Coming so soon after the meeting of our own national Association, a comparison of the addresses at the two societies shows some striking similarities in the trend of the respective orators. President Franklin, of the British Association, while speaking particularly of medical education, refers constantly to the part played in its advance by the Association; the work of our organization, with special reference to raising the professional standard, was the theme of Dr. McMurtry at Portland. In his oration on medicine, Dr. Stockton directs attention to "the practicability of keeping the various functions of the organism, of preserving the physical and intellectual powers, of developing a race less prone to early decay;" Dr. Maudsley discusses preventive medicine from the same aspect, the object being "to obviate the predispositions to disease which lie within the body by giving it inward strength to resist its subtle, ever-present, ever-active enemies." Both emphasize the paramount importance of heredity, in plain terms breeding, a subject unfashionable to discuss unless with reference to cattle or dogs. The address of Dr. Maudsley is an admirable reflection concerning what may be termed the inner things of medicine, heredity, the reflexes, the influence of the mind upon the body, and the efficacy of simple means, as air, food, and exercise, in fortifying against extraneous noxious agencies and insidious degenerations from within.

Medical Education in Great Britain. — Dr. Franklin says if he were asked in what respect the medical education of 40 years ago was most deficient, he would name three particulars: (1) Preliminary examinations; (2) obstetrics; (3) administration of anesthetics. And he would give precisely the same answer if asked this question regarding the status of the recent graduate today. He at once dismisses the idea of implied lack of progress by stating that progress has been made but further advances are eminently desirable. With the first of these points we believe no one will disagree; possibly some, at least in this country, would not assign the other to such great importance, though the lack of knowledge regarding anesthetics is shamefully apparent. Dr. Franklin considers a requirement of 20 obstetric cases as only "trifling with the subject." What would he say regarding institutions which require only two? The trend toward the production of specialists is listed as one of the most startling facts of the day in connection with medical education. The development of specialism is explained in two ways: 1. The severe competition in practice which the young graduate must meet. 2. The demand of the public for specialists. The people should be educated in this regard. Specialism, even as now practised, is considered on the whole as yielding good practical results; the public could from it receive more good if they knew what to seek and what to avoid in its practice. One element, the advertising fraudulent specialist, should be eliminated; this practice, rampant though it is in England, is believed there to be less general than in America.

A Study in Surgical Pathology.—The addresses in surgery at the two meetings are alike only in that Mr. Bond and Dr. Warren each consider a technical subject. Mr. Bond chose for his theme, Ascending Currents in Mucous Canals and Gland Ducts and their Influence on Infection. His observations include a large number of cases, and are very timely in these days of advancing preventive medicine. Very pertinent, also, is his suggestion that surgeons should be more alert in seizing the opportunities for studying natural and disease processes which are afforded by their daily operations. Mr. Bond has studied, by means of indigo granules, certain currents in the colon, biliary passages, male and female genitourinary tracts, and the ducts of the mammary gland. In each of the series, the existence of a transporting current, capable of carrying the granules of indigo, in a direction opposite to the flow of the content of the tube, was demonstrated. The conditions which seem to favor such current are some interference with the normal flow of the contents of the tube. The bearing of these facts on the phenomena of infection is extremely suggestive and the subject is worthy of further careful study. The mucous outlets of the body are thereby raised in importance as portals of entry, and the necessity of personal hygiene further emphasized.

[1] Advance proof, courtesy of editor of British Medical Journal.

The inception of obscure cases of biliary, renal and vesical calculi, may possibly in this way be explained. A subject for further investigation is whether these currents are present in normal mucous tubes, and, if so, their relative activity compared with the abnormal conditions studied. Experiments with this object in view may readily be performed on animals; their feasibility in human beings is not so clear.

The proper therapeutic uses of alcohol will probably be determined in time, though the views of capable observers are still at such variance that an early settlement of the question cannot be expected. It will be called the eternal alcohol question for a long while. The subject was recently discussed by Dr. James Barr, of Liverpool University, in his presidential address to the Lancashire Branch of the British Medical Association, and published in the *British Medical Journal* of July 1. The chief value of this particular paper is probably as an indication that the general trend of the best professional opinion on the subject is in the direction of a temperate compromise between the views of the extremists. Happily there are few left of those who give alcohol, early and often, and as a preventive or cure for about everything from the cradle to the grave. The class is either dying off or its members are changing their opinions in accordance with new discoveries. On the other hand, the group of physicians who, probably in protest against the harmfulness of indiscriminate prescribing, never direct it for any disease, is apparently not gaining in numbers. That alcohol has a use in some stages of a few pathologic conditions seems now to be proved, but Dr. Barr states that such diseases are few in number and the therapeutic sphere of alcohol quite circumscribed in these. He also said that even in pneumonia and typhoid fever, the two diseases in which alcohol is still generally considered to be indispensable, its real therapeutic value is quite limited. In the former disease, its chief, and perhaps its only use is as a soporific, while in typhoid it is said to be even more useless than in pneumonia.

Alcohol is not a stimulant but a sedative, and the effect in larger doses may extend to paresis or complete paralysis. The stimulating effects are deceptive, being merely the results of the weakening of the normal restraints. The large bounding pulse, for instance, is not due to more vigor, but to a vasomotor paralysis with dilation of arterioles and lessened systolic pressure. The increased flow of ideas is likewise a disorderly outpouring due to paralysis of normal control, and it is a wise provision that reporters are not admitted to hear the usual after-dinner speech—it does not look well in print. Even in small doses the reaction times are increased, indicating a weaker control over our faculties and a slower functioning. Alcohol weakens and paralyzes when given to stimulate, and herein is its danger. In time, as the number of such papers increases, and it is possible to eliminate the baseless opinions of extremists, the subject will settle down on a basis of fact. In the meantime, it would be well to restrain the habit of prescribing alcohol for every emergency and reserve it for its true use as a sedative and in dilute form as an aid to digestion or, in the case of the effervescing wines, to increase peristalsis, as recommended by Barr. He also states that it is not the alcohol which produces gout, but its by-products.

The food value of alcohol is also a subject upon which opinions, once so at variance, now show signs of increasing unanimity. There are but few who think that it is not a food even in drop doses, and perhaps there is none who believes it is a valuable food. It has been shown that in all probability a trace of alcohol is always present in the tissues of active living organisms, both vegetable and animal. It is probably a stage of the oxidation of carbohydrates to carbonic acid and water. A plant cell is unable to utilize the energy of carbohydrates until they are changed to alcohol by an enzyme, when further oxidation takes place through various other stages, such as acetic acid, acetone, and the aldehyds. It has been presumed that the same processes take place in animal cells through the action of an enzyme, and if this is true, alcohol is about the only food of the class of carbohydrates. Minute frequent doses, then, must be of value when it is desired to relieve the system of the expense of digesting higher compounds, and when, through asthenia, it is unable to do this, though it is quite evident that as usually given in large doses at infrequent intervals, alcohol is poisonous, we will be compelled to allow nature to manufacture in our bodies the minute amounts she deems proper, and keep our hands off. The dreadful pathologic results of overindulgence need not be enlarged upon in this generation; what is needed now is some proof that even if alcohol in very small, well-diluted doses can be harmlessly utilized as a food, nature is fully competent to manufacture the stuff herself. Nor need we imitate the foolish old ladies who are said to have subsisted on unleavened bread because the other dough contained alcohol. The young can be advised to abstain, and should be, but at present it is evident that the profession still looks upon this as an ethical matter, and while thus siding with the aims of the abstainers, is still compelled to say that it is merely to check the possibility of habit formation or accidental excesses if they might be socalled.

Alcohol as a cause of the scleroses is another side issue which is touched upon, but which is bound to receive considerable comment in the future. It is an article of faith that alcohol is the main cause of hepatic cirrhosis, and perhaps the only cause. Dr. Barr evidently thinks so, too, though he has considerable doubt that the granular kidney generally attributed to alcohol has any necessary relation thereto, but is part of a general arteriosclerosis, which, in this country at least, is now known to have no possible relation to overindulgence. There is a suspicion that the hardened liver, so enlarged upon by the laity as the punishment for drinkers, is likewise due to a general systemic condition with some relation to arteriosclerosis, and that alcoholism, when it did exist, was a mere coincidence. It is a suspicion worth following up, for if correct, it might

throw considerable light upon the spinal and other nerve scleroses, now generally ascribed to alcohol or syphilis, but which may be due to an original fault of the whole organism itself. In fact there is a beginning reaction against the old habit of ascribing to alcohol every pathologic condition found postmortem in drunkards, and a tendency to look upon the demand for drink as a result of these diseases. We are now going back to the embryo or to the parents or grandparents in our search for the causes of these conditions, all of which are evidently due to some fundamental fault. If alcohol really bathes all living tissues and is one stage of food oxidation, it is illogical to attribute harm to it in these amounts.

Alcohol as a beverage is a matter which still defies scientific management. There is a psychic element which is beyond control, and which is no doubt at the basis of the enormous liquor traffic. Published statistics are so discrepant as to be unreliable, but we are perhaps safe in stating that the per capita consumption in Great Britain is diminishing, but in the United States is increasing. It has been said that this is due to the hard times abroad and the prosperity here, as it is an undoubted fact that in times of privation these expensive drinks are abandoned. A newspaper has stated that over 80,000,000 glasses of beer are daily consumed in the United States, or one for each man, woman and child. If this is true, and it is apparently true, it needs explanation. We are sure that the number of excessive drinkers is diminishing, and that business reasons require a steadily increasing number of abstainers. Only recently a drunken teamster drove a wagon over a precipice in the Yellowstone Park and killed three passengers, and the incident proves that in this and in many other employments the public will demand abstainers. In spite of all this, in spite of the great temperance movement and in spite of our repeated proofs of the damage of excess and the danger of moderation, it is evident that the amount consumed by the moderate drinkers is steadily increasing. The psychic effect of alcohol is no doubt the cause. Under its sedative influence, worries so diminish as to cause one to take a new view of things—perverted, to be sure, but more or less pleasurable in the rush of our strenuous life. This is probably the reason for the reply of a drinking man to the statistics showing the greater longevity of abstainers, that though alcohol might shorten lives, it seemed to make them broader and thicker, so that the bulk was more in the end. There must be some psychic cause for a phenomenon which no amount of argument is able to check. Probably it is a sign that we are not living properly—perhaps exhausted from burning the candle at both ends. With a less strenuous life we would not need the sedative and this is probably the main lesson to be derived from the present status of the question.

Hygiene in Public Schools.—We have had occasion several times to speak upon this topic, referring particularly to the unsatisfactory teaching of the subject in our public and high schools largely due to the attempt of an organization to prostitute elementary physiology and hygiene to unscientific temperance instruction. In 1903 the American Academy of Medicine appointed a committee of three to investigate the entire subject; their report, published in full in the Bulletin of the Academy for June, 1905, contains many enlightening facts anent this important question. A study of the laws of the several States shows that none specifies what shall be taught regarding alcohol and narcotics or definitely how instruction in hygiene is to be supplied; no law requires endorsement of textbooks by the W. C. T. U. In short, any teacher who has the capacity will find ample openings to demonstrate better ideas regarding books and methods of teaching. This, we believe, is contrary to general opinion regarding the liberty of instructors. The larger part of the report deals with the examination of textbooks on physiology and hygiene used in the schools from 1883 to 1904, a complete list being appended. The evolution has in many ways been satisfactory though a consideration of those for the various grades shows that much is yet to be desired. All of them omit even remote reference to the anatomy, physiology and hygiene of the reproductive system. As to the authors, it appears that physicians and general school-teachers are being replaced by specialists in natural sciences, a not altogether desirable substitution. The report constitutes a fund of valuable information which is to be still further augmented by the continued labor of the committee.

Investigations Concerning Chloroform.—A year ago[1] we noted the results attained up to that time by the special chloroform committee of the British Medical Association. The fourth report of the commission, recently at hand,[2] shows the work has been continued along the lines previously laid down. No conclusions that can be made use of by the anesthetist have, as yet, been reached, but prospects for such practical results during the coming year appear hopeful. Professor Sherrington and Miss Sowton extended their experiments to include the skeletal muscles; they show that these, as well as the heart, are depressed by chloroform, though to a less degree by equal dosage. On bloodvessels, weak solutions produce constriction; this, with the use of higher percentages, is followed by dilation. Mr. Vernon Harcourt is examining the inspired and expired air of persons under the influence of chloroform. As most of the year was occupied in perfecting accurate apparatus, no definite results were attained. Enough has been determined to indicate the great value of this line of research, and from it we may hope for practical directions to govern the actual administration of chloroform. The enthusiasm of the committee in their long and difficult task, well merits a successful outcome.

The Decline of Malaria in Maryland.—The conspicuous decrease, amounting in many instances almost to disappearance, of malaria in certain localities where formerly it was rife is a matter of common knowledge. To drainage more than to any other one factor, unless it be the use of quinin, even before the role played by the mosquito was known, this change has been ascribed.

[1] *American Medicine*, Vol. viii, p. 346.
[2] British Medical Journal, July 22, 1905.

For the marked decrease of the disease in Maryland during the past 15 or 20 years, Dr. W. T. Watson[1] invokes other agencies, ascribing to drainage and the use of quinin and screens only a minor importance. He attributes the decline to unknown natural causes rather than to anything man has intentionally or unintentionally accomplished. The statement is made, however, that the decline may be temporary and another rise in the incidence curve, which has before happened in Maryland and elsewhere, may occur. Findings in other countries indicate that in these remissions the *Anopheles* does not die out. Hence, to aid in making extinction of the disease complete, all the known agencies for combating it should now be employed with vigor. Both Dr. Watson and the editor of the *Maryland Medical Journal* believe that many physicians in Maryland are treating cases of typhoid or its congeners for what they call continued malarial fever, thus wasting enough quinin to wipe out malaria in a season if, as the latter says, "the drug could be conveyed into the right insides." There undoubtedly are cases further north in which the ready appellation of "malaria" conceals the physician's real diagnostic inability or his lack of study of the patient. This should not be. Malaria is in many localities becoming too infrequent to serve as a scapegoat for puzzling or unstudied cases of typhoid or other continued fever.

AMERICAN NEWS AND NOTES

GENERAL.

Stop Digging to Fight off Fever.—It has been decided practically to suspend engineering operations at Culebra, Panama, temporarily, and to employ the laborers now engaged there in building new quarters and carrying on sanitary measures. This apparently means that the digging on the great Culebra cut is to give way to the more important work of guarding those employed on the canal against yellow fever. The healthiest spot between Panama and Colon being Ancon, the isthmian commission has decided to construct the administration buildings and the residences of the Governor and the employes there. A 700-foot zone around Ancon will be cleared of all brush and mosquito breeding places, and the non-immune residents of the projected American town should be safe from yellow fever. Word has been received from Washington that the proposals for furnishing a certain amount of contract labor from the different nationalities will be held up until proper sanitation has been carried out in Panama.

EASTERN STATES.

Anatomists to Meet in Boston.—The International Anatomical Congress, at its first session in Geneva, Switzerland, accepted an invitation to meet in Boston in 1907.

NEW YORK AND VICINITY.

Oppose City Sanatorium.—Vigorous opposition has developed to the establishing of a sanatorium for tuberculous patients on the top of Shawangunk mountain at Otisville, by the Board of Health of New York City. The opposition is led by the Erie railroad and its army of commuters living near New York City. E. H. Barto, suburban passenger agent of the Erie, is working hard to get the Orange County Board of Supervisors to rescind its action granting permission for the sanatorium. Both the county and town authorities have given permission, and New York City has commenced laying out the grounds.

Typhoid and Oysters.—Planters of Shrewsbury oysters are up in arms because the New Jersey State Board of Health has notified the township board of the danger arising from sewage in the Shrewsbury river, particularly the South Shrewsbury. It is stated that the pollution injuriously affects clams and oysters. Claim is made that an outbreak of typhoid at Oceanic was caused by the use of clams taken from the South Shrewsbury, and the township board is advised to prohibit the sale of shellfish taken from that river. In the North Shrewsbury attempts to sewer into the river have always been stopped when detected, and it is supposed that some people are surreptitiously sewering, and the practice will be at once stopped.

Typhoid Fever in New York.—The Health Department admits that typhoid fever is spreading rapidly in Brooklyn. An inadequate water-supply, which is also bad in quality, is the primary cause of the epidemic, but it is also asserted that much of the milk sold in Brooklyn contains typhoid germs, owing to the unsanitary conditions prevailing on some of the dairy farms. The spread of typhoid fever has emphasized the urgent necessity for the filter plant on the Croton watershed. Every competent sanitary expert who has studied the city's water problem during the last 20 years has urged this. New York City is about 50 years behind the times in the matter of its water-supply. Nearly every large European city now filters its water, and in Germany the process is required by law.

New York Convicts to Have Crockery.—The order for the substitution of crockery for tin dishes in the dining places of the State prisons has gone into effect. Some objections to the change have been raised, on the ground that the increasing tendency to make prisons more attractive is not good for the State. The better service in the dining halls of the New York prisons follows closely the abolition of the humiliating striped garb and of the lockstep. These changes met the cordial approval of workers for prison reform. For sanitary, as well as for humanitarian reasons, the discarding of the dishes is also approved. It has been found that after comparatively short usage the tin coating begins to wear off the old metal dishes, and thereafter it is impossible to keep them perfectly clean. The new crockery outfit for all the prisons will cost about $1,000, and will contain 10,000 pieces.

PHILADELPHIA, PENNSYLVANIA, ETC.

New Plans for Philadelphia City Hospital.—An entirely new set of plans is being drawn for the new Municipal Hospital buildings because there is a question as to the ownership of the old plans.

One Hundred new cases of typhoid in Philadelphia were reported this week to the health authorities. Of these, 54 occurred in wards which receive a water-supply from the Delaware river direct. Forty-five cases are in wards receiving Schuylkill river water. Only one case is reported from a district supplied with filtered water. The report shows an increase of 18 cases over the number the previous week.

A New Hospital Contemplated.—Application was made to Common Pleas Court last week for a charter for the Roosevelt Hospital, an institution conducted privately by Dr. Franklin Brady, who now wishes to have it a public institution. Its purpose, as stated in the charter, is for "the establishment, maintenance, and support of a hospital for the cure and relief of disease and performance of surgical operations, not only for the indigent poor, but for any who may pay for the same." The hospital is to be supported by contributions, bequests, and fees from patients.

Reports on River Pollution.—The reports of the medical and nuisance inspectors who recently investigated the sources of pollution of the Schuylkill river have been completed and submitted to Dr. A. A. Cairns, the chief medical inspector, who turned them over to Director Martin. The reports go into every detail and each nuisance was mentioned specifically, so that when efforts are made to compel the offenders to stop the pollution the information will be complete in every respect. The State health authorities will take steps to compel towns in the Schuylkill Valley to cease polluting the stream. Norristown will be asked to filter its sewage. Notice has already been issued to Phœnixville manufacturers.

Doctors will Get State Certificate.—The incident of the protest against issuing licenses to the candidates who successfully passed the examinations of the State Medical Society may be regarded as closed and they will get their certificates. The protest was based on the charge made by the Homeopathic members of the Board of Medical Examiners that after the list of questions had been prepared for the spring examinations a member of the Board of Examiners of the State Medical Society had changed two of them. This protest was sent to Dr. N. C. Schaeffer, secretary of the State board, and by him submitted to the board which issued a ruling that the remedy would be worse than the wrong and that those examined should not be made to pass the ordeal again.

Hospital Doesn't Want Patient; City Won't Have Him.—There is a clash between the Camden, N. J., Board of Health and Cooper Hospital authorities who shall take care of a patient in the hospital suffering from diphtheria. The patient appeared at the hospital Sunday evening. It was immediately seen that he was suffering from diphtheria, and he was hustled into an isolated building. As contagious disease cases are not admitted to the hospital, the resident physicians notified the Camden Board of Health to take charge of the patient. The health authorities refused, claiming they have no

[1] Maryland Medical Journal, August, 1905.

hospital for the care of such cases. Should the hospital authorities attempt to turn Holmes out into the street the Health Board threatens to prosecute them.

Quarantine on against South.—The Pennsylvania State Quarantine Board has decided to establish a quarantine against all ports south of St. Mary's, Ga. This includes all the ports on coast and gulf from which an invasion of yellow fever is to be feared. Dr. H. D. Heller, head of the State quarantine service, said that in his opinion Philadelphia stood in no immediate danger of the fever. It was said, however, that a fruit steamer from one of the southern ports is expected up the river. This boat will be subjected to a double inspection. It was decided at the same meeting that the members of the board shall visit the government's quarantine station at Reedy Island and the New York quarantine station. The object is to keep in touch with the various methods of preventing the spread of diseases. The dates of the proposed visits have not as yet been fixed.

SOUTHERN STATES.

False Health Certificates.—Memphis, Tenn., health officers have discovered a get-rich-quick scheme, based on the yellow fever situation. Individuals at Wynee, Ark., have sold certificates of health, signed by supposed physicians, to many travelers from the South. There have been no arrests, but in Arkansas now passengers must accompany health certificates with affidavits sworn before a notary.

Help Offered from England.—Sir Alfred Jones, president of the Liverpool School of Tropical Medicine, cabled to Mayor Behrman, of New Orleans, offering the services of the school during the prevalence of yellow fever, and saying the faculty would be pleased, if desired, to send to New Orleans Major Surgeon Ronald, professor of tropic medicine, and Dr. Rubert Boyce, professor of pathology and dean of the school.

Arrested for Running the Quarantine.—Dr. J. M. Lindsley, president of the National Quarantine Board, was arrested at Gulfport, Miss., for going into the place from New Orleans. He was placed on board the revenue cutter Winona and taken to the Ship Island Quarantine Station. J. H. Johnson, a railroad contractor from Ohio, has been arrested at Laurel, Miss., for running the quarantine with a party of negro laborers.

Medicine Sampling in Texas.—Notwithstanding a local ordinance to the contrary, a sample package of medicine was thrown into the yard of a house at Houston, Tex. A child at play got the package, but was prevented from eating from it by the mother, who noticed what the child was doing. The result was a telephone notice by the police to drug stores that any further infringement of the ordinance would be followed by prosecution.

Prisoners Must be Clean.—A weekly mercuric chlorid bath, new overalls and shirts are among the luxuries at the Duval county, Fla., jail. This addition to the routine was added last week, and is to be a part of the treatment of guests there for the summer at least. This scheme has been adopted as a disinfectant and to bar against any disease at the county jail. Heretofore, the jail has been noted for its filth, but since the new administration there has been much done to put the jail in good condition. There is a probability at least of getting rid of vermin, which is present in nearly every jail in the country.

Missouri's Quarantine Order.—The quarantine order issued by the Missouri Board of Health against districts affected by yellow fever will be enforced along the eastern border of the State as far north as St. Louis, along the southern border, and along the western border as far north as Kansas City. The establishment of quarantine stations or detention camps will be in the hands of the different local Boards of Health, unless it is found necessary by the State board to intervene. In case persons succeed in entering the State from the danger zones of the South, they will be detained in cities or towns farther in the interior, if unable to exhibit a bill of health.

The Yellow Fever Situation.—Active control of the yellow fever situation in New Orleans by the United States Public Health and Marine-Hospital Service will begin immediately. Orders to that effect were wired to Surgeon J. H. White, marine-hospital officer now on duty in that city. These orders followed the receipt from Dr. White of several telegrams, which showed that the citizens of New Orleans had promised their hearty cooperation in the work to be done by the Federal Government, and would meet certain financial requirements imposed by the Marine-Hospital Service as a preliminary to assuming the responsibility. Dr. White has already determined upon tentative plans for the work in hand. The city will be divided into wards, and each ward will be placed in charge of an experienced surgeon of the Marine-Hospital Service, who will have absolute control of the locality. Surgeon-General Wyman has given directions to a number of marine-hospital surgeons to proceed to New Orleans for assignment to work under Dr. White. All of these are officers who have had experience in dealing with yellow fever epidemics. The New Orleans committee has on hand $70,000, and calls for $250,000 to be turned over to the federal authorities within a few days. The situation August 10, was: New cases, 63; total cases, 679; total deaths, 119; new foci, 12.

WESTERN STATES.

Fumigation in Tuberculosis.—The Kansas State Board of Health, according to its bulletin for July has ordered that hereafter county health officers require the fumigation of every house in which there has been a death from tuberculosis in the same manner as in event of smallpox. The opinion is expressed that there can be no doubt that a second or third case of tuberculosis in the same family has often occurred from neglect of this precaution.

FOREIGN NEWS AND NOTES

GENERAL.

Mortality in Germany as a Result of the Heat.—The deathrate of German cities with more than 40,000 inhabitants for the week ended June 10 was abnormally high. The cause of this was the frequent occurrence of diseases of the stomach and intestines, as is invariably the case in the summer months. The rate of mortality in some districts, Breslau, for example, rose to 32.2 per 1,000. Barmen (with 9.5), Halberstadt (with 9.4), and Pforzheim (with 8.7) formed exceptions during the period in question. These statistics are, in many respects, very instructive. The following cities showed the most favorable health conditions: Barmen (with a deathrate of 9 per 1,000), Schöneberg and Ulm, each with 11, Kiel 13, Cassel, Karlsruhe, and Elberfield each with 14, Bremen 15, Lübeck 16, and Berlin with a deathrate of 17 per 1,000 of the population. Among the suburbs of Berlin, it is noteworthy that the wealthy Charlottenburg had a much higher rate of mortality than the much despised Center, while Rixdorf showed much less favorable health conditions than Berlin.

Study of Sanitation and Tropic Diseases in India.—A scheme has been approved by the government of India for the provision of more adequate means for the scientific study of the diseases peculiar to that country. When the new plan is developed it will probably no longer be necessary for officers to go from India to Europe to study the bacteriology and parasitology of tropic diseases, and it is expected that workers from other countries will seek Indian laboratories to avail themselves of the unrivaled material for study which the diseases of India afford. It is contemplated establishing a central research institute at Kasauli and a laboratory for scientific medical and sanitary work at the headquarters of each provincial government. The functions of the central laboratory will be original research, the preparation of curative serums for the diseases of man, and the training of scientific workers. The functions of the provincial laboratories will be primarily the provision of expert assistance for the provincial, medical and sanitary officers, but the superintendents of these laboratories will be encouraged, as far as opportunities go, to prosecute original research. Most of the provincial laboratories are already in existence, though most of them are at present undertaking work which will be carried on elsewhere when the general scheme is mature.

OBITUARIES.

James F. McShane, aged 53, former health commissioner of Baltimore, Md., August 1, after a lingering progressive paralysis. He was graduated from the University of Maryland School of Medicine in 1870. He was appointed vaccine physician in 1882, and two years later was made assistant commissioner of health. He served in that capacity until 1890, when he was made commissioner of health. Later he resumed the practice of medicine. While health commissioner he improved the sanitary condition of the city and secured the passage of a law in the Legislature protecting the watershed of Baltimore.

W. J. McDowell, aged 51, of Baltimore, Md., August 3, after a short illness from Bright's disease. He was graduated from the University of Maryland School of Medicine in 1874. He was at one time president of the Medical and Surgical Association of Baltimore and a member of the Medical and Chirurgical Faculty of Maryland. He was a Mason and a member of several other societies. For a time he practised medicine in Jersey City, but later returned to Baltimore. Dr. McDowell came of a family of physicians and dentists.

Robert E. Jameson, aged 68, suddenly, August 4, at his home in Jamaica Plain, Boston. He was graduated from the Harvard University Medical School in 1864. He left his studies in that institution to serve as a volunteer in the Civil war, serving in the capacity of steward, assistant surgeon and surgeon. He obtained a furlough and completed his medical studies, then went to the war again. Later he resumed his work in private life, practising medicine for a time in North Carolina, and in 1871 settling in Jamaica Plain.

George Ayers Hewitt, aged 57, of Philadelphia, Pa., a wellknown practitioner and the translator of numerous foreign medical works, at Cape May, N. J., August 1. He was graduated from Jefferson Medical College in 1877. After his graduation he practised in St. Paul, Minn., for several years. He then returned to this city. He was a noted linguist, and beside his many translations, did editorial work on the *Medical Bulletin* for a number of years.

Henry Hatch, aged 57, one of the most prominent practitioners of western Illinois, at Blessing Hospital, Quincy, Ill., July 24, from pernicious anemia. He was graduated from the Louisville Medical College in 1872, was a member of the American Medical Association, the Illinois State Medical Society, International Association of Railway Surgeons, and numerous other organizations.

William Shelton White, aged 61, of South Omaha, Neb., July 15. He was graduated from the St. Louis Medical College in 1872, a member of the American Medical Association. For ten years he was chief of the microscopic department of the Bureau of Animal Industry, South Omaha, and was physician of Douglas county for four years.

David Wilkins, aged 76, of Greenville, Ill., July 23, from cerebral hemorrhage. He was graduated from the University of Michigan, department of medicine and surgery, Ann Arbor, Mich., in 1853. He served as surgeon of the One Hundred and Thirtieth Illinois Volunteer Infantry during the Civil war.

Robert Maitland Petrie, aged 55, a native of Liberty, N. Y., at Jersey City, August 3. He was graduated from the New York University, medical department, in 1869, and studied also at the University of Pennsylvania. He was known as a specialist on diseases of the heart.

Mahlon Felter, aged 74, one of the oldest practitioners of Troy, N. Y., July 19, from heart disease. He was graduated from the Albany (N. Y.) Medical College in 1859. He was a member of the State and county medical societies and of the American Academy of Medicine.

David Beattie Smiley, aged 45, of Middletown, N. Y., July 13. He was graduated from the College of Physicians and Surgeons, N. Y., in 1887. He was a member of the Medical Club of Middletown and of the Thrall Hospital Medical Board.

Charles S. Williams, aged 62, of Columbia City, Ind., July 10, from carcinoma of the stomach. He was for twenty-two years coroner of Whitley county, Ind., and for several years secretary of the Columbia City Board of Health.

David Leslie Philip, aged 66, of Brantford, Ont., Can., July 10, from cerebral hemorrhage, after an illness of four years. He was graduated from the McGill University, medical department, Montreal, in 1863.

W. C. Tilden, at one time chief chemist in the Army Medical Museum, at Washington, D. C., August 6. It was he who discovered the poison sent in the bouquet to Guiteau the day before his execution.

George B. Woodside, of New Harbor, Me., was accidentally shot July 28. A boy of fifteen was discharging a revolver and the physician, who was passing by, received the charge in his right temple.

E. C. Bainbridge, aged 76, of Harrisburg, Ky., July 20, after a lingering illness. He was graduated from the Jefferson Medical College, Philadelphia, in 1848.

George Mathews Telfair, aged 65, of Bloomington, Ohio, July 13, after a long illness. He was graduated from the Medical College of Ohio, Cincinnati, in 1860.

D. C. Dunn, aged 61, at his home in O'Fallon, Ill., July 23, from cerebral hemorrhage. He was graduated from the Louisville Medical College, in 1872.

Orange H. Adams, aged 49, at Vineland, N. J., August 7, of spinal meningitis. He was graduated from Dartmouth Medical College, N. H., in 1884.

Philip J. Tresch, of Lafayette, Ind., was shot and killed July 16 He was graduated from the Fort Wayne, Ind., College of Medicine, in 1885.

Jesse W. Williams, health warden of Baltimore, Md., recently. He was graduated from the College of Physicians and Surgeons in 1871.

Emanuel M. Scheurer, aged 59, of Clearfield, Pa., July 10, from septicemia. He was graduated from the University of Pennsylvania, in 1871.

James C. Bristown, aged 81, of Wayne City, Ill., July 16. He was graduated from the University of Louisville Medical Department, in 1872.

Benjamin Franklin Gardner, aged 87, of Atlanta, Ill., July 21, from senile debility. He was a surgeon during the Civil war.

Mason M. Echols, aged 31, of Girard, Ala., July 15. He was graduated from the Medical College of Alabama, Mobile, in 1896.

William T. White, aged 35, of Kansas City, Mo., July 18. He was graduated from the Kansas City Medical College, in 1895.

Francis W. Mayhew, aged 79, of Philadelphia, Pa., July 29, at Grand Marais, Minn.

Daniel D. Bartholomew, aged 56, of Holly, Mich., July 22, from heart disease.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 5, 1905:

			Cases	Deaths
SMALLPOX—UNITED STATES.				
California:	Los Angeles	July 15-22	2	
Illinois:	Chicago	July 22-27	6	
Louisiana:	New Orleans	July 15-29	1	4
Michigan:	Grand Rapids	July 22-29	5	
Missouri:	St. Joseph	July 15-22	1	
Montana:	Butte	July 16-23	1	
New Hampshire:	Nashua	July 15-22	1	
Ohio:	Cincinnati	July 21-28	2	
	Toledo	July 15-22	6	
Pennsylvania:	York	July 22-29	1	
SMALLPOX—FOREIGN.				
Argentine:	Buenos Ayres	April 1-30		43
France:	Paris	July 8-15	6	2
	St. Etienne	June 1-30	2	
Great Britain:	London	July 3-15	1	
India:	Bombay	June 37-July 4	7	
	Karachi	June 25-July 2	2	
	Madras	June 24-30	2	
Russia:	Moscow	July 1-8	11	20
	Odessa	June 17-July 15	26	3
	St. Petersburg	July 1-8	5	3
Spain:	Barcelona	July 10-20		4
Turkey:	Constantinople	July 8-16		5
YELLOW FEVER—UNITED STATES.				
Louisiana:	Morgan City	July 3	1	
	Shreveport	Aug. 1	1	
	New Orleans	July 21-Aug. 3	308	59
Mississippi:	Gulf Quarantine	July 22-Aug. 3	14	1
	Lumberton	July 28	1	
	Sumrall	Aug. 2	1	
YELLOW FEVER—FOREIGN.				
Brazil:	Sao Paulo	June 15	1	
Ecquador:	Guayaquil	June 27-July 4		2
Guatemala:	Livingston	July 8-15.	3	
Honduras:	Puerto Cortez	July 14-12		2
Mexico:	Tierra Blanca	July 16-22	1	1
	Vera Cruz	July 16-29	2	
Panama:	Colon	July 10-17	1	
	Panama	June 10-17	9	3
PLAGUE—FOREIGN.				
China:	Hong Kong	May 13-20	20	18
India:	General	June 10-17	5,413	4,883
	Bombay	June 24-July 4		58
	Karachi	June 25-July 2	34	34
	Madras	June 24-30		1
Japan:	Formosa	June 20-30	39	40
Peru:	Callao	June 11-20	1	1
	Lima	June 11-20	3	1
	Mollendo	June 11-20	2	1
	Payta	June 11-20	2	1
Straits Settlements:	Singapore	June 10-17		2
CHOLERA.				
India:	Madras	June 24-30		1

Changes in the Medical Corps of the U. S. Army for the week ended August 5, 1905:

HALLORAN, First Lieutenant PAUL S., assistant surgeon, leave granted July 7, is extended two months.

VAN KIRK, HARRY H., contract surgeon, is granted leave for one month, to take effect when in the opinion of his department commander his services can be spared.

AMES, ROGER P., contract surgeon, now at New Orleans, La., will report at Jackson Barracks for temporary duty.

JOHNSON, BENJAMIN, Sergeant, hospital corps, upon his own application will be placed upon the retired list.

CLAYTON, Captain JERE B., assistant surgeon, having reported his arrival at Seattle, Wash., will proceed to Fort Leavenworth for duty, relieving Captain David Baker, assistant surgeon. Captain Baker will proceed to Fort Niobrara for duty, relieving Captain Ralph S. Porter, assistant surgeon. Captain Porter will proceed to Manila, P. I., for assignment to duty.

CLAYTON, Captain JERE B., is granted leave for fifteen days.

SHILLOCK, Major PAUL, surgeon, recently arrived on the transport Sherman, will proceed to Zamboanga, Mindanao, reporting to the commanding officer, department of Mindanao, for assignment to duty.

KULP, Captain JOHN S., WEED, First Lieutenant FRANK W., and FREEMAN, First Lieutenant PAUL L., assistant surgeons, having arrived on the transport Sherman, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

CRAIG, EMMETT J., dental surgeon, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

MORRIS, Major EDWARD R., surgeon, is relieved from duty in the department of the Visayas, and will report to the officer in charge, medical supply depot, Manila, for duty.

WOODALL, First Lieutenant WILLIAM P., assistant surgeon, is granted leave for fifteen days.

KULP, Captain JOHN S., assistant surgeon, will proceed to Camp Warwick, Cebu, Cebu, P. I., for duty.

RAGAN, First Lieutenant, CHAS. A., assistant surgeon, is granted leave for one month.

Changes in the Medical Corps of the U. S. Navy for the week ended August 5, 1905:

SHIPP, E. M., surgeon, orders to the Charleston revoked; ordered to the Navy Yard, New York, N. Y.—July 28.

LEYS, J. F., and THOMPSON, J. C., surgeons, commissioned surgeons, with rank of lieutenant-commander, from March 3, 1905—July 28.

FURLONG, F. M., passed assistant surgeon, ordered to the Bureau of Medicine and Surgery, Navy Department—July 28.

DESSEZ, P. T., assistant surgeon, ordered to the Charleston—July 28.

LEDBETTER, R. E., passed assistant surgeon, detached from the Detroit and ordered to the Naval Hospital, Boston, Mass.—July 29.

WISE, J. C., medical director, detached from duty as a member of the Naval Medical Examining Board and Naval Retiring Board, Washington, D. C., August 10, and ordered to duty as president of the Naval Medical Examining Board, Naval Medical School, and to command Naval Medical School—July 31.

MARMION, R. A., medical director, detached from duty as president of the Naval Medical Examining Board, Naval Medical School, Washington, D. C., and from command of the Naval Medical School, and ordered to duty as a member of the Naval Medical Examining Board and Naval Retiring Board, Mills Building, Washington, D. C.—July 31.

MUNGER, C. B., assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—July 31.

MARSHALL, E. R., assistant surgeon, ordered to the Naval Hospital, Washington, D. C.—July 31.

MAY, H. A., assistant surgeon, detached from the Franklin and ordered to the Iowa—July 31.

SELLERS, F. E., acting assistant surgeon, ordered to the Franklin—July 31.

WEBB, U. R., passed assistant surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Academy—August 1.

JENNESS, B. F., assistant surgeon, detached from the Iowa and ordered home to wait orders—July 31.

COLE, H. W., assistant surgeon, orders of July 31, modified; ordered to the Maine—August 1.

Changes in the Public Health and Marine-Hospital Service for the week ended August 2, 1905:

MAGRUDER, G. N., surgeon, designated as member of Revenue Cutter Service Retiring Board at San Francisco, Cal., August 10, 1905—August 1, 1905.

WERTENBAKER, G. P., surgeon, relieved from duty at Havana, Cuba, and directed to proceed to Tampa, Fla., for special temporary duty—July 28, 1905. To proceed to Montgomery, Ala., and Atlanta, Ga., for special temporary duty—August 2, 1905.

CUMMING, H. S., passed assistant surgeon, designated as member of Revenue Cutter Service Retiring Board at San Francisco, Cal., August 10—August 1, 1905.

CORPUT, G. M., passed assistant surgeon, relieved from duty at the Marine Hospital, New Orleans, La.—July 31, 1905.

CURRIE, D. H., passed assistant surgeon, department letter of July 1, 1905, granting Passed Assistant Surgeon Currie leave of absence for two months from July 6, 1905, amended to read two months from July 18—July 28, 1905.

GOLDBERGER, JOS., passed assistant surgeon, to proceed to Vicksburg, Miss., and Shreveport, La., and other places in Mississippi and Louisiana, for special temporary duty—July 26, 1905.

BERRY, T. D., passed assistant surgeon, to rejoin station at New York, N. Y., and then proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—July 27, 1905.

BURKHALTER, J. T., assistant surgeon, leave of absence for one month on account of sickness, granted by bureau letter of July 17, 1905, revoked—July 27, 1905.

WIGHTMAN, W. M., assistant surgeon, granted extension of leave of absence for seven days from August 9—August 1, 1905.

SPRATT, R. D., assistant surgeon, to proceed to Gulf Quarantine Station and report to medical officer in command for temporary duty—July 28, 1905.

HALLETT, E. B., acting assistant surgeon, granted leave of absence for four days from July 28—July 28, 1905.

KENNARD, K. S., acting assistant surgeon, granted leave of absence for twenty-one days from August 7—July 26, 1905.

MARR, H., acting assistant surgeon, granted leave of absence for twenty-one days from August 21—July 31, 1905.

SINCLAIR, A. N., acting assistant surgeon, department letter of July 10, 1905, granting Acting Assistant Surgeon Sinclair leave of absence for thirty days from July 8, amended to read thirty days from July 12—July 28, 1905.

WILLIAMSON, S. D., acting assistant surgeon, granted extension of leave of absence for twenty-two days from July 31—July 28, 1905.

MACDOWELL, W. F., pharmacist, granted leave of absence for thirty days from August 10—July 26, 1905.

CARLTON, C. G., pharmacist, leave of absence for twenty-nine days from July 24, 1905, granted Pharmacist Carlton by department letter of July 18, 1905, revoked—July 26, 1905.

MORRIS, G. A., pharmacist, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—July 27, 1905.

Board Convened.

Board convened to meet at the Marine Hospital, Portland, Me., July 31, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon W. P. McIntosh, chairman; Acting Assistant Surgeon A. F. Stuart, recorder.

Promotions.

Assistant Surgeon M. W. Glover commissioned (recess) as passed assistant surgeon, to rank as such from April 13, 1905—July 28, 1905.

Assistant Surgeon B. H. Earle commissioned (recess) as passed assistant surgeon, to rank as such from April 18, 1905—July 28, 1905.

Assistant Surgeon C. C. Pierce commissioned (recess) as passed assistant surgeon, to rank as such from June 27, 1905—July 28, 1905.

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

SECOND SESSION (CONTINUED).

The report of the **Committee on Medical Education** and of the **Committee on the Senn Medal** were again deferred, the committees requesting more time to prepare their reports. The **Committee on Scientific Research**, Alfred Stengel, Philadelphia, chairman, presented a report to the effect that they found three men worthy of the grant of $100, one of whom was Leo Loeb, of Philadelphia. The committee recommended that these grants be continued, as they serve to stimulate an interest in research work. Upon motion of Frank Billings the report was adopted, with the recommendation to the Board of Trustees to make the grants mentioned, and to continue the grants. The Committee on Reciprocity and the Committee on Organization asked for more time to complete their reports. The reports of the Committee on Scientific Exhibit and of the Committee on Transportation and Place of Session were also postponed until a later date. The **Committee on International Congress**, President J. H. Musser, chairman, reported that there were some splendid papers in preparation for the Congress, that every facility would be afforded in the way of travel for those who would attend, and that there remained now only the work of advertising the Congress widely and of urging representatives to go. The committee requested a grant of $100 for expenses, and recommended the extending of an invitation to the International Congress to meet in the United States of America three years hence, the time for the next session, this invitation to be extended in conjunction with other organizations. Billings moved to adopt the report, to recommend the grant of $100 to the committee, and to extend the invitation suggested. The motion carried.

Under the head of new business, Dorset, Missouri, introduced a resolution to the effect that physicians using the so-called proprietary remedies should be considered as indulging in reprehensible practice, which tended to empiricism, and that advertisements of such remedies in the reading columns of medical journals should be deprecated and discountenanced. This resolution, which had previously been adopted by the Missouri State Medical Society, and transmitted to the American Medical Association for concurrence, provoked considerable discussion, on account of the wording, it being considered by several that the word "proprietary" might include too much, but the consensus of opinion seemed to be that the tone of the resolution accorded with the best and highest interests of both physician and patient.

Immediately following this resolution, Jones (California) moved to instruct the trustees to abide by the rule adopted in 1895, and again in 1900, which requires that no remedy shall be advertised in the *Journal of the American Medical Association* unless the amount of each active ingredient in each dose be published in each insertion. The motion of Jones and Dorset's resolution were referred to the Committee on Reports of Officers.

The matter of the report of the Board of Trustees was broached, and it was decided to refer the printed report to the Committee on Reports of Officers without reading, action on the final report to be withheld until the report was presented.

The meeting then adjourned, to meet in the Atkinson school building, Tuesday, July 11, at 2 p.m.

[*To be continued.*]

Practice of Medicine.

FIRST SESSION (CONTINUED).

Inhalation of Nitric Acid Fumes.—J. N. HALL and C. E. COOPER (Denver, Colo.) described in detail the effect upon the lungs of nitric acid fumes, basing the paper upon a careful study of 16 cases. The patients were affected from the breaking of a carboy of strong nitric acid which caused a fire through oxidation. The patients were firemen, and were compelled to work in a thick, irritating smoke. Dyspnea occurred in all of the cases by the intense irritation of the air passages. Coughs from the irritation occurred in 95%; pain in the chest walls, the stomach, the lungs, the loins, and the head in 87%. Dizziness and nausea were noticed in three-fourths of the cases, and vomiting in half; 4 cases were fatal, 3 relapsed from 1 to 3 weeks after recovery, from the primary bronchopneumonia. The treatment consisted in general stimulation, the use of oxygen, treatment for the edema and counterirritation with other maladies directed toward support and elimination.

SECOND SESSION.

Pathology of the Kidney in Nephritis.—W. T. COUNCILMAN (Boston) was of the opinion that when albuminuria and casts were the chief symptoms in renal trouble the case was seldom of the severest form. Sometimes when the functions of the kidney were partly destroyed no albumin or casts would appear. The congenital anomalies of the kidney are chiefly those of position. In the normal organ there is marked

capacity for repair, but little capacity for perfect regeneration. New formed tissue will frequently be found and there is sometimes quite a marked tendency to its formation; yet the complete formation of new kidney structure does not occur in this manner. The association between edema and nephritis is unreliable. The most common group of renal diseases is produced by a soluble toxic substance and by disorders of circulation. Kidney disease is always a part and never a whole. It is only a branch of an infectious process widespread through the general system, the kidney forming only a part. No considerable change in the kidney is secondary to injury of the parenchyma. Broad anatomic classifications can be made, but they do not stand the test of clinical observation.

Albuminuric Disease of the Kidney.—ALFRED STENGEL (Philadelphia) emphasized the distinction between nephritis in the pathologic sense and nephritis (Bright's disease) in the clinical sense. The paper was based upon 581 cases, among which were 51 cases of Bright's disease, exclusive of chronic interstitial nephritis. Albuminuria was more or less uniform in all and was constant in all. Albuminuria occurred in 75 cases of arteriosclerosis, 38 of which had casts occasionally. Albuminuria was noticed in 187 cases associated with acute infectious diseases, gout, diabetes, cardiac disease, etc. In 215 cases, albuminuria did not occur at any time, and casts were noted without albuminuria in 11 cases. The chief object of the paper was to direct attention to the fact that albuminuria with tube casts was uncommon in various general diseases, and unless there was considerable albumin more or less constant, they might possibly indicate inflammatory conditions, chiefly of pathologic significance. Urinary examinations must always be supplemented by careful clinical observation of the general economy. There is no sharp line of distinction between the cylindric casts of the mildest grade of renal disease and the hyaline casts of the advanced conditions.

[*To be continued.*]

Surgery.

SECOND SESSION.

Method of Recording Cases in Small Hospitals.—GEORGE F. WILSON (Portland, Ore.) said that frequently good scientific work done in small hospitals throughout the country is lost because of the lack of inefficient clerical help and the exacting claims in other directions upon the resident staff. He presented a chart which preserves the necessary data in the original form and avoided the keeping of histories, yet when filed away and bound with a proper index, would preserve all data in a readable accessible manner, doing away with much clerical work.

Preliminary Report of a Study of Tetanus.—J. M. ANDERS (Philadelphia). See *American Medicine*, Vol. x, No. 6, p. 247.

Cysts of the Spleen.—W. A. BRYAN (Nashville) classified cysts as dermoid, simple, and echinococcus. He reviewed the etiology, structure, and symptoms and dwelt particularly upon the differential diagnosis. Simple cysts were not productive of symptoms; large cysts produced symptoms because of their size and weight. The hydatid thrill was absent in 50% of echinococcus cysts. Cysts of a wandering spleen would be very difficult to diagnose. The treatment is to open and drain or to do a splenectomy. He reported a case and reviewed the cases operated upon with the results.

Indications for Removal of Pathologic Spleen.—B. B. DAVIS (Omaha) reviewed the recent papers upon the physiology of the spleen and detailed the various pathologic conditions suitable for the operation of splenectomy, such as splenic anemia, sarcoma, malarial spleen, tuberculosis, and abscess. He reported in detail a case of successful excision of the spleen and gave the clinical, blood, and pathologic findings. He directed attention to the blood variations before and after the operation.

Lip Operation for Cancer and Deformity.—W. W. GRANT (Denver) described a new operation for carcinoma of the lips and deformity of the mouth, claiming that it was superior to the ordinary operation for these conditions. He makes a straight incision on each side connected by a straight transverse incision at the base, leaving a quadrangular gap. The operation is appropriate and useful for either complete or partial excision. The flap is formed by incisions made obliquely downward and upward from each lower angle of the wound. The triangular cheek flaps are separated from the inferior maxilla and united in the median line. The angles of the mouth are restored and covered with the underlying mucous membrane.

Cervical Esophagectomy.—WALLACE L. TERRY (San Francisco) exhibited a patient upon whom he had performed his operation of removing the upper portion of the esophagus down to the level of the sternum for recurrent carcinoma. He had previously done a total laryngectomy. He then demonstrated the prosthetic appliances, one for the esophagus and one for speaking. He described the tehnic of the operation in detail.

Operation on the Intestine.—BOUCHER (Hartford) presented and detailed six cases of operation upon the intestines, of which five were for cancer. He detailed the differences in the technic necessary for the different conditions and compared the end-results of the cases.

Cancer.—W. L. RODMAN (Philadelphia) is of opinion that cancer is increasing in frequency. The weight of evidence is against the parasitic theory, and prolonged irritation would seem to be the most probable cause. The cancerous degeneration of benign growths cannot be proved, sarcomatous change is more frequent. Prognosis varies with the kind of growth, the age of the patient, etc. The precancerous stage should be particularly studied with a view to early diagnosis. The ordinary clinical means should be supplemented by the microscopic. The only safe treatment is free and early excision. Caustics and röntgen rays sometimes produce favorable results in superficial squamous epitheliomas, but other varieties are usually made worse by the treatment. When it can be shown that a precancerous stage exists, operation should be done at once, but demonstration is necessary; impressions should not be accepted as facts.

[*To be continued.*]

Obstetrics and Diseases of Women.

THIRD SESSION.

Gonorrhea in the Female: Its Diagnosis and Frequency, and Its Effects in Producing Sterility and Grave Lesions of the Female Pelvic Organs.—L. H. DUNNING (Indianapolis) considers gonorrhea in the female and its effects in the reproductive organs only. The diagnosis in the acute cases is easy, if seen early, and many patients recover quickly. The statement of the husband or lover, who has had gonorrhea, is sufficient when followed by a discharge in the female. The difficulties in diagnosing these conditions are due to the infrequency of being able to find the gonococci, and to there being no pathologic signs, symptoms or course of the disease. It is impossible to estimate the percentage of women sterile from the effects of gonorrhea; the author does not believe that 80% of all cases of grave pelvic lesions is due to gonorrhea. Marked difference prevails in different cities and countries. In this connection, he reports 548 consecutive cases of women married five years or over, of whom 59% was sterile, and of these, 21% used active means to prevent pregnancy; 27% was due to errors of development of the uterus; and about 10% was positively ascribed to gonorrhea. He believes most cases of sterility in the female are due to errors in development of the reproductive organs. He agrees with Ashton that most serious or grave troubles in women are due to puerperal and not gonorrheal infection. He cites the experience of MARTIN (Indianapolis) in treating, during the year 1904, in Charity Hospital, 651 females; about 24% of these, and not 80%, was shown to be due to gonorrhea.

Discussion.—D. H. CRAIG (Boston) said it was a question of the difference between acute and chronic inflammations in women, classified as puerperal and gonorrheal. He thinks they do not belong to different classes. The distinction of puerperal and gonorrheal inflammations should be very thoroughly investigated before it is accepted. We cannot tell how many women were originally sterile, and in how many the condition is due to different drugs and other means used to prevent conception. The work in certain localities and certain practices only, cannot give us correct statistics. GOLDSPOHN (Chicago) said he had always had the impression that gonorrhea was not so prevalent as is usually stated. Gonorrhea is the prevailing ailment in the colored race, but we must consider what class of lesions is produced by gonorrhea and those occurring in the puerperal state. He compared the obstetric with the gynecologic uterus, saying that infection travels to the endometrium or to the tubes in gynecologic cases, but in obstetric it travels directly, producing a socalled cellulitis and pelvic peritonitis or salpingitis secondarily. Gonorrheal infection usually does not occur in this puerperal state, but later, and as a rule, travels through endometrium, fallopian tubes, and peritoneum. HENRY (Omaha) stated that physicians for many years past have overestimated the importance of gonorrhea in females. He suggested the tabulation of cases by gynecologists. He believes that not over 30% of these cases is gonorrheal. DUNNING, in closing, stated that the object of the paper was to call the attention of the profession to the frequent fault of ascribing cases to gonorrhea that are due to other causes, and this mostly,against statements quoted as scientific facts.

The chairman appointed the following Nominating Committee of the section to report at the afternoon session, July 13: Carstens, Detroit, Chairman; Dunning, Indianapolis; Craig, Boston; E. H. Tucker, Portland; Wiggins, New York.

[*To be continued.*]

Diseases of Children.

SECOND SESSION.

A Study of Eighteen Cases of Diarrhea in Children.—J. C. COOK (Chicago, Ill.) said the title of this paper was handed in before the paper was written, and the "eighteen" cases ultimately resolved themselves to fifteen, selected from 250 hospital cases in Jackson Park Sanitarium, Chicago, during July and August of last year. The average age was 9⅔ months, the personal and family histories presented no uncommon features, average course of temperature was 97° to 102.5°, vomiting was by no means a constant symptom, bowel movements averaged 4 to

7 a day, and it was noticeable that as the temperature increased the number of bowel movements also increased. The following parasites were found in the examination of the stools: Pneumococci in seven cases, sarcinas in four, colon bacilli in six, yeast fungi in nine, thrush bacilli in one, and an unknown variety in two. This latter was of special interest because it caused to be formed in the stools a red coloring material which gave the stools the appearance of being streaked with blood. Tests for the presence of blood, however, were negative in spite of the appearance. Each case averaged three varieties of parasites. Four of the cases examined were fatal cases. Deductions: It is both possible and probable that no single group of bacteria is responsible for the disease, but rather it depends upon the activity of numbers. The toxins generated by saprophytic activity lower the child's vitality and mask the symptoms. The vomiting seems rather due to septicemia and sapremia than to local irritation. Treatment: Sustain the general resistance of the child. Wash out the bowel if movements are too frequent. Inunctions of quinin are advocated. Good and suitable food and plenty of sleep out of doors on a hard bed are measures that should be insisted upon.

Discussion:—MICHAEL (Chicago) spoke of a series of 119 cases studied by Weaver, Coon and herself in Chicago last summer. In 80 of these cases they had found *B. dysenteriæ*, but those cases in which they were unable to find this did not differ clinically from those in which it was found. FAIRBANKS (Boston) expressed great interest in the pigment-producing bacilli mentioned, saying it might explain a case he had. COOK, in closing, said the red pigment-producing bacillus was now under tests and observation. They had not yet decided its identity, and had found no literature on the subject; thought it belonged to the colon group. It might easily be mistaken for hemorrhage. He also stated in his experience vomiting and bowel movements were likely to occur together.

[*To be continued.*]

Ophthalmology.

FIRST SESSION (CONTINUED).

Lateral Displacement of Tendon Insertions for the Cure of Strabismus.—EDWARD JACKSON (Denver) said that the four recti muscles have practically a common origin, and if it were possible to shift the insertion of one to the site of the insertion of the other, a complete change in its action would be effected. Such a change was impracticable, because of other tissues in the orbit, but enough alteration was possible to modify their action. By moving their insertions inward, the superior and inferior recti could be made to assist convergence; by moving them outward, to resist convergence. Such shifting of the insertion might be effected by complete tenotomy, with suture of the tendon in the desired position. A lesser change might be produced by partial division of the insertion, leaving the edge standing.

Discussion.—G. C. SAVAGE (Nashville) did not agree that if a muscle were detached and connected with another, it would perform the function of the other muscle. It depended upon the nerve impulse. He thought a muscle should not be displaced by advancement unless there was cyclophoria. If there was cyclophoria, a marginal tenotomy should be done. JACKSON said, in closing, that the operation had been done by himself and by Stevens, of Denver, with complete success. He believed the bad ultimate results from tenotomies that were still sometimes seen, were not due to the fact that tenotomies were not proper, but to the fact that it was done in cases that should not be so treated.

Transitory Paralysis of the Abducens; with Report of Cases.—MEYER WIENER (St. Louis) referred to the evident functional character with usual absence of hysteric symptoms, the comparative frequency and scant amount of literature on the subject. The condition was considered self limited, and all the cases occurred in young females, and was monocular. Those of previously reported cases were double-sided, in older persons, and associated with other hysteric symptoms. The writer maintained that the cases proved that a functional (or hysteric) paralysis of the abducens does occur; may be unilateral or bilateral, and that there need not necessarily be any other hysteric sign or symptom evident.

Discussion.—H. STILLSON (Seattle) thought that the ability to rotate the eye outward depended largely upon the individual's facility, and that the education of one's externi was more difficult than the education of one's interni. The difference in the ability of different individuals to rotate the eye outward was surprising. He thought, therefore, that some of these cases might be put in the class of cases due to hysteria or to individual lack of facility in rotating the eye.

[*To be continued.*]

Nervous and Mental Diseases.

SECOND SESSION.

Officers for the Section.—The following were elected for the ensuing year: Chairman, Wharton Sinkler, Philadelphia; secretary, David I. Wolfstein, Cincinnati; executive committee, J. H. McBride, Pasadena; H. T. Pershing, Denver; and F. W. Langdon, Cincinnati; member of the House of Delegates, J. H. McBride, Pasadena; alternate, David I. Wolfstein, Cincinnati.

Nervous and Mental Manifestations of Prepernicious Anemia.—F. W. LANGDON (Cincinnati, O.) called attention to the fact that a neurologic syndrome, fairly constant, with the following characteristics, (1) general ill-health; (2) mental symptoms; (3) sensory disturbances, (*a*) subjective and (*b*) objective; (4) Babinski sign; (5) ataxia of gait and station; (6) diarrhea, is present in a large number of cases, who subsequently develop pernicious anemia. While this syndrome may in many instances precede any conditions that will be revealed in a blood-examination, even microscopically, he recommended its routine performance in suspicious cases, and stated that the relation of impaired nervous health to blood formation may be important in a practical sense, and cited several cases illustrative of the principles laid down in the paper.

Discussion.—DAVID I. WOLFSTEIN (Cincinnati) stated that in his experience he had seen no cases which presented such a marked clinical picture as those portrayed in this paper, in which a blood-examination would not have revealed diagnostic symptoms. He did not favor the author's classification, but believed that many of the cases therein included were such as were usually diagnosed as pernicious anemia. H. A. TOMLINSON (St. Peter, Minn.) felt that as a causative factor in the production of these nervous symptoms, we would usually find instability of the nervous system, and that underlying and producing the anemia was an autointoxication, which in turn had as a causative factor a faulty elimination, the correction of which usually removes the anemia.

Periodic Paralysis.—GEORGE E. HOLTZAPPLE (York, Pa.) said the patients were a family subject to this condition, which had been under his observation for the past 22 years, the patients including members of four generations. During this time six members of the family have died of this ailment, and some of the members who are not subject to the paralytic attacks are the victims of periodic headache. None of the special senses is involved during an attack, nor are the bladder and urinary functions affected, but there is loss of power of locomotion and the duration varies from a few hours to three or four days. Comparative statistics of the physical condition and urinalyses of (1) patients suffering from the paralysis; (2) patients subject to periodic headache; (3) those in which no symptoms had occurred, were presented, and a striking feature of the paralytic group was the marked decrease in the excretion of urea.

Discussion.—HILBAUM suggested the value of an autopsy in these cases, and the author stated that so far it had been impossible to obtain one, but that they had secured the consent of one member of the family now 70 to have one performed at his death.

[*To be continued.*]

Laryngology and Otology.

SECOND SESSION.

A Demonstration of the Window Resection Method for the Correction of Deflections of the Nasal Septum.—O. T. FREER (Chicago) ordinarily operates on patients in a gynecologic chair, with the patient in a recumbent position. He prefers the Kirstein light, which may be readily used with a rheostat, a special pattern of which he presented to the section. In all operations on the nasal septum, the cleansing of the vestibule is important. Hairs should be removed from the nose and we should be as clean as possible in our work. An application of adrenalin, 1 to 1,000, with a cotton swab, blanches the tissues in from three to five minutes. Cocain may then be applied. Freer prefers the use of powdered pure cocain, the application being limited to the field of operation. In this way the patient is ready for operation in a few minutes. It is well to have two assistants and to use a retractor for the elevation of the nostril rather than a speculum. Freer uses a special retractor for upward traction, the instrument being used either plain or covered with a rubber tube. Another retractor is used for traction in any desired direction. For cleansing the vestibule Freer prefers sterilized water. He holds that any antiseptic that would be efficient in two or three minutes would irritate or destroy the mucous membrane. If there is pus or purulent secretion, it is better to delay operation and use local treatment. Crests and spurs are not so common in the septum as deflections. Freer uses an incision along the crest of the deflection. A number of Germans have advocated buttonhole incisions further forward. A perpendicular incision is made along the crest of the deflection, on the convex side, and this is joined at the bottom by a short horizontal incision running forward. Through these incisions the mucous membrane is dissected up with a blunt dissector and the flap is turned back. The cartilaginous incision is then made from the top of the perpendicular incision to the anterior end of the short horizontal incision. The incision through the cartilage is best made with a thin knife, trusting to the sense of touch to determine when through the cartilage. Freer prefers all the instruments to be made with straight handles, so they can be used with the delicate movements of the hand. The lower end of the incision through the cartilage is joined by a short cut running backward, which may be conveniently made with an Ingals' knife. The little flap of cartilage is then turned back and through the opening thus secured the mucous membrane is easily separated from the

concavity of the deflection. Freer formerly observed the instrument through the mucous membrane from the concave side, but he now believes that that is not a safe method though it is still recommended by Killiani. It is better to watch the instrument through the window. Killiani says that one must be ambidexterous, but Freer finds that he can do the operation on either side with the right hand. The cut through the cartilage is usually better made straight or only cut slightly backward. Killiani recommends an oblique incision. The perichondrium or periosteum and mucous membrane should be liberated as far back as the deflection goes. For the removal of the cartilage the Ingals' knife may be used along the bottom. With special knives the cartilage is cut loose so that it may be easily removed with forceps. Freer has modified forceps, made in rights and lefts, for cutting bone from the septum. Killiani recommends the use of a speculum, but Freer finds that it is better to work without a nasal speculum. The bone should be cleanly cut away, which may best be accomplished by the use of the forceps. The chisel has been recommended, but the use of the chisel on the septum is dangerous and Freer would not use it except along the floor of the septum. The septum is thin and far-reaching fissures may be caused if the chisel is used on the upper part. For packing Freer uses quarter-inch lint strips saturated with bismuth subnitrate, which may be conveniently introduced by means of a special packer. Part of the packing is removed in 48 hours and usually the balance may be taken away at the end of the fourth day. For the after-treatment Freer uses a simple antiseptic ointment and boiled water. The operation may be done under local anesthesia, save in children, to whom Freer prefers to give just sufficient chloroform to prevent struggling.

Discussion.—W. S. ANDERSON (Detroit) uses a head mirror instead of a lamp, and always uses the mirror over one eye so that the rays are parallel. In the operation on the septum he had found it advantageous to use both hands. In a few cases, in which operation was done quite a while ago, the septum had become firm, suggesting that there had been a deposit of cartilage or dense connective tissue between the layers of the mucous membrane. The functional results are often good even if there is a small perforation. C. F. WELTY (San Francisco) spoke favorably of Mensel's modification of the Krieg-Boninghaus operation. It seems that this operation originated after a suggestion made by Welty while working in the clinic. H. HASTINGS (Los Angeles) had experienced considerable difficulty doing the operation under a general anesthetic. GEO. L. RICHARDS (Fall River, Mass.) usually does the operation with one assistant, the patient being in the upright position and the assistant or nurse standing behind the patient. After the first feeling of faintness, the patient usually experiences no further difficulty when the operation is done under a local anesthetic. When using a chisel, it is convenient to have the nurse trained to give a graduated blow. The increasing number of names of modifications of instruments and operations is embarrassing. GEO. F. COTT (Buffalo, N. Y.) advocated shortening the after-treatment so that the patient may be permitted to breathe through the nose on the third day. L. C. CLINE (Indianapolis) encouraged the members to try to get along with fewer instruments. G. P. POND (San Francisco) places the patient in the recumbent position and introduces a posterior plug to prevent the blood draining back into the throat. In these cases the trephine on the dental engine is useful for the removal of the greater portion of the bone, which may then be trimmed out with forceps. L. A. LELAND (Boston) favored the use of fewer instruments. The most serious question in connection with this operation is whether we may not later have a depression of the bridge of the nose. We do not know how high up we can remove the cartilage without later getting depression. A. A. GREENE (Anniston, Ala.) reported the case of a patient with a large perforation that had existed over 35 years without causing depression of the bridge of the nose. A. DE-VILBISS (Toledo, O.) emphasized the danger of saddleback nose following these operations. JOHN F. BARNHILL (Indianapolis) had found the Freer operation less formidable than it seems from the description. It is not likely that this operation will cause depression of the nose. The cases of saddleback nose caused by syphilis are not due to the fact that the septum is gone, but because the tissue is pulled down by gummatous infiltration. ROBERT C. MYLES (New York City) referred to a paper he read before the Atlanta meeting of the section in 1896, in which a similar operation was described. The discussion was closed by Freer.

[To be continued.]

Hygiene and Sanitary Science.

FIRST SESSION (CONTINUED).

Recent Progress in Matters of Water-supply and Sewage Disposal.—G. W. FULLER, C. E. (New York). Considerable attention and discussion have recently been given to the proposed use of copper sulfate for various purposes, as follows: 1. As an algicide. 2. As a germicide for infected water-supplies used without filtration for drinking. 3. As a germicide for the effluent of coarse-grained sewage filters prior to entering drinking water streams. 4. As a germicide in conjunction with a coagulant in the filtration of highly polluted waters. As an algicide this treatment has been of much benefit in several instances summarized in a recent bulletin by Department of Agriculture. It should be used with great care, especially in cases where the treated water is used without filtration. As a germicide the dose has to be much larger than when used as an algicide. Its merit is largely for emergency use prior to the completion of standard sanitary work. The effect of this chemical upon the human system and its behavior with different waters are matters upon which there is difference of opinion, and it is prudent to be quite conservative regarding its use, pending further data. Copperas and lime have been used during the past year at St. Louis in coagulating the Mississippi river water prior to sedimentation. This treatment has improved the appearance and bacterial quality of the supply, although there is uncertainty as to the quantity of caustic lime on the water delivered. This process, which is quite similar to chemic precipitation of sewage, is cheaper than filtration, but by no means a full substitute for it. About 10% of the urban populations of the United States is now provided with filtered surface water, and the numerous large filters now under construction will soon increase this materially. Current filter improvements relate largely to various details for insuring reliable and automatic control and for reducing operating expenses. Softening works recently put under contract for the city water-supply of Columbus, O., mark a new era in the treatment of the hard waters of the Middle West. Intermittent sand filters are the cheapest and best means of purifying sewage in New England, and those places where cheap, porous, sandy soil is readily available. Generally in the South and West such land is not available. Septic tanks are valuable for preparatory treatment. Coarse-grained filters, such as contact beds and sprinkling filters are capable at reasonable cost of producing a nonputrescible effluent. Infection of oyster beds by sewage is a question needing further attention in this country.

The Water-supply of Ships from Its Early Beginnings to the Present.—H. G. BEYER (United States Navy) gives a review of a problem of great interest from the historic standpoint. He then takes up seriatim the questions of the storage of water, preservation of water, water connections, distillation of water, aeration and filtration, recent progress, water distribution, distilled vs. sterilized water. The paper shows, in brief, that on shipboard as well as ashore the tendency is to return to water as near like the natural source as it can be obtained provided the absence of pathogenic organisms can be secured. In other words, to substitute the distilled water in present use on shipboard by a wholesome distilled product. The history of water-supply on shipboard illustrates in an interesting way the difficulties of the early ships' surgeons in securing a fresh wholesome drinking water. A satisfactory knowledge of the problems has only been reached with the determination of the necessary qualities of a wholesome water. The naval hygienists have thus kept pace with the advances in chemistry and biology, sharing the general ignorance of the past century as to the proper chemic and biologic constitution of wholesome water. In the middle of the eighteenth century it became recognized that the greatest danger in water was hidden in the organic matters which it contained. The author quotes Blane to the effect that this impurity "is the most pernicious impurity and that mineral impregnations common in springs are seldom in any degree unwholesome and do not, like the other, make the water corrupt." Rain water was highly recommended by the early sanitarians. The danger from contaminations of water during its transport from shore to ship is better recognized in recent years. The same tanks being used for storage of drinking water were only free from contamination as long as none but pure water is stored in them. The only test originally applied to drinking waters was the silver nitrate test for chlorids. The problem of water storage arose when vessels began to make long ocean voyages. Small amounts were kept in earthenware vessels. For long voyages wooden bowls were used. This method lasted over 200 years. Such water always putrefied. The common superstition among sailors used to be that water had to putrefy three times before it became drinkable. Various methods of treating the wood to prevent decomposition were employed. Allowing sea-water to stand in the casks was simple and fairly effectual. Quicklime was first used by Blane. Alum, cream of tartar, vinegar, vegetables and fruit juices, tamarinds were also employed on naval vessels. Cleaning the casks was introduced by Trotter about 1800. The benefits of cleaning were found to be only temporary and sulfurization was resorted to, and later oxid of manganese. At about this time iron tanks began to be introduced. A few wooden casks remained in use in the American navy down to the seventies. The iron tanks were objectionable on account of becoming rusty and their great weight. Various linings were experimented with until the present lining of Portland cement was adopted. The iron tank with a cement lining furnishes the most suitable means of storing water at the present time. In the attempt to improve muddy and rotten waters, sand and gravel filtration was early resorted to; aeration was early introduced. Distillation was very slowly adopted, on account of the recognized toxic properties of chemically pure water. Lind demonstrated at the Royal Academy at Portsmouth that the distillate from sea-water was perfectly fresh, pure, and wholesome. The ordinary lead and worm still was used in Blane's time. Steam from the train boilers was originally used. Such water contained the impurities of sea-water and fatty acids de-

rived from the lubricating oil. An improvement of this process is in use in all present stills, viz., the water to be distilled is heated indirectly by means of a steam coil. All the later improvements have been in the form of the condenser. The Pape-Hemeberg condenser is most economical and efficient. Each sq. meter surface will convert 270 kg. of steam at 116.29° C. into water at 13.60° C. In vessels not provided with a refrigerating plant, an aerator is necessary to cool the water by evaporation. The writer's aerating water tower is in use attached to the mastheads of the United States Steamships Marblehead and Yantic. Air injectors and carbon filters have almost outlived their usefulness. The various carbon, sand, and porcelain filters have been abandoned after a trial. Peripheral filtration, on shipboard as on shore, is not absolutely trustworthy. Defects in storing and distribution concern mainly the water tanks, the pipe connections and the scuttle-butt. The storage of feed and utility water together in the hold makes it difficult frequently to distinguish them. Faulty pipe connections may cause the drinking water to become contaminated with utility water, when a common system of pipes is separated by cut-out valves. The hermetic sealing of the pipe system and occasional disinfection of the system. After obtaining a perfect water inside the tanks and pipes, it becomes equally important to get it into the sailors' stomachs in the same state. The greatest danger lies in the manner of distribution. Some believe infectious diseases are more often spread through the common drinking cups than in other ways. Individual drinking cups have not proved effective. Metallic suction tubes were tried. Individual iron canulas have been introduced into the French navy. These are used once, and thrown into a basin of soda for reboiling. Beyer considers further the use of jets of water, guarded by a recess, so as to prevent contact of the lips with the orifice. The substitution of sterilized for filtered water is now an open question. Water drawn from the city mains and stored in porcelain-lined tanks, will keep unspoiled during a short ocean trip, and ocean liners seldom use stills. Beyer believes the prospects for obtaining an economic and perfect water-supply are at present very bright.

Discussion.—LEWIS (Chicago) asked Beyer if any salts were added to the distilled water. He referred to the fact that distilled water was both distasteful and injurious. BEYER (United States Navy) replied that sodium chlorid was added in solution. Distilled water always contains some sodium chlorid. WOODRUFF (United States Army) said that salts had been used in the army hospitals to make individual drinks of water, being prepared in tablet form; in this way they were very satisfactory. No attempt was made to treat the general water-supply in this way. POWER asked if the troubles from distilled water were not due to deficient aeration rather than chemic composition. He asked Beyer if the distilled water was aerated. Beyer replied that no attempt had been made to aerate water as such procedures had proved a source of innumerable bacteria.

[*To be continued.*]

Stomatology.

FIRST SESSION (CONTINUED).

A Common Ground for Medicine and Dentistry.—FRANK L. PLATT (San Francisco) said the goal of both professions is practically identical, embracing all honorable means for the relief of suffering and the care and prevention of disease. It is the endeavor of the honest physician to prevent epidemics, and of the dentist to prevent dental diseases. Prevention of disease is even a greater and more valuable scientific triumph than its alleviation and cure. More attention should be paid to the study of dental diseases in the medical colleges, and to diseases associated with the teeth in dental colleges. Both professions should unite in instructing the patients as to the value, care and preservation of the teeth. Syphilis, tuberculosis, etc., have much to do with the condition of the teeth.

The Physician as a Dentist.—CALVIN W. KNOWLES (San Francisco) said a dentist should not only be a dentist, but a medical graduate as well. Too much attention is paid to the mechanical side of dentistry and too little to the medical. Affections of the teeth are not given sufficient attention in our medical colleges. He is firmly convinced that a chair of stomatology should be established in our medical colleges. He is also of the belief that a more extensive mechanical course would be very desirable. It is only by having a thorough knowledge of the subjects almost exclusively confined to dentistry that the physician will be able to determine in time to conserve the best interests of the patient when the services of the physician end and those of the dentist begin.

[*To be continued.*[

Pharmacology.

SECOND SESSION.

Common Sense Nasal Therapeutics.—W. S. BRYANT (New York) said that the pathologic conditions which needed therapeutic treatment were infections, intoxications, and neuroses. The objects of treatment were the establishment of drainage or the removal of secretions; the improvement of the mucous membrane; and correction of the neuroses. The remedies are divided into antiseptics, antitoxics, and stimulants, to be applied either locally or generally. The general are the more important and are antitoxic. They improve the bodily health, lessen local congestion, and regulate the secretion of healthy mucus. Local therapeutics must be used with great caution not to increase or complicate existing difficulties. Do not abrade the mucous membrane with forcible sprays or irritate with improper substances. Do not use any form of douche for fear of causing disturbances in the sinuses.

Discussion.—REILLY (New York) said that it was a relief to find some surgeon who does not want to cut all the time. He recognized the fact that a large number of catarrhal cases were due to systemic disturbances, and that soon after an operation the patient is as bad as before. He held that an attack of indigestion or prolonged use of intoxicant liquors will swell the nasal membrane, and that a purgative will often do more good than local treatment. Two or three grains of menthol in solution, alone or with camphor, produced results almost without irritation. Three-fourths of cases of asthma are due to nasal irritation, and he has seen a number of cases cured with nasal applications in place of the hypodermic syringe. WAUGH (Chicago) said that while local treatment of the nose has proved effective in curing asthma, he suggested going one step further, and by disinfecting the alimentary canal curing infection of the nose. LEWIS (Vermont) said too much washing of the nasal passages increased the difficulty, and recommended the oily preparations as having a soothing influence of great value. Sometimes the open-air treatment without any medication would be found to be best. BRYANT said that strong menthol solution was used with very good effect in contracting the bloodvessels and in curing infections. Treatment in a general way should be begun by general treatment, local treatment of the nose, and operative treatment where the membrane will not shrink up, further holding that the open-air treatment does not work as much locally and generally.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 222.*]

A New Septotome.—WALTER A. WELLS (Washington, D. C.) showed this instrument, the purpose of which was to cut out of the cartilaginous portion of the septum a tongue-shaped flap, and to accomplish, with a single incision, at least as much as was done in the Asch operation with two separate incisions. This overcame the necessity of removing one set of scissors to substitute another, which might prove a serious drawback in case one was operating upon a nervous patient under a local anesthetic. In the Asch operation the result of the incisions was to create four small triangular segments, with their points in apposition, which meant that we had four possible points of sloughing. With the instrument shown by Wells but a single flap was cut, and this having what many rhinologists considered the ideal shape for this operation, the chances for sloughing should be decidedly lessened. By means of a screw, the tongue-shaped flap might be shortened to any desired length. The instrument was so constructed that the flap, when cut, was bent well to the other side, thus converting the two stages of the Asch operation into one. Moreover, he thought a decided advantage was gained over the Asch instrument as regarded the introduction of the septotome. There was in the latter no sharp point to become engaged in the tissues as it was being introduced. It had a large and a small jaw, the former for the free side, the latter for the side obstructed. Even though one side of the nose be completely obstructed, the shape and size of the smaller jaw was such that it might be wedged in without any laceration of the tissues. The object of the flat band of steel, which was attached to the larger jaw of the instrument, was that it would act as a spring and force back into the median line the flap that had been cut out of the septum, a very important provision to prevent its being caught by the instrument as it was being withdrawn.

Modified Head Lamp.—WENDELL C. PHILLIPS (New York) showed this lamp at the request of H. Bert Ellis. It was a Nernst light, and could only be used with the alternating current.

H. P. MOSHER (Boston) showed the following new instruments: 1. A wire cheek and lip retractor, for use when entering the antrum through the canine fossa, and for dressings by the same route after the operation. The retractor was made of wire, and thus was lighter than the ordinary retractor made for that purpose. It had its three prongs so bent that the canine fossa was widely exposed. One end of the retractor was made for the right cheek and the other for the left. The retractor could be used in order to expose the teeth and gums of both jaws in the ordinary routine of the first examination of a patient. 2. A safety-pin closer, for use in the esophagus and the trachea. This device was originated for the case of a patient with an open safety-pin, point up, in the esophagus. The essential part of the safety-pin closer was a ring placed at right angles

to the end of a long wire handle. The size of the ring was such that it could pass a large esophageal tube, while the handle was of sufficient length to allow the ring to project well beyond the end of the tube. A forked wire was used with the ring in order to engage the knee of the pin and push it through the ring. As this was done, the point of the pin was disengaged from the mucous membrane and the pin closed. The safety-pin closer could be improvised very easily for any length and size of tube, and for any sized pin. A set of esophageal instruments should have two or three rings of different sizes. By bending the ring upward, so that it was more or less parallel with its long handle, it made a good penny catcher, and by bending the handle somewhat an inch or two above the ring, the ring could be made to hug and explore the front wall, the posterior wall or either side of the esophagus at will. 3. A nasal splint. This splint was devised in order to treat a case of fracture of the orbital rim of the superior maxilla combined with a fracture dislocation of the nasal process of the same bone. The upper end of the nasal process of the right side projected very markedly outward and caused great deformity. The deformity was readily reduced, but the usual bandages and splints would not hold the fracture in the corrected position. The base ball mask splint was then made. It held the fracture easily, and the result was excellent. The advantages of the new splint were its steadiness and its power. The splint consisted of an ordinary base ball mask, with two set screws. These could be adjusted laterally and vertically, so that pressure could be applied at any given point on either side of the nose. Owing to the support which the splint obtained from the forehead, the chin and the sides of the face by the pads placed at those points, the mask could be bound firmly to the head and face, so that it could not slip. The wires of the mask gave such a fixed point of departure for the application of the force of the set screws that as little or as much pressure as was desired could be used. In this way the splint could be employed either as a retaining apparatus for a fracture, or as a correcting apparatus after operations for old fractures of the nose, with lateral deformity. With such a splint it would be possible to do a certain amount of orthopedic work, so to speak, on the nose. After the pressure of the screws was no longer necessary, the screws could be removed and the mask worn alone for a time as a safeguard against any accidental trauma. In the case where the splint was first used, the child wore the mask in this way for a few days. This allowed the parents to leave her at night without anxiety.

Exhibition of Specimens.

Epithelioma of the Larynx.—CHEVALIER JACKSON showed this specimen, which was one of squamous-celled epithelioma of the larynx, and was removed postmortem from a patient who had been under the care of E. S. Montgomery, of Pittsburg. Laryngectomy had been refused by the patient.

Epithelioma of the Antrum.—JACKSON also showed this specimen, which was removed from a man about 60. The entire upper maxilla was involved in the epitheliomatous process, and was removed. The patient lived for two years after the operation without a recurrence. The preliminary ligation of the external carotid rendered the operation practically bloodless, and thus a tracheotomy was unnecessary.

Epithelioma of the Larynx.—JACKSON also exhibited this specimen, which was one of laryngeal epithelioma perforating the thyroid cartilage. It was removed by total laryngectomy, taking out the glands at a subsequent operation. There was a fatal recurrence at the end of four months.

Obstruction of the Eustachian Tube a Factor in Postoperative Mastoid Fistula, and in Chronic Suppuration of the Middle-ear.—THOMAS HUBBARD (Toledo, O.) read a paper on this subject, in which he offered the following conclusions: Obstruction of the eustachian tube was a common sequence of acute purulent otitis media and purulent mastoiditis. It was a factor in causing chronic otorrhea and postoperative mastoid fistulas. Permanent occlusion gave one indication for the radical operation in chronic purulent otitis.

Discussion.—EDWARD B. DENCH (New York) said the occurrence of a postaural fistula after mastoid operation, as the result of permanent occlusion of the eustachian tube, was a possibility, but he thought it was rare. Personally, he had never seen it. In a certain number of cases these postoperative fistulas persisted for some time, and the explanation offered by Hubbard for the chronic discharge might be the correct one. Almost invariably, however, the persistent suppurative process could be traced to the presence of a small piece of necrosed bone that had been left behind. The speaker emphasized the absolute uselessness of depending on drainage through the eustachian tube, and in any case when the otologist had to deal with a foul, purulent discharge resulting from the presence of dead bone, there was only one thing to do, and that was to remove the cause of the suppuration by surgical intervention. MAX A. GOLDSTEIN (St. Louis) said that at the last section meeting he showed two cases where there was a distinct connection between the mastoid fistula and the eustachian tube, so that by catheterization of the tube, and blowing air or vapor through the catheter, mucus from the eustachian tube could be ejected through the mastoid fistula. In both of these instances the eustachian tubes were perfectly free, and their contents were mucous in character—not mucopurulent.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE MOSQUITO AND THE ELECTRIC FAN.

BY

W. F. ARNOLD, M.D.,

of New York City.

Surgeon United States Navy, Retired.

To the Editor of American Medicine:—Having noticed recently a suggestion of trapping mosquitos by inducing them to deposit their eggs where they and the resulting larvas may be dealt with, I beg leave to submit the following suggestion, which I hope may be of some slight use in the prevailing yellow fever crisis:

The common electric fan frequently kills mosquitos; hence, it may, I think, be made a factor in preserving public health at this juncture. I noticed immediately upon installing a fan in my quarters in Cavite, P. I., in 1902, that it killed numerous mosquitos every night, beside preventing them from attacking me while I was able to endure its direct blast. Later on I had some reason to think that dead mosquitos were not so numerous as they had been, although live ones seemed numerous enough in all conscience. But I found by spreading a sheet upon the floor that the fan's effectiveness was probably as great as when first set up, the white surface enabling me to see the dead insects more readily than otherwise. It had occurred to me that they might have acquired in a short time the ability to avoid injury from it that birds soon learn after telegraph wires invade their territory. Almost every one must have seen or heard of birds killing themselves by flying against such wires when they were first put up, yet such an occurrence soon becomes quite exceptional. But, as I have intimated, I think that I overestimated mosquito intelligence. Hence, I presume to suggest the employment of electric fans (the larger they are, probably the better) in all infected mosquito districts. These fans might be increased in insecticide power by placing flat and shallow pans containing cheap oil in front of them. I take it that every aid in such riddances will be welcomed.

NONSECTARIANISM IN MEDICAL SOCIETIES.

To the Editor of American Medicine:—During the month of March, I was pleased to attend the sessions of a prosperous county medical society not many hours' journey from the capital city of Indiana. There were a hundred physicians in attendance, most of them members of the society, and several visitors from distant points. One of the visitors inquired of a resident, "Is it true that there are some former homeopaths and eclectics in attendance?"

"Why, yes," was the response, "they are now members of the society, most of them active workers, and very desirable additions to our membership. There are about a dozen of them here today; next year you will see several more present, who will in the meantime formally unite with the society."

I made other inquiries of different members, touching other points, and it may be said with fidelity to truth that so far as sectarian feeling is concerned it is a thing of the past in that locality. The meeting of which I am speaking was one of the most profitable in my experience, full of the spirit of scientific inquiry and professional loyalty. The united profession of the county recently secured certain highly desirable reforms which a divided body never could have brought about. It is unnecessary to say that quackery is at a low ebb in that county.

Some journals that stand for a divided profession have of late been discussing with much fervor why certain sectarian medical schools are not prosperous. It might not be unprofitable for the editors concerned to attend a few progressive county society meetings, confer with the former sectarians they are sure to meet with, and print such replies as they receive to their queries.

HOOSIER.

ORIGINAL ARTICLES

ON SOME CONDITIONS DETERMINING VARIATIONS IN THE ENERGY OF TUMOR GROWTH.

BY

LEO LOEB, M.D.,

of Philadelphia.

(From the Pathologic Laboratory of the University of Pennsylvania.)

In the following, I intend to communicate certain of the observations on the energy of tumor growth, and especially on experimentally produced variations, of the rate of growth which were made in the course of four series of consecutive transplantations of tumors, three of which have already been discussed mainly in regard to other problems. The fourth series, a fuller report on which shall be published soon, concerned the transplantation of a mixed tumor of the submaxillary gland found in a Japanese (waltzing) mouse.

In a provisional way, it may be stated that two variable factors determine the rate of tumor growth: 1. Certain conditions present in the organism and probably in part, at least, in the lymph and blood of the animal in which the tumor is growing. 2. The energy of growth of the tumor, either inherent in the tumor cells or modified by certain environmental conditions other than those named under No. 1. These two sets of factors being both variable, only a long series of observations will enable us to analyze the sphere of influence of each of them. At present, the analysis must of necessity be still very incomplete.

In regard to the first of these two factors, a number of interesting facts has been established by different investigators. The transplanted tumors will not grow in animals of different species. The salivary tumor of the Japanese mouse did not grow in a white mouse. I succeeded, however, in inoculating a sarcoma of a white rat into a hybrid between a white and gray rat. Yensen succeeded in a restricted number of cases in transplanting a tumor found in a white mouse into the common gray mouse, not, however, into other species of animals. Sticker succeeded recently in making a lymphosarcoma, found in a dog, grow in a fox.

In my first and second series of transplantations, I have noticed that occasionally repeated inoculations of the tumor material into the same animal were unsuccessful, and furthermore, that if two pieces were transplanted simultaneously into one animal, either both pieces grew or none. Similar observations were made by Maximilian Herzog with the cystic sarcoma of the third series.

On the other hand, it was possible to obtain tumor growth in all kinds of animals of the same species, in male and female, in young and old, in healthy and in weak individuals. These facts led me to consider the possibility that individual variations in the organism might exist, favorable or injurious to the growth of the inoculated tumor. The complication with the second set of factors permitted, however, such a statement to be made only in a tentative way, especially as in the early stages of transplantation, frequently in all inoculated animals, tumors developed.

Yensen found that about a half of his inoculated mice did not show tumor growth, and concluded that these were naturally immune animals, especially because repeated inoculations into the same mouse were without success in such cases. He suggests that the blood-serum of such naturally immune mice might contain substances detrimental to the tumor growth, a question which he intended to investigate further. In a certain number of cases he found the blood-serum of animals inoculated with tumor juices to possess immune substances, inhibiting the growth of his tumors in mice.

Michaelis also found an immunity of certain individuals against the growth of Yensen's mouse tumor, which could be successfully transplanted into mice obtained from Copenhagen, but not into mice raised in Berlin.

Sticker, in his transplantations of a lymphosarcoma of a dog, did not find that any marked predisposition or natural immunity was present in certain varieties of dogs, although some differences existed between individual dogs.

From these observations we may conclude that certain tumors are more independent in their growth from predisposing conditions in individuals of the same species than others, and that perhaps the individual predisposition becomes of more importance in tumors in which the energy of growth is declining.

Sticker found during his transplantations of a lymphosarcoma of a dog the interesting fact that animals in which a transplanted tumor was growing had acquired an active immunity against a new inoculation. He also, like Yensen, investigated the question whether this active immunity was due to the presence of immune substances in the blood of the animal.

Gaylord, Clowes and Baeslak working with Yensen's mouse tumor found that those mice which were not susceptible to tumor growth contained in their blood, substances inhibiting the growth of the tumors.

That, however, an active immunity is not in all tumors as easily obtained as in Sticker's experiments can be concluded from the following observations: In my first series of tumor transplantations I described an experiment carried out with a rat, in which a transplanted sarcoma had grown for some time; a piece was excised from the tumor, after its growth had ceased, and this cut out piece was retransplanted into another part of the same animal. After reinoculation, this piece began to grow actively. This animal had therefore not become immune against the growth of inoculated tumors through the first inoculation. In a similar way did Bashford, in his recent transplantations of tumors find that animals inoculated once with tumors had not become immune against a second inoculatian.

It is therefore likely that the facility with which active immunity against tumor growth can be produced varies according to the variety of tumors used, or according to the differences in the species or in the individuals which are inoculated with the tumor.

It can, therefore, be stated that the rate of tumor growth is not only influenced by the species into which the tumor is transplanted, but also by variations which exist among individuals or families, of the same species, but that certain tumors are more selective than others. A condition of active immunity can, under certain conditions, be experimentally produced, and this active immunity is accompanied by or due to the presence of certain substances inhibiting the growth of the tumor. Whether in the blood-serum of animals naturally immune against the growth of inoculated tumors such substances are likewise present remains yet to be determined, the serum apparently having been tested so far only in animals which had been previously inoculated with tumor material.

We now shall consider the second set of factors determining the rate of growth of inoculated tumors. It is known that tumors of different character vary in their energy of growth. It is, however, possible to produce variations in the energy of growth of a certain tumor. Recently I had an opportunity to make some observations, not without interest, in regard to this question.

In the beginning of March, 1904, I obtained a Japanese waltzing mouse with a tumor in the upper part of the neck, which I used for further inoculations. I shall report here the results of these transplantations only insofar as they have some connection with the problem under discussion. The tumor was, by microscopic examination found to be a tumor of the submaxillary gland, and of a similar type as the salivary tumors found in

man.[1] By some investigators the main constituents of such tumors are held to be of endothelial, by others to be of epithelial character.

The mouse was, when I received it, 6 to 8 months old. The tumor became noticeable when the animal was 2 months old. It was excised in the beginning of its growth, but recurred soon, and was from then on slowly but steadily growing. At the time I received it, it was not quite the size of an almond, and was nodular in outline.

March 12, 1904, the tumor was transplanted into 11 Japanese mice. A number of them either died soon after operation or a few weeks later, or were lost by an accident in the course of the next month. May 9, about two months after the first operation, two mice were alive, and they both showed very small nodules at the places of inoculation. One of these nodules was cut out May 14, 1904. It began to recur in about six days, and grew rapidly. May 26, 12 days after the excision it was four to five times greater than the first nodule had been after a growth extending during two months. During this time also the other tumor nodules were gradually growing in both animals. One of these two mice died June 9 or June 10, 90 days after it had been inoculated and 26 days after the small nodule had been excised. The other mouse was killed June 13, 93 days after the inoculation. A part of its tumors was used for further transplantations. Of the inoculated mice of the second generation several died soon after the operation. Six remained alive. One of these died June 24, 11 days after inoculation. The beginning of the growth of the inoculated tumor had been noticeable five days after the operation. In the six days preceding death a marked increase in the size of this tumor had taken place.

The second rat had been inoculated intraperitoneally. She died in the night from June 27 to June 28. Fourteen days after inoculation, the abdominal cavity was found to be filled with two large and many smaller tumors. Tumor tissue was penetrating into the liver, into one kidney, and into the pancreas.

By this time, 14 days after inoculation, tumors were likewise present in three of the four remaining mice. In the fourth mouse very soon a tumor also began to develop, and soon reached large proportions.

July 15, 32 days after inoculation, the third mouse died; she had a large nodular tumor which had begun to develop five or six days after operation, and had grown progressively since then.

July 19, 36 days after inoculation, the fourth mouse died with a very large tumor. The latter was situated on the back of the animal.

July 24, 41 days after inoculation, the fifth mouse died with a very large tumor, and July 25, 42 days after inoculation, the sixth mouse died with a very large tumor, covering almost the whole back of the animal.

Further inoculation could not be made because of the difficulty which existed in procuring a sufficient number of Japanese mice.

We see, therefore, that the tumor in the original mouse was growing slowly during a number of months. Even the early excision of this tumor did not cause the tumor to grow rapidly. We furthermore see that only after about two months, the growth of the tumors became, in the first generation, sufficiently large to be noticeable to the naked eye, from which time on the tumors grew almost steadily, but rather slowly.

The six mice of the second generation, however, developed tumors inside of one to two weeks after inoculation, with the exception of one, in which the development of the tumor began soon afterward and progressed rapidly. The energy of growth of the tumors of the second generation was considerably greater, and the development a much more rapid one than in the first generation or in the original tumor. The period of latency (the period during which no growth as yet appeared to the naked eye) was shorter.

An identical variation in the energy of tumor growth was present in one of my former series of tumor inoculations of a sarcoma of the thyroid in rats, although in this case the difference in the rate of growth in the first and second generations was not as marked as in the series of transplantations of the submaxillary tumors. In the case of the sarcoma of the thyroid the growth in the first generation became visible in the third week. The growth in the second generation became visible toward the end of the second week. In the two other series of transplantations of a sarcoma the rapidity of growth in the successfully transplanted pieces was much greater than in the original animal. The record of the individual transplantations has since been lost, so that it is not certain whether the same difference between the growth in the first and second generations existed, but, as far as I can remember, it did exist, at least in the first series. The same curve of growth (maximum of growth in the second generation) appears in the record of Sticker's inoculations of a lymphosarcoma in dogs. In all of these series of transplantations the inoculations were in each generation made in a number of different animals, and the result was identical in all animals inoculated in each generation, so that this occurrence cannot be explained by individual differences in the susceptibility of the inoculated animals. The only other series of tumor inoculations in which the growth in the succeeding generations is recorded is that of Morau. This investigator also finds the growth of the transplanted tumors more extensive than the growth of the original tumor; in his case, however, the lengthening of the period of latency took place after the first transplantation.

It is, however, not essential that the same curve of growth should be present in each series of inoculations. It should be present frequently enough so as to exclude all possibilities of an accidental happening. These facts certainly permit the conclusion that transplantation of a tumor has a tendency at first to increase the energy of tumor growth, and that this increase may be cumulative. In all instances in which a larger series of tumor inoculations were made, a further shortening of the latent period or an increase in the rapidity of tumor growth did not take place in the following generations. Duration of the latent period and rapidity of growth either remained stationary through many generations or the energy of tumor growth even declined somewhat. This fact may perhaps be explained by the presence of counteracting influences, the actual existence of which can be demonstrated, as shall be shown later.

One more conclusion can be drawn from these facts: The animals of the first and second generations offer less resistance to the expansive growth of the tumor cells than the animal originally affected with the tumor.

What is the cause of this increase in the energy of tumor growth? The first explanation which suggested itself was that the injury to the connective-tissue capsule surrounding the tumor removes the tension which inhibited a further growth of the tumor. Certain observations in my earlier transplantations had suggested such an explanation. In a number of former experiments I had repeatedly found that it was possible to make a stationary or retrogressing tumor resume its growth by excising a piece and by retransplanting it either into the same or into another animal. Under these conditions it was possible for the retransplanted piece and also for the retrogressive and stationary piece to grow again. In such cases a capsule had existed around the stationary piece, the tension of which was removed by the excision of a part of the tumor. In the second series of transplantations of the sarcomatous part of a tumor of the thyroid, a tumor was likewise made to grow again after excision of a piece and retransplantation into another animal.

In the first series of transplantations of a sarcoma of the thyroid the following experiment was made: A piece from a large infected tumor was transplanted November 26, 1900. The piece did not show any marked growth. December 20, 1900, a piece of the stationary tumor was cut out; after this operation the piece which had been left back grew a little; the growth, however, ceased soon, the piece became surrounded by a connective-tissue capsule, and it decreased in size. January 24, 1901, a piece of this tumor was transplanted into the peritoneal cavity of another rat. In the succeeding 15 days a larger tumor developed out of the transplanted piece, which was afterward used for further transplantations, which were also successful. In the

[1] The finding in a mouse of a salivary tumor of a similar character as the salivary tumors found in man, is a further demonstration of the great resemblance or identity existing between tumors found in men and in lower animals.

meantime the original tumor from which the piece was excised January 24 became converted into a number of small pearls, which gradually decreased in size.

In another case not only the transplanted piece began to grow, but also the rest of the tumor, which some time previously had ceased to grow; the piece which had been excised from the tumor began to grow, although it had not been transplanted into a different but into the same animal, in which no tumor growth had taken place before the excision was performed. In such cases it is not unlikely that the removal of the tension of the connective-tissue capsule is of some importance.

In the last series of tumor inoculations (inoculations of a mixed tumor of the submaxillary gland) we observed a similar phenomenon, namely, the increase in the energy of tumor growth after transplantation into the first, and especially after the inoculation into the second generation had taken place. In this case increase in the rate of growth after the inoculation into the second generation as compared with the rate of growth after the inoculation into the first generation speaks against the importance of the removal of the connective-tissue capsule, because the tension of the surrounding connective tissue was removed as much in the first inoculation as in the second. Moreover, it could be shown that in the transplanted tumor of the submaxillary gland no capsule existed around the sarcomatous part of the tumor during the relatively slow growth of the first generation, and that it behaved in this respect like the rapidly growing sarcoma which recurred in the first generation after excision May 14, and also like the quickly growing sarcoma of the second generation. In a similar way the influence of the removal of a surrounding connective-tissue capsule could not explain the difference in the growth of gland-like structures of the tumor in the first and second generations, the connective tissue being arranged in both cases in a similar way. A further experimental proof can be found in the fact that during the series of transplantations of the first sarcoma of the thyroid a small tumor or nodule included in its uninjured capsule was transplanted into a different animal and that it began to grow after some time. The tense connective-tissue capsule became dilated by the inner pressure of the growing tumor. After the initial growth the tumor remained unchanged for a long period and no further growth took place, until a piece was cut out, when the remaining piece again started to grow rapidly. It can therefore be definitely stated that the excision of a piece of a tumor does not increase the energy of tumor growth merely by the removal of the tension of the capsule. A tumor which is growing is able to overcome such a resistance, as shown in the case last mentioned; it is more likely that the formation of a tense capsule is rather an indication of an already existing limitation of the expansive power of the tumor cells than the cause of it. Nevertheless it is possible, and even likely, that the existence of such a capsule exerts a restraining influence. This is the most probable interpretation of the last mentioned case. After transplantation the tumor was able to grow in its capsule. This growth, however, began soon to cease. After excising a piece a much more extensive growth set in.

A second possible explanation of the increased energy of growth after reinoculation is that a better vascularization of the inoculated material supplied more material for growth. There is, however, no reason why the vascular supply should be better in the second generation than in the first; moreover, the microscopic examination permitted to exclude this factor, insofar as some rapidly developing tumor nodules in the second generation had no better blood supply than the very slowly growing little nodule of the first generation which had been excised May 14. We have therefore to assume that experimental conditions other than the aforementioned ones cause the increase in the energy of tumor growth and that this change may be a cumulative one.

The energy of tumor growth can be increased directly, and not only indirectly merely, by the removal of the tension of the surrounding capsule or by a better vascular supply. Such a direct stimulating effect of a wound upon the cell growth explains probably a phenomenon not infrequently observed by surgeons, namely, the increase of malignancy in recurrent tumors. The observation that tumor growth becomes sometimes apparent after a trauma, is probably to be interpreted in a similar way.

Another question which might be raised is whether this energy of tumor growth is caused by the transfer of the tumor into a different animal or whether the trauma or wound would have the same effect without any change of soil. Our present experience permits us to state that the trauma or wound itself is an important factor, sufficient to cause an increase in the tumor growth. We saw, for instance, that the nodule which recurred in the first generation of the animals inoculated with the mixed tumor of the submaxillary gland, after the primary nodule had been excised, had a much more rapid growth than the primary nodule, in a similar way as the tumors of the second generation grew more rapidly than those of the first one.

It is, however, probable that under certain conditions the transfer of tumor cells into a new organism stimulates its growth specifically in a way different from the mere effect of a trauma. It may happen that after excision of a tumor piece, and after its retransplantation into another animal, only the excised piece grows, but not the piece left back, although it was likewise subjected to the influence of a trauma.

Another fact is the following: In those cases in which, after the extirpation of the original tumor, the animal survived, multiple recurrences of the tumor were found to develop. These, however, did not have the same rapid rate of growth which was found in the other animals which were inoculated with the same tumor, although a trauma existed in each case. We mentioned already, above, that the growth of the primary tumor is a slow one. In this case, the transfer of the tumor cells into a different animal seems to favor the increase in the energy of growth. We may, therefore, conclude that the stimulating effect of the wound is a factor leading to an increase in the rate of the tumor growth, and that the transfer into a different animal is perhaps an aiding factor, which may, under certain conditions, become of some importance.

If we further ask by what means does the wound stimulate the cell growth, we have no way to answer this question, because we do not know the factor or the factors ultimately determining regenerative cell growth. We might rather conclude from the facts stated above that the break in the tissue is not the factor which stimulates growth directly, insofar as the tumors, the growth of which we just considered, did not have a well-defined border, comparable to that of a normal organ. The stimulating effect of the wound must therefore in this case be brought about in a different way.

It is also possible to diminish the energy of tumor growth. In the course of tumor inoculations it not rarely happens that certain tumors remain stationary or retrogress even spontaneously. This is especially found in the course of later inoculations, and it probably indicates that after many inoculations one or several of the factors determining a vigorous tumor growth become gradually weakened. We may also find it in cases in which a part of the tumor had been infected with bacteria. It sometimes happened in my former transplantations of a sarcoma of the thyroid that the infected part of the tumor became separated from the rest of the tumor by a connective-tissue capsule. Under such conditions the encapsulated, not infected part, had been so much weakened, probably by the effect of bacterial toxins, that it soon ceased to grow.

In such tumor nodules one can observe that even a

long time after the expansive growth of such a tumor piece has ceased, many mitoses are present in the cells of stationary or retrogressive tumor. I have found this to be the case in several tumors which had ceased to expand a considerable time ago, and which were even shrinking. At a still later stage mitoses may, however, be absent in such nodules. These observations have been recently confirmed by Sticker, in his transplantations of a lymphosarcoma of a dog. We may therefore conclude that the number of mitoses present in a tumor is not a quantitative measure of the actual growth taking place. On the other hand, this fact shows, in combination with the observations recorded above, that a retrogressive, very small tumor nodule may be the source of a rapidly growing tumor, if an external stimulus of growth is transmitted to it.

Another factor of a similar character is the following: Microscopic examinations in the period of latency show that the growth as evidenced by the presence of mitoses is going on during a considerable period before any growth is apparent to the naked eye. In the former inoculations of a sarcoma of the thyroid, mitoses were present in the peripheral part of the tumor, already on the first or on the second day after transplantation. In the first generation of the tumor of the submaxillary gland, the growth became apparent to the naked eye after about two months. Microscopic examination, however, showed signs of growth in a small inoculated piece which was excised 16 days after, at a time, therefore, when no development of the tumor was apparent to the naked eye. It is as yet doubtful whether microscopically a period of latency of any length does exist.

It is possible to diminish the virulence of tumor cells directly by subjecting them to certain physical or chemical conditions. By heating tumor cells up to 43° or 44° for a half hour outside the body in a sterile way, or by leaving them before inoculation in glycerin for 12 to 24 hours, and washing them afterward in 0.85% sodium chlorid solution, or by keeping them one to two days in $\frac{N}{700}$ KCN solution before transplantation, we are able to diminish the energy of the following growth, and to increase the period of latency. This applies especially to tumors previously heated for a half hour to 43°. Frequently such tumors remain stationary after a short preceding period of growth, or they may even retrogress. In the first experiments of this kind I found that a temperature of 45° during a half hour kills the tumor cells. Yensen found a similar sensitiveness of his mouse tumors. Sticker's lymphosarcoma could be heated up to 45° without being killed. The power of resistance of different varieties of tumor cells varies therefore somewhat, and the means to be adopted to obtain a diminished virulence in the growth of an inoculated tumor will vary accordingly.

Less apparent is the lengthening of the period of latency and the following diminished energy of growth in those tumors which before inoculation had been subjected to the influence of KCN or of glycerin, although it may be present in such tumors. Frequently pieces which had been kept for some time in glycerin did not grow at all afterward.

In my last series of tumor inoculations, in all the animals inoculated with fresh tumor pieces, well-growing tumors developed. Of three mice which had been inoculated with pieces which had been previously kept in glycerin for about 20 hours, and had then been washed in sterile 0.85% NaCl solution, one died after 11 days, without any growth. Of the two remaining mice, one developed a tumor about six weeks after inoculation. We see, therefore, that a very marked increase in the duration of the latent period had taken place in the piece kept in glycerin before inoculation, insofar as the control pieces began to grow after two weeks.

In this connection it may be mentioned that these facts can possibly find a practical application insofar as pieces of tumors previously subjected to such treatment might be used to procure an active immunity against tumor growth. Especially pieces which have been subjected to heating, promise to be favorable. That active immunity is possible, at least in the case of certain tumors is, as I mentioned before, especially indicated through the observations of Sticker. I had intended to use the submaxillary tumor for experiments of this character. The difficulty, however, of obtaining Japanese mice in a quantity sufficient for this purpose made it impossible to carry out these plans.

If we now wish to analyze the cause of this decrease in the rate of growth of tumor cells, we have to consider several possibilities. It might be that the physical or chemical means employed kill most of the cells and leave only a few cells alive able to give origin to the developing tumor. Two facts speak against such an interpretation: 1. In the case of any tumor transplantation, the growth starts from a relatively small number of cells, insofar as the central part of the transplanted piece becomes necrotic. 2. I succeeded in my first series of tumor transplantations in obtaining well-growing tumors, after injection of cystic tumor fluid into the peritoneal cavity of rats. In such cases one or very few cells must have given rise to the tumor growth, and these tumors developed in a few cases quite rapidly. Such an explanation is therefore improbable. Further, we would have to consider the possibility that some of the means employed to decrease the virulence of tumor cells are favorable to the growth of bacteria, and that they inhibit in this way the development of tumors. Bacterial toxins certainly act frequently unfavorably upon the growth of tumors. Against this explanation, however, the objection can be raised that tumors with experimentally diminished virulence did not show any sign of putrefaction, nor did they, after inoculation, cause a formation of abscesses, occurrences which are frequent after transplantation of infected material. It is, therefore, most likely that the cause of this decrease in virulence is the result of the direct decrease of the vitality of the tumor cells as expressed in their energy of growth. It is, however, desirable to analyze further these facts in future experimental work on tumors, especially as the character of such work limits of necessity the number of experiments a single observer can make.

With this restriction we might state that the observations here recorded point to the conclusion that *it is possible to cause an experimental increase and decrease in the energy of tumor growth and that these variations are caused by a direct stimulating or depressing effect upon the tumor cells, and that such a stimulating effect may be cumulative.*

Another question might be mentioned, although it is only indirectly connected with the problem under discussion. In recent years it has been frequently discussed by surgeons whether or not, contact inoculation of tumors takes place, especially in cases in which a tumor is removed in the course of an operation and touches the wound or parts of serous cavities. Such inoculation by contact might, however, also take place, if a tumor rests for any length of time upon a certain tissue. By some surgeons such contact metastases were explained as really due to cells which were carried away by the lymph and only secondarily broke through the mucous membrane or through the serosa covering the lymph vessels, and afterward presented an appearance of having primarily been deposited on the mucous or serous covering itself.

Our experiments permit us to state with certainty that such contact metastases may occur in introducing a tumor piece through a wound of the abdominal wall into the peritoneum. It happened several times that tumors developed not only in the peritoneal cavity, but also in the muscular or subcutaneous layer of the abdominal wound, or that if a piece was introduced into a deep pocket of the subcutaneous tissue, not only the inserted

piece gave origin to a tumor, but that also near by, in the subcutaneous tissue, small isolated nodules began to grow, due in all probability to the fact that the inoculated tumor piece touched the wound at such places. In other cases in which the tumor had been inoculated intraperitoneally, little nodules developed at such places where large tumors rested against the peritoneal wall.

These facts, observed in the course of experimental inoculation of tumors, permit us to state with certainty that inoculation by contact may occur, and that it is probably not a rare occurrence. We may, however, go even further, and state that different tumors which are morphologically similar or identical behave differently in this respect. Thus it was observed that the sarcoma of the thyroid used in the first series of transplantations gave rise more frequently to such contact inoculations than the sarcoma used in the second series, although both tumors had an almost identical structure. It is, therefore, impossible to foretell whether or not a tumor during extirpation is liable to cause the formation of contact metastases, and the greatest care ought to be taken in avoiding a tumor touching the wound during extirpation.

In order that such contact metastases should occur certain conditions must be present. In our experiments contact inoculations were found only in such cases in which the implanted cells had favorable conditions for growth, as, for instance, in the peritoneal cavity or in subcutaneous or muscle wounds which were carefully closed after operation. Under such circumstances the tumor cells could develop undisturbed.

Contact inoculations were, however, never observed on the skin of an animal or in the intestinal canal after the animals had been fed with freshly extirpated tumors, although we may assume that the skin or mucous membrane showed slight abrasions, which came into contact with tumor cells. In the surface of the skin, the cells are probably exposed to many injurious influences, as light, drying out, mechanical removal. The same applies to the skin of operating surgeons. Here, inoculated tumor cells do not find a favorable place where they could grow, especially if we consider that the surgeon's skin, especially after having been wounded, is during or immediately after operation, bathed in antiseptic solutions, which kill tumor cells rapidly. It is, therefore, not astonishing that no cases are known in which surgeons have been inoculated with a tumor during an operation.

Another factor has to be considered in this connection. To judge from the rather limited number of experiments which have been made so far, it is possible that tumor inoculation is more difficult in certain species of animals than in others. Successful transplantations seem, for instance, to be more difficult in dogs than in some other species, although they have been successfully done in dogs. The reason for such apparent differences is not yet clear. Recently I tried to transplant into other dogs a sarcoma from the neck of a Boston terrier, which had recurred after operation, however, without success. In order to determine whether the difference of the soil caused this failure to grow, I transplanted several pieces into the Boston terrier itself, but they did not grow any more than the pieces transplanted into other dogs. The cause for this failure to grow lies, therefore, probably in the tumor tissue itself. How human tumors behave in this respect, we are, of course, unable to say, because experiments of this kind are excluded in men, especially if we consider that a simultaneous inoculation into a number of individuals would be necessary.

One more conclusion resulting from experimental tumor inoculation might be stated: At the bottom of all tumor growth must lie an increased energy of growth of those cells from which the tumor took its origin. The growth of tumors cannot be due to a lowered resistance of the organism in which the cells carry on their apparently unlimited growth. This follows from the fact that in a sufficiently large number of cases it has been possible to so make tumor cells continue their destructive growth in a very large number of animals of the same species, and we find frequently that such inoculated tumors grow more rapidly than the original one. If, on the other hand, we transplant ordinary tissues as epithelium or cartilage, they have only a very limited growth, which never leads to the formation of a tumor.

The experimental analysis of tumor growth is a relatively new field of investigation. Although no proof has been found for the existence of parasites as the cause of tumors, nor has it been possible to exclude entirely the possibility of the causal connection of microorganisms with the origin of tumors, a number of facts have been established in recent years which are not without interest, and which give us reason to hope that by a patient continuation of these experimental researches our knowledge of the conditions of tumor growth will more and more enlarge.

INFECTION IN TRANSPORTATION.[1]

BY

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In discussing this subject I think it can be safely said there should be no danger of possible tuberculous infection while traveling in public conveyances. For tuberculous infection there must, as a rule, be prolonged exposure, and this should never occur in any public conveyance. In the street cars one spends but a short time on any single trip. In the suburban trolleys the crowded condition in the cars and the longer trips make the possible exposures more pronounced than in the city cars. In the day coaches of railway trains one is not in close contact with other individuals, and even should a tuberculous patient be sitting nearby, the tubercle bacilli expelled in the act of coughing are in a moist state and not in condition for general distribution until the sputum becomes dry. In sleeping cars and on steamers one is even more isolated than in the day railway coaches, and the danger of possible tuberculous infection should be still less.

In speaking thus of possible infection during transportation we are assuming that all public conveyances and their furnishings are kept well cleaned. If such is not the case, there may be danger in every street car, railway coach and steamer berth. If tuberculous patients deposit infected sputum in public conveyances and it is allowed to become dry, it may then be a source of danger. The greatest danger from lack of cleanliness is undoubtedly found in the sleeping cars and steamer berths where one may be in contact with infected bedding during an entire night. The danger of tuberculous infection during travel may be intensified by the lack of proper ventilation, for when an individual is confined in close, stuffy quarters, the irritation of the respiratory tract may be sufficient to increase his susceptibility; or an already infected individual may have an inflammatory condition of the lungs intensified by foul air or draughts, thus changing a latent to an active infection. Admitting tuberculous infection is not apt to occur during any single trip in a day coach, we must still appreciate the fact that exposure in such coaches is possible, for many people spend a considerable amount of time each day in city and suburban cars on their way to and from business.

The Opinions of State Sanitarians.—The important question then is: Are cars properly cleaned and venti-

[1] Read before the sociologic section of the National Association for the Study and Prevention of Tuberculosis, at its first annual meeting, held at Washington, D. C., May 18 to 19, 1905.

lated? Some one in authority should be able to answer this question. Let us quote a few opinions bearing upon the possible danger of tuberculous infection in cars:

One sanitarian, from a State where there is much tuberculosis says:

Regarding the question of car sanitation and possible tuberculous infection of travelers, I consider it beyond any question of doubt that tuberculous infection may be transmitted from infected cars to passengers. I do not believe, however, this often occurs, for the reason travelers are in the cars for a short time only, but I can readily understand how infected cars might be a means of subjecting individuals having a tuberculous tendency to the dangers of infection. Theoretically, an infected car is as great a source of danger as is an infected room, for while in transit there are constant draughts through the car which interfere with the tubercle bacilli that may be present in the air, settling to the floor by gravity. Again, the blankets and permanent fixtures of Pullman cars, especially if the berths have been used frequently by tuberculous patients, are sources of danger even to a healthy individual, for he is brought into close contact with these articles. As regards car cleaning: the day coaches are seldom subjected to anything but ordinary sweeping, and I can see no reason why they should not be a source of danger to the traveling public, not only from tuberculosis, but also from other contagious diseases. The lesson I have learned while traveling is, that at the end of the journey the ordinary day coach is extremely filthy because of the refuse left by passengers. This of course, is not harmful so far as disease is concerned, but it shows a lack of cleanliness on the part of the public.

As regards the question of car sanitation, I think there should be some uniform action taken by all the railroads and that all States through their Boards of Health should insist upon this. I believe it is a great mistake for States independently to pass regulations relative to car sanitation and attempt to compel railroad companies passing through their borders to observe the same, for this would cause a great deal of confusion and would not be effective.

Another State sanitarian says:

Personally I think the danger of tuberculous infection on trains is quite exaggerated by the medical profession. Except for trainmen and steady travelers I think this danger is quite limited. The sleeping car is probably a considerable source of danger, for often nowadays the tuberculous may even die on the train. I traveled from Buffalo not long ago in the same car with a tuberculous person who died in his berth and was removed from the train during the night. The car certainly went to Washington, and perhaps to Asheville, and in all probability that berth was sold again and used without having been disinfected. The blankets of the Pullman cars are offensive looking and probably often actually filthy.

Another sanitarian says:

The medical profession of this State, as elsewhere in the United States, is practically united in holding that the danger of tuberculosis being communicated by means of dried sputum in cars of various kinds, is great.

Another State sanitarian says:

Our board has never adopted any measures looking to the regulation of car cleaning or ventilation. Such measures ought long ago to have been adopted to protect the public against the transmission of infectious diseases. I am sure the great danger, especially from tuberculosis, is not properly appreciated; and not being appeciated, the prevention or necessity for the use of every reasonable means of prevention, is neglected.

Another State sanitarian says:

There are no laws in this State governing the proper cleansing and ventilation of street cars, day coaches, and sleepers. We authorize the use of the name of the State Board of Health in posting notices against spitting in cars and about stations. These notices are used to a limited extent. We also give the officers of car companies the right to arrest persons for violating the regulation against spitting. So far, however, very little has been accomplished. I am inclined to think the probability of tuberculous infection of travelers has been exaggerated.

Another State sanitarian says:

The ventilation of steam cars and of all trolley cars is notoriously imperfect, and the discharge upon the floor of infected oral excrement is constantly occurring. These conditions are causative of tuberculosis and other affections of the respiratory tract. One frequently hears people say: "I have been traveling for one or two days shut up in a hot, unventilated car, and have caught a cold." This proves the laity has observed the ill-effects upon health incident to travel. For myself, I have observed if I pass two nights in succession in sleeping cars I almost invariably have an attack of rhinitis, and several times I have had attacks of influenza. I am unusually susceptible to the conditions which provoke these maladies. I am aware the search for the specific germ of tuberculosis in cars has not been very fruitful, but nevertheless it seems to me human beings readily find these germs, and so I have arrived at the conclusion that steam and trolley cars are fruitful sources of all diseases of the air passages.

Another State sanitarian says:

I consider the subject of a proper sanitary regulation for all railroad coaches as one of very great importance. So far as I know, the Boards of Health in the different States have no jurisdiction in this matter, but the railroads, realizing the importance of the subject, are doing a great amount of work along this line.

Another State sanitarian says:

Our board made an attempt to secure legislation last winter requiring the proper cleansing of street cars, railway coaches, and Pullman cars operated in this State, but the bill was reported upon unfavorably, and this was due to railroad influence. That these cars are sources of infection in a large number of cases cannot reasonably be doubted. That tuberculous infection is possible seems but reasonable. Only a few days since a man complained to me that while traveling on one of our transcontinental lines he noticed a tuberculous patient in a day coach, well advanced in the disease, almost constantly coughing and expectorating on the floor, there being no receptacle for receiving the sputum. This so disgusted and alarmed the man complaining that he went into another coach, which, as a matter of fact, was no better than the one he left. I am of the opinion that the time will soon come when the public will demand the enforcement of such measures as I understand have been adopted by the ——— road because of the large number of tuberculous patients traveling over their line.

Another State sanitarian says:

I am one of those who believe thoroughly that greater attention should be paid to car sanitation, on account of the possibility of the transmission of tuberculosis and other infectious diseases.

Another State sanitarian says:

I have had several interviews with railroad officials regarding the sanitary condition of cars, and they have always expressed a willingness to aid in any way possible. The Pullman car, as built and equipped, I believe to be a source of danger, and my attention has been drawn to cases of tuberculosis that certainly seemed to have been contracted in such cars. I have seen patients in the last stages of pulmonary tuberculosis coughing and scattering sputum all over the blankets, cushions, and floor. This sputum soon dries and becomes an element of danger. I can imagine no better place in which to become infected with tuberculosis than in a poorly-ventilated car. All cars can and should be so built as to permit of proper ventilation without freezing passengers or blinding them with dust. . . . All cars should be emptied of passengers at least once a day, and properly cleaned. No car should be cleaned while occupied. The use of the third sheets in the Pullman cars will do some good, but it will not keep the blankets from being contaminated, nor will it remove the need of their disinfection.

Another State sanitarian says:

I confess I regard the sanitation of railroad cars a difficult problem. It seems to me, however, that sleeping cars employed on lines transporting tuberculous cases to and from the South should be disinfected at the end of each run. I doubt whether many cases of infection of travelers occur on the cars, but I have no means of proving this. One thing has impressed me as most objectionable from the sanitary point of view in car management is the sweeping of the floor and dusting of the seats by the porter while the car is full of people.

Another State sanitarian says:

In 1904 our board sent the following to all the railway companies operating in the State:

Resolved, That the present method of sweeping railway coaches while in transit is a nuisance and is dangerous to public health, and the railway companies are urged to adopt some more sanitary method.

Our resolution was in the nature of a request, rather than a demand. Even if our suggestion was carried out, this would not entirely eliminate the danger of infection from tuberculosis, etc., but it would certainly make traveling in day coaches more agreeable than it now is. You are undoubtedly familiar with the present custom of the porter, roughly to sweep the coaches occasionally with a dry broom; it seems his particular ambition to get as much dust into the air as possible. I have happened to be in a smoking car several times when the atmosphere was almost choking because of the dust present. I think car sanitation is one of the most important subjects we have to deal with, and that we pay altogether too little attention to it. The one thing I think of when I get into a berth is whether or not a spitting tuberculous patient occupied it the night before, and possibly expectorated on the curtains, or wiped his mouth with the blankets.

Another State sanitarian says:

I regret that absolutely no precautions are taken in our State to prevent possible tuberculous infection in cars. We tried to pass a law through the last Legislature that would require sanitary regulations in common carriers, but the bill failed to pass the Senate after having received an almost unanimous vote of the House.

Another State sanitarian says:

We have no laws relating to car sanitation. We endeavored to obtain the passage of a bill covering this point, but the bill was thrown out by the Senate. I feel the greatest danger to travelers is from the sleeping car blankets and curtain hangings. Personally I fear these more than I do the expectoration on the bare floors in day coaches. The carpets of day parlor cars I should think would become infected in the vicinity of spittoons.

Another State sanitarian says:

Our Board of Health has not been given the power to enforce regulations concerning the proper cleansing of street cars or railway coaches. Over a year ago the board adopted a resolution asking the various railroads operating in this State properly to cleanse their cars at frequent intervals, but as we have no power to enforce this request it has been entirely disregarded. While I presume the possibility of tuberculous infection of travelers cannot be questioned, I am personally not inclined to the opinion this danger is very great.

Another State sanitarian says:

There is no law in this State relating to car sanitation. A bill placing railway and street car companies under the supervision of the State Board of Health was introduced at the recent session of the Legislature, but failed to pass. I believe the present system is a distinct menace to the public health, and that tuberculosis and other contagious diseases are sometimes contracted as a result of the improper care and disinfection of railway coaches and Pullman cars. The only rational remedy lies in the direct sanitary supervision by the health authorities, operating under strict but reasonable regulations.

Another State sanitarian says:

There are no special sanitary measures taken in this State for the proper cleaning of street cars, railway coaches or sleepers. It seems to me there can be but one conclusion upon the question of car sanitation and the possible tuberculous infection of travelers through neglect of such. With 10,000 people in this State suffering from pulmonary tuberculosis, the large majority of these being out of employment and traveling from one relative to another, from one friend to another, from one physician to another, in search of health, the germs of this disease are scattered broadcast. This is especially true in the transportation coaches, where crowding, lack of ventilation, and light make the danger of infection greater than is ordinarily realized. I have endeavored to create a sentiment in this State in favor of the protection of the traveling public from tuberculosis, but thus far I have not been able to make any definite inroad upon the old established customs.

One physician reports that one morning on a train he spoke to a conductor about a passenger who was spitting upon the floor. The conductor said there were no rules against spitting on the car floors, but there should be. He further stated he had known several men employed as car sweepers who became tuberculous after three or four years of such work.

Position of Railway Surgeons.—Railway surgeons, as a rule, do not seem to have very marked opinions on car sanitation. One of these officials says:

This company has a staff consisting of a chief surgeon and about 72 district surgeons. The surgical department is only expected to attend injured persons and to give opinions in regard to sanitary matters upon request. There is no officer whose sole duty is that of sanitary expert. Questions relating to the sanitation of cars belonging to this company were discussed in correspondence betweeen the general manager and the health officer of the city of ——.

Another railway surgeon says:

At the several terminuses of our road the cars are scrubbed, the movable plush seats taken out of the car, exposed to the air and sun, and thoroughly dusted and swept. Anything further than this we have never done.

Another railway surgeon says:

Our road employs no sanitary measures in the care of coaches further than the usual custom of taking the cushions out of the car at the end of the trip, beating them thoroughly and cleaning the car with the compressed air blast.

Another says:

The coaches are thoroughly cleaned at the end of the trip, and so far as possible *en route*, care is taken to get rid of all dust and dirt of every kind. Use is made of the pneumatic duster, and cushions are removed and cleaned in the open air.

Certain railway surgeons, however, show an interest in car sanitation, as borne out by the following quotations:

(62) We have no sanitary expert and I am sure no means are provided for disinfecting cars unless the ordinary negro porter is regarded as sufficient for this purpose. I believe sanitation enforced by law is the first important step in the protection of the traveling public. I thoroughly hope all roads will be compelled to disinfect their day cars and sleepers as a matter of routine.

(71) I regret my inability to give you any important data on the subject. I do not believe there is any sanitary expert connected with the road which I represent. I must confess car sanitation as it applies to day coaches and sleeping cars may be said not to exist.

(76) Infection in transportation is a subject in which we are deeply interested, and we are doing everything possible to keep our coaches in good sanitary condition. Our instructions are posted in every building and station of the entire system, and they are fairly well carried out. Every coach is cleaned at the end of a run, no matter how short, and a disinfectant is used on the floors of the coach and water closets, and in the cuspidors. We have been instructing our trainmen for some time as to the necessity of reporting every case of tuberculosis, or of any person that seems to be sick, on our cars. The foreman of the cleaning yards has been carefully instructed in the cleaning of cars. Sometime ago I was sufficiently interested in this subject to send an expert to a number of different railroads to ascertain what was being done in the way of car cleaning, and in fact, I have personally given this matter considerable attention. I find we are cleaning our cars as well as we can with the conveniences of the present time. I am satisfied it will not be long before we will have a new car-cleaning equipment in which air will be used by suction instead of pressure. Such an outfit will take care of the dust and dirt instead of blowing it off on to something else, as is now done with the compressed-air outfits. The only trouble at present is to get an equipment of the suction type that is reliable.

(80) While I have no positive evidence that any one has ever been infected with tuberculosis while traveling over any part of the —— system, still I am convinced it is possible for such infection to occur, because of the fact that many patients suffering from tuberculosis travel on our trains. These cases are often far advanced and the sufferers are careless as to the deposit of their sputum; even in cases in which the sputum is deposited in cuspidors, I am sure the upholstering and other articles of furniture become infected from the showers of finely divided sputum expelled from the mouth with every effort of coughing. I believe infections occur more frequently from these showers than from masses of sputum deposited in the ordinary receptacles. About two years ago the chief surgeon suggested to the management of this system that every passenger car be provided with paper cuspidors, and these be placed at the disposal of every one suffering with a cough. After discussing this proposition thoroughly it was concluded the suggestion was not practicable. Still, in my own mind, this would seem a helpful provision. In my opinion tuberculous patients should occupy separate compartments or a separate car, for, as I have stated, the dangers from the showers of finely divided particles of sputum are quite as great as from the larger masses of sputum.

(83) A conference of the chief surgeons of the related —— lines has been arranged for, and at this conference the question of uniform rules for the cleansing and sanitation of cars will come up for consideration. I feel confident that at this conference we will recommend to our roads for adoption every reasonable precaution that suggests itself to us for the better protection of the traveling public on our lines.

(87) I believe tuberculous infection in cars limits itself to sleeping, and especially to tourist cars. Our day coaches are thoroughly cleansed by means of washing with damp cloths, the use of dusters and brooms, and thoroughly aired in the sun. No antiseptic solution of any kind is used, except in a car that has carried a passenger ill with a contagious disease. No sanitary expert other than the chief surgeon is connected with this road. It is my opinion the danger of infection with tuberculosis from a day coach is much less than from a hotel. Tourist cars and overland sleepers, which carry tuberculous patients nearly every trip, should be disinfected and cleansed thoroughly at the end of each trip.

(93) With reference to sanitary measures taken by our road in the cleansing of cars, I am obliged to say we do not do much. I am glad you are stirring up this question and I think it is worthy of attention. It has been impossible for us to introduce any systematic method of car disinfection, except on the lines running through the State, where we conform to the State laws.

(94 a) There is no routine disinfection of sleepers or day coaches that have been occupied by tuberculous patients. I

wish to say, however, this matter is receiving attention from the operating department of the road at the present time, a file of correspondence relating to the subject having recently passed through my hands. There is no sanitary expert—medical or lay—connected with the road at this time. With regard to my views on the question of car sanitation, I am heartily in sympathy with any systematic work that is being done or may be done in this direction.

One of the great dangers of infection from tuberculosis is the unsuppressed spitting habit, particularly in public conveyances. While making a trip recently on the —— line I noticed a passenger expectorating on the floor of a first-class passenger coach from the time he entered it until he left the train, apparently showing utter ignorance or indifference to the dangers of such action.

Stand Taken by Commissioners of Health.—Many of the city health officers seem to consider their responsibilities extend no further than the securing of antispitting ordinances. These ordinances, it may be stated, are becoming quite general and are being enforced to a greater or less degree. The opinions of a few commissioners of health are quoted below:

(24) This city has an antispitting ordinance. There is also an ordinance requiring that street cars be fitted with ventilating windows, but the personnel of our sanitary force is not large enough to do all we would desire in the enforcement of the spitting ordinance, and the ventilation ordinance is vague and indefinite. We have tried to improve matters by addressing ourselves to the corporation heads, but this has proved a useless task and we are contemplating more drastic, but less polite means of gaining the desired end.

(25) The only sanitary measure in force in this city as relates to car sanitation is the antispitting ordinance, which is a very broad one, and includes specifically the protection of all cars and platforms. This ordinance is now being enforced with very happy results. We have no regulations bearing upon the ventilation of cars. The street car companies endeavor to obtain some ventilation of the cars through deck ventilators, but unfortunately the conductors do not give this much attention. I cannot but feel that in our sleeping cars there is considerable danger of tuberculous infection, because of the lack of good ventilation and the proper care on such cars of people suffering from tuberculosis. I have never observed that a porter gave any more attention to a tuberculous patient than to a perfectly healthy passenger. It is difficult to obtain any positive evidence of any tuberculous infection resulting from crowding in cars, and in my opinion such dangers must be very slight when the antispitting ordinance is thoroughly enforced. I am in sympathy with any measure looking to the betterment of sleeping car conditions.

(30) I have no hesitation in saying the average car, whether street car, day coach, or sleeping car, is badly ventilated, badly heated, and badly cleaned. Cars of various kinds, but especially sleeping cars, present many conditions favorable to the spread of tuberculosis.

(31) It is almost impossible for this department to secure the proper cleansing and ventilation of street cars in this city. From the reports of our inspectors, we learn the street cars are washed with water and soap every second night. I do not doubt the possibility of tuberculous infection in day coaches, but more especially in sle- pers.

(33) Personally, I believe the danger of spreading tuberculosis through infected cars is not very great. The infection, I believe, must come quite directly from mouth to mouth; and this brings into consideration the danger from the overcrowding of street cars during the rush hours.

(37) As relates to car sanitation, no official action is taken in this city either in connection with the street cars or the various railways centering here. To the best of my knowledge, none of these companies has any sanitary expert, whose duty it is to look after the condition of the cars. I know nothing of the steps taken in the sanitation of railway cars, but I feel strongly on this subject. I think from what I have heard, the sleeping cars are rarely, if ever, disinfected, and I know from personal experience they are pretty dirty. I have a suspicion the use of dark blankets in sleeping cars is for the purpose of lessening the amount of cleansing. One of my medical friends told me the other day that his children contracted scarlet fever in the private compartment of a sleeping car. An official advised him never to take this compartment of a sleeping car, as that was the room always taken by sick people, and, so far as he was aware, it was never disinfected.

(38) So far as street car sanitation is concerned, in this city, there is nothing done except that the companies keep the cars clean. The ventilation of the cars is very defective. This winter I addressed a communication to the general managers of street car lines, calling their attention to these defects and suggesting changes. All promised to take up the matter and do what they could, but so far as I can observe, nothing has been done and there is no law regulating these conditions. This city has never passed an ordinance looking to the control of tuberculosis, but there is now pending before the municipal assembly a bill prepared to cover this measure. I have given considerable thought to the disinfection of sleeping cars. It is well known that a large number of persons suffering from tuberculosis travel to the Southwest and West, seeking some climate which they think may be beneficial. The cars carrying these people should be disinfected. Probably the best way to solve these questions would be to agitate the matter and force the transportation companies through public sentiment to adopt rules by which the proper care of cars may be secured. Unless the railroad companies voluntarily take up this matter, I am of the opinion little can be accomplished through State or local officials.

(39) There are no special sanitary measures taken in our city relative to the cleaning and ventilation of street cars. We have so far been unable to persuade or compel the local street car company to clean and ventilate its cars properly. The same may be said of the railroads entering this city. There is no sanitary expert—medical or lay—connected with the street car service, nor do I know of any such expert connected with the railroad. The railroads do not give this matter much attention, because there is no money in it. I think tuberculous infection may be conveyed in street cars only to those persons who are particularly susceptible to this disease.

(40) In April of last year we passed an antispitting ordinance, and since that time many fines have been imposed. We have no ordinance governing the cleaning and ventilation of street cars. Believing as I do that tuberculosis is infectious, I feel special care should be taken in the cleansing and ventilation of railway coaches, and especially of sleeping cars.

An Austrian System.—On December 31, 1904, the Imperial Austrian Railway Department issued the following:

WARNING FOR THE PREVENTION OF TUBERCULOSIS.

Promiscuous spitting is strictly forbidden; persons violating this law will be liable to a fine of 2·200 Kronen, or to arrest for a period varying from 6 hours to 14 days, in accordance with the regulations of September 30, 1857, Imp. Legal Code, No. 198.

IMPERIAL AUSTRIAN RAILWAY DEPARTMENT.

A sufficient number of spittoons must be placed in (all waiting-rooms and station halls, on the platforms, in the station restaurants and railway trains) and in carriages wherever possible.

All spittoons must be placed on the floor.

As the use of the spittoons is intended to render the sputum of the tuberculous innocuous, and thereby aid in the combating of tuberculosis, the vessels must in shape and utility correspond in the main to the following hygienic principles laid down by the board of sanitation:

1. The shape of the vessels must be such that it is easy to spit into them, so that the outer surface of the spittoon and the floor may not be made unclean, either at the time of expectoration or by the upsetting of the vessels.

2. The sputum shall, as far as possible, be concealed from view.

3. The vessels must be of such a nature that they can be easily and quickly emptied and cleaned, and it must be possible to carry out this operation in such a fashion that neither the hands, the body, the clothes, nor the surroundings of the person attending to it shall come in contact with the sputum.

4. The drying of the sputum in the vessels shall be avoided by the partial filling of the same with water.

Disinfection of the sputum is not necessary; it is sufficient if the contents of the spittoons, together with the liquid employed in the cleansing of the latter, is emptied into the sewers, canals, or sinks.

The socalled hygienic spittoons, which have up to the present been most in use, do not correspond to these requirements, because, of the surface of the funnel which is almost level, to the outward bent edges, and, in some spittoons, to the outward bulging sides of the vessels, whence the sputum is apt to be brushed away by women's skirts. The soiling of the hands with sputum in cleaning vessels of this shape is, moreover, difficult to avoid.

In the passenger trains, the type of spittoon employed must be chosen with due regard to space considerations and to the continual motion of the carriages.

In order to diminish as far as possible the above unsatisfactory conditions, the railway department considers it necessary to introduce higher-standing vessels of granite-enamel, with a more sloping funnel arrangement, whose upper edge shall lap over the edge of the vessel itself at as sharp an angle as possible.

These vessels must be 14 cm. high, and must have a diameter of 22 cm. from edge to edge above, and about 16 cm. below.

The diameter of the lower opening of the funnel piece shall be 8 cm., and this aperture shall be 3 cm. above the floor of the vessel. In order that the vessels shall comply with the above requirements (Point 3) as to cleaning, the bowl of the vessel and the funnel piece must both be provided with suitable handles for grasping and holding them during the cleaning, which is done with long-handled brushes.

In these spittoons, the brushing away of the sputum is made less probable by their height, as the hems of women's skirts will rather brush the sides than the upper surface, and

because, moreover, the sputum does not stick to the steep sides of the funnel piece so easily.

Such spittoons are gradually, according to the funds at disposal, to be placed not only in passenger carriages, but also in railway restaurants, waiting-rooms, halls, on platforms and in the rooms of the officials to which travelers or the public have access. In other rooms, which are only used by the railway officials, such as offices, work-rooms, stores, barracks, etc., those spittoons may be employed which have up to the present been used, and which, although not corresponding to the specified type, can yet be partially filled with water.

If, however, it also becomes necessary to procure new spittoons for the last-mentioned rooms, these must be of the type prescribed for the first-mentioned cases.

Models of spittoons, recognized as suitable, may be obtained in the factory of Ernst Glogar, of Vienna, XII, Gierstergasse, No. 7.

Continual care must be given to the thorough cleaning of the station premises and carriages at regular periods corresponding to the frequency of the use.

In order to instruct the traveling public concerning these measures for the prevention of tuberculosis, and to arouse in them an active interest in the carrying out of the same, an extract from the resolutions concerning the public will be remitted to certain daily papers by the railway department.

The entire staff of the railways shall, by means of a circular. receive detailed information concerning the nature of tuberculosis, the measures for its prevention, especially as regards the danger from expectoration on the floor, and other hygienic regulations with reference to the prevention of tuberculosis—the airing and cleaning of the carriages and of rooms set apart for the use of railway personnel and the industrial hands, and for dwelling purposes.

The staff is also to be warned, on the penalty of a fine, not to set a bad example to others by spitting on the floor.

The staff is to be instructed in and examined on the contents of the circular.

Moreover, accurate instructions must be given to the men employed on the station and to those occupying the trains, with regard to their conduct toward passengers violating the regulation prohibiting expectoration. The men must, in cases of transgression, notify the State or police authorities of such cases.

All the officials and railway physicians shall be supplied with a special official copy of the Imperial Austrian Ministry of the Interior, July 14, 1902, concerning the measures to be taken for the prevention of tuberculosis, and the instructions contained therein shall be observed to the very letter.

Railway physicians are bound suitably to instruct the railway workers and their families or fellow lodgers, as the above-mentioned enactment prescribes, and, moreover, to notify their superiors of cases of advanced tuberculosis.

Clothes, linen and various articles in use, as well as the rooms of tuberculous railway workers or their families, must, on every change of dwelling or on the death of such tuberculous persons, be dealt with according to the measures prescribed on page 8 of the above-mentioned separate copy; these measures, moreover, refer not only to the uniforms of the men, but to all clothes used by the patients in question, and also to the ordinary lodgings and the offices used by such invalids.

It is advisable to disinfect in steam disinfectant apparatus all such garments as are likely to be spoiled by boiling or soaking in liquid disinfectant. The previously mentioned dwelling rooms and offices should be rewhitewashed on every such occasion, and the floor washed with a soda solution.

The execution of the above sanitary prescriptions must in all cases be supervised by the chief officials of the respective stations and by the railway physicians, and the organs of the Imperial Austrian General Inspection shall from time to time convince themselves that such supervision is actually carried out.

Special attention must be devoted to obtaining scrupulous cleanliness in all articles in use in the railway restaurants and kitchens.

Persons known to be suffering from tuberculosis shall not be employed in connection with such work.

No Federal Action in the United States.—Inquiry throughout the United States shows there are no uniform regulations governing car sanitation. The Federal Government has done nothing to secure such needed regulations.

The conference of State and Provincial Boards of Health, at its meeting in Washington, in 1904, took action as follows:

Resolved, That the conference of State and Provincial Boards of Health endorse and recommend the following procedure for the cleansing of sleeping cars, coaches and other railway conveyances ordinarily used by the public, as a safe and efficient method of prevention against communicable diseases:

1. That all carpets, upholstery, and cloth furnishings that can be removed, be thoroughly cleansed outside the car by means of compressed air.

2. That all cloth furnishings permanently fixed within the car be cleansed in situ by means of compressed air.

3. That floors, platforms, etc., should be thoroughly cleansed of dust and gross dirt by means of compressed air.

4. That all linen, after being used once, be thoroughly washed before using a second time.

5. That blankets and nonwashable fabrics be removed from the car and exposed to the action of sunlight for as long a period as possible.

6. That cuspidors and their contents be thoroughly sterilized by subjecting them to the action of steam under pressure.

7. That cars containing blankets, draperies, etc., exposed, be thoroughly fumigated with formaldehyd, using 500 cc. to each 1,000 cubic feet of air space, for as long a period as possible.

8. That all cars be cleansed in the above manner as often as possible, at least once a week.

9. That distilled water, or water equally pure, be supplied for potable purposes.

State Regulations.—Two States, Texas and Kentucky, have formulated regulations. Those of Texas are as follows:

1. It shall be the duty of the State health officer and he is hereby authorized and empowered to prepare rules and regulations governing the proper disinfection and sanitation of public buildings and all railway coaches and sleeping cars operated in the State of Texas.

2. It shall be his duty and he is hereby authorized and empowered to prescribe a sanitary code which shall contain and provide rules and regulations of a general nature for the improvement and amelioration of the hygienic and sanitary conditions of said public buildings, railway coaches and sleeping cars.

3. Every person having control of any public building, railway company, sleeping car company, or other corporation, company or individual, or the receiver thereof, engaged in the carrying of passengers in this State, shall, at their own expense, within a prescribed time after receiving notice from the State health officer of the promulgation of the rules and regulations in the above sections mentioned, carry the same into effect.

4. If any person having control of any public building, or any agent, manager, operator, employe, or receiver of any railway company, sleeping car company, or any individual, shall fail to comply with the provisions of this act, and the rules and regulations promulgated by the State health officer under the provisions thereof, he shall be deemed guilty of a misdemeanor and upon conviction shall be punished by a fine of not less than fifty nor more than two hundred dollars.

Approved April 6, 1903.

The rules:

By virtue of the authority vested in me (as State health officer) by the above act, the following rules are hereby prescribed, which shall govern the disinfection and sanitation of public buildings, railway coaches and sleeping cars in the State of Texas, and shall be effective on and after February 11, 1904.

1. Each passenger coach or sleeping car used for passengers must be provided with a cuspidor for each seat or every two chairs. Each cuspidor must contain not less than 6 oz. of a disinfectant solution approved by this department; the cuspidors to be emptied, washed in a similar solution and replenished each trip or every 24 hours.

2. Public buildings must be provided with a sufficient number of cuspidors or not less than one in each room or hall, treated in a like manner and emptied, washed and replenished daily.

3. The floors of cars and public buildings must be sprinkled with a similar solution before each sweeping.

4. The sweeping and dusting of cars is prohibited in transit, except that floors of cars may be swept at division terminals or meal stations, where passengers will be given an opportunity to leave the car during that time. Seats, windows and walls of cars must be wiped off with a cloth or sponge and not dusted in transit.

5. All sleeping cars must be disinfected by fumigation in a manner approved by this department at the end of each round trip in the State of Texas, when sleeping cars do not leave the State.

6. All sleeping cars passing through or coming into the State must be disinfected in the same manner each trip at some point in the State approved by this department, all carpets, curtains, blankets and bedding, except linen, to be disinfected with the cars.

7. Day coaches used for passengers must be fumigated whenever the necessity exists at some point in this State acceptable to this department. If a car becomes infected by being occupied by a person having a contagious disease, it must be disinfected immediately at the end of the run.

8. All public buildings must be disinfected by fumigation whenever the necessity exists for it.

9. Containers of water for drinking, in cars and public buildings, must be emptied and thoroughly cleansed at least once every 48 hours. (Public schools should be provided with a separate cup at each desk for each pupil to drink from, or the pupils should be required to provide same.)

10. Ice, which is used in water coolers in cars, must not be dumped on the floors, sidewalks, or car platforms, where people have trod and expectorated, and then picked up by unclean hands and put into the drinking water. It should be washed and handled with ice tongs.

11. Passengers, patrons, employes or others must be prohibited from washing their teeth over or expectorating into basins in sleeping cars, passenger coaches, or public buildings, which are used for bathing the face and hands. Large cuspidors must be provided for such purposes.

All local health officers and citizens are requested to assist in the enforcement of the above rules.

Those of Kentucky are as follows:

1. All day coaches engaged in regular traffic shall be thoroughly cleansed after each trip at such points as facilities for same have been provided. In no case shall such cleansing be less frequently performed than on every third day of use. In such cleansing, all rugs, mattings and upholstered seats and back-rests, when practicable, shall be removed from the coach to the open air for mechanical cleansing and be exposed to sunlight when the prevailing meteorologic conditions will permit.

2. All interior surfaces in coaches are to be mopped, scrubbed or cleansed at intervals of not more than 10 days, with solutions of mercuric chlorid, carbolic acid, tricresol or other disinfecting preparations preferred by any corporation and approved by this board as to ingredients and strength.

3. Spittoons are to be provided in numbers of not less than one for each seat in all smoking cars and toilet rooms, and one at each end of all other day coaches, and in all waiting-rooms. Placards provided by this board shall be displayed at each end of all such coaches, and in all waiting-rooms, indicating the importance of using the spittoons, and it shall be unlawful for any person to spit upon the floor or platform of any railway car, or other public conveyance, or upon the floor of any waiting-room or platform in any station or depot.

4. All coaches of any kind in which an acute infectious disease has been carried shall remain closed and unoccupied after such person has been removed until it has been thoroughly cleansed and disinfected by the use of formaldehyd gas in quantities of not less than 40 fluid ounces of formalin to each coach. All day coaches in regular use for through travel are to be disinfected after cleansing by some method approved by this board, at intervals of not more than 10 days.

5. All toilet-rooms, water closets, urinals, spittoons and toilet appliances are to be scrubbed with soap and hot water and disinfected with formalin or other approved disinfectant after each trip's use, and kept as clean as possible when on the road, and all similar rooms and appliances in stations shall be cleansed daily in the same way, and when vaults or surface receptacles are used in stations, these shall be disinfected daily with fresh lime.

6. All preceding regulations in regard to cleanliness and disinfection shall apply equally to sleeping, dining, buffet and parlor cars used in the service of the public.

7. All blankets, curtains and hangings used in sleeping cars shall be exposed to superheated steam or other means of disinfection approved by this board, at intervals of not more than 10 days, and all mattresses shall be so treated at intervals of not more than 60 days.

In speaking of the Kentucky regulations, Dr. McCormack, secretary of the State Board of Health, says:

We are promised the cordial cooperation of all lines operating in this State. The Pullman Company has been slower than the other corporations in adopting our regulations. We look upon these regulations as the most important work our board has ever undertaken and we are supported in our action by the newspapers and by strong public sentiment.

It is worthy of note that two railroads passing through Kentucky, the Chesapeake and Ohio and the Louisville and Nashville, have regulations in force similar to those of the Kentucky Board of Health.

I think it can be safely said that as a rule, street railway companies are not giving sufficient attention to car cleaning or car ventilation. There is not the same excuse for this condition with these corporations that there is with the railway companies. The city sanitary officials have the street railway companies under their jurisdiction, and sanitary regulations should be in force and enforced.

Lack of Enforcement of Rules.—The railway officials must be given credit in many instances for trying to keep their coaches in good sanitary condition. Many companies have elaborate regulations governing car cleaning and ventilation, but these are not always enforced. For example: One company which has elaborate rules for cleaning has been reported upon to me as follows:

(1) August 15, 1902.—The sleeping car, ——— (owned by the railroad company) arrived at 7 a.m. and left at 6.45 p.m. of the same day. The bedding was not taken out, neither were the berths lowered nor the carpet removed from the car. The man in charge of this car told me the blankets and pillows were taken out of this car and dusted about August 1, and the carpet was taken up every eight days.

(2) August 17, 1902.—The above sleeping car arrived about 7 o'clock in the morning and left in the evening of the same day. I watched it from the time it arrived until it left. There was absolutely no cleaning of the car beyond the use of the feather duster and the broom.

The same inspector reporting further upon the yards of the company owning the sleepers referred to above, states that absolutely no attention was paid to the airing of bedding during his four visits to this yard.

Another company has elaborate rules governing car cleaning, and in the summer time this company does good work in its yards, if one is to judge by conditions as I found them on one of my inspection trips, yet in December, 1903, report was made to me upon the cleaning in the yards of this company, as follows:

I visited the yards of the ——— Railway Company where the sleeping cars ——— and ———, were being cleaned on the inside. (These sleeping cars were owned by the company). The method employed was: the windows, tops and sides of the car were cleaned with dusters, the pillows were taken from under the seats, beaten together two or three times in the car and then replaced in the pillow boxes. The backs and cushions of the seats were then swept with floor brooms. The carpet was swept in situ with a broom, then rolled up and placed for the time being in the smoking-room of the car. I was told by the men doing this work this was all the cleaning these cars would get with the exception of wiping when the sweeping and dusting was completed; the blankets were shaken about once a month and the cushions taken out and beaten when they became very dirty. There was no evidence of compressed air pipes or taps in these yards, and I was told by two workmen compressed air was not used in the cleaning of the cars of the company.

Still another company has elaborate rules for car cleaning, but the conditions as shown at several inspections were quite similar to those given above.

One special superintendent says:

This road has given as much if not more attention to questions relating to car sanitation than almost any other road in this country. We happily enjoy conditions which permit of a state of cleanliness and correct sanitation that no other road enjoys. Our terminals are not far apart and we are thus enabled to give the cars the best attention after every trip.

This superintendent, after describing fully their method of car cleaning, states further:

Relative to car ventilation, it is needless to say I am thoroughly in accord with anything that will better the sanitary conditions of our railroad equipment. You, of course, understand the systems of ventilation are being experimented with by many railroad companies and we are constantly on the lookout for improved ventilating devices which will meet the peculiar and difficult problems to which car ventilation is subject. My opinion is that a careful drilling of the railroad trainmen in the matter of regulating the deck sash and other devices which may be in our cars for ventilating purposes is of the greatest importance, and I thoroughly believe if trainmen can be brought to a knowledge of the principles involved in the proper use of the ventilating devices now in hand it will go a long way toward correcting bad conditions in car ventilation.

Another special superintendent of this same system says:

Sleeping cars are stripped once a week by taking out everything removable. Mattresses are beaten on both sides, swept with corn brooms and blown out with compressed air; blankets are aired and brushed off with whisk brooms on both sides; pillows are beaten on both sides and brushed off with whisk brooms; carpets are beaten and blown out with compressed air. When the interior furnishings are out the car is given a thorough washing with tepid water and ———, a disinfectant. The floors of the day coaches are thoroughly washed each night and mopped dry, and the seat cushions and backs are cleaned with compressed air. All of our cars are well ventilated through the decks.

This last description is fairly illustrative of the general methods of car cleaning now in vogue.

The Pennsylvania system seems to have given a great deal of attention to car sanitation, and its methods of ventilation are among the best, if not the best,

now in practical use. Its ventilating system furnishes 60,000 cubic feet of fresh air per car per hour, the equivalent of 1,000 cubic feet of air to each passenger seat. It is estimated an ideal ventilation system should supply 3,000 cubic feet of fresh air per hour to each passenger, but it has not been considered practicable to attempt to secure this amount of fresh air with the ventilating system of the Pennsylvania road. A very complete report in this system of ventilation has been made by Dr. C. B. Dudley, chemist to the company.

Relative to car cleaning, the general manager of the system states:

> At every principal terminal, cleaning is constantly going on by gangs of women, who clean with soap and water. It is impossible to give a positive figure showing how often each car is cleaned, as the emergencies of the service interfere with regularity on this point, but the cleaning force is a part of the regular organization and is constantly at work. The cleaning of cars in transit, when they are in the train and have passengers in them, is a subject which has been much discussed and, as the result of a good deal of study, it has been decided not to do any sweeping in transit for fear of raising dust. If, however, a car in transit is filthy owing to the spitting of some unclean passenger or to difficulties with children, such car when it reaches the end of any division is cleaned out with mops. At terminals the cars are dusted with damp cloths, and the sweeping, if this is the cleaning given, is done with a brush on the end of a long handle rather than with a broom.
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> The company maintains a "relief department" which department has a staff of over 60 physicians, all of them regular graduates in medicine, who devote their whole time to the interests committed to their charge. The organization of this department is such that the railroad company has a direct financial interest in the health of its employes. It follows, therefore, if serious sickness should occur there might result through this department a considerable charge against earnings. To obviate, so far as possible, such possibilities, it is made a part of the duty of the relief department surgeons to make constant inspections and suggestions leading to the elimination of anything which may threaten the health of the employes, and as a large number of employes is engaged in the train service and in and about passenger stations, the results of these inspections are felt likewise by the passengers. Furthermore, meetings are not infrequently held by the relief department surgeons, at which papers are read, and discussions are held over sanitary problems. At the semiannual meetings of the operating officers of the road, sanitary questions are not infrequently brought forward and discussed and reports made on subjects which have been assigned. The tendency of this work is toward the betterment of the service, as far as the health of both employes and the public is concerned.
>
> In its chemic and bacteriologic laboratories, this road is constantly examining samples from water-supplies, with the idea of excluding from its cars any water which may be a means of causing disease. Furthermore, in order to learn whether the water in the cars put into the coolers at various points along the line is or is not objectionable, a number of analyses have been made of samples taken direct from the coolers of the trains in transit. This examination of water-supplies and of water from the coolers has not yet been made a systematic part of the laboratory work, but the examinations thus far made indicate a less threatening state of affairs than might have been supposed.
>
> Although this road does not provide any specific sanitary head, it is fair to state the surgeons and laboratory workers are constantly studying sanitary problems, and when questions arise throughout the system in which the public health is involved, such questions are referred either to the head of the relief department or to the department surgeons, chemist or bacteriologist. An attempt is made to keep in touch with the progress of knowledge on sanitary questions.

The Central Railroad of New Jersey is giving much attention to car ventilation and cleaning. It is at present using the socalled "automatic ventilator." This ventilator is said to be simple in construction, yet thoroughly efficient. It seems to be in use on many private cars, dining cars, etc., as well as on a few city car lines. It comprises two airways in the deck sash, and an outward extension of two wings between them. It would seem if this is an efficient ventilator, it, or some similar device, should solve the problem of proper ventilation for all cars.

The Central Railroad of New Jersey has also another innovation in car sanitation, viz., the use of the "vacuum cleaning system." By this system the dust is removed from the cushions, carpets, tapestries, etc., by suction, and the car after this process of cleaning is free from dust, instead of being, as under the compressed air system, filled with dust-laden atmosphere. This system, if found efficient, will have a further advantage over the compressed air method of car cleaning in that it can be used in cars during the winter season in cold climates where storm windows are attached, for the dirt of the car is carried away without creating any dust whatever.

Pullman Company.—All parties seem to agree the greatest danger to the traveling public is found in the Pullman car. We would naturally expect to find this company fully alive to the sanitary responsibilities resting upon it, and yet it had no superintendent of sanitation until March 1, 1905. Under date of March 16, 1905, this newly appointed superintendent of sanitation wrote me as follows:

> Having taken up the affairs of this office so recently, I have not yet been able to formulate any definite plans. I shall be for some time occupied in investigating the sanitary measures and appliances already in use, and later shall give my attention to improving them along such lines as may seem necessary for the proper preservation of the safety of the traveling public. We now have an arrangement under way for carrying out experiments in car sanitation under the direction of Dr. Rosenau, director of the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service at Washington. This comes about through a request from Dr. Rosenau for a car for this purpose. . . . The results of such work will no doubt be of value from the standpoint of the public health, and should aid materially in formulating definite plans for improvement. It is the desire of the management of this company to bring the sanitation of its cars up to a thoroughly efficient standard. My investigation so far has been very gratifying in that it has demonstrated a genuine effort to do this for some time past. Of course you will realize the difficulties in the way of applying remedies to evils long in existence. It is easier to criticise than to apply an efficient and practical remedy. Ideal sanitary conditions exist in very few places, nor can ideal conditions be expected until the individuals comprising the public are willing to cooperate in making and maintaining them so.

Many of the railway officials in reply to my letter of inquiry relative to car sanitation, in speaking of the Pullman cars used on their lines, stated they were cleaned under the rules and regulations of the Pullman Car Company, and these rules and regulations were in the hands of its district superintendents. I wrote to the district superintendent at St. Paul twice for a copy of this company's rules and regulations. My first letter was referred by him to the company's new superintendent of sanitation. My second letter was not answered. However, an official of the ——— railway company sent me a copy of these Pullman rules so far as they related to the fumigation of cars. I have not been able to secure any rules or regulations governing the cleaning of Pullman cars, nor do the rules above referred to state the conditions demanding fumigation. The rules governing fumigation are as follow:

DIRECTIONS FOR USING LIQUID FORMALDEHYD IN FUMIGATING PULLMAN CARS.—REVISED INSTRUCTIONS.

Close the outside doors of a car and all windows and deck sash, leaving open locker, drawing room, buffet, heater, swing and toilet room doors.

Lower all upper berths, loosen and disarrange the bedding, so as to expose as much of the surface thereof as possible. To accomplish this, remove the lower mattresses and place them over the backs of the seats between the sections; hang the blankets over the fronts of the upper berths, allowing them to hang down about 24 in. in front and hang the berth curtains by one hook at the end of the berth curtain rod, the bottom of the curtain being so spread as to cover as much as possible the woodwork of the end of the seats; this in a great measure protects the woodwork from being hit by the fluid. (The vapor of the formaldehyd will not affect the woodwork.)

Remove the seat cushions, placing them on end on the floor between the seats; loosen the pillows in the pillow boxes.

Remove the covers from the spittoons, after same have been cleaned, placing the latter in the aisle of the car.

Hang up in the body of the car on the bell cord, four cotton sheets lengthwise, allowing the sheets to lap over each other some two inches.

Fill the formaldehyd sprinkler, which is furnished, and which holds some 22 oz. of liquid, up to the glass ring near the top.

Sprinkle the sheets with the liquid by compressing the rubber bulb, taking care to see that none of the liquid gets on the woodwork. The person who uses this appliance should have with him a chamois skin, and if by chance a little of the fluid gets on the woodwork he should at once wipe it off, so that no

harm can be done. But one sprinklerful should be used in fumigating a car, and the sheets should not be saturated.

When using the sprinkler place the thumb over the top of the open tube in the top, make the same tight by slight pressure until the requisite amount has been used, then remove the thumb and the liquid will cease to flow from the sprinkler.

The formaldehyd will not injure any fabric or metal. It is not poisonous, and can be inhaled for a few minutes without any detriment whatever to a person.

It is not an insecticide.

In fumigating a car it is well enough for the operative to cover his mouth and nostrils with a damp towel, in order to prevent the irritation which will take place.

It ought not to take over five minutes thoroughly to sprinkle the sheets above referred to, and when the work is done, the operative should leave the car and see that the outside door is closed after him.

The car should remain closed for four hours or more before it is opened, the longer the better, and after this time has expired, the outside door and all windows should be opened and the car aired for some two hours or more before the bedding is put away.

A large number of cars can be fumigated in a day.

Chicago, October 15, 1898.

Cancel instructions issued September 10.

I made a second attempt to secure from the superintendent of the Pullman Company the rules and regulations governing the cleaning of Pullman cars—rules that had been in use before his appointment. He replied:

The matter of regulations concerning cleaning and purification of cars is in process of revision. I prefer not to give instructions concerning these things until they are put into proper shape and have been transmitted to such employes of this company as will carry them out.

Evidently the doctor was not very favorably impressed with the regulations which he found in effect at the time of his appointment. It is worthy of note that the copy of the instructions relating to car fumigation quoted above which was sent me in March of 1905 is dated October 15, 1898.

The reason for the Pullman Company submitting a car to the United States Public Health and Marine-Hospital Service for experimental work is probably explained by the following resolution presented in the House of Representatives, March 2, 1905, by Mr. Hughes, of New Jersey:

WHEREAS, Recent published reports of the Boards of Health of various cities and States concerning the ventilation of street and railway passenger cars have alleged there is danger of the communication of contagious diseases by reason of the improper or imperfect ventilation of passenger cars. . . .

Therefore, Resolved, By the Senate and the House of Representatives of the United States of America in Congress assembled, that the sum of $10,000 be, and hereby is, appropriated, the same to be made immediately available, to be expended under the direction of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States, for the purpose of investigating the possibility of the communication of diseases in street cars and railroad passenger cars through the improper or imperfect ventilation thereof, and of the possible infection of meats and fruits and other perishable food products through the imperfect or improper ventilation of freight cars engaged in transporting the same, to the end that if, in his opinion, it is thought advisable, he shall recommend legislation for the regulation of the ventilation of railroad passenger and freight cars engaged in interstate commerce.

It should be mentioned at this point that Dr. J. J. Kinyoun carried out some valuable investigations relative to car disinfection, etc., about 10 years ago. At that time he was connected with the laboratory of the United States Marine-Hospital Service.

At the meeting of the American Public Health Association, at Washington, in 1903, Dr. Granville P. Conn made a very exhaustive report on car sanitation. At that time, in discussion as well as in the report, the Pullman Company was severely criticised as to its methods of car sanitation. Shortly after this meeting, elaborate articles appeared in various parts of the United States setting forth the thorough methods said to be in force by the Pullman Company in the cleaning of cars. The methods set forth in these articles were in such strong contrast to those which inspectors had reported to me as in force in the section of the country which I represent, that I at once had another inspection made of the Pullman methods. The report of the inspector did not bear out the claims of the Pullman Company.

Car Sanitation.—In preparing this paper, I have sought information from many different individuals. For reasons that are self-evident, I appealed to those connected with railroad work. Opinions came to me from more than a hundred different sources. None of these opinions was against the possibility of tuberculous infection during transportation in public conveyances. Some, of course, argued against the *probability* of such infection, basing their argument largely on the fact that exposures at most in public conveyances were for but short periods. In considering the possible danger of infection from public conveyances, the fact must be kept in mind that conditions in cars are not the same as in the rooms or houses. The moving car is in a state of constant vibration, and consequently the amount of dust or of germs in the air will be greater at all times under such conditions than in a room.

All of the opinions given me were to the effect that the greatest danger of infection is to be found in the sleeping car.

Car sanitation embraces car cleaning and car ventilation. Car cleaning is a simple problem, for it is one of dollars and cents. Of course there are times and conditions when a car may temporarily be in an unavoidably foul condition. This applies especially to street cars during certain seasons of the year. Such conditions are excusable, but they do not justify general negligence of cleanliness.

Car ventilation is a difficult problem, for the temperature and the motion of the car, as well as the creation of disagreeable draughts, have to be taken into consideration. It is estimated for good ventilation in a closed space 3,000 cubic feet are required per hour for each individual. The ordinary passenger coach and sleeping car furnishes from a tenth to a sixth as much fresh air per hour as is required according to the above estimate. From a sanitary point of view, the effects of foul air as a means of causing disease must not be overestimated. The fact must be recognized, however, that a person in a badly ventilated car is more susceptible to tuberculous infection than he would be in a well-ventilated car.

Street Car Companies.—The great offenders in car ventilation are the street car companies. While the railroad companies are trying to find some satisfactory means of ventilating, it is the exception to see a street car equipped with anything but the socalled deck ventilators. It is a safe statement, I think, that deck ventilators never will furnish proper ventilation in any car. This is especially true of the overcrowded street car.

Dr. C. B. Dudley, chemist to the Pennsylvania Railway system, in his paper on "Passenger Car Ventilation" says:

A car is said to be well ventilated when a person coming into the space from the outside fresh air detects none of the odor characteristic of a badly ventilated space.

Such a condition rarely exists in any street car in a cold climate during the winter season. It is not an uncommon thing to hear street car officials attempt to throw the responsibility for the bad ventilation of their cars upon the public, the position being taken that the people object to the cold air coming in through the ventilators. It is not the people, but the ventilators, that are at fault in these cases. Of course people will not tolerate strong draughts of cold air upon their heads. The ventilators should be so constructed as to supply fresh air without the creation of annoying draughts.

Faulty ventilation is not entirely due to faulty ventilators. One of the railway authorities already quoted in this paper, says:

My opinion is that a careful drilling of trainmen in the matter of regulating the ventilation through deck sash or other devices is of the greatest importance, and if trainmen can be brought to recognize this fact, it will go a long way toward correcting bad conditions in car ventilation.

This fact is one that street car companies especially should keep in mind. Their cars make short runs, and are constantly under the supervision of inspectors. These inspectors should note whether the conductors are obeying the regulations of the company as to ventilation at the same time they are checking up their honesty in money matters. My experience is that companies' regulations often exist only on paper. As an illustration: On a pleasant spring day, not too cool, I entered a car occupied by but a few passengers. This was about noontime. The air was foul, and every ventilator was closed. A change of conductors was made at the point where I became a passenger. The retiring conductor was responsible for the condition of the car as I found it. I decided to note what the new conductor would do, and so said nothing at the time. After traveling in this car an hour, as I dismounted at the end of my journey, I asked the conductor if there were no company regulations relative to car ventilation. He replied in the affirmative. I then drew his attention to the fact that every ventilator in his car had been closed during the entire run. He then became rude and abusive in his language, and told me he did not have to open ventilators unless requested so to do by passengers. A short time ago a woman living in my home city, on entering a car, noted the air was very close and foul, every ventilator being closed tightly. She asked the conductor to open one or more ventilators. He made no reply, but stared at her in an impudent sort of a way, and did nothing. She then asked a gentleman sitting near if he would open one of the ventilators, and he did so. The day was pleasant, but slightly cool—a spring day. There was no fire in the car. It is possible the conductor thought it necessary to keep his car closed tightly in order that it might be comfortably heated with the animal heat from the passengers. Whether he was acting on instructions or on his own authority in keeping his car closed, I do not know. Certain it was that for the sake of warmth, the course he pursued was not necessary, nor was it wise from a sanitary point of view. I presume many have had similar experiences. The manager of the company employing the two conductors referred to says:

> The matter of proper ventilation is perhaps the most troublesome feature of street railway operation, the air very often becoming foul simply because certain of the passengers object to having it otherwise. In any event, they are not willing to have a sufficient number of ventilators open for such length of time as may be necessary to change the atmosphere. Because of this fact, our employes are instructed that when within two or three blocks of terminals, and when the car is generally empty, the front and rear doors are to be opened, allowing the air to go through while the car is in motion. Our standard cars are equipped with four deck ventilators on each side, two near the front and two near the rear.

In spite of the foregoing, statement, it was very seldom a conductor opened the front and rear doors of cars near the end of the run over which I have traveled almost daily for some time. There was a time when the commissioner of health in one of the two cities served by this line did insist on this order being enforced in the city which he represented, but when this commissioner's vigilance waned, the vigilance of the conductors waned also.

After a careful consideration of the facts presented in this paper, I think we must all admit there is a real, but unnecessary danger of infection with tuberculosis during transportation in many of the cars operated by city railway companies, by railroad companies, and by the Pullman Car Company.

Physician and Wife Insane from Drugs.—Mrs. J. W. Wells, of Ossian, Ia., was committed to the State Asylum for the Insane, at Independence, Ia., on July 26. She is the wife of Dr. Wells, who was brought there a week before. The reason of both was dethroned by the use of cocain and morphin. Both are under 35, and belong to prominent families.

DISEASES OF THE HEART AND THEIR TREATMENT: A SYNOPSIS.[1]

BY

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Life of the human organism depends largely upon the equilibrium existing between arterial and venous pressure; if this is perfect, nutrition is perfect and all waste is readily removed. If arterial pressure falls, venous pressure rises, and if persistent will finally result in the dissolution of the organism.

Etiology and pathology of the diseases of the heart and circulation teach us that so soon as this equilibrium is disturbed, we have a complex of symptoms at once characteristic and remaining the same no matter what the primary cause may have been. The direct and final cause is always the same, a weakening of the heart muscle, a breaking down of the heart, due, it may be, to a valvular lesion or an obstruction in the pulmonary or systemic circulation. A trouble once established, the heart answers immediately with greater work and consequent hypertrophy, the demand to compensate. So soon as the heart ceases to compensate for the damage, venous pressure rises and arterial pressure falls. The pulmonary system becomes congested and the engorged systemic veins are unable to pour their contents into the right heart. A continuation of this process tears the alveoli and allows serum to pass, causing emphysema and edema of the lungs. The engorgement of the systemic veins creates at the same time an intense hyperemia of all the abdominal organs, the stomach, liver, spleen, and kidneys; edema of feet and ankles follows, places where, in health, the circulation is weak and where under these altered conditions the masses of blood contained in the engorged large veins press heavily upon the capillaries, serum passes into the tissues, and the lymph vessels, unable to empty into the overfilled venous system, cease to drain. Symptoms, the expression of pathologic conditions that threaten life, appear, sooner or later, after a valvular lesion has been established or an obstruction in the pulmonary or systemic circulation has become permanent. The heart answers the demand for more work with hypertrophy, and as this can be carried only to a certain point, a time comes when a slight exertion causes the compensation to break. Shortness of breath and palpitation are generally first noticed; the blood is poorly aerated in the congested and changed capillaries of the lungs; the alveoli are torn by the engorged vessels and damaged and encroached upon by interstitial tissue growth. The face becomes cyanotic, and blueness of the lips and finger-tips marked. The pulse, formerly feeble, becomes irregular and palpitations are more frequent, due to frantic efforts of the heart to empty its chambers. Perspiration is increased, and in contradistinction to the suddenly developed overaction of the skin, the urine is diminished in quantity, is of high specific gravity, highly colored, and contains a sediment and albumin, the typic urine of stasis.

A bronchitis accompanies the changes that take place in the lung parenchyma, the intense passive hyperemia causes catarrhal inflammation, and the patients are shaken with violent coughing spells, nature's efforts to rid the bronchi of a profuse serous, slimy, and frequently bloody secretion.

The conditions existing in the lungs, "torn and changed alveoli, congested venous capillaries, and clogged up bronchi," against which the diseased and weakened heart batters, give rise to the distressing spells of dyspnea so well known to every practitioner under the name of cardiac asthma. Every organ in the

[1] Read before the New Orleans Medical Association, February 25, 1905.

body suffers in proportion; chronic gastritis, constipation, diarrhea, and congestion of the liver, all occur as the result of the obstructed return of blood from these organs into the vena cava. The enlarged liver and spleen and the distended stomach, even after a light meal, pressing from below against the diaphragm, are additional causes to increase the dyspnea, bile is changed in composition and reabsorbed by the blood, giving an icteric hue to the skin.

The congestion of the kidneys causes pains in the lumbar region and the characteristic urine (reduction of quantity, high color, high specific gravity, a sediment, albumin, and sometimes casts). Further progress of these disturbances leads to a fatal result—directly due to heart-paralysis and secondary nephritis; general anasarca, hydrothorax, hydropericardium, and cerebral edema, are the usual causes of death in the latter instance—whereas in the former, fatty degeneration of the heart muscle, chronic myocarditis, and sclerosis of the coronaries cause it, though a sudden dilation of the heart, due to its inability to force the constantly growing mass of venous blood into the pulmonary circulation, may occasionally cause a healthy heart muscle to fail.

Though the direct cause of this serious complex of symptoms is always the weakening of the heart muscle, it is well in the study of these diseases to consider separately the idiopathic forms and valvular lesions. In the former we find increase or decrease of muscular substance, with dilation the dominating change, and an obstruction somewhere in the circulation, plethora, malnutrition, and toxic substances in the blood its cause. Hypertrophy of the left ventricle, with subsequent dilation is found due to greater work in arteriosclerosis, aneurysm, tumors pressing upon the arteries, and a partial destruction of the capillary system of the kidneys, as in chronic and interstitial nephritis.

Hypertrophy of the right ventricle, with subsequent dilation, is found when the obstruction exists in the pulmonary circulation—deformities of the chest, emphysema, thickened pleura, interstitial pneumonia. In plethora the heart has to move a larger amount of blood through the system which, with the greater friction that exists in the vessels, causes its hypertrophy and final dilation. Atrophy and weakening of the muscle without a previous hypertrophy, is due to alcoholism, nicotin, the toxins of the various infectious diseases producing a myocarditis and lack of nutrition in anemia, chlorosis, old age, and in all chronic diseases.

The heart of the obese, the "fat heart," is weakened by layers of fat deposited upon it and in its muscular tissue. The heart is surrounded by a mass of fat, deposits of it have grown deep between its muscular fibers and have changed it into a flabby, dilated bag, without form or force. We find the muscular fiber degenerated in only the most advanced cases which is, however, the end in all cases of heart disease.

If the fat heart is accompanied by degeneration of the arteries, especially of the coronaries, the prognosis is always very grave. Dilation is due to the rise of intracardial pressure, combined with loss of tonicity of the muscle, which the heart force is unable to overcome, and hypertrophy follows in consequence of dilation upon demand for greater work, causing an increased flow of arterial blood through the coronaries.

Hypertrophy may take place without a previous dilation; muscular growth depends here as elsewhere in the body, upon improved nutrition. Whenever hypertrophy is detected, it is compensatory to make up for a deficiency or to overcome some obstruction, and it is, of course, necessary to preserve it and to reestablish it when lost.

Dilation is a symptom of heart weakness and may also occur in valvular lesions before compensation is fully established or in myocarditis or sclerosis of the coronary arteries. Sclerosis of the coronary arteries may be advanced and yet the heart may be found unchanged as long as their lumens pass blood in sufficient quantity for its proper nutrition. Endarteritis of these arteries, as well as endocarditis and pericarditis, may be the cause of interstitial tissue growth and consequent aneurysm, thrombosis and hemorrhagic infarct, and of myomalacia, the most frequent cause of heart rupture, often diagnosed as apoplexy.

Valvular lesions are always due to an endocarditis, the inflammatory process causing a growing together of the valves, creating an obstruction or their shrinkage; an insufficiency, articular rheumatism, and any of the infectious diseases, especially pneumonia, as well as arteriosclerosis, may cause it. So soon as the lesion is once established, the heart answers the demand to compensate with greater work, which causes hypertrophy and final dilation. In aortic lesions, the left ventricle is especially affected and in mitral diseases the right ventricle.

In aortic insufficiency the hypertrophy is marked by a heaving apex beat, which is downward and displaced to the left, an increased area of heart dulness to the left, a diastolic murmur over the aorta, pulsating carotids, Corrigan pulse, and sometimes capillary pulsation.

A stenosis of this valve gives a weak apex beat similarly displaced, as in the foregoing case, an increase of heart dulness to the left, systolic murmur, sometimes *fremissement cataire* over aorta, and a pulse small and slow.

The symptoms are entirely different in mitral lesions: The apex is displaced to the left, and its force but little changed, heart dulness increased to the right of the sternum, systolic murmur at apex, accentuated, pulmonary sound, and in advanced cases, congestion of liver and venous pulsation. In mitral stenosis, the signs are a moderate apex beat, area of heart dulness increased to the right, pulsation of right ventricle in the epigastrium, presystolic murmur at apex, sometimes *fremissement cataire*, clicking second pulmonary sound, and weak and slow pulse.

It is clear that in aortic disease the left ventricle should be hypertrophied, as it is directly called upon to compensate for the lesion, and in mitral disease the right ventricle, as this has to force the blood onward which collects in the left auricle, causing a congestion of the pulmonary circulation. Tricuspid lesions are rare, and pulmonary disease is almost always congenital, and is always easily recognized by the intense cyanosis it causes.

Aortic insufficiency gives increased systolic pressure, a shortened diastole and collapse of arteries due to regurgitation; aortic stenosis—a prolonged, strong systole and shortened diastole, which accounts for the peculiar pulse.

Only a few pathologic conditions of the circulatory systems need further consideration. We have to remember that the blood is the oxygen carrier, and that it removes waste matter. A great mass, due to overnutrition, causes hypertrophy of the heart and vessel walls and final dilation; a symptomatology corresponding to this condition, a high-tension pulse, hyperemia of skin and mucous membranes, a tendency to congestion and hemorrhages.

In hydremia we find an increased volume of blood with decreased solids, a condition favored especially by kidney and heart disease, both interfering with proper elimination of water; increased ingestion of liquids, beer, or water, will cause dilation, with consequent hypertrophy of heart and vessels, and may give rise to the socalled ox-heart.

If the habit is coupled with heart or kidney trouble, the condition is the more serious, as the normal elimination of water is interfered with. A sudden stretching of the heart muscle and dilation of the heart is possible and does occur, following an extreme muscular effort; quite a number of such cases have been recorded.

For proper treatment, we must know the cause of the

disease and determine the changes that have been produced in the various organs and tissues. As in every disease, only a correct diagnosis will enable us to benefit our patient. Though the immediate cause is the breaking down of the heart, and the symptomatology is the same in all cases, and therefore the treatment has to be similar in these troubles, the proper method and dose can only be determined after the exact pathologic condition has been recognized. If the compensation is broken, it must be our aim to reestablish it; if it is still intact, to preserve it. We have to strengthen the heart muscle, cause compensatory hypertrophy, and reduce an existing dilation. Thereby we will establish an equilibrium between the venous and arterial circulation, necessary to health and life. To accomplish this object we have to reduce the fluids of the body, relieve the pulmonary and kidney circulations and improve the blood.

In a very large number of cases, the mechanical dietetic treatment is alone indicated; in others, a drug treatment has to be combined with it, and in others again we have to commence with absolute rest, and use it jointly with one or both of the other methods.

We can burn up body fat or enrich the organism in fat and albumin, or both, and exercise a direct influence upon heart and muscle, with massage, gymnastics, walking, and climbing and hydrotherapeutic measures.

If the blood is diluted, we can condense it, and if of too great density, we can dilute it. Lessened excretion by kidneys, skin and lungs, dilutes the blood, and exudation of serum into the tissues and body cavities condenses it.

Sufferers with a fat heart take, as a rule, large quantities of water, and it is in these patients that the blood is often found hydremic. In chronic myocarditis and valvular disease of long duration, the blood is often found of great density, another important factor to demand greater work from the heart.

Ingestion of food increases blood-pressure, and the effect is greatest when liquids and solids are taken together. The heavier the meal, the heavier the pressure, which will be further enhanced by an addition of stimulating drinks, such as coffee, tea, and all alcoholic beverages.

Pressure and specific gravity of the blood vary with quantity and quality of the food ingested. An excessive ingestion of liquids increases pressure and decreases density. Elimination of water takes place by way of the kidneys, lungs and skin, and increased elimination by one of these channels decreases, necessarily, excretion by the others.

In studying circulatory disturbances it is always necessary to ascertain the activity of the kidneys. Some patients excrete more urine when the amount of liquids ingested is reduced; the large majority of patients excrete less with reduction of liquids taken in. Those patients suffering from "fat heart" frequently expel a larger amount of urine, with reduced ingestion of fluids. The heart recovers strength with eased work and the kidneys show greater activity.

In valvular disease with kidney intact, we find, as a rule, ingestion and excretion of fluids in proportion, and in valvular diseases, with myocarditis and nephritis, the amount of urine reduced. The excretion by lungs and skin depends on frequency and depth of respiration and on climatic conditions. Dryness and high temperature of air increase its capacity to take up moisture. Exercise, especially walking and climbing, causes excretion by way of lungs and skin, and the hot-air bath and steam bath allow a rapid removal of water from the body if the ingestion of liquids is limited.

The organism will stand higher temperatures in the hot-air bath, as the evaporation of the continuous perspiration will cool the body surface and the dry air will rapidly absorb moisture. Heart strength has to guide the therapeutist in the selection of a suitable method. Patients with a completely broken compensation need rest and drug treatment, to which one or the other of the foregoing methods must serve as an adjuvant. To regulate the diet in each particular case we must not lose sight of the end to be accomplished "to reestablish or keep the compensation and to strengthen the heart muscle."

If obesity has left the heart and circulation intact, a change of diet, reduction of liquids, and exercise will restore the patient to health. Banting advised his patients to live upon a nitrogenous diet, without reduction of liquids. This method had to be abandoned on account of loss of strength, digestive disturbances and loss of sleep, which frequently forced the patients to interrupt the treatment. To be successful, it predisposes to normal blood, normal heart, and normal circulation. The organism will keep its nitrogenous equilibrium only if as much albuminous food is ingested as can be digested and absorbed by healthy intestines. Fat acts differently. It is stowed away in the body if ingested in greater quantity, though we find a slight excess of expenditure with increased ingestion. A small quantity of fat and carbohydrates will preserve the nitrogen of the organism and save body fat. To treat the obese with a hydremic condition of the blood, we have to reduce venous congestion, which causes more or less severe disturbances—headache, indigestion, shortness of breath after light exercise, etc.—we have to limit fluid ingestion to deplete the engorged venous system, reduce fat and carbohydrates; and direct exercise which will strengthen the weakened heart muscle and use up the carbohydrates and fats allowed. Overloading of the stomach has to be avoided and solids and liquids are best given separately. A distended stomach presses against the diaphragm and blood-pressure rises after a full meal. It is wise to proceed slowly and the individuality of each patient has to be considered. It is a fact also that a reduction of liquids will reduce body fat. Patients with normal fat or waste of fat and muscle and a heart threatening to break down, due to valvular disease, obstruction in the pulmonary or systemic circulations, require regulation of diet, with increase of albumin and decrease of liquids in the diet.

It is also necessary to protect patients whose fat and muscles are wasted, from further loss of albumin by making body fat. The changed mucous membrane of the intestines due to venous engorgement, interferes with fat absorption, and a diet rich in proteids and carbohydrates is therefore indicated in these cases. Carbohydrates, when given in excess, are converted into body fat.

A proper diet alone is not sufficient to increase nutrition; functional activity is necessary to make muscle. A compensation lost can be reestablished, the disturbed venous and arterial circulation equalized by causing a more rapid flow of the blood through the veins and a beneficial influence can be exercised upon damaged vessel walls.

Horizontal position of the extremities will ease the return flow. In health little heart force is left to push the blood through the veins, and if the heart is damaged this is still further reduced. Gravity facilitates the flow in the descending veins and counteracts the same in the ascending veins. It is thus readily understood why and how position will influence the circulation.

The soft, firm stroke of massage directed from periphery to center, will empty the superficial veins and lymphatics and facilitate the flow of blood in the arteries.

The deep kneading, imitating the heart's contraction, will do the same for the deeper vessels, and the rapid beating of muscles, combined with passive and active movements, causing muscular contraction, will have a similar effect in pushing the venous blood into the right heart. Tapotement between the shoulder blades and vibration along the spine will frequently slow the pulse—the digitalis of the masseur. Walking and climbing

act especially upon the large veins. Deep inspirations cause suction, and the use of a stick, contraction of muscle. Climbing forces deep inspiration. Arterial pressure rises, due to a more rapid flow of venous blood into the arteries, which lose their tone; the full and soft pulse indicates the equilibrium of the circulation, and the thermometer shows greater heat loss. The increased blood-pressure is compensated by widening of the vessels and by loss of tone.

Increased heart force, lessened peripheral resistance, greater blood flow, are conditions to produce increased nutrition. The loss of water by way of lungs and skin, moderates the increased blood-pressure.

The dilated and softened arteries, the deeper respiration, and the stronger heart contractions, which last for hours, insure for that time increased metabolism and improved nutrition—a permanent gain.

Whether the condition be due to idiopathic disease of the heart or valvular disease, the aim of our treatment must be "to relieve the insufficiency and to increase heart strength." If the mechanical treatment fails to cause stronger heart contractions, then this treatment is useless, and we have to have recourse to rest and drug treatment.

In the vast majority of cases, if the disease is not too far advanced, we can increase the muscular fibers of the fat heart, counteract atrophic conditions due to anemia and chlorosis, compensate disturbances due to valvular disease, influence beneficially myocarditis and pericarditis, and improve sclerosis of the coronaries. Nature, herself, does all this in many instances, but it is the office of the therapeutist to employ her means systematically in the treatment of disease.

Muscular movements stimulate the heart. They demand more arterial blood, and in consequence a greater amount of venous blood is returned to the heart. Walking and climbing are superior to all other exercises. Together, they form the best method to strengthen the heart; its contractions become stronger; the arteries dilate and nutrition improves, causing muscular hypertrophy, and its dilated chambers return to their normal size, or as near to it as the pathologic condition will permit. Body temperature is increased, fat burned up from all its deposits, and the muscular exercise does not favor the forming of new deposits.

Gymnastics, with or without apparatus; massage, Swedish movements; passive and active movements, with and without resistance, and outdoor work, are all therapeutic means to be used with the same object in view, to dilate the capillaries, to remove peripheral resistance, to cause a better filling of the arteries, to deplete the veins, to cause stronger heart contractions and an improved nutrition of muscles. Prolonged rest and milk diet are injurious in heart disease.

Massage of the heart, as designed by Oertel, is useful. The patient is directed to take a deep inspiration, which causes a negative pressure within the chest, and to divide the expiration in two portions, exercising pressure upon the heart, of which the second is especially strong. The effect can be further enhanced by manual pressure upon the chest walls. The physician applies both hands in the axillary lines, about on a level with the fifth rib, upon the chest wall, and in a semicircle, with the beginning of the respiration, allows them to glide downward toward the ensiform cartilage, increasing gently but firmly the continuous pressure. As soon as the hands reach the middle line pressure is made with the thumbs, moving them outward to the right and left, preventing an outward movement of the frontal thoracic walls. At the end of the inspiration the hands are again applied firmly and the process is repeated. This direct massage of the heart removes a larger amount of air from the lungs than during ordinary or simple deep breathing, adding the advantages of massage to the heart muscle.

The systole is prolonged and strengthened, the diastole shortened, a larger blood wave passes through the arterial system, and heart labor is eased. The coronary arteries share the benefit and a more perfect nutrition of the heart muscle is obtained. With it, especially with interrupted breathing, massage is applied to the vessel walls, increasing their elasticity. Continued pressure damages it to such an extent that they will finally allow serum to pass into the tissues.

A proper dose can be most readily given in each particular case, as these various mechanical applications can be modified and the mildest form can be gradually increased to the most severe form. Walking and climbing are preferable under given conditions, as they allow continuation for any desired length of time, fresh air, diversion and the effect of sun heat upon the sweat glands, lessening blood-pressure by removing moisture from the organism. Frequent and thorough examinations have to be made during a course of treatment to study the effect of the treatment and modify it as the progress may demand.

The application of hydrotherapeutic measures needs consideration.

The heart can be directly influenced by cold and hot applications, and clinical experience has shown that after suitable hydriatic measures, dilated hearts decrease in size and show improved functioning. Cold applications slow the pulse and hot applications increase its frequency. A cold bath increases blood-pressure and a warm bath diminishes it. The heart answers promptly the demand for greater work and the hyperemia of the skin following the cold bath means improved circulation. During a cold application the capillaries contract and blood is driven into the interior arteries and the work of both ventricles is increased. The reaction that follows the application dilates the capillaries and the blood rushes into these vessels; the skin shows a healthy glow and an agreeable sensation of warmth is felt. The work of the heart is eased, but the stimulus it has received is lasting and the improved nutrition is a permanent gain.

It can be seen, however, that this powerful method has to be used with caution, as immediately following the application the heart is taxed and has to call up its reserve force to overcome the obstruction. In patients who have lost this force to a large extent and in those who react poorly, in those affected with advanced nephritis and in the sufferers from arteriosclerosis, this form of bath is contraindicated. After a cold application it is absolutely necessary to follow with vigorous friction and not stop till a good reaction has been produced. By proceeding slowly and cautiously and by administering a warm bath before making the cold application, we can lessen the taxing effect upon the heart to a large extent. The ice-bag and local applications may be used frequently when it would be dangerous to use the cold bath or douche.

The warm bath, the steam bath, and the hot-air bath cause dilation of the peripheral vessels. The pulse tension and blood-pressure fall and the number of heart contractions increase. A large blood stream is directed toward the periphery, relieving the congestion of all internal organs. The peripheral resistance is decreased and the heart work lessened. The increase of pulse frequency is due to reflex action of the sensory nerves of the skin. The volume of the extremities remains increased, and that of the waste measure decreased for several hours after the bath, due to the large amount of blood and lymph drawn from the organs into the peripheral vessels. A caution is here also necessary—weakened hearts, with advanced dilation will not stand vigorous measures. The effect of the hot-water bath, steam and hot-air bath for the purpose of removing rapidly a large quantity of water from the body, if ingestion of liquids is limited, has been mentioned.

We can increase the action of water upon the sensory nerves by adding irritating substances, and a number of

mineral springs containing sodium chlorid and calcium chlorid and iron salts have become famous in the treatment of diseases of the heart. The waters at Nauheim, containing carbonic acid, were employed with advantage in the treatment of articular rheumatism, with endocarditis, in 1872, by Beneke, and others followed, but their general application in heart disease and their present popularity, they owe largely to the labors of the Schott brothers of that place; so much so that by the laity the waters are frequently regarded as specific. Like in the mineral bath, the thermic and mechanical effect is increased by the irritating influence of the carbon dioxid they contain, and the constantly forming and escaping gas bubbles cause a continuous change of dilation and contraction of the peripheral capillaries, which means a massage of vessel walls and functional activity of the heart. The bath usually lessens blood-pressure and increases pulse frequency.

The bath may be given at home. Compressed carbon dioxid can only be used with expensive apparatus. In private practice, the gas is best developed in the tub, about one part by weight of carbon dioxid to one and a half parts of commercial hydrochloric acid, which allows an excess of the acid. If equal parts are taken, as is often the case, alkali is in excess. One kilogram of sodium bicarbonate and one and a half kilograms of commercial hydrochloric acid to 250 pounds of water, corresponds to a strong Nauheim bath. It is wise to commence slowly, perhaps with a tenth, and to increase with the progress made.

To prepare the bath, the salt is dissolved in the water, and the acid, contained in a long-necked bottle, allowed slowly to escape by moving the same, neck downward, under the water, avoiding too great motion of the water. If it is desirable to make the artificial bath similar to those of Nauheim, the Nauheim salt containing sodium and calcium chlorid may be added before developing carbon dioxid.

The temperature at the beginning of treatment is best at body heat, gradually cooled down with each succeeding bath, the duration to increase from 7 to 30 minutes. A further advantage of this form of bath is the agreeable sensation of warmth, due to the rapid and continuous dilation of peripheral capillaries, and according to Goldsheider, to the specific effect of the acid upon the heat points of the skin. The bath-tub may be covered to prevent escaping carbon dioxid from vitiating the air. A larger volume of urine is voided after each bath, warm or cold, a symptom of the reestablishment of compensation and an improved circulation.

All diseases of the heart and circulation may be advantageously treated with these methods, except when complicated with nephritis in the advanced state and sclerosis of the coronary arteries, in old patients with advanced degeneration of heart muscle. Steam baths should only be used when the respiratory apparatus is intact. Liquids ought not to be reduced when the urine contains a large quantity of urates and uric acid, unless a larger quantity is voided after such a reduction. Fatigue must always be avoided. We want to strengthen and make muscle, not to overtax what is left. Prolonged and absolute rest is injurious in all cases, even in advanced atheroma and sclerosis of the arteries, aneurysm of the aorta and advanced Bright's disease. Under this treatment there will be slow progress; frequent examinations are necessary in all cases.

A dilated heart beats stronger and contracts, the pulse becomes regular and full, respiration normal, and cyanosis disappears, exertions cease to cause dyspnea, catarrhs are cured and the kidneys resume their proper function. To keep the advantage gained, the life of the patient has to be modified and the treatment resumed whenever the compensation threatens to break.

In cases of a completely broken compensation we will succeed with a number of patients by placing them in a horizontal position, if that is still possible, and regulating the diet, especially by reducing the liquid ingested. If this fails we have to apply drugs, remembering well that the action of heart stimulants may be compared to the whip applied to a tired horse.

The object of the treatment remains the same "to reestablish the compensation." The means by which to accomplish this remain unchanged. We have to ease the work of the heart by diminishing peripheral resistance, by relieving congestions and by strengthening muscular contractions.

The most efficient drugs to dilate the arteries are nitroglycerin and the nitrites. The iodids which have been given for the same purpose have been shown to increase the viscosity of the blood and are useful on that account in atheromatous conditions of the arteries, decreasing friction allowing increased flow through narrowed vessels and causing better nutrition. If not given for syphilitic endarteritis, small doses will accomplish as much as large doses.

To remove fluids from the body, pilocarpin has no superior; however, it has to be employed with great caution, though, according to Leyden it does not weaken heart contraction. Its overaction may cause nausea, vomiting and collapse, and a profuse secretion into the bronchi, which is dangerous, unless the lungs are intact. Laxatives, cathartics and diuretics will lessen edema, deplete the veins and reduce congestion. Calomel acts, as is so well known, especially on the liver. If employed as a diuretic it is a superior drug, though without due caution a severe stomatitis may be caused by its administration. As it is the object to draw the fluid from the body by this means, the salines are best, though for immediate effect julep may occasionally be used with advantage. During the treatment it must be borne in mind that the object is to relieve congestions and to ease heart work, as soon as this is accomplished the heart in many instances will recover and a better distribution of the fluids will be the consequence. A further purgation at this stage would do harm.

To stimulate a weakened heart to stronger contractions, we possess a number of drugs, whose therapeutic and physiologic actions are well understood and which, more or less, all have a specific effect. It is not the object of this paper to discuss their merits; a mere mention will be sufficient. Alcohol, in some form, ether, caffein, and camphor, for immediate effect; digitalis, strophanthus, cactus grandiflorus and others, for more permanent use, and strychnin for its action upon the nerve apparatus. In the administration of digitalis, we have to consider its contraction of the muscular coat of the arteries, and as it is the object of the treatment to strengthen heart contraction, to diminish peripheral resistance and increase blood flow, this drug is contraindicated in heart disease complicated by interstitial and chronic nephritis and in general arteriosclerosis, unless a vasodilator, nitroglycerin by preference, is given, at the same time.

If with this method we have accomplished our object and have reestablished the compensation, then again we have recourse to the mechanical dietetic treatment, and if improvement does not continue under its employment, the heart commences to beat weaker, the pulse becomes thready, cyanosis and dyspnea return; then our work has been only a patching up, the prognosis is grave and the end near.

To the labors of Oertel, the originator of the mechanical dietetic treatment; of Winternitz, the father of hydrotherapy, and of the Schott brothers, who have made the treatment of cardiac diseases with the carbon dioxid bath popular, I am largely indebted for the facts presented in this paper.

No Cigarets on Ellis Island.—An order has been issued prohibiting the sale of cigarets on Ellis Island, at the request of the authorities of the several western States, which have recently passed laws prohibiting the smoking of cigarets within their borders.

A STUDY OF ENZYME ACTION IN ITS RELATION TO HUMAN METABOLISM AND THE DEVELOPMENT OF TUBERCULOSIS.

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Every cell in the human body has an identity of its own. In other words, it is a unit, and has its own struggle for existence, the phenomena of which are covered by the general term metabolism. Fundamentally such phenomena consist of the appropriation and absorption of pabulum, the digestion of the same by certain biochemic substances called enzymes, the throwing off from the cell economy of waste or by-products, and finally the conversion of digested material into the protoplasmic substance of the cell itself. The whole process of cell metabolism is essentially chemical. The enzymes, or more properly, the zymogens of each cell are especially adapted to the individual needs of that cell. At the same time, while the identity of each zymogen varies with the identity of the cells or tissue in which it is found, there are certain general characteristics common to each type. For instance, the action of each enzyme is limited to either starches, sugars, proteids, or fats; such action may be katabolic or anabolic, the reversibility of action depending on conditions present; they have the capacity of rapid increase under certain conditions, or at least an increase of power; and adverse conditions may modify, decrease, or completely destroy them. Through the action of these enzymes the passage of nutritive material from the alimentary canal to the ultimate cell is accomplished, the whole process consisting of a series of splitting and building phenomena. To quote H. G. Wells,[1] "All metabolism may be considered as a continuous attempt at establishment of equilibrium" and "the living body, whether unicellular or multicellular is a vast, unceasing series of chemic reactions."

Nutritive material is hydrolized and split into new substances to permit of osmosis through the cells lining the intestines, reconverted into nutritive material in its passage through these cells and in the carrying fluid on the other side (which is the blood-serum and lymph), split again to permit of diffusion into the appropriating cells, and finally, reconverted in each cell for use in its future effort to maintain an osmotic balance with extracellular substances. A break may occur at any point in the sequence of ferment action from the alimentary canal to the ultimate cell, but it is always at the expense of the latter, with consequent injury and decrease of tissue formation and growth.

A great deal of splendid work in the study of enzymes has been done by Hill,[2] Kastle and Loewenhart,[3] Croftan,[4] Wells, and others. These investigators have given us definite knowledge of the presence and functions of these biochemic entities and physiologic research has been greatly enriched by their studies. It has been positively shown that the enzymes of the body are of the highest importance in the maintenance of metabolistic equilibrium, and the presence of diastase, protease, lipase, and a glycolytic ferment has not only been demonstrated in the blood and tissues, but when for any reason these specific bodies or substances are decreased or become inactive, a corresponding increase in the presence of undigested or disorganized proteids, fats, and sugars is demonstrable in the fluids of the body, more especially the blood.

A very important question that has arisen in the investigation of ferment action is in regard to the origin of enzymes and their activity. To be sure, certain chemic bodies have been found in blood, lymph, muscle and other tissues, corresponding to enzymes, but these substances are comparatively inert until combined with other complementary bodies. Undoubtedly these chemic bodies are zymogens, possessed of potential powers which only become active when united with other substances, and this conclusion is justified by a very significant discovery published by Croftan[5] in 1902 to the effect that pancreatic extract and hemoglobin when mixed together possess greatly augmented power in the destruction of sugar. More recently Cohnheim[6] has shown that extracts of muscle and pancreas are each practically devoid of glycolytic action until mixed together, when the destruction of sugar is marked. While Blumenthal[7] questions the assumption of Cohnheim, that the cells of various tissues are absolutely inactive until mixed with pancreatic extract, he nevertheless recognizes and admits the potent influence which the addition of pancreatic extract exerts in increasing the sugar-destroying properties of all tissues. This is still further corroborated, but conversely, by the fact that extirpation of the pancreas is invariably followed by the material decrease of sugar destruction all over the body,[8] with the result that dextrose and way-products are not only found in all organs, but also in large quantities in the blood and urine.

To carry the thought still further and show the almost specific action of the pancreatic secretion in perfect metabolism, mention should be made of the relation which obstruction of the pancreatic ducts bears to fat necrosis. Opie[9] has recently demonstrated in a series of experiments on cats that ligation of the pancreatic ducts causes very widespread fat necrosis involving almost the entire abdominal fat, at times the subcutaneous and pericardial fat, and reproduces the wide destruction of fat occasionally observed in human beings and animals. He considers such fat necrosis as the result of the damming back of the secretions of the gland which escape into the surrounding tissues and produce lesions typical of the action of the fat-splitting ferment. Flexner,[10] Langerhans,[11] Whitney, of Harvard, and others, have all performed experiments that tend to show that fat necrosis is the essential result of the penetration of the fat-splitting ferment of the pancreas into fat tissue.

In the light, however, of our present knowledge concerning the complementary action of the pancreatic secretion, it would seem that fat necrosis is an evidence of incomplete or vicarious fat metabolism in some part of the animal organism. The damming back of the pancreatic secretion permits the fat-splitting enzyme of the gland to exercise its destructive influence at the wrong place in the sequence of the normal metabolistic process. The obstruction of the normal secretion of the pancreatic fluid denies the zymogens of the tissue the specific complementary action of that secretion, and as a result they remain inactive and are prevented from rebuilding the fat which the pancreatic ferment has vicariously broken down. Of direct interest is the fact that Hewlett[12] has recently shown that lipase can be detected in appreciable quantities in the urine of dogs in which fat necrosis has been produced artificially by ligation of the pancreatic ducts. Inasmuch as a considerable amount of inactive lipase throughout the tissues and fluids of the body would be expected as a result of the special conditions producing fat necrosis, its presence in the urine would naturally follow.

At any rate, although the question calls for further study, from what we know already, there are excellent grounds for considering fat necrosis rather more definitely as a perverted and incomplete metabolism of fat.

The all-important conclusion to be drawn from the foregoing, however, is this, that the pancreas and its secretion, aside from its direct influence as a digestive agent, has a more remote but none the less important relation to intracellular digestion, especially of fats and sugars. Lesions of the pancreas interfering with its functions are quite generally followed by fatty degeneration throughout the body, and the increase of fat and sugar in the blood under similar conditions is easily demonstrable. Still further corroborative is the fact that Boenniger,[13] Schwarz,[14] and Fischer[15] have shown that

there is an increased amount of fat in the blood of diabetes. The significance comes from the fact that the majority of investigators believe today that diabetes is the result of structural change in the pancreas, more especially the islands of Langerhans.[16]

The great problem to which I have endeavored in a humble way to fit these ideas of metabolism is in regard to tuberculosis. In 1902, in a paper published in the *New York Medical Journal*, I had occasion to mention the role of enzymes in the maintenance of normal metabolic equilibrium, and at that time I called attention to the possible influence, failure of any link in the chain of digestion from the alimentary canal to the ultimate cell might have on the development of tuberculosis. While the paper referred to was crude and incomplete, it nevertheless opened up an unlimited field for study and research.

During the past few years I have carefully and painstakingly pursued a clinical study of the tuberculous process, correlated by such experimentation as has been permitted by my opportunities. My constant aim has been to determine as far as possible the relative importance of tubercle bacilli and metabolistic variation in the development of this disease. As a result of my study, while I have no intention of questioning the essential and specific etiologic role of tubercle bacilli in the production of so characteristic a disease as tuberculosis, I have, nevertheless, become convinced that, as recognized clinically, it is simply a serious complication of an antecedent disease far more general in its pathology and etiology.

Tuberculosis, the disease, is a germ disease. This is irrefutable, but its presence in human beings always implies that it is simply grafted on to some previous or preexisting process favorable to its growth. Just what this process or condition is, still remains an open question, but there are substantial reasons for believing that a failure of proper metabolism provides the conditions essential for the development of tuberculosis. In order to establish a basis for a working hypothesis I have not only carefully studied the literature of metabolistic phenomena, but have experimented as extensively and thoroughly as my limited time and facilities would allow. As a result of this study and investigation, which have been of absorbing interest, I feel more certain than ever that human susceptibility to tuberculosis consists primarily of a break or perversion somewhere in the sequence of enzyme action. To obtain, however, any pertinent knowledge of the influence, if any, that metabolistic variation bears to tuberculosis, all possible facts must be examined in detail.

To begin with, therefore, while a failing metabolism is a constant accompaniment of the progress of tuberculous disease, far more significant is the fact that the diseases or conditions characterized by such failing or perverted metabolism, like diabetes,[17] chronic indigestion,[18] and pregnancy,[19] are those most often complicated by tuberculosis. Knowledge of the peculiar conditions of the blood and tissues in these diseases and the morphology, biology, and biochemistry of the tubercle bacillus [20] makes it logical to believe that the foregoing or similar conditions must exist in the human body for any rapid growth and development of the germ. In diabetes and chronic digestive disturbances, and occasionally in pregnancy, there is a marked increase in the presence of sugars and fats in the blood and urine.[21] Likewise examination of the blood and urine of patients with incipient tuberculosis shows that there is also an increased amount of fat in these fluids, and in three different cases of early tuberculosis under observation during the past year I have found sugar in the urine and in easily demonstrable quantities in the blood. Does it not naturally follow that these specific evidences of faulty metabolism in early tuberculosis are as likely to be related to cause as to effect? I certainly believe so, and it seems a rational deduction to me that free and disorganized fats and sugars in any tissues of the body provide the very conditions essential for the development of the tubercle bacillus, an organism whose composition and culture are so closely related to these substances.

The relation of the preceding facts to the clinical development of tuberculosis becomes even more evident when we study the significant influence that certain of the socalled etiologic factors of tuberculosis bear to the course of enzyme action. For instance, let us consider chronic indigestion, the result of functional or organic changes which usually follow dietetic errors or bad habits like alcoholism. These changes may directly obstruct and therefore may alter the biliary and pancreatic secretions, or offer serious obstruction to the osmotic process in the intestinal wall itself. The effect at any rate is the same. An insufficient amount of modified nutritive material is dialyzed, thus the tissues suffer from actual deprivation of food, and at the same time the vicious influence is still further maintained by the failure of the complementary body of the pancreas to reach and energize the zymogens of the remote tissues.

Another prominent cause for the failure of human metabolism is air starvation. The widespread appreciation of the influence of this factor on the development of tuberculosis is well shown by the great importance given to the open-air treatment of this disease and the earnest campaign being instituted everywhere against impure air. Yet, in spite of a general recognition of the very beneficial effect of pure air in the treatment of tuberculosis and other wasting diseases, we are still unable to define its influence, except to attribute the results in a general way to stimulation of vital processes. Some simple experiments I have recently performed may have some significance. I have found that ferment action is profoundly influenced by oxygen. This fact may have been observed by others, but I have been unable to find any reference to it in the literature of the subject. In vacuo the action of the pancreatic ferments is very markedly inhibited, but in an atmosphere of almost pure oxygen their destructive powers are greatly increased. This important fact has suggested to me that the increased amount of oxygen which necessarily enters the circulatory system of the individual constantly living in the open air may increase the enzyme action of those ferments which have been acting, though with lessened power. In this way, although the enzymes may be actually deficient as well as inactive, the relative value of those that do remain may be greatly increased. Thus in conjunction with forced or increased feeding a closer approach to metabolistic equilibrium temporarily takes place. If internal conditions are favorable for the prolongation of this readjustment, and the tuberculous infection is small, then the resulting process is held in abeyance or "starved out" by the withdrawal of conditions which have enabled the bacilli to live and grow. The organism may thus free itself of tuberculosis, and it is no uncommon thing to witness in the clinical course of this disease just such restoration of metabolistic equilibrium with more or less permanent arrest of the tuberculous process. But too often such arrest is only temporary, even under the most favorable conditions of pure air and good food, and then we are left no alternative belief than that internal conditions are unable to maintain the balance of metabolism at a safe point. As it falls, the advent of new infection or the ignition of the smoldering embers of the old take up again the progressive characteristics of the tuberculous process. The alternate gain and loss so often seen in the course of tuberculosis well depict the almost spasmodic attempts of the human organism to readjust itself.

Another factor that is recognized as prominent in the etiology of tuberculosis is mental worry, depression, or alienation. The intimate relation borne by the central nervous system to the secretory organs of the digestive apparatus, at once shows the influence that may be exerted on digestion and nutrition. That tuberculosis

is a frequent complication of nervous and mental diseases, follows as the logical result of the baneful influence these diseases have on intracellular and extracellular digestion.

Three or four years ago, having occasion to administer pancreatic extract for the relief of evident internal indigestion in the course of chronic pulmonary tuberculosis, I was surprised to note a very marked and immediate increase in the bodily weight of the patient. I alternated the administration of the pancreatic extract, giving it one week and not the next. The weeks during which it was administered, the patient gained from one to three pounds, but the weeks in which it was not given, he invariably lost in weight. I realized that the action of the pancreatic extract might be peculiar to this individual case, because of particular conditions present that would not be found in all cases of tuberculosis. But its influence was so marked and salutary that I felt justified in administering it tentatively in every case of tuberculosis that came under my care. This I did, and as a result have established the gratifying fact that patients taking the open-air treatment gain much more rapidly and substantially when pancreatic extract is given to them regularly than when it is not.

In my effort to account for the influence of the pancreatic extract, which study and investigation led me to believe was not limited to facilitating the digestion of food in the intestinal canal, I was tempted to administer pancreatic extract hypodermically. I was aware of the investigations which seemed to vest the pancreatic secretion with a complementary action, and reasoning that if the changes in the pancreas itself and in the intestinal mucosa were such as to prevent its selective action on the zymogens of the blood and tissues, the immediate introduction of pancreatic extract into the blood and carrying mediums of the body might energize or vitalize the dormant zymogens and thus promote the metabolism of sugar and fat.

Accordingly, I laid the proposition before a prominent firm, whose specialty is the preparation of digestive ferments, and they kindly prepared for me some active sterile preparations of fresh pancreatic gland. These I administered in varying dosage, always diluted with liberal amounts of distilled water. I carefully studied the effects of these injections of pancreatic extract and my first observation covered a series of 11 patients. Later I have been able to study 27 other cases of tuberculosis and the therapeutic effects of pancreatic extract. In all of the cases of incipient pulmonary tuberculosis, the results have been marked and highly satisfactory. In the cases further advanced the results have not been so good, but in almost every case, even some advanced ones, the patient has shown a very marked temporary increase of bodily weight immediately after its use, with decided amelioration of cough, fever, night sweats and debility. The limitations of this paper prevent my giving cases or methods in detail; these I hope to embody in another paper, but I have definitely and positively determined that the administration of pancreatic extract is a valuable adjuvant to open air and good food in the treatment of early tuberculosis.

To substantiate as much as possible the evident potent influence of pancreatic extract when given hypodermically, I have carefully examined the blood of several tuberculous patients before and after its administration, and I have found that its use is followed by a very perceptible decrease of free fat and free sugar. The appropriation of food from the intestinal canal is increased when the pancreatic extract is administered hypodermically, and this would be expected if it has any digestive value at all, since increase of enzyme action in the blood and tissues would promote intestinal osmosis in bringing about a balance of the metabolistic process.

It is only fair to state that the patients who have undergone the treatment with pancreatic extract, both internally and hypodermically, have all had the advantages of the best food and thorough open-air treatment. While improvement in early cases would be expected under these conditions without the pancreatic extract, I have determined conclusively that good results are hastened and increased by the thorough routine use of this product.

The exigencies of medical practice and the limitations of time and equipment have necessarily prevented me from following many lines of study and investigation relative to the subject, that I realize are necessary to substantiate more thoroughly the deductions I have drawn. I can imagine no better fate than the opportunity of carrying on careful researches of metabolism in its pathologic aspects. As such an opportunity has not presented itself to me, I have utilized what I have had, and present this paper as the result. Its actual value may be small, but I sincerely hope that it may serve to stimulate more definite and extensive research in regard to the chemistry of those bodily changes which constitute predisposition or susceptibility to tuberculosis. The field of physiologic research is a broad one, but behind the phenomena of metabolism I believe lie great truths and facts, the discovery of which will place within our reach the mastery and specific control of tuberculosis.

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ANASTOMOSIS AND TRANSPLANTATION OF BLOOD-VESSELS.

BY

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of Chicago.

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Introduction.—When a segment of artery is removed the circulation may be restored in the peripheral portion by interposing between the cut ends a segment of vein. The venous segment employed is ordinarily chosen from the vein accompanying the artery, the length of this segment being slightly greater than the length of the arterial segment.

A careful investigation of the literature has revealed no mention of similar experiments having been performed hitherto.

In this paper only the object, technic, and the immediate results of the work will be discussed.

Object.—These experiments were undertaken with the view of finding a new treatment of aneurysm. The treatment commonly used is ligation of the vessel, with or without extirpation of the diseased portion. If the arteries are elastic, it is not dangerous to ligate even the main artery of a limb, or to extirpate a small segment of the artery. If the aneurysm is located in a region favorable to the establishment of an efficient collateral circulation, the results usually are good. Even if the

arteries are not elastic the operation may be successful. Occasionally, however, results are unsatisfactory, this probably being due to the development of gangrene. Therefore, a method that would prevent the possible occurrence of gangrene would be a valuable addition to the present treatment.

The ideal treatment would be extirpation of the aneurysm, and restoration of the continuity of the vessel. It is rarely possible, after extirpation of an aneurysm, to suture the two ends of the artery together.

This operation may be used in certain cases of the bagged variety, but ordinarily it is impracticable to approximate closely the cut ends of the artery after resection, owing to the length of the gap left between them. Therefore, it is an exceptional operation and without great practical interest. I have endeavored to determine, if it be possible, to restore continuity of the vessel by interposition of a segment of vein.

Technic. — The experiments were performed on medium-sized dogs. A segment of carotid or femoral artery was resected. The continuity of the vessel was restored by interposing a segment of jugular or femoral vein. The anastomoses were accomplished by end-to-end suturing.

Immediate Results.—On release of the arterial clamps, after completion of the anastomoses, the peripheral arterial circulation was immediately restored, provided, of course, there were no valves present in the interposed venous segment.

The anastomoses and the venous wall adequately support the arterial blood-pressure. The venous segment becomes distended. To the touch, it is hard, and pulsations may be detected. The circulation below the venous segment appears normal, with the exception that the pulsations are weaker.

If the venous segment has branches, reversal of the circulation through them does not occur at once. In one experiment, the section of femoral vein interposed between the cut ends of the femoral artery, in Scarpa's triangle, had two collaterals, one of which supplied the adductors, and the other the triceps. These veins remained filled with dark blood for some time after the circulation had been reestablished in the distal portion of the artery, through the venous segment interposed. Near the origin of one small vein, after the arterial circulation was restored, a small dilation was observed, below which the blood was dark, and above which it was red. The lower end of the dilation marked the location of a valve. About two and a half hours later a giving away of the valve was noticed, and the circulation became red throughout the trunk of the vessel. Prior to this, I have shown that a reversal of the circulation may be accomplished in a vein, and that such a vein is able to perform the more important arterial functions for months.[1]

About the same time,[2] and subsequently, I transplanted the kidney to the neck of a dog, the renal artery being sutured to the central end of the carotid, and the renal vein to the central end of the external jugular. The anastomosis was good and the circulation was well maintained for hours, and some liquid flowed from the ureter. Under good aseptic conditions, I have little doubt that a permanent circulation through organs transplanted in this way could be obtained.

CONCLUSIONS.

1. It is possible, by interposing between the cut ends of an artery the segment of a vein, to restore quickly the arterial circulation.

2. The venous segment is able to perform the principal arterial functions.

3. It is possible to establish a circulation of arterial blood through the veins in a direction reverse to the normal venous circulation.

[1] Carrel et Morel, Societé Nationale de Médicine de Lyon, 1902.
[2] Carrel, Lyon Médicale, 1902.

In subsequent communications will be given the complete results of these and other experiments now being carried on under aseptic technic in the surgical rooms of this laboratory, including the investigation of: (*a*) Anatomic adaptation of transplanted bloodvessels; (*b*) changes in the circulation, both immediate and permanent; (*c*) the phenomena following the transplantation, by this method, of organs and tissues.

I am glad of this opportunity to express my thanks to Dr. Stewart for granting me the privileges of his laboratory, and to Dr. Guthrie for helping me in the revision of this paper.

MERCURIC CHLORID, INTRAVENOUSLY OR INTRAMUSCULARLY, FOR EPIDEMIC CEREBROSPINAL MENINGITIS.

BY

RICH. HOGNER, M.D.,

of Boston, Mass.

The present epidemic of cerebrospinal fever is my justification for reporting the following two apparently hopeless cases, in which recovery ensued after intramuscular injections of mercuric chlorid:

CASE I.—V. W., aged 5 years, 11 months, the son of a joiner, living near Boston, became suddenly sick on April 4. The same day two physicians (one an expert from the Board of Health) saw the boy, and a diagnosis of cerebrospinal meningitis was made. The next day "they injected something under his skin and ordered water and whisky." When I first saw the little patient on April 27 his condition was as follows: Very emaciated and sleepy, crying when disturbed from his more or less flexed position. He is feverish and stiff all over. Head thrown backward into the pillows. Soils the bed; diarrhea. In the gluteosacral region there is an inflammation from beginning bed sores, and a little above and all around this irritated area is a pustuloherpetic eruption.

At 6 a.m. I injected 1.5 mg. of mercuric chlorid deeply into the gluteal region, and with the patient's head hanging over for some minutes, I filled the nostrils with 20% silver vitellin solution. The body was to be washed with vinegar three times a day, the teeth and mouth cleaned every three hours with a potassium chlorate paste, and the boy given a tablespoonful of sweetened tea every hour, and every two hours hot water and milk. At 10 p.m. I injected 3 mg. of mercuric chlorid and used the antiseptic solution as before. Under this treatment the patient gradually improved until May 1, when from his symptoms, I judged he was receiving too much mercury. I therefore gave up the mercury; ordered syrup iron iodid, added some extra potassium iodid, to be taken every two hours; also a hot black mustard bath once a day. By May 5, full reconvalescence was established, with the excepton that the evacuations were involuntary.

On May 6, he seemed almost well. He now asks for the bedpan.

CASE II.—A. L., aged 20, a stonecutter living in the same house as the patient in Case I.

On May 2, Mr. L. came home at noon from his work very sick with chills, headache, drowsiness, stiffness and pains in the back and neck, very weak, almost unable to control his muscular movements; acted very like an intoxicated person. Two weeks previous to the present illness he had parotitis and orchitis, and has never since regained his strength. The other inhabitants of the house—a crowded tenement—had all been well, working. So far only these two cases have occurred in the house.

At 11 p.m., about 12 hours after the onset of the disease, I saw the patient. He was then almost in coma, very stiff in the neck and back, at intervals twitching and jerking of the extremities was noticed; he seems to be somewhat hyperesthetic; temperature 39.3° C. (rectum). Weak murmur from the heart; no albuminuria. I injected 3 mg. of mercuric chlorid intragluteally.

At 5 a.m. (May 3), the patient showed improvement in all respects. He was conscious, but weak and somewhat slow in thought and expression, also somewhat hyperesthetic. Temperature 37.0° C. No murmur from the heart. No more injections.

On May 5 he asked for permission to sit up. Practically no other treatment than two injections wss given.

The patient remembers his second injection, but has no recollection of the first one.

On May 6, the patient walked out doors, apparently entirely recovered.

In my opinion the intravenous route is the best for the injections. If the fluid is injected extravenously, it smarts considerably, and hard, very annoying infiltra-

tions, swellings, stiffness, etc., sometimes even gangrene, may result. The technic for the intravenous injection is simple: Take a 2 cc. "morphin syringe" and inject into a large vein, which is readily accessible (with or without previous constriction of the upper part of the limb). As a rule, I use a vein of the forearm or lower part of the upper arm, but sometimes I use a vein of the legs, or one of the scrotum. The injection should always be given very slowly and if when it is started swelling or pain occurs (I do not mean the insertion pain), then the point of the needle is placed extravenously and must be corrected or the needle should be withdrawn and inserted in another place. If the smallest quantity of the fluid has been injected extravenously, the patient should be given at once a hard, thorough massage, however painful it may be, for thus only can the bad consequences be prevented.

For intravenous injections I use the finest, shortest and best steel needles; for intramuscular injections I have very coarse needles, 1½ inches in length.

In the foregoing cases I injected a plain distilled water solution, but it is better to add some sodium chlorid. For 10 years in the treatment of syphilis I have used:

Mercuric chlorid	1 to 2
Sodium chlorid	1 to 9
Distilled water	1000

One can safely inject 1 cc. to 4 cc. of this solution, *i. e.*, 2 mg. to 8 mg. of the mercuric chlorid. Intravenously, 8 mg. is the maximum dose. Generally I inject 2 mg. to 4 mg., and have in more than 5,000 injections never seen any bad symptoms result from the injections, even though, in spite of all precautions, air was injected into the vein. The first time it happened I became very anxious, waiting for alarming symptoms. None came, however, and now I pay no attention to it, only trying my best to avoid the occurrence.

It is desirable to make the injections aseptic, but I have for years not made any special preparations for this purpose, only washed my hands and cleaned the skin at the place of injection, relying on the antiseptic action of the mercuric chlorid. The needle must be sterile and very sharp.

Entomologist to Trap Mosquitos.—"Let no yellow fever mosquito into Philadelphia," is the order from State Health Commissioner Dixon, and he has selected as guard an entomologist from the Academy of Natural Sciences, posted at the harbor to watch fruit vessels from foreign ports and make a collection of mosquitos that come with the fruit. These mosquitos will be carefully examined to see if any of the yellow fever variety are reaching Philadelphia.

Man Swallowed 38 Feet of Wire.—Frank Wallace, an inmate of the State Hospital for the Insane at Norristown, Pa., ended his life by swallowing 38 feet of wire. The wire was found in two sections in his stomach when an autopsy was made to disclose the cause of death. Wallace suffered from delusions and when he told his caretakers this week that he was full of wire the matter was regarded as improbable. The wire was the kind in use in hanging pictures, and Dr. Richardson thinks Wallace obtained it while out taking exercise. The intestines had been pierced, causing peritonitis the immediate cause of death.

Pure Milk Legislated For.—The sale of adulterated or impure milk is prohibited by a bill introduced in Philadelphia Common Council. The measure was referred without reading to the Committee on Law. There are in the bill 10 sections defining impure milk, regulating the manner of testing it, and providing for penalties for violations of the ordinance. Any person who sells or offers as pure, milk from which cream has been removed, or which has been adulterated, shall be liable to the penalties provided. The sale of skimmed milk, unless it is plainly designated upon the outside of the can, is prohibited under a penalty. The sale of milk containing less than 8.5% of milk solids, exclusive of butter fat, is made a violation of the ordinance, as is the sale of milk from cows fed on swill or other unwholesome food. The addition of water or other substance is declared to be an adulteration and is prohibited. For all violations there is provided for the first a fine of $50 and for the second and subsequent offenses a fine of $100. Comprehensive and detailed regulations are made for the enforcement of the terms of the ordinance by an inspector of milk to be appointed by the Director of Public Safety.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

August 5, 1905. [Vol. XLV, No. 6.]

1. Unity, Peace and Concord. Farewell Address to the Medical Profession of the United States. WILLIAM OSLER.
2. Indications for Scientific Progress in Stomatology. V. A. LATHAM.
3. The Treatment of Suppurative Affections of the Face and Neck Emanating from the Mouth. M. I. SCHAMBERG.
4. The Etiology of Tooth and Nail Corrugations. G. LENOX CURTIS.
5. To What Extent are Teeth Necessary to Civilized Man? M. H. FLETCHER.
6. Is Keratitis Ever Caused by Rheumatism? LEARTUS CONNOR.
7. Blasting Eye Injuries. JOHN A. DONOVAN.
8. Some Eye Injuries and Their Lesions. F. C. HEATH.
9. Traumatic Lesions of the Eye. FRANK W. MILLER.
10. The Matas Operation for the Radical Cure of Aneurysm as Applied in Two Cases of Ruptured Aneurysm. J. A. DANNA.
11. Effects of Inhalation of the Fumes of Nitric Acid, with Report of Cases. J. N. HALL and C. E. COOPER.

1.—Unity, Peace and Concord.—The medical profession is the only one, says Osler, that everywhere throughout the world has the same methods, ambitions and aims—it is the only world-wide profession. In a little more than a century a united profession working in every land has done more for the race than any other body of men. Any great discovery in any part of the world is common property at once. In referring to the things needed to bring about perfect unity in the profession in this country, he laid special emphasis on the need of reciprocity in the medical practice laws in the various States and Territories, and the need for consolidation of medical schools and for the recognition of those homeopathic physicians who are ready to accept the facts of scientific medicine. Osler believes that mutual concessions only are needed, such as the abandonment of special designation, and the intelligent toleration of therapeutic vagaries that have always beset the profession, but are at worst only flies on the wheels of progress. He advocates peace, but by this he does not mean cessation of our professional conflict with ignorance, apathy and vice. This must be steadily carried on. There is, however, at times, he says, a lack of the professional harmony that should exist, and this is to be lamented. He thinks that there are three chief causes of the quarrels of physicians. The first is lack of proper friendly intercourse, the second is uncharitableness, and the third is the wagging tongue of individuals, who are too often ready to make trouble between physicians. He says that a physician should never listen to a patient who tells tales derogatory of other physicians, and should not believe them, even if he thinks they may be true.

2.—See *American Medicine*, Vol. X, No. 6, p. 222.

6.—See *American Medicine*, Vol. X, No. 4, p. 137.

10.—The Matas Operation for Aneurysm.—J. A. Danna, reports two cases of fusiform aneurysm rupturing into the surrounding tissue and treated by him by Matas' method of suturing the leading openings within the aneurysmal sac. In neither case was the sac obliterated but drainage was employed and the results were satisfactory. In one of his cases to have sutured together the walls of the cavity would have required a 14-inch incision. He thinks it is better in such cases to close the incision partly and to drain, allowing the cavity to fill up by granulation, instead of closing it by suture as is done in the unruptured cases.

11.—See *American Medicine*, Vol. X, No. 7, p. 259.

Boston Medical and Surgical Journal.

August 3, 1905. [Vol. CLIII, No. 5.]

1. The Influence Which the Acquisition of Tropic Territory by the United States Has Had, and is Likely to Have, on American Medicine. GEORGE BLUMER.
2. A Case Illustrating the Local Conditions after a Suprapubic Enucleation of the Prostate. ARTHUR L. CHUTE.
3. Some Observations on the Treatment of Epilepsy. DANIEL R. BROWER.
4. Dietary in Epilepsy. L. PIERCE CLARK.
5. Notes on the Photography of Gross Specimens. MALCOLM DEAN MILLER.

1.—See *American Medicine*, Vol. X, No. 3, p. 115.

2.—Conditions Following Suprapubic Enucleation of the Prostate.—A. L. Chute gives the postmortem findings in a man of 72 who died 23 days subsequent to suprapubic removal of an enlarged fibromyomatous prostate. Postmortem the

urethra took easily a 28 F. sound. The fibers of the compressor urethra had not suffered, though the prostatic urethra had been torn across and a part of it removed. The cavity from which the prostate had been removed had contracted to form a funnel-like prolongation of the bladder. This cavity was fairly clean and covered everywhere but on its floor by a new-growth of mucous membrane. The septum between bladder and rectum was nowhere less than 0.6 cm. (one-fourth inch). The conditions found are considered by Chute explanatory of the immunity from certain complications attaching to the suprapubic as compared with the perineal operation. The cause of death of the patient, hemorrhage from a ruptured cyst in the cortex of the left kidney, is believed to be unique. [A.G.E.]

3.—Treatment of Epilepsy.—D. R. Brower says the ideal treatment of epileptics can be given only in a colony, more of which should be founded. Sufficient attention is not given to prevention in neurotic children who show a tendency to the condition, and exploratory operations in head injuries would more often prevent traumatic epilepsy. In the treatment, four elements must be considered—autointoxication, increased irritability of the nervous system, deficiency of vasomotor tonus, and cerebral sclerosis. For the first, salol and phytolacca are the best drugs. In giving the bromids to decrease irritabillty, care must be taken to prevent overdosage; solanum carolinense acts well in addition. For the third indication, adonis vernalis and strychnin are valuable. Cerebral sclerosis is an indication for the use of alteratives. [A.G.E.]

4.—Dietary in Epilepsy.—L. P. Clark regards the dietary of epilepsy as more important than the drug treatment. In general practice it is too often left unspecified. From an experience of five years, Clark considers a salt-poor diet an established aid in the bromid treatment. It is one of the most signal advances in the bromid treatment since that sedative has come into use, though he has not obtained from it the marvelous results attributed to it by some French and German observers. A lengthy dietary list is appended to the article. [A.G.E.]

Medical Record.

August 5, 1905. [Vol. 68, No. 6.]

1. Syphilitic Spinal Paralysis: With Special Reference to the Type Described by Erb. Wm. J. Dougherty.
2. Copper and Zinc Poisoning, Brass Poisoning. Montgomery H. Sicard.
3. Rheumatism of the Feet. Leonard W. Ely.
4. The Gases of the Body. L. H. Watson.
5. The Importance of the Early Recognition of Valvular Disease in Children. Albert Ewing Childs.
6. A Case of Fibroma of the Ileum, Producing Obstruction by Invagination; Enterotomy; Recovery: With a Brief Consideration of Benign Growths of the Intestines, and Methods of Operating. H. A. Royster.

1.—Syphilitic Spinal Paralysis.—According to Dougherty the time that has elapsed between the primary infection and the onset of symptoms indicating medullary involvement must be taken into consideration, and those cases developing within a few years after the luetic infection, even though slow in onset may be looked upon as an expression of secondary or tertiary syphilis, whereas, if a considerable period of time has elapsed before the beginning of the symptoms referable to the cord the changes must be due to what he calls the terminal syphilitic stage. He describes the histories and pathologic findings in two cases of the former class, which lead him to conclude that it is the distribution and dissemination of the vascular lesion rather than any special difference in their nature which determines which type of spinal syphilis shall ensue, and that the socalled Erb's syphilitic spinal paralysis is not, as Erb is inclined to believe, necessarily dependent upon a system disease of the spinal cord.

2.—Copper and Zinc Poisoning, Brass Poisoning.—M. H. Sicard, who has investigated the condition among workingmen in various foundries, describes the technical processes employed in the production of copper, zinc and brass, and the toxic effects to which the workmen engaged in them are subject. Copper smelting is a dangerous occupation, because of the tremendous amount of dust which rises from the fire when feeding the furnace, and men cannot work long in this position; they contract both the lighter and more severe pulmonary diseases; when the ore runs a high percentage of lead and arsenic, cases of severe poisoning occur and paralyses are not uncommon. As zinc occurs with sulfur, lead and arsenic as impurities, the effect of zinc roasting is similar to that of copper, with the addition of the socalled ague seizure and its accompanying symptoms. The chills occurring in brass workers are due to the zinc for the following reasons: Copper oxid is not volatile, while zinc oxid is very readily volatile; chills do not occur among melters of pure copper; in the roasting of zinc ore the men suffer from similar symptoms; chills do not occur while making bronze, which contains much copper and but little zinc; workers in zinc oxid suffer from a like complaint. The respiratory influence of brass making in the course of time is bad, but depends largely upon the means of ventilation; the respiratory effect of polishing is not bad, providing the workers are protected by the proper suction apparatus; under poor conditions both occupations can lead to serious results. Working over the sulfuric acid bath is the most dangerous part of the trade. Sand blasting is detrimental to health, corresponding to the dangers of stone cutting.

3.—Rheumatism of the Feet.—L. W. Ely says that one of the commonest affections giving rise to pain in the feet is flat-foot. Another is anterior metatarsalgia, or Morton's toe. Gonorrheal arthritis or periarthritis of the ankle has often been observed, and Ely says that there is a form of gonorrheal infection characterized by extreme sensitiveness about the sole, to which he gives the name of gonorrheal foot. The pathology of this affection is still a matter of doubt. Hysteria may simulate rheumatism of the feet, and tuberculosis of the ankle and tarsus must also be carefully excluded, as any circumscribed persistent, painful swelling in the foot, especially of a child, is to be viewed with extreme suspicion. The sequels of fractures, and the pains of late syphilis or of locomotor ataxia must also be kept in mind. Gout and acute rheumatism itself close the list of such affections; acute articular rheumatism never leaves behind it a damaged joint. In treatment the chief adjuvants required are zinc oxid plaster, plaster-of-paris, a few drugs, and some assistance from the brace maker and shoemaker.

4.—The Gases of the Body.—L. H. Watson says some of the gases, like oxygen, nitrogen, and carbon dioxid, are essential to our existence, but others are waste products, and appendicitis, intestinal obstruction, ovarian disease and heart troubles may be simulated by their presence in the intestinal tract. Nitrogen, oxygen, carbon dioxid, sulfureted and carbureted hydrogen, and marsh gas are the principal gases of the body. Carbon dioxid is the greatest in volume and the most widely diffused. It has usually been designated as a poisonous gas, but modern physiologic chemistry takes a different view, and it can be considered poisonous only when it is an obstruction of respiration. Large amounts may be found in the stomach and bowels in health, and still more in neurotic conditions, but its coefficient of absorption is high and but little inconvenience results. Lactic, acetic, and butyric acid fermentation, and the decomposition of fats, proteid matter and cellulose, are all concerned in the formation of intestinal gases. When loops of gut are strangulated, first water and later gas form in them, giving rise to meteorism. Phantom tumors are of this order. Headache, vertigo and nausea are often the result of the presence of sulfureted hydrogen in the bowel, and the formation of intestinal gases must be controlled by proper management of the diet.

5.—Early Recognition of Valvular Disease in Children.—A. E. Child speaks principally of valvular disease of rheumatic origin. Rheumatic endocarditis is an inflammation of the lining membrane of the heart commonly confined to the valves, manifested by stiffness or pain in the joints or tendon sheaths, or in any of the muscles of the body, from the most trivial or obscure form to a wellmarked arthritis. It is usually accompanied by rapid heart action without regard to intermittency or irregularity, a low grade of fever, oftentimes but a half degree, a soft blowing, usually systolic murmur at the apex of the heart, and by a wellmarked leukocytosis. Endocarditis in children is very often overlooked in its early stages because the manifestations of rheumatism in children are usually very obscure. They may appear only as the socalled wandering or growing pains, or there may be only stiffness, or definite joint

pains alone, or joint pains plus swelling and redness. Any muscular pain, no matter how slight or where located, may mean an associated endocarditis. The various other symptoms, such as the pulse-rate and temperature, murmurs, etc., are discussed from the standpoint of early diagnosis. In treatment especial attention must be paid to the heart muscle, by rest, and general systematic treatment to prevent anemia and malnutrition.

6.—Fibroma of the Ileum.—H. A. Royster gives the history of a man of 42, who for about six months had suffered from symptoms pointing to a progressive growth of the intestine. Finally there came an attack of obstruction, which on opening the abdomen was found to be caused by an invagination of the ileum secondary to the presence in the gut of a pedunculated fibroma, the size of a walnut. This was removed through a longitudinal incision by excising the ellipse of mucous membrane surrounding its base, and the intestinal wound closed with three rows of continuous sutures of silk, one for each coat and an extra interrupted Lembert stitch on the peritoneal coat. The patient made a good recovery. Royster emphasizes the value of exploratory laparotomy in such cases instead of assuming that the growth must be malignant and therefore inoperable.

New York Medical Journal.

July 29, 1905. [Vol. LXXXII, No. 5.]

1. The Treatment of Pott's Disease, and of Rotary Lateral Curvature, by the Plaster-of-Paris Jackets and the Aluminum Corset. CHARLES OGILVY.
2. How to Palpate a Movable Kidney. CHARLES D. AARON.
3. A Further Contribution to the Study of Pruritus Ani, with Special Reference to Its Local Treatment. LEWIS H. ADLER, JR.
4. The Simulation of Appendicitis by Cholelithiasis. GEORGE GUSTAVE LEMPE.
5. A Case of Lithemic Gangrene, a Contribution to Haig's Uric Acid Theory. (Concluded.) NATHAN ROSEWATER.
6. Some Suggestions on the Treatment of Morbid Psychic States. WILLIAM LEE HOWARD
7. A Case of a Cyst and Hydrocele of the Canal of Nuck. B. S. TALMEY.
8. Lectures on the Diseases of the Blood. JOHN M. SWAN.

2.—Movable Kidney.—C. D. Aaron gives the general rules to be observed in palpating a movable kidney. Bimanual palpation is always necessary. The hand over the lumbar region forces the organ forward, while the hand on the abdomen gently presses toward the hand on the back. Firm pressure is the rule for the hand on the back. The abdomen of the patient should be brought before examination into a state of as complete relaxation as possible. Aaron usually places the patient in four different positions: 1. Standing, while manipulator sits on a chair. 2. Standing, while manipulator stands. 3. Lying on back, while manipulator sits on edge of couch. 4. Lying on either side, depending upon kidney palpated, while manipulator is sitting. [C.A.O.]

3.—See *American Medicine*, Vol. X, No. 1, p. 11.

4.—The simulation of appendicitis by cholelithiasis is discussed and an interesting case reported by G. G. Lempe. The case is that of a man of 47, who had been treated for three days for appendicitis. His temperature was 99.2° F., pulse 120, and respirations rapid. He had nausea and vomiting and board-like rigidity of the abdominal wall on the right side. There was tenderness and severe pain in the right iliac region, which extended to the lower border of the ribs. This patient had had typhoid at the age of 17 and since then at intervals he suffered from severe attacks of biliary colic. On opening the abdomen the appendix was found normal. The gallbladder was found to be about eight inches long and pendulous. Over 670 gallstones of the bilirubincalcium variety were removed. Drainage was instituted and later 130 additional gallstones were passed from the wound. Perfect recovery followed. [C.A.O.]

5.—Lithemic Gangrene.—Nathan Rosewater reports the case of a man of 64, emphysematous, rheumatic for 35 years, for the past eight years suffering with asthma and bronchitis, with a history of previous superficial gangrene. He is treated for gangrene of the anterior right tibial surface by elevation, antisepsis, heat, and a lactocereal diet. Discharged cured in six weeks. Advised to continue the diet (antilithemic), soon reports that his asthmatic difficulty is decidedly relieved; six weeks later, while on this diet, but three hours after eating a beefsteak, a violent pruritus develops. Relief and cure follow return to the lactocereal diet, but after two months he develops a superficial gangrene of all toes but the third of the right foot. He had observed the diet except that for fully a month he had twice daily a cup of beef tea. The flesh sloughed off, but reformed on the indicated treatment and diet. Seven months later he complains of loss of memory and mental unbalance. His diet was kept up, except that he was daily drinking tea and coffee. On strict observance of the diet, omitting tea and coffee, he has remained well now for over 17 months. The author says that as yet there is nothing to show that Haig has been refuted in the principal lines of his research, especially that uric acid and its congeners (the xanthin series) are not factors in disease, whereas, to the fact that they are so, a vast array of observations, clinical as well as experimental, is accumulating, tending to corroborate Haig's views. [C.A.O.]

7.—A case of a cyst and hydrocele of the canal of Nuck is reported by B. S. Talmey as occurring in a woman of 32. The condition had existed for nine years and had been mistaken for hernia, but during the internal examination, while replacing the uterus in the front, the author noticed that the tumor increased in size and became tighter. This showed that the external tumor was in connection with the internal genitals. The condition found at the operation confirmed the diagnosis in every point. [C.A.O.]

Medical News.

August 5, 1905. [Vol. 87, No. 6.]

1. Beginnings of the Psychoses. W. K. WALKER.
2. Galvanism as a Curative Agent in Nervous Diseases: The Importance of Equipment and Technic. WILLIAM BROADDUS PRITCHARD.
3. Appendicitis: Medical and Surgical. R. R. KIME.
4. An Attempt to Adapt for Clinical Purposes the Tests for Electric Conductivity of Urine. G. KOLISCHER and L. E. SCHMIDT.
5. Stricture of the Urethra: Preliminary Note on a Tunneled and Grooved Sound and a Tunneled and Grooved Catheter for Dilation. VICTOR COX PEDERSEN.
6. Cystic Kidney and Liver. (Concluded.) HERMAN A. REQUE.
7. On Ascending Currents in Mucous Canals and Gland Ducts and Their Influence on Infection: A Study in Surgical Pathology. C. J. BOND.

2.—Galvanism in Nervous Diseases.—W. B. Pritchard makes this statement regarding the treatment of peripheral nerve diseases: "Rest, environmental changes, control of morale, massage and passive exercises and assistance from drugs are among the more important and legitimate resources generally recognized. Add to these in appropriate cases galvanism and count it as of equal importance and value as an adjuvant and you have my personal estimate of its therapeutic status." He gives an illustrated description of the apparatus required and the necessary technic to ensure good results. Especially decried is the use of the ordinary small electrodes generally furnished by instrument makers. [A.G.E.]

3.—Appendicitis.—R. R. Kime asserts that the average surgeon will save more lives by operating only on the severe cases of appendicitis within the first 48 hours and those that suddenly grow worse after a few days of improvement, performing the interval operation on all that do not completely recover from the first attack and in relapsing cases. The remainder of cases should be left to judicious medical treatment, which, properly conducted, should have a deathrate of not more than 2% to 5%. There is also a field for medical treatment in many cases after the appendix has been removed, in correcting the original cause of appendicitis or looking after existing complications. [A.G.E.]

4.—Electric Conductivity of the Urine as a Clinical Test.—G. Kolischer and L. E. Schmidt describe what they believe to be a functional test of the kidney, the electric conductivity of the urine being determined before and after the administration of indigo-carmin. In the case of normal kidneys, the stain diminishes conductivity, but never more than 9 ohms. Diseased kidneys are shown by a decided increase in conductivity after the stain appears in the urine; those which may be considered safe in a surgical sense, in that they have not produced heart and general symptoms, do not show an increase above 20 ohms. When this limit is exceeded, the kidney is regarded as entirely unsafe. A normal kidney, with eliminating power temporarily impaired by an infected mate, secretes urine of high electric conductivity, but the decrease

after giving the stain does not exceed 9 ohms, the range of the normal organ; after the diseased kidney is removed, the conductivity again returns to the ordinary level. [A.G.E.]

5.—Improved Sound and Catheter for Urethral Dilation.—V. C. Pedersen describes and illustrates a sound that has given him satisfaction in the way of convenience and efficiency. The features relate to the curve, taper, tunnel, and groove of the sound. With it, most strictures can be dilated to at least 10 F. with very little inconvenience to the patient. Usually in from four to six weeks dilation is carried to the point where a filiform becomes unnecessary. [A.G.E.]

6.—Cystic Kidney and Liver.—H. A. Reque concludes an article dealing mainly with the histology and causes of cystic kidney. Detailed notes of seven cases are given. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN
NORMAN B. GWYN
A. O. J. KELLY
BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Mediterranean Fever and Micrococcus Melitensis.—The first part of the series of reports on Mediterranean fever, which is in course of preparation by the commission appointed for its investigation by the advisory committee of the Royal Society (London), has just been issued. This installment consists of four individual reports. The first two are by Major Horrocks, R.A.M.C., and deal with the saprophytic phase of existence of the causative organism (*Micrococcus melitensis*) outside the human body. He has found that this microorganism will retain its vitality in sterilized tap-water for 37 days, in dry soil for 43 days, and in moist soil for 72 days. He has found it possible to isolate the micrococcus from the urine of affected patients; but not from the sweat, feces, or expired air. Experimental investigation has proved that this micrococcus finds its way into the circulation of monkeys which have been served with food containing it, or exposed to the inhalation of dust in which it was suspended; and produces in them the characteristic symptoms of the specific disease. The results of detailed experiments on the isolation of *Micrococcus melitensis* from the blood are described in detail by Staff-Surgeon Gilmour, R.N., and Dr. Zammit; and further researches in the same direction are described by Staff-Surgeon Shaw, R.N., who has also conducted an elaborate series of experiments on animals with the micrococcus—both taken directly from the circulation, and from carefully prepared cultures. The investigation is undoubtedly one of great interest and importance, especially when taken, as it will be, in connection with the series of illuminating waves of light which are just now concentrating themselves—from so many directions—on the formerly mysterious features of the various tropic fevers.

REVIEW OF LITERATURE

Serum Reaction in the Diagnosis of Tuberculosis.—G. Sabareanu and M. Salomon[1] have employed the method of Arloing and Courmont in 300 cases. They find it negative in advanced chronic pulmonary tuberculosis and frequently positive in the earlier stages of this lesion and in other tuberculous processes in evolution. In acute infections it is ordinarily positive. Some suspected persons in whom the reaction was positive have later developed tuberculosis; this has never occurred in similar cases giving a negative result. The method, they believe, should be regarded as an important diagnostic aid but is to be used only in conjunction with other clinical findings. Even if the absence of a positive reaction does not remove all suspicion of tuberculosis, the marked and constant agglutination in an apyretic person should be taken to indicate the presence of the disease, especially if supported by any feature in the general condition of the patient. [A.G.E.]

[1] Revue de Medecine, July 10, 1905.

Vitality of the Typhoid Bacillus in Shellfish.—E. Klein[1] has performed a number of experiments showing that oysters readily take up into their interior *B. typhosus* from the shell or surrounding water. Those clean at starting rapidly clear themselves of these if the water is frequently changed, they do it more slowly if kept out of water. Oysters from a polluted locality clear themselves to a less extent and at a slower rate if kept in clean sea water; if kept dry they retain the bacilli still longer. The "clearing" must be due to the power of the oyster to devitalize the microbe. The experiments with "dry" oysters prove this, as also the rapid rate at which the microbe disappears from oysters kept in clean water compared with the number found in the surrounding water. Experiments in reinfecting dry oysters after they had cleared themselves also demonstrated a lower degree of vitality than in those kept in water. That *B. coli* is foreign to the oyster is shown by its rapid destruction even when the oyster comes from a polluted locality. The oysters presented at no time any sign of infection, except some from a polluted locality kept eleven days out of water. Cockles readily embody *B. typhosus*. When removed from infected water and kept in clean sand the bacilli exceeded 3 times the number initially present, and subsequent diminution was very slow. Mussels also readily embody this organism and get rid of it more slowly than the oyster. [H.M.]

Hypertensive Crises in Arteriosclerotic Subjects.—J. B. Briggs[2] says in the majority of arteriosclerotic patients whose albuminuria is at all a cause for anxiety, the clinical measurement of blood-pressure is capable of furnishing an early danger signal. The prenephritic stage, if the term be permissible, is never so frequently recognizable as in the subjects of generalized arteriosclerosis; traces of albumin in the urine may be detected at a time when the kidney has suffered no irreparable structural damage. Notes of four cases are given as illustrative of the points mentioned. They also justify the statement that intermittent attacks of hypertension of the pulse and concomitant albuminuria, separated by longer or shorter intervals of normal blood-pressure during which the urine is normal, may be the only clinical expressions of a generalized arteriosclerosis. In a certain number of cases we may reasonably hope by therapeutic relief of hypertension to postpone the onset of chronic renal changes. [A.G.E.]

Value of Milk Solids Poor and Rich in Fat.—C. L. Beach[3] found that to produce one pound of gain in weight in calves, pigs and lambs, more total solids were required with milk rich in butter fat than with milk poor in fat. Serious digestive disturbances occurred in pigs fed large quantities of rich milk. The results were apparently due, not to lack of nitrogenous material, but to the excess of fat or the character of the fat. Larger fat globules were found in the richer milk; this, with the digestive disturbances, seems to indicate the reason for the larger gain from a pound of solids with the poorer milk. Fat globules in human milk are smaller than those in cow's milk; if it is safe to reason by analogy from the animal to the human, it appears that whole cow's milk containing a moderate percent of fat is better for infant feeding than is a whole milk high in fat content. [A.G.E.]

The Amylolytic Action of Urine.—G. H. Clark[4] reports experiments showing that this action is not due to urea, that it does not occur when the urine is alkaline, that thymol in germicidal quantities does not affect it, that prolonged boiling destroys the amylolytic substance, that the precipitate obtained by alcohol is much less active, and the extract obtained by glycerin more active than the urine itself, and that the substance acts best in a medium almost neutral. The presence of chlorids, phosphates, or sulfates has no effect. These results point to the presence of an enzyme. When starch was added to diabetic urine in which the sugar had been previously destroyed by fermentation, no sugar was detected showing that this urine contained no ferment, unless it had been killed by the yeast. Were this substance retained in the blood instead of being eliminated by the kidneys the carbohydrates there

[1] Medical Press and Circular, March 15, 1905.
[2] American Journal of the Medical Sciences, August, 1905.
[3] Storr's Agricultural Experiment Station, Bulletin 31, November, 1904.
[4] Glasgow Medical Journal, June, 1905.

might be hydrolysed into sugar and the diabetic condition result. Where the enzyme is secreted cannot at present be stated. [H.M.]

The Negative Value of Kernig's Sign.—R. N. Willson[1] tested the presence of this sign in 120 cases, 73 adults and 47 children under 10. Each showed complete absence of meningeal symptoms. Kernig's sign was present in 29 adults and three children. This leads to the conclusion that the sign is by no means a positive indication of either meningeal, brain, or cord involvement, but that when present in association with other signs of meningitis it may be looked upon as in a high degree confirmatory. In the majority of cases it persists far into convalescence, and in certain cases it probably remains as a permanent indication of a former undetermined lesion. [A.G.E.]

GENERAL SURGERY

J. CHALMERS DACOSTA, JR.
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Perforation of Gastric Ulcer.—The observations of E. Haim[2] cover 80 cases of perforation of gastric ulcer, taken from the literature and his own experience. Many more cases occurred in women than in men. In the former, by far the larger number occurred between the ages of 20 and 30, while among the males most cases occurred between 20 and 50. This corresponds with the views concerning the relation of chlorosis to gastric ulcer in women, and that of dietetic errors to the condition in men. Regarding the etiology of perforation, it was found that increase of intraabdominal pressure, as in lifting heavy loads, etc., was of considerable importance; but the amount of gastric contents seldom played an important part. Warning of perforation is frequently given by a sudden exacerbation of symptoms, or their sudden onset after a period of latency. The symptom-complex of perforation may be acute or chronic. The symptoms of acute perforation are divided into three phases: (1) Those of the perforation itself; (2) those referable to the mechanical insult comprised in the flow of gastric contents into the peritoneal cavity, and (3) those of general or local peritonitis. The first symptom is a severe, boring or lancinating pain, usually localized in the epigastrium, but later becoming more generalized. Tenderness usually corresponds with the pain. Vomiting is a frequent symptom, caused reflexly at the moment of perforation; later, in the third stage, it may be a symptom of the peritonitis. In many cases collapse occurs at the time of perforation, but may also be a later symptom of peritoneal irritation. A quiescent period often follows the first violent symptoms. Rigidity of the abdominal muscles is an almost constant symptom of perforation into the peritoneal cavity; while at the same time a swelling of the abdomen occurs, due to intestinal paralysis. Disappearance of liver dulness has little significance, in the author's opinion. Dulness in the flanks occurs only when gastric contents are poured in large quantities into the peritoneal cavity. Temperature, pulse and respiration follow the lines typical of peritonitis. Regarding the seat of perforation, the author says that the anterior wall and greater curvature are the seats of predilection, the ulcers of the lesser curvature having the least tendency to perforate. The most common result of perforation is a general, acute peritonitis, although a subacute or chronic perigastritis may also occur. A chronic perforation comprises a slowly perforating ulcer, accompanied by the gradual formation of inflammatory tumors in neighboring parts, with frequent colicky pains and vomiting. The diagnosis of a perforating gastric ulcer is usually easy at the time of perforation; when diffuse peritonitis has already occurred, the diagnosis often rests on the history of the previous symptoms. Although spontaneous cure has occasionally been reported, the prognosis of this condition usually depends upon the promptness of surgical intervention. After opening the abdomen, one of five procedures may be followed: (1) Closure of the ulcer; (2) resection and closure of the ulcer; (3) covering of the ulcer with neighboring tissue; (4) gastroenterostomy or jejunostomy; (5) tamponade. [B.K.]

Intussusception in Infancy and Childhood.—J. H. Hess[1] reports 3 cases and gives a very instructive review of the subject based on 1,028 cases. The condition demands immediate treatment. Irrigations may be tried under proper conditions and in properly selected cases. The proper conditions are: 1. Preparation for immediate laparotomy in case of failure. 2. Complete anesthesia. 3. Fluid must be under pressure of not more than 3 feet and allowed to remain in the bowel not less than 10 minutes. Contraindications to irrigation are: 1. Recurrence after complete or partial reduction. 2. Very acute and severe type of affection. 3. Signs of beginning gangrene. Laparotomy should be performed without delay after failure of irrigation. Simple reduction from below upward should be attempted, and if this fails, resection within the bowel in selected cases or resection with end-to-end anastomosis should be performed if the patient's condition warrants. An artificial anus or simple packing about the bowel requires a secondary and too frequently fatal operation. [A.G.E.]

Treatment of Noncancerous Stenosis of the Pylorus by Gastroenterostomy.—The various operations employed in the treatment of this condition are: (1) Resection of the pylorus; (2) pyloroplasty; (3) gastroenterostomy. According to F. Fränkel,[2] resection of the pylorus is a much more dangerous operation than the others, while pyloroplasty is applicable only to a limited number of cases. Gastroenterostomy is the most widely applicable operation of all. There are two varieties of this operation, the anterior and the posterior form. The latter is the more recent operation, and consists of an anastomosis between the posterior wall of the stomach and the beginning of the jejunum. The operation of gastroenterostomy is not without its dangers, of which the most important are the occurrence of peritonitis, and the formation of a "circulus vitiosus." With the modern technic and the employment of the posterior operation, these are reduced to a minimum, and at least four-fifths of the cases recover. As a result of the operation the subjective symptoms and general condition of the patient undergo an immediate and permanent improvement. The motor function of the stomach also recovers, and in most cases the organ empties itself periodically as under normal conditions. The previous dilation of the stomach is reduced, and the chemic functions return to the normal. As the patients are usually in a weakened condition before the operation, the author recommends a preparatory treatment by means of nutrient enemas, hypodermoclysis, etc. General anesthesia is employed, but can be partially interrupted while the stomach is being sewed to the intestine, without giving pain to the patient. On the evening of the day of operation liquids may be carefully given, and the nourishment gradually increased in quantity and solidity. The existence of gastric catarrh or ulcers requires careful after-treatment. [B.K.]

The Teaching of Cystoscopy.—D. Newman[3] describes the technic of cystoscopy, furnishes 18 excellent drawings of ureteral orifices, and gives these conclusions regarding the diagnosis of renal disease: 1. When one ureter orifice only is altered, the renal lesion is on that side. 2. When urinary shoots are more frequent on one side (*a*) greater functional activity is indicated by the shoots being uniform in size and regular in rhythm; (*b*) undue irritation of the kidney is to be inferred when abnormally frequent shoots are irregular in rhythm, unequal and small in size; (*c*) shoots distorted in form or irregular in amount should lead to the suspicion of stricture, stone, or ureteritis. 3. When the urine does not escape in distinct jets (*a*) dilation of the ureter without destruction of sphincter is indicated by dribbling at intervals, and with destruction by almost continuous flow. 4. The character of fluids escaping indicates the lesion of the kidney. 5. The deformity of the orifice also points to the type of renal disease; (*a*) pinhead contraction, chronic inflammation or impacted calculus; (*b*) elongated and distorted, distension of renal pelvis or infective nephritis; (*c*) swollen or pouting, prolonged

[1] American Journal of the Medical Sciences, August, 1905.
[2] Zeitschrift für Heilkunde, Bd. xxvi, Abth. f. Chirurg., Heft 1 and 2, pp. 88 and 129.

[1] Illinois Medical Journal, July, 1905.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 189.
[3] The Practitioner, July, 1905.

but not acute inflammation of renal parenchyma; (*d*) dilated, advanced tuberculous or calculous pyonephrosis; (*e*) U-shaped, significance doubtful, but usually denotes prolonged irritation of renal pelvis. [A.G.E.]

Occurrence of Tympanitic Regions in Fluid Accumulations in Pyopneumothorax.—According to Bäumler,[1] the occurrence of areas of tympany in the midst of fluid accumulations in seropneumothorax and pyopneumothorax, is not infrequent, and is often difficult to explain. He reports in detail several cases of this character, with explicit diagrams. These cases show that no single explanation will do for all of them, and that the tympany may be due to any of the following conditions: 1. A partially compressed lung, adherent to the chest wall, may give the tympanitic percussion note, especially if the latter is found in the lower part of the chest, anteriorly or laterally. 2. If, as a result of previous adhesions, the lung is unevenly compressed by the pneumothorax, some of the air of the latter may be enclosed by the adhesions, and covered by a thin layer of fluid or airless lung tissue. 3. If a fibrinous membrane is formed, air bubbles may become temporarily caught in the meshes of the fibrinous network, and thus give rise to tympany in unusual situations. 4. Under certain conditions of tension and direction of the percussion stroke, the tympanitic note of a large, overlying air space may be transmitted through the fluid; this explanation applies especially to the tympany arising in the posterior lower part of the thorax. These considerations are of practical importance for the reason that these areas of tympany occur usually in just those places where paracentesis is often performed. The thought of underlying lung tissue might deter the physician from performing this operation under such conditions. But a consideration of the reported cases shows that when the tympanitic areas persist for some time and over the same extent, fluid may be found directly behind the chest wall, even within their boundaries. [B.K.]

Fracture of the Beak-shape Process of Upper Epiphysis of the Tibia.—H. F. Cassidy[2] reports two cases of this fracture to which Schlatter called attention in 1903. The first patient is 15, the injury, in this instance bilateral, being received four years ago by falling forward while playing football. Skiagraphs show that union has occurred. Discomfort, which is still felt in the right knee is explained by the presence of new periosteal bone over the base of the beak-shape process. The second boy, also 15, fell on his right knee three years ago. Skiagraph shows a healed fracture of the beak with irregular bone formation between the beak and shaft and beneath the periosteum over the tubercle. There is still some tenderness, but not enough to interfere with function. Neither boy suffers enough to desire treatment. In discussing these cases, Bloodgood said he believes this injury of the tibia before ossification is frequently overlooked. Reported cases indicate that if these cases are recognized and treated as fractures, the patient will be relieved of a very long period of discomfort which has been observed in all untreated cases. [A.G.E.]

Spontaneous Perforation of the Gallstone-containing Gallbladder into the Free Peritoneal Cavity.—A. Hallet[3] reports two such cases, recovery ensuing after operation. He discusses these cases in connection with 13 others, which he collected from the literature and of whom 9 recovered. The point of rupture in most instances was the inferior surface of the gallbladder. The size of the rupture varied greatly, but there was always but one point of rupture. The organ differed greatly in its anatomic state, in some cases its walls being thin, in others thick; in some friable, in others atrophic and sclerosed. Adhesions and localized peritonitis were more common than a generalized primary peritonitis, the latter ensuing rapidly however after the rupture was complete. The gallstones through pressure and local irritation produce ulceration and necrosis of a distinct point in the gallbladder, a weakened spot thus being created, which at times was sufficient to produce the perforation; in most cases the perforation was ultimately produced by increased extraabdominal pressure (cough, vomiting, etc.), or through a stone closing off the duct, thus increasing intravesical pressure. In such cases a history of gallstones has usually preceded the rupture and at the moment of rupture the patient experiences violent pain in the right hypochondrium followed shortly after by signs of general peritonitis; but the diagnosis is difficult, if no biliary symptoms have existed, if the onset is while the patient is in good health or if no symptoms of rupture precede the peritonitis. In such instances, appendicitis, intestinal obstruction and perforation are thought of sooner than perforation of the gallbladder. The prognosis, while usually grave, varies, depending on the virulence of the bile and the resistance of the individual peritoneum. The treatment is entirely surgical; immediate laparotomy followed by cystostomy and drainage, or if the ulcerative process is large, cystectomy is the only procedure capable of affording the patient relief. [E.L.]

The Present Status of Spinal Anesthesia.—A. Bier[1] believes that spinal anesthesia has come to stay, and that the chief objections to its use are being gradually overcome. One of the most important objections was the toxicity of the cocain. The recent discovery of a nontoxic substitute for this drug, the "stovain" of Fourneau, removes this difficulty. Bier has tried stovain in 102 cases; unfavorable symptoms occurred in only a few cases, and were always evanescent and unimportant. Two deaths from meningitis following its use have been reported, but the reasons for this unfavorable termination are not clear. In the use of cocain in spinal anesthesia, better results have followed the simultaneous injection of suprarenal preparations, which seem to limit the toxic action of the drug. The author has used this combination in 305 cases, without a single bad result. He also advocates combining the suprarenal preparations with stovain, if for no other reason than to prolong the duration of the anesthesia. Spinal anesthesia is indicated (1) in old and debilitated patients; (2) in operations on the field of battle; (3) in veterinary surgery; and (4) in experimental physiology. [B.K.]

Laparotomy in Peritoneal Tuberculosis.—When the operation of laparotomy was first advocated as a cure for peritoneal tuberculosis most sanguine views were entertained as to its efficiency. Later investigations, however, have somewhat reduced the claims of benefit from this procedure. According to Goeschel,[2] previous statistics have often been more or less falsified by the fact that milder and uncomplicated cases of peritoneal tuberculosis are often cured spontaneously. Other cases that are reported as cures at the time of operation may subsequently suffer from recurrence of the disease. The operation has the most favorable influence in the exudative form, less influence in the adhesive and neoplastic forms, and has practically no effect in the suppurative, ulcerous form. Tuberculosis of the intestinal mucous membrane has a bad influence on the prognosis, and laparotomy is of no use with this complication. The author reports 19 cases of peritoneal tuberculosis operated upon, of which two-thirds were adults—a fact that influences unfavorably the prognosis. The more serious forms predominated. Sixteen percent of the cases had no return of the disease after three years, and were therefore counted as cures. This percentage is considerably lower than that given by most observers. The author concludes that laparotomy is a valuable measure in the treatment of peritoneal tuberculosis, but that the prognosis as to permanent cure must be guarded. Of considerable importance in making the prognosis are the form of the disease, the general condition, the duration of the disease, the age, hereditary relations, and especially complications of other organs. [B.K.]

Elimination of Smegma Bacilli in Cases of Suspected Genitourinary Tuberculosis.—H. H. Young and J. W. Churchman[3] find that washing the glands and irrigating the anterior urethra is a sure means of eliminating, in the male, the smegma bacillus as a confusing factor in the microscopic diagnosis of genital and urinary tuberculosis. This is possible for the reason that smegma bacilli are not found in the bladder or posterior urethra. No method of stain-

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 11.
[2] Maryland Medical Journal, August, 1905.
[3] Revue du Gynecologie, Vol. viii, 821.

[1] Archiv für klinische Chirurgie, Bd. lxxvii, p. 198.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 143.
[3] American Journal of the Medical Sciences, July, 1905.

ing now known serves to distinguish positively between smegma and tubercle bacilli. Catheterization does not surely avoid contamination and animal inoculation is tedious. The technic of the irrigation employed is given as are also tables showing the results of elaborate experiments upon which the claims for the method are based. [A.G.E.]

The Curability of Hernia at All Ages by Operation.—E. Deanesly[1] advances the view that hernia is essentially the result of a continued existence of a vestigial peritoneal sac and is readily curable by any operation which completely removes this sac, without injuring other structures. He supports this view by an analysis of 142 operations, in 95% of which a permanent cure had resulted, as shown by inquiries made two years or more after operation. The cure was independent of age of the patient or of size or duration of the hernia. Where recurrence takes place, it nearly always occurs within the first six months: hence, the author believes two years to be a safe limit, after which the hernia is not likely to recur. He prefers Kocher's operation, as being the simplest, most rapid, and easiest to perform. It is also applicable to all forms of hernia and to all cases. Whenever a recurrence took place, it almost always resembled precisely the original hernia, and was probably due to a failure to obliterate completely the original peritoneal pouch. [B.K.]

Appendicitis in Children.—R. C. Dun[2] believes that appendicitis is not, as is supposed by some, an uncommon disease in children; that it does not at first tend to be of a more serious type than in adults, but the slighter cases are often difficult to diagnose, and are therefore apt to be overlooked. He urges closer attention to recurrent attacks of colic, and points out the frequency with which diarrhea and bladder irritation are associated with appendix inflammation in childhood. When several slight attacks of appendicitis have occurred, removal is the safest treatment. When localized peritonitis is present, operation should be delayed until the quiescent period, but pus formation must be carefully watched for. Abscess demands immediate operation, but undue risks should not be run in attempting the removal of a firmly adherent appendix under such circumstances. Purgatives and opium are best avoided. [H.M.]

New Technic of Rachicocainization.—M. Le Filliatre[3] describes his technic for inducing spinal analgesia with cocain. Its use is said to confer absolute immunity against after-symptoms, both subjective, as vomiting, headache, and backache, and objective, as elevation of temperature and relaxation of sphincters. Puncture is made in the sacrolumbar space, because it is more convenient, and also because there is less danger of wounding the filaments of the cauda equina. The principal point in the technic is the drawing off of 10 cc. (2.5 dr.) of cerebrospinal fluid before the 1 to 50 cocain solution is injected. When the fluid is under such pressure, it spurts from the needle, it is allowed to run until the flow is reduced to drops, then 10 cc. is measured. The rule may be stated thus: Draw off 10 cc. after the fluid escapes drop by drop, whether this is from the time of puncture or after a quantity has been discharged. This technic has worked well in 452 cases. [A.G.E.]

A Peculiar Bone Disease of Childhood.—F. Spieler[4] reports the case of a 3-year-old child, in whom had occurred a gradual and painful thickening and bending of the long bones, with swelling of the knees and heels, and clubbed fingers. Röntgen-ray investigation showed that the thickening was due to the formation of successive layers of osseous tissue, affecting only the diaphyses. The joint swellings were due to changes in the soft parts. The bones of the trunk and face showed no changes. The cranial bones, however, were thinner than normal, the sutures and fontanels were wide open, and elliptic defects were observed in the course of the lambdoid sutures. After a careful investigation of the differential diagnosis, the author classifies this affection with the group of ossifying osteoperiostitis of toxic origin (Marie-Bamberger's osteoarthropathic hypertrophiante). [B.K.]

[1] British Medical Journal, June 17, 1905.
[2] Glasgow Medical Journal, June, 1905.
[3] Journal de Medecine de Paris, July 16 and 23, 1905.
[4] Zeitschrift für Heilkunde, Bd. xxvi, Abth. f. Chirurg., Heft 2, p. 206.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

EDITORIAL COMMENT

The Oxytocic Power of Sugar.—Among the various means of accelerating labor and delivery, such as abdominal frictions, hot vaginal injections, rupture of the membranes, and stimulation of the uterine muscle by quinin sulfate, etc., there is none more simple nor more effective than the use of sugar given internally. As is known, sugar is the all-important factor of muscular energy; at the end of pregnancy it is rapidly absorbed on account of hepatic insufficiency; in other words, it arrives without any trouble in the uterine muscle and immediately gives it force. In 1898 Keim pointed out the great advantage of the administration of sugar or lactose in slow labors, and quite recently Marquis and Keim himself have again taken up the question. Three doses of lactose of 25 gm. each should be administered at half-hour intervals, each dose being dissolved in half a glass of water or milk. If lactose cannot be procured, five lumps of commercial sugar, which amounts to about 25 gm., and consequently equals a dose of lactose, may be given. At the hands of Keim small doses in a concentrated solution have produced more rapid and constant results. Sugar has only a slight influence on uterine contraction before the commencement of labor or dilation of the cervix after labor has begun. On the other hand, at the beginning of dilation, and if this period becomes prolonged, sugar will rapidly increase both strength and frequency of the contractions. According to Marquis, the duration of the period of dilation and expulsion was, in 21 women, three hours and fifty minutes in primiparas and two and a half hours in multiparas. These figures are certainly favorable when one considers that sugar was only given in cases of uterine inertia during the period of dilation. Later on, when dilation was more complete, so that the os had attained the size of a silver dollar, the muscular work affected was often quite considerable and necessitated some more doses of carbohydrates. Under these circumstances sugar exerted a most excellent influence and allowed the labor to terminate in a relatively short time, in an hour and fifteen minutes in the average. During the period of expulsion the same success was obtained when labor became slow. If the only causes of a slow labor are due to uterine or abdominal inertia, and when no mechanical obstacle exists, if sugar be administered will increase the strength of the contractions as well as of the patient herself, who consequently can then contract her abdominal muscles and thus gradually facilitate the delivery. The action of the sugar begins in from ten minutes to a half hour after its administration, but when labor is completed it has no influence on the placenta nor on uterine retraction. It is an inoffensive treatment, which for centuries has been known among the people and employed by midwives in various countries and can be experimented with in daily practice with considerable chance of success.

REVIEW OF LITERATURE

A Simple Method to Determine the Position of the Head in Small Pelves.—W. Thomass[1] recommends the bimanual method for the determination of the position of the head in the true pelvis. After the finger of the examining hand has reached the lowest part of the presenting head, the skin and soft parts are compressed above the symphysis with the fingers of the other hand and the distance between the two hands is expressed in so many fingers, thus showing the amount of the skull which has entered the pelvis. [E.L.]

Epithelioma of the Vulva.—H. Dittrick[2] contributes a very thorough review of this subject, covering the entire literature of 129 cases and adding 6 more. The tumor occurs in

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 14, 535.
[2] American Journal of the Medical Sciences, August, 1905.

approximately 0.22% of gynecologic patients. The youngest patient of the series was 20; the greatest frequency is between 61 and 70. The disease usually begins on the labium majus and oftenest on the right side. The types are vegetating and infiltrating; both may coexist. Histologically there are four classes: Scirrhus, medullary, cancroid, and melanocarcinoma. The average duration without operation is two years. Prognosis is bad. Return is almost inevitable. No case is on record in which the patient remained free from recurrence longer than six years. The best treatment is early excision of the vulva, with extensive dissection of the inguinal lymph-nodes on both sides. The röntgen rays are of little value in these cases. [A.G.E.]

Abdominal Panhysterectomy with Sagittal Slitting of the Cervical Stump in Cases of Myoma of the Cervix.—K. Reinecke[1] calls attention to a modification suggested by Dührssen in instances where myomas of the cervix and body of the uterus have to be removed. After the body of the uterus is removed the stump of the cervix is slit into the vagina in a sagittal direction and removed. One such case is reported; the uterus was the seat of a number of myomas, two being found in the cervix. The uterus was contracted into hour-glass shape and held firmly in the pelvis. After removing it, the cervix with its tumors was pulled up, split in two parts, and the myomas then enucleated. The posterior vaginal wall was incised for drainage. The patient recovered. [E.L.]

Climacteric Hemorrhage Due to Sclerosis of the Uterine Vessels.—A. H. F. Barbour[2] reports a case which throws light on a cause of profuse bleeding which has not received sufficient attention. He reviews also the few cases recorded in literature. The condition cannot be diagnosed during life, as we have no means of ascertaining the condition of the bloodvessels of the uterine wall, except that cureting will reveal the condition of the capillaries in the mucosa, which undergoes changes in endometritis. The state of the arteries in other parts of the body does not give information as to that of the uterine vessels, and arteriosclerosis is found in them without being present elsewhere. The only treatment is hysterectomy. [H.M.]

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

REVIEW OF LITERATURE

Moebius' Antithyroidin.—K. Thienger[3] treated 4 Basedow patients (3 women and 1 man) with Moebius' serum, giving 5 gm. (75 gr.) in sweet wine every two days; while the serum was given, no other medication was employed. In the cases of the women, the improvement was chiefly one of general subjective betterment. Objectively, the patient's weight increased, the pulse-rate was lowered, but the goiter was not altered in the least. The consistency and the pulsation of the goiter did not change in the least, neither did the exophthalmos. The amount of serum used in all three cases was small. The male patient was admitted in almost a dying condition. The case was of acute onset, and the patient sank very rapidly. Five days before admission, he was taken ill; four days after admission, he was believed to be dying; it was then that the serum was given in the doses mentioned above; with the fourth day, improvement was noticed, and in the end he was discharged entirely well. He received 120 gm. (4 oz.) of serum; no bad symptoms were noted at any time; the goiter disappeared, the pulse fell from 144 to 76, and all the other symptoms disappeared slowly. The author gives the entire credit of this to the serum. [E.L.]

Treatment of Exudative Pleurisy in the Course of Pulmonary Tuberculosis.—H. Doerfler[4] finds that the removal of a serous exudate in pulmonary tuberculosis of the same side is often followed by a cure of the tuberculous lesions. This result is probably produced by a hyperemia of the parts, caused by a removal of pressure from the compressed bloodvessels. This favorable influence is often wanting, owing, no doubt, to differences in the form of the disease. As every exudative pleurisy arouses the suspicion of tuberculosis, the author advocates paracentesis in every case in which the fluid persists for more than eight days. He raises the question whether it would not be advisable to produce, artificially, a hydrothorax in selected cases of tuberculosis, and to remove the fluid after the lapse of the stated interval. [B.E.]

Treatment of Ecthyma.—Ecthyma is an impetigo which has a tendency to ulcerate, because of streptococcic infection (Leredde[1]). Treatment consists of removing the crusts by means of compresses wet with boric acid or salicylic acid solution, the latter being used in the proportion of 1 to 1,000. The adjacent ulceration should be cleansed by means of an antiseptic solution. The diseased area may then be covered with antiseptic gauze, upon which the following paste has been spread:

Gelatin	15 gm. (4 dr.)
Glycerin	10 gm. (2½ dr.)
Zinc oxid	25 gm. (6 dr.)
Water	50 gm. (1½ oz.)

If the ulcerations are deep, a solution of silver nitrate, 1 to 15, may be applied and followed by the following antiseptic powder:

Boric acid, Salol	of each	10 gm. (2½ dr.)
Powdered talc, Lycopodium	of each	15 gm. (4 dr.)

Or:

Talc		10 gm. (2½ dr.)
Zinc oxid, Bismuth subgallate	of each	5 gm. (1 dr.)

The surrounding healthy skin should be protected by the following paste:

Zinc oxid, Starch, Lanolin, Vaselin	of each	10 gm. (2½ dr.)

Apply every morning.

Pilocarpin hydrochlorate	0.2 gm. (3 gr.)
Distilled water	10.0 gm. (2½ dr.)

Each drop contains $\frac{1}{60}$ gr. of pilocarpin. Eight to ten drops of this solution should be given at each injection. The patient should receive 12 of these injections in a period varying from 12 to 24 hours. If at the end of this time the patient is no better, the injections should be stopped, as the condition is probably incurable, After these injections, when sweating has stopped, the patient should be dried quickly, in order to prevent chilling. If amelioration is manifest, the treatment should be continued until 30 injections have been given; they may then be interrupted for a time and continued later. [L.F.A.]

Guaiacol and Potassium Iodid in Treatment of Rheumatoid Arthritis.—A. P. Luff[2] says rheumatoid arthritis early in the acute stage is curable; a great mistake is to diagnose it gout and put the patient on restricted diet. The diet should be as liberal and good as the patient can digest and animal food should be taken freely, though not to the exclusion of vegetables. The drugs found most useful are guaiacol and potassium iodid. The former is capable, in the great majority of cases, of arresting the disease, diminishing the size of the joints, and of permitting increased movements; it also markedly relieves pain. It is best given in the form of the carbonate in cachets. At first, 0.3 gm. to 0.6 gm. (5 gr. to 10 gr.) are given three times daily; this should be gradually increased until 1.0 gm. to 1.3 gm. (15 gr. to 20 gr.) are given. This treatment should be continued for at least 12 months. Potassium iodid, 0.6 gm. (10 gr.), three times daily, increases the effect of the guaiacol. Thermal treatment, massage, and counterirritation of the spine are useful adjuvants. [A.G.E.]

Olive Oil in Gastric and Intestinal Diseases.—Ferdinand Merkel[3] has used olive oil with success in several gastro-intestinal diseases that seemed to indicate operative treatment. Among the conditions that were favorably influenced by the oil were pyloric stenosis, with hyperacidity following ulcer;

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 14, 537.
[2] Scottish Medical and Surgical Journal, June, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, 15.
[4] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 251.

[1] Journal des Praticiens, Vol. xix, No. 3, p. 40, 1905.
[2] The Practitioner, July, 1905.
[3] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 299.

chronic duodenal (?) ulcers with hyperacidity, pure gastric ulcer, and hyperacidity with pyrosis. This line of treatment seems to be especially indicated by spasmodic closure of the pylorus from any irritative cause whatever, together with the loss of flesh and strength attendant upon insufficient nutrition. [B.K.]

Impure Santonin in Treatment of Sprue.—Charles Begg[1] calls attention to the value of impure yellow (or better dark-brown) santonin in sprue. His first observation of this fact came about through a mistaken diagnosis of lumbricoides. No worm passed, but the patient recovered. It is not the santonin that cures, but a by-product formed by the action of light on the white drug. He administers it in oil to carry it past the stomach. Keratin—coated capsules, were unsatisfactory. As to preliminary cleansing of the bowel and the number of doses of the active remedy, experience guides. As the first signs of improvement, a delicate fur appears over the bare patches on the tongue, and the stools become less bulky and of better color. At this stage betanaphtol, salol and the like, are useful, as also opium in some form to delay peristalsis. Regulation of diet, the use of bitters, iron, etc., must be adapted to the individual case. [S.S.C.]

Treatment of Epilepsy.—A. Strümpell[2] maintains that epilepsy is due to a permanent, abnormal condition of the cerebral cortex, and that the individual convulsions are caused by the sudden removal of inhibitory influences and the discharge of all the stored-up, motor impulses. The fundamental cause seems to be a disturbance of the internal economy of the cellular life. As we are still unable to reach this basic cause, our treatment of epilepsy must be purely symptomatic. The author believes that a spontaneous cure rarely, if ever, occurs. He is also very sceptical concerning "reflex epilepsy" from such causes as middle-ear disease, nasal conditions, etc. In the treatment of epilepsy it must be borne in mind that the convulsions are only one symptom, and that the psychic and general bodily condition of the patient also requires attention. The regulation of the patient's mode of living is of the utmost importance. All mental strains are to be avoided. Regarding diet, Strümpell does not favor either a pure vegetarian or a pure milk diet. He advises a sufficient, simple, mixed fare, avoiding too much meat and giving preference to vegetable foods. Strong roots and spices are to be avoided, and salt should be reduced to a minimum, without omitting it altogether. Alcohol and tobacco are forbidden, especially in all severe cases. Muscular activity must be regulated to suit individual cases, a rest cure being advocated for enfeebled patients, and methodic exercises for other suitable cases. The author avoids bromids in cases of recent origin, until he finds that it is necessary to give them to limit the frequency of the attacks. When the latter occurs at rare intervals, he withholds the drug altogether. Among the poorer classes, when it is necessary for the patients to follow their daily occupation, the use of bromids is an absolute necessity. Strümpell believes that the psychic and bodily disturbances, usually stated to be the consequences of epilepsy, are probably more frequently the results of chronic bromin intoxication. As substitutes for this drug, he has found the most benefit to result from the use of belladonna and zinc oxid, either separately or together. [B.K.]

Treatment of Cholelithiasis with Nux Vomica, Podophyllin and Calomel.—Inasmuch as nux vomica preparations increase peristalsis slightly, and calomel in nonlaxative doses increases secretory flow, A. Hecht[3] advises them in combination to prevent the formation of gallstones. With sufficient peristalsis and biliary flow "residual bile" is almost impossible, and without residual bile, gallstone formation and infection is almost unknown, and without infected bile, cholecystitis and gallstone colic are very rare. If stones are present, it is possible to sweep them out by employing these drugs. The action of nux vomica as a stomachic also aids the prevention of gallstones by increasing the appetite and thus exciting the formation of a larger amount of bile. The treatment of cholelithiasis must first concern itself with the removal of the impediment to the flow of bile, and where this can be done medicinally, it must be by regulating the mode of living, diet and intestinal peristalsis; and by the prevention of infection, without which there is no gallstone colic. In the interval between colics the following preparation is advised:

Mild chlorid of mercury Extract of nux vomica	of each 0.4 to 0.5 gm. (6 to 7½ gr.)
Aromatic powder Extract of rhubarb	of each . . . . . 1.5 gm. (22½ gr.)

This is to be made into 30 pills, and from two to three given daily. Neither diarrhea nor intestinal colic is produced by this, but gastric oppression, sensation of fulness, and distention, constipation, diarrhea, jaundice, and loss of appetite, also asthma are made to disappear. Gallstone colic requires morphin, and a pill made up of

Podophyllin	0.2 gm. (3 gr.)
Mild chlorid of mercury	0.4 gm. (6 gr.)
Extract of nux vomica	0.3 gm. (4½ gr.)
Extract of belladonna	0.3 gm. (4½ gr.)

This is to be made into 20 pills, and a pill taken every two hours until the patient is better, when one or two pills are taken daily. If diarrhea results, the first pill should again be returned to. [E.L.]

Bactericidal Action of Finsen Light.—V. Klingmüller and L. Halberstaedter,[1] to determine the action of the Finsen light against tubercle bacilli, inoculated guineapigs with lupus material, which had been treated with the Finsen light; with tissue from an animal inoculated with tuberculous material; with a tubercle bacillus emulsion; with a pure culture of tubercle bacilli; with a tuberculous spleen. In all instances the guineapigs died of tuberculosis in spite of the light treatment, thus proving that the light does not even kill superficially-seated bacteria and that the marked bactericidal power of the Finsen light plays no part in the treatment of cutaneous tuberculosis, its successes in lupus vulgaris evidently being due to other powers beside its bactericidal property. [E.L.]

Treatment of Tics by Reeducation.—It has been shown that the various tics are of functional, cortical, rather than peripheral origin, and that the rational treatment should consist of psychotherapy and reeducation. The movements themselves are normal, but the abnormality consists in their performance without cause. The indication for treatment is therefore to develop the inhibitory and regulating power of the cerebral cortex. A. Porot[2] reports in detail four cases, in which most satisfactory results were obtained. The formula of treatment naturally varies with each case. It is first necessary to determine whether the case is one of true tic or of spasm, also to determine its duration and any possible cause. The question of age enters into this method of treatment, as the intelligent cooperation is necessary to success. The question of environment is also of importance, as the efforts of the physician may be counterbalanced by defective educational surroundings at home. In some cases it may be well to order absolute rest, or even isolation. The educational treatments should be repeated daily or oftener. At first, complete immobilization of the part should be practised. Then the patient may pass to slow movements, perfectly controlled by the will. These movements are gradually increased in complexity, until finally the patient may be allowed to perform the movement of his tic, but this time voluntarily and composedly. The duration of each treatment should be gauged by the appearance of fatigue or enervation. At times the cure may appear to be at a standstill, when a few days of rest from treatment will be found to be of benefit. [B.K.]

Aspirin as Analgesic in Gynecology.—Friedrich Merkel[3] recommends aspirin as an analgesic in a number of gynecologic and obstetric conditions. Above all it is useful in inoperable uterine carcinoma, the dose being 15 gr., with a repetition of 7 gr. to 15 gr., if necessary. The pressure pains of myoma are also relieved by it. The author has used it with effect in acute salpingitis, painful menstruation of anemia, after-pains of labor, and other conditions. The daily dose never exceeded 25 gr. to 30 gr. It sometimes appears also to have a soporific effect. [B.K.]

[1] Bristol Medico-Chirurgical Journal, xxiii, 1905, No. 28, p. 138.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 69.
[3] Therapeutische Monatshefte, 1905, xviii, 172, No. 4.

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 14, 539.
[2] Lyon Médical, July 2, 1905.
[3] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 261.

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The Eighth Revision of the United States Pharmacopeia.—The long-delayed eighth decennial revision of the United States pharmacopeia has appeared and becomes official September 1, 1905. As each succeeding revision consumes more time, it has been decided to omit the date from the back and title page; consequently this work will be known, not as the pharmacopeia of 1900, but as the "Eighth decennial revision." The general character of the work stamps it as a distinct advance, and will enable it to retain a commanding position among the pharmacopeias of the world. It may be said in passing that the Brussels conference of 1902, unfortunately seems to have dissipated all hope of an international pharmacopeia. Changes from the revision of 1890 will, on the whole, we believe, prove satisfactory to physicians and pharmacists. Of the articles previously official, 151 have been dismissed; 117 new ones are added, thus making a reduction in titles from 994 to 958. Probably the most notable admission is that of serum antidiphthericum, an agent which well merits the distinction of being the first serum to gain official recognition in this country. The standard strength is to be that established or approved by the United States Public Health and Marine-Hospital Service; a description of the standard, based on the immunity unit of Ehrlich,[1] prepared by the officials of that service appeared some time since. Two animal products, the suprarenal and thyroid glands, have also been given a place in the pharmacopeia. A change that will be noted especially by physicians and students but also by pharmacists, is the omission of the preparations of the various drugs. In a sense these are relatively unimportant, but we believe the majority of physicians would vote for their restoration.

The list of changes in titles and strengths in the new pharmacopeia is a long one, and affords opportunity for much difference of opinion. As a whole, the changes in titles are toward a better system of nomenclature. Of special merit, is the employment of fluidextract as one word, thus taking these preparations out of the index with extracts; such changes make for simplicity and convenience. Phenol for acidum carbolicum is another commendable change. Affording the greatest liability to serious mistakes, are the changes in the strengths of certain preparations, notably the tinctures; those from most of the heroic drugs, to go into effect officially September 1 next. For instance, the tinctures of veratrum and of aconite are now 10% each, instead of 40% and 35% respectively; tinctures of strophanthus, cantharidis, and capsicum are doubled in strength. These changes have been made in order to conform to the standards adopted by the International Conference on Potent Remedies, held at Brussels in September, 1902, the object being to make uniform the strength of potent remedies in all parts of the world. A very valuable aid to prevent error in this respect has been issued by the Public Health and Marine-Hospital Service[1] in the shape of a 122-page pamphlet, giving the additions and the changes in titles and strengths of the new pharmacopeia. A new feature in the shape of dosage has been incorporated in this revision. The amount in each instance is given as the "average" dose, in the metric system, followed by the approximate values in ordinary weights or measures in parenthesis. A point of doubtful propriety is the sanctioning of the use of the teaspoonful, dessertspoonful, and tablespoonful as 1, 2 and 4 fluidrams and 4 cc., 8 cc. and 16 cc. respectively. Though commonly used, the remarkable inequality in size of these containers is too well known to require further comment.

The Pharmacopeia and the Profession.—No committee of revision could hope to issue a book that would meet with universal approval. As with previous editions there will doubtless be heard many criticisms, some, but not all, well taken. Those honestly made will be a help to the supervisors of the next revision. This leads us to say we have not the least doubt that criticisms will outnumber 50 to 1 the suggestions made to the pharmacopeial convention in 1900; to that body only five medical organizations indicated preferences or made requests. The United States pharmacopeia is for the physicians of this country and we urge them by all means to say what it shall be. Though used by him in a slightly different sense, we here may well quote these words of Dr. Horatio C. Wood: "The question which the framers of a pharmacopeia ask themselves is not, Is this drug of value, but: Is there a demand for it by the profession of medicine? If 5,000 doctors in the United

[1] Hygienic Laboratory, Bulletin No. 21, April, 1905.

[1] Hygienic Laboratory, Bulletin No. 23, August 1, 1905.

States believed brick dust to be a valuable remedy and habitually used it, brick dust would have to go into the pharmacopeia. Witch hazel is probably as active and as useful as is brick dust, but witch hazel is a fad and is enormously called for, so witch hazel must go into the pharmacopeia. The pharmacopeia exists for the purpose of requiring the apothecary to give, in the first place, pure brick dust or pure witch-hazel when asked for; and in the second place, uniform preparations of these remedies." What is true of the selection of drugs is true of other features of the pharmacopeia. It is now only five years until the convention of 1910, to arrange for the ninth decennial revision, will meet. The physicians of the United States should voice their opinion of this revision, and their recommendations for its successor, through the proper medical bodies, at that time.

Jangled Harmony at the Portland Food Congress.—At its recent meeting in Portland, the National Association of State Food and Dairy Departments did the cause of pure food a great service by withdrawing from the movement for uniform federal legislation on the subject. Dr. C. N. Eaton, State Chemist of Illinois, made an address, in which he said that the United States Department of Agriculture understands neither the manufacturer's side nor the control side of the food problem and has set up impracticable and even dangerous food standards. Mr. Eaton said that State officials who have authority to enforce regulations should make the standards. After his address, a resolution was passed and a committee was appointed to formulate and to report at the next meeting food standards satisfactory to the State commissions. In future the standards which the Department of Agriculture has prepared, at great expenditure of time and labor, are to be disregarded. In the face of determined opposition by the State Food and Dairy Commissions, it will be useless for the federal bureau to ask legislation by Congress. It does not follow, however, that the prospect of federal control of food production is materially damaged by this action of the National Association of State Food and Dairy Departments. On the contrary, the Federal Bureau is released from a disadvantageous alliance and may look about for more faithful advocates of food legislation. Meanwhile, the National Association can accomplish nothing whatever in the way of food reform. Assuming that a majority of its members sincerely desire uniform and effective laws on the subject (a sheer assumption), it will be found quite impossible to secure this result through State Legislatures.

The national association is definitely eliminated from the pure food movement by embarking on this hopeless undertaking, and this is fortunate for the cause. *American Medicine* has previously remarked that the campaign for honest food would be strengthened by the defection of some of its friends, and has criticised especially the weakness of the National Association of State Food and Dairy Departments. The closing scenes of the Portland session amply justified these criticisms, and clearly foreshadowed coming events in the history of the association. It appears that scandalous charges were made two years ago in connection with the publication of the proceedings, and an investigation, ordered at that time, has never been made. Mr. Crutchfield, of Pennsylvania, asked for a report of this investigation, and when it appeared that no investigation had been made or is likely to be made, Mr. Crutchfield withdrew from the association, on the ground that admitted pecuniary profit to the association in advertising contracts, and failure to investigate charges by New York and Baltimore manufacturers that immunity to arrest under food laws had been held out as valuable considerations to advertisers in the transactions, reflected on the integrity and good faith of the association. The secretary of the association is said to have received a large sum of money for installing a whisky division in the pure food exhibit at the World's Fair in St. Louis, and on this account his reelection was bitterly, though unsuccessfully opposed. Following the withdrawal of Mr. Crutchfield, with the Food and Dairy Department of Pennsylvania, resolutions were adopted prohibiting advertising in future published reports, and declaring members who are connected with any food or liquor interest ineligible to office in the association. Finally, the association changed its name, and will be known in future as the Interstate Food Commission. In these closing events of the Portland meeting one can see why the National Association of State Food and Dairy Departments has not been and cannot be a helpful agency in food reform. A new name will not help the association to live down its unfortunate history. The only hopeful course is in the withdrawal of the best element in its membership, and in the formation of a new association free from every suspicion of undue influence by the food and liquor interests.

A Protest from the Yellow Fever Zone.—A recent editorial on the yellow fever situation calls forth a protest from Dr. W. T. Henderson, of Mobile, who writes as follows:

SIR:—Your editorial in the edition of August 5, entitled, "The Quarantine Madness," deserves some answer from a member of the medical profession, who is at best near the disease which does more to destroy commerce than the strictest regulations of war times. You appear to ridicule the profession which require the transfer of passengers from coaches running out of New Orleans to clean cars at the relay stations and do not appear to coincide with our necessity to fumigate freight cars before they are opened in an infected city. It appears to me you have overlooked a very important detail in your verbal quarantine at a distance of several hundred miles. You are, no doubt, familiar with the fact that even a palace car may be occupied by *Stegomyia fasciata* and the dark corners of a box freight car are especially fitted for the mosquito during his resting hours. Cars loaded with passengers or freight in New Orleans can easily bring the cause of infection to Mobile, a distance of only 141 miles. It is, in my opinion, a wise provision that all passenger cars and freight cars will be required to remain at the relay station and their contents loaded on clean trains.

Yours respectfully,
(Signed) WM. T. HENDERSON.

Dr. Henderson objects to the criticism implied in the following brief statements: "In some places freight cars must be fumigated before the doors are opened." "Passenger coaches from New Orleans are not allowed to enter the State of Alabama. At the State line pas-

sengers must change cars." If railway trains are held up at the State line by the health authorities of Alabama for the purpose of destroying mosquitos, *American Medicine* most cheerfully withdraws its criticism. In the cost of yellow fever there are, as our correspondent says, two elements: the direct loss of health and of life, and the indirect damage, sometimes more fearful, through commercial depression. Horrors fairly comparable to those of war may be stored in the frail body of a single infected stegomyia, and the destruction of such an insect is worth whatever the people of Alabama are willing to pay for it. Having reliable sources of information concerning the state of professional opinion in the South, *American Medicine*, up to the moment of publishing the editorial in question, counted the State health authorities of Alabama indifferent, if not hostile, to the theory of transmission of yellow fever by the stegomyia. The letter of Dr. Henderson fairly represents the favorable attitude of the best medical men in the South toward the truth about yellow fever, and it is pleasant to record so hopeful a fact at a moment of such vital interest. But the weight of official influence has been too long withheld by the public health authorities from this most necessary propaganda. If, on the eve of a great crisis, they have given their adhesion to the plain and vital truth which alone can save the South and win for southern sanitarians the confidence of the country, they may be congratulated on having ceased to do evil, but they are not yet entitled to the praise of them that do well. If our correspondent will remember that *American Medicine* is likely to have a representative at every important meeting of public health officials, he will realize that it is not difficult to keep informed as to the fitness of the men who guide the sanitary destinies of States. Whoever has witnessed the unanimity of southern sanitarians in opposing definite statements of the truth about yellow fever at the annual meetings of the American Public Health Association and at the Conference of State and Provincial Boards of Health, and now sees the attitude of these same sanitarians to each other, can hardly escape some doubt as to the safety of the Southern people in the present emergency. An expression, such as we published two weeks ago, of confidence in those who are now engaged in the contest with yellow fever at New Orleans, would be impossible to *American Medicine* but for our positive knowledge that the issue is in the hands of courageous, efficient and believing men.

Disinfecting Freight Cars.—Until so informed by Dr. Henderson, we did not know that the Alabama authorities required freight cars to be fumigated and unloaded at the relays. It is not clear that the transfer of freight to a fresh car after fumigation is a reasonable procedure, but the fumigation for destruction of mosquitos is certainly a sane precaution. The greater or less importance of the risk thereby avoided is the chief point of interest in this procedure. The fact that the officials of the United States Public Health refuse to fumigate freight of any sort indicates an authoritative opinion that the danger of carrying infected mosquitos in freight cars is at present negligible. The fumigation of freight cars may not, however, be an excessive precaution under existing circumstances. A car load of bananas from New Orleans represents, perhaps, the largest probability of danger in the freight traffic, and it would be rash to say that such a cargo can be safely unloaded in Mobile without preliminary fumigation. An approximate estimate of the danger would require a census of mosquitos at New Orleans, with distinctions of race and sex, but the basis at least of a rough estimate may be reached in another way. Since a yellow fever patient can not infect another person, but can infect as many stegomyias as chance to bite him in the first three days of fever; while an infected stegomyia can not infect another mosquito, but can infect as many persons as she may bite after the tenth day of her infection; it is evident that the attack rate for stegomyia and the attack rate for man will be equal. Where men and mosquitos are present in equal numbers, men and mosquitos will be infected in equal numbers. Where men and mosquitos are present in unequal numbers, men and mosquitos will be infected in unequal numbers, but at the same rate per thousand individuals. If, on a given day, 60 persons in New Orleans are attacked by yellow fever, the attack rate is 2 per 10,000 people, and the attack rate for mosquitos would be 2 per 10,000 female stegomyias. If all the infected mosquitos of that date should survive so long, a railway train, leaving New Orleans ten days later, and carrying 5,000 female stegomyias, would deliver at Mobile one infected insect. This dangerous stegomyia would be accompanied by not less than 15,000 harmless mosquitos, and would represent a very considerable migration, too large to fit one's experience in southern railway travel. These probabilities, based on 60 cases a day in the total population of New Orleans, might be greater or less than the true probability for that part of the city where freight cars are loaded. Outlying districts might be substantially protected by regulations in New Orleans concerning the handling of freight, and if the incidence of yellow fever rises much above its recent average, the fumigation of freight cars before leaving would be a not unreasonable concession to the city's customers. When cases are occurring at the rate of eight or ten a day, the chance of sending out infected freight cars may be very small, but when 105 cases occur in a day, as happened on August 12, the attack rate for New Orleans is 3.5 for every 10,000 of her people, and as many freshly infected insects are added to each group of equal size among her uncounted female stegomyias.

The delivery of New Orleans from her present peril depends upon the ability of man to break down these orderly but vicious relations, and if the city had an effective notification ordinance, we should conclude that so far no signs of success are apparent. It is a great pity that an American city should be willing to explain an increasing amount of infectious disease by saying that notification is improving. The explanation discredits previous information, and implies doubt about the completeness of present knowledge. It must be remembered, however, that under the most favorable circumstances, 14 to 16 days must pass before the results of an importation of yellow fever are manifested, and

another like period must pass before one can say confidently that the authorities have or have not made definite progress against the disease. Having alluded twice to the lack of an effective notification ordinance in New Orleans, it is but fair to repeat that no more than four of the large American cities can do better than New Orleans in securing timely information about the presence of infectious disease.

The Immunizing Treatment of Fourth of July Wounds.—A reaction against some of the deadly noise-producing agents of Fourth of July celebrations is fortunately taking place, but wounds from this source will probably continue to be numerous. Apropos of the prevention of tetanus, the most dreaded outcome of these wounds, every physician should read a brief paper by Dr. H. J. Scherck,[1] chief dispensary physician of the health department of the city of St. Louis. Encouraged by the entire absence of tetanus in 37 cases treated by antitetanic serum in the city dispensaries July 4, 1904, orders were this year given to all assistant physicians to inject 10 cc. of the serum into each patient applying for treatment. An accompanying table shows that 84 persons were thus treated and in not a single case did tetanus develop. These results contrast strongly with the record of 1903, when the serum was not used, with its 56 patients treated and 16 deaths from tetanus. With the present helplessness of medicine in the presence of tetanus, no suspicious case should be denied the protection of immunizing serum. It is hardly necessary to state that the wounds, as was done in St. Louis, should be treated on modern surgical principles just as though the serum was not given. A very instructive addition to Dr. Scherck's paper would be the number and outcome of Fourth of July wounds in St. Louis not treated with serum.

A Novel Municipal Enterprise.—The Zurich city fathers, after having successfully devoted attention to hygiene, pure water, and unadulterated food, have now tackled what has been facetiously called "the final menace to public health—the doctors." Henceforth to the physician and surgeon, Zurich will be a closed borough; 40 members only of the profession have been approved by the municipality, salaried at the rate of £500 each per annum, and told to attend to patients gratis! The necessary annual fund is to be raised by a poll tax of four francs, 50 cents on each of the 112,000 inhabitants.

Contract Medical Practice in Great Britain.—As in this country, the question of contract medical practice is assuming increased importance in the morale and economics of medicine in England. In addition to the defects inherent in the system as usually conducted, arrangements which in themselves appear ethical and inoffensive, are often, by the stress of competition, made to shield actions which, to say the least, are unworthy of the true physician. So urgent did the matter appear to the British profession that a medicopolitical committee to investigate the question was appointed by the British Medical Association at its annual meeting in 1903. The report of this committee,[1] presented at the recent meeting in Leicester, is the most elaborate presentation of the subject in all its aspects that we have ever seen, covering 96 closely printed pages. From it, we learn, that the forms of contract practice in England may be placed in two groups: 1. Organizations, managed by nonmedical persons or bodies, and including Friendly Societies, Works Clubs, Medical Aid Societies, and Provident Dispensaries. The essential principle of practically all of these may be found in various societies of this country. 2. Organizations managed by the medical profession, consisting of private clubs and public medical services; we do not know of similar institutions in the United States. The effects of contract practice as educed by the committee are given under three headings: 1. In the physicians engaged in such practice, there are induced "habits of hasty and careless diagnosis, and of routine, perfunctory and inefficient treatment, and these in time pervade all his practice; he becomes professionally demoralized, and the status and reputation, both of himself and the medical profession, suffer in consequence." 2. Upon the general profession the results of the consequent pressure are underselling, canvassing and advertising. 3. The community suffers from inefficiency of service, loss of choice of physician, and from inferiority and frequent change of medical attendants.

Is Contract Practice Needed?—This we take to be the crucial point in the entire question. If there exists for it a legitimate demand, the practice should, and can be put upon an equitable and satisfactory basis. If, on the contrary, there is no real need for such work by physicians, there should be no greater hesitancy, and even less difficulty in putting an absolute stop to the system, which under the present regime appears detrimental, alike to the profession and to the public. The members of the committee, as a result of their very careful inquiry, conclude that in certain districts contract practice is a necessity; in their own words, "under existing conditions certain classes of the community require some provision whereby they may insure by small premiums against the cost of medical attendance." These classes are really but two: (1) Those who do not desire, or are not qualified to receive, relief under the poor law, but yet are unable to pay the ordinary fees of a physician; and (2) those who are able to pay the usual medical fees, provided they have the privilege of paying in regular small instalments instead of in lump sums. On general principles, it seems to us that even these classes might better be arranged for otherwise; even though the committee, as we shall show, suggests an admirable plan for the regulation of contract practice, sources of dissatisfaction will almost surely remain. Why not allow the persons of the second class to pay their bills in monthly instalments directly to the physician they choose to employ? As for the first, let the physician make his bill correspond to the circumstances of the worthy poor; it seems improbable that in any one community *all* the people should belong to this class, and thus the physician be entirely deprived of

[1] St. Louis Medical Review, July 29, 1905.

[1] British Medical Journal, Supplement, July 22, 1905.

ordinary fees. However, we do not know the exact economic conditions in England and, therefore, are not presuming to criticise the recommendations of the committee.

Suggested Reforms in Contract Practice.—If this practice is to be retained we do not know of any plan more practicable than the one suggested by the British committee. The fundamental principle is that physicians themselves prescribe the rules by which contract practice is to be governed. It should preferably be administered in the form of a public medical service controlled by an organized local body representative of the profession, as for instance, a division of the British Medical Association. Every physician who desires should be allowed to take part in the work, the details of which ought to be controlled by a medical committee composed both of participants and nonparticipants in the contract practice. If such public medical service be not feasible, then the physicians of each district should collectively agree upon the conditions by which the practice is to be governed. This would at once eliminate the dictation of laymen, which, in many instances, is such a disturbing element. The emphasis put upon the desirability of placing in control of the matter a division of the British Medical Association will doubtless raise objections from those who are opposed to organization just as opposition to control of certain matters by our National Association is encountered in this country. The suggestion, however, is most wise, as we are sure will be agreed to by all those who have at heart the good of the profession instead of simply their own welfare. The representative meeting of the association at Leicester referred the report to the divisions for their consideration. The outcome will be awaited with interest, as this painstaking collection of facts and the final action thereon should have much to do with settling the vexed question of contract practice throughout the world.

The diarrheal mortality in the State of New York has arisen from 200 deaths of preceding months to 650, the customary June increase. Less than 100 of these occurred outside the two large cities, New York and Buffalo. The early diarrheal mortality is always urban, this class of diseases only reaching the rural part of the State in August and September after subsidence has well set in among our city populations. That the acute diarrheal mortality is almost entirely of infancy and childhood is shown by the comparison of its current reported mortality with that of former years. There were in July, outside New York and Buffalo, only 27 diarrheal deaths above the age of 5 years; 7 from dysentery, ages 30 to 55; 20 enteritis, mostly over the age of 60. Several occurred in the State hospitals for the insane. None of these deaths occurred under the age of 23. The duration of illness in those reported from dysentery was 1 to 4 weeks: from enteritis, 1 to 7 days.

Epidemic of Glanders.—An epidemic of glanders has appeared at Great Notch, near Paterson, N. J., and steps have been taken by the State Board of Health to prevent it spreading to Paterson and other cities. Already 17 horses have been killed, and others are under quarantine. The disease first developed in the stables of a farmer and truckman. Dr. Matthew B. Pierce, of Paterson, was detailed by the State board to make an investigation. He killed three horses at once, and applied the test to others. When he called next day to learn the result of the test, he was refused admittance to the stables. Dr. Pierce was then appointed a deputy sheriff. Armed with this authority he demanded admittance to the stable. He found that all the horses to which the test had been applied, were suffering from glanders, and he ordered that they be destroyed. The disease, meanwhile, had spread to adjoining farms. The State board officials are now keeping a close watch on all horses and cattle in the vicinity.

AMERICAN NEWS AND NOTES

GENERAL.

New Hospitals for the Navy.—It is proposed to remodel all of the old hospitals of the navy. Some of the buildings are old and out of date, and have been kept up to a state of efficiency as naval hospitals only by the employment of many ingenious devices. It is proposed to have the accommodations at Norfolk increased so as to accommodate 250 patients, and to arrange the building that the facilities for caring for the sick and wounded may be increased to 500 beds in time of war. Probably the largest fund to be expended in any one place will be required at Norfolk. Another important point where the naval hospital must be remodeled is Pensacola. Other improvements all along the line are contemplated.

Refusal of Army Men to Submit to Operation.—The assistant surgeon on duty at Fort Hamilton, N. Y., this week propounded an interesting question to the War Department, says the *Army and Navy Register*. It was not a new one, but it received the special attention of the authorities in Washington. He asked whether it was possible to compel an officer or an enlisted man to submit to a minor surgical operation deemed necessary by the medical officers. He was informed if a soldier persists in his refusal to submit to a minor operation which will remove a disability preventing him from performing his duties he may be brought to trial under charges alleging a violation of the 62d Article of War, or discharged without honor by order of the Secretary of War. Concerning the right of an officer to refuse to submit to a minor operation, it is believed that he may legally be ordered to submit to the operation—giving him his choice of doing so or resigning.

NEW YORK AND VICINITY.

Smallpox developed in the town of Kirkland, Oneida county, New York, recently, having existed unsuspected for some time. It has become scattered through the town with many exposures. As is often the case, the diagnosis has been doubted, but competent investigators have verified it, and, while most of the cases have been mild, there are some that are well marked. Being recognized, it will soon come under control. Handling rags, brought for shipment, by a trainman, appears pretty clearly to have caused smallpox in one case at Rome, the rags having very probably come from an infected Kirkland household. Cohoes had been having also an outbreak of this disease, chiefly among mill operatives.

Much Typhoid in Brooklyn.—Typhoid fever is very prevalent in New York. More deaths have occurred in Brooklyn, in proportion to the population, this summer than in any other borough. Up to August 5, 1,496 cases had been reported in the five boroughs. The deaths so far reported are 305. The water-supply of Brooklyn, in the opinion of the health authorities, is contaminated, and this accounts for the greater mortality in that borough. A house-to-house canvass has been instituted in Brooklyn to determine the actual presence of typhoid where it is possible to make a diagnosis in cases of suspicious illness. The Health Board has issued rules regarding the food and milk supplies with a view to lessening and eventually stamping out the disease.

The health of New York State always approaches its best in June, according to the *Bulletin*, the diseases of winter having in large measure reached their minimum, and those of summer only to a small degree set in. The autumnal mortality of this State is always the lowest of the four seasons, and generally November has the fewest deaths of any month, but recently June has been taking this precedence. It comes between May, with 1,000 more deaths, and July, which under ordinary conditions has the largest fatality in the year. July had a daily mortality of 330, the 150 preceding days of the year, a period of the largest mortalities on record in this State, having had an average of 400 deaths; this represents a comparative saving for the month of 2,000 deaths.

PHILADELPHIA, PENNSYLVANIA, ETC.

Licenses by the Pennsylvania Board.—The Pennsylvania State Board of Medical Examiners has announced the result of its examination of applicants for medical licenses, held in Philadelphia, on June 28. Of 466 candidates, 320 passed, 56 failed, 4 were expelled for cheating, 4 withdrew, and decision was reserved in 82 cases.

Must Have Health Certificate.—No one who has not a certificate from the health officer can purchase a ticket or board a train at Philadelphia for Savannah, New Orleans, Memphis, and other far southern points. No certificate is issued, except after a personal examination has been made of the applicant by one of the city's medical inspectors, and if the applicant cannot show a clean bill of health and that he comes from no place in which a contagious disease has been found, he is refused the certificate. The Pennsylvania Railroad will cooperate in every way with the local health authorities to keep yellow fever out of Philadelphia. All freight cars from southern points will be submitted for inspection and disinfection to the Bureau of Health.

Won't Amend Milk Law.—Councils' Committee on Law, of Philadelphia, has reported negatively an ordinance making it possible to hold persons who sell adulterated or unwholesome milk, no matter whether they know it to be impure or not, accountable to law for the sale. An Act of Assembly now has such requirement, and the Department of Public Health and Charities desired to have the ordinance conform with the act. An attorney for the Milk Exchange and Vice-president Herbison, of that body, opposed the amended ordinance and it was voted down.

Diphtheria Epidemic.—The prevalence of diphtheria at Fort Republic, N. J., a town with 2,000 inhabitants, has caused several of the surrounding towns to establish quarantine regulations. The disease became epidemic two weeks ago. Last week a camp meeting started in the town grove, but the health authorities feared it would help to spread the contagion and ordered it stopped. The churches held no services last Sunday night, for the same reason, nor will their doors be reopened till the epidemic has abated. The Health Board has forbidden even lodge meetings.

To Sue Dealers in Doctored Meat.—Within a short time the Pure Food Department will begin suits in 25 counties of Pennsylvania against meat dealers who get their meats from agents of the beef trust. Charges of selling doctored meats will be made. All of these suits are in the interior of the State. The charges on which indictments will be asked in Criminal Court for selling impure meats are: Washing with poisonous coal-tar dyes; dipping in formaldehyd solution; dusting with powder, containing sulfites; washing with powerful boracic acid solutions.

Typhoid in Philadelphia.—Last week 109 new cases of typhoid fever were reported to the Health Board. The rate of new cases is about the same as that which has prevailed weekly for many months. This week nine more cases occurred than were reported last week. Since the beginning of the year, 4,333 new cases have been reported. The greatest number of cases were reported in both weeks from the wards which receive a water supply pumped directly from the Delaware river. These wards alone contributed 34 cases this week and 59 last week. Fourteen cases were reported this week from wards which receive water filtered by the Roxborough plants. The medical inspectors of the Health Bureau have investigated these cases, which they say were contracted while the patients were temporarily residing outside of the wards, or were on vacations.

River Polluters Warned.—Chief Inspector Charles F. Kennedy and his corps of nuisance inspectors, under the Bureau of Health, report progress in the investigation of the sources of the Schuylkill pollution in the Manayunk district. They have warned offending property owners that their contributions to the river's foulness must cease. The entire district is being canvassed, with a view of finding unreported sources of pollution. Dr. Dixon is encouraged by the apparent willingness of a number of the municipalities along the Schuylkill to cooperate in improving the conditions menacing public health. Norristown has arranged for a consultation with a sanitary engineer of Boston regarding the sewerage system. The same engineer has already been engaged by West Chester for a similar purpose. The Phoenix Iron Works are considering putting in an incinerating plant in order to do away with any possibility of typhoid organisms being discharged into the Schuylkill from their works at Phoenixville. Reading has also been investigating a drying system which, if adopted and approved by the commissioner, it is said, would be a great advance in the sanitary disposal of the sewage of that city.

SOUTHERN STATES.

British Physicians to Study Yellow Fever Situation.—Sir Alfred Jones, president of the Liverpool School of Tropical medicine, has received a cable message from Mayor Behrman, of New Orleans, accepting the offer of the services of the school during the prevalence of yellow fever. Major Surgeon Ronald Ross, professor of tropical medicine, and Dr. Rubert Boyce, professor of pathology and dean of the school, will sail for New York, en route for New Orleans, on the Campania today.

Washington's Typhoid Epidemic.—Twenty-nine new cases of typhoid fever and two deaths from the disease were reported to the health office of Washington, D. C., in one day last week. The outbreak has passed in severity that of 1903, when the greatest number of persons under treatment for the disease at any one time was 224, and it has spread rapidly. The cases are scattered through Washington and the surrounding section and each hospital has its quota of patients. Since July 1, 196 cases have been reported in the District of Columbia, and 21 deaths have occurred. Health officials are making a house-to-house inspection of back yards and cellars, with a view to remedying unsanitary conditions. One bed of the new filtration plant will be opened probably this week.

The Yellow Fever Situation.—The heavy increase in the number of cases is beginning to show in the death list, which can be expected to grow steadily for the next few weeks. Only five of the new fever centers are above Canal street. Assistant-Surgeon Corput has concluded a thorough investigation of conditions in Algiers, on the west bank of the Mississippi river, reporting that he had found not a single suspicious case. The great cause for the spread has been the concealment of cases and the change of residence of people who have been infected. Dozens of cases are on record which show conclusively that the people had moved away from a house where infection had existed. Some friction has existed between doctors and the authorities growing out of resentment on the part of the doctors at the visit of inspectors to patients whom the doctors have reported. The federal authorities will interfere in no way with physicians who make known cases of illness in their practice. The city Board of Health announces that physicians who fail to make prompt reports of yellow fever cases will be prosecuted under a city ordinance. The federal authorities have begun the room-to-room inspection of the whole city. This has already been done in the originally infected area, but it is now being done in every ward, and it is expected to turn up every concealed case of fever that exists. Sweeping orders have been issued again to the police to prosecute all landlords and agents who fail to screen cisterns. The police swore out a great number of affidavits charging violations of the ordinance, some of them being against men of prominence and wealth. Favorable and unfavorable reports have come from the country districts concerning quarantine regulations. Lafayette has refused to abide by the uniform quarantine proposed at the recent conference, but other parishes are giving their approval. Madison parish has debarred all freight, including drugs. There are suspicious cases at Tallulah, in that parish, and this may effect a relaxation of the quarantine against New Orleans. Official reports on August 17 show the following: New cases, 66; total cases, 1,146; deaths, 4; total deaths, 176; new foci, 19; total foci, 248.

WESTERN STATES.

Liability for Disease following Injury.—Although a tuberculous condition of the knee of a person whose leg was injured by another's negligence develops because tuberculosis was organic in the injured person, or because of mistakes in treatment, it is held, in Chicago City Railway Company vs. Saxby (Ill.), 68 L. R. A., 164, that it cannot be said that it was not the consequence which might not naturally follow as a result of the injury, and that therefore the negligent person may be held liable.

FOREIGN NEWS AND NOTES

GENERAL.

International Congress on Tuberculosis will be held at Paris from October 2 to October 7. There will be four sections, medical pathology, surgical pathology, preservation and assistance of infants and the same for adults.

Moritz Benedikt, of the University of Vienna, professor of diseases of the nervous system, has celebrated his seventieth birthday. A dinner was given in his honor by the Neurologic Society of Vienna and congratulations were presented from various societies of which he is a member.

A Hindu Veterinary Hospital.—There is an animal hospital at Lodepur, near Calcutta, India, where there are usually about a thousand animals under treatment—horses, oxen, mules, elephants, dogs and even sheep, all comfortably housed and looked after by a staff of 80 native "nurses" under the orders of a British veterinary surgeon.

OBITUARIES.

Thomas J. Maxwell, aged 68, August 1, from cerebral hemorrhage, at his home in Keokuk, Ia. He was graduated from the medical department of the State University of Iowa, Keokuk, in 1861; member of the American Medical Association; one time president of the Iowa State Medical Society; Member of the Military Tract Medical Association; Tri-State Medical Society of Iowa, Illinois and Missouri; Des Moines Valley Medical Association; American Association of Obstetricians and Gynecologists; and American Association of Railway Surgeons; professor of principles and practice of surgery and clinical surgery at Keokuk Medical College, College of Physicians and Surgeons, Keokuk, and formerly professor of State medicine and hygiene, anatomy, and obstetrics and gynecology in the same institution. He served as assistant surgeon of the Third Iowa Volunteer Cavalry, and surgeon of the One Hundred and Thirty-eighth U. S. C. T. during the Civil war. He was one of the most noted surgeons of the Middle West, being noted for his method of treating intracapsular fracture of the femur.

William C. Day, aged 48, August 12, from heart failure due to paralysis, at his home in Swarthmore, Pa. He was graduated from Johns Hopkins University in 1880; made fellow in chemistry and physics in 1881 and doctor of physiology in 1883. He held the professorship of chemistry in St. John's College, Annapolis, in 1883 and 1884; in the University of Nashville, Tenn., from 1884 to 1887, and in 1888 accepted a like position at Swarthmore College. For several terms he

was president of the chemic section of the Franklin Institute of the University of Pennsylvania; he also held honorable positions in American and foreign scientific associations. He was a tireless student, doing much original work. He discovered the formula of the German cocoa powder, which has been utilized by the United States Government, and succeeded in determining the much-disputed problem of the true origin and nature of asphalt, finally making the substance synthetically out of fish and pine wood, proving its nitrogenous origin.

Philip Fischer, recently, at his home in Cincinnati, Ohio. He was graduated from the University of Wurzburg, Germany, in 1868. Realizing that his illness would prove fatal, and not wishing his sister to be bothered with attorneys or collection agencies in order to collect delinquent accounts, Dr. Fischer had bills prepared and sent to those owing for professional services and enclosed a brief note with each, stating his condition and the outcome, and being anxious that his accounts be settled before his death, he would appreciate an early remittance.

C. Wellington Archibald, aged 60, July 28, fainted and was drowned while taking a bath at his home in St. Paul, Minn. He was graduated from the College of Physicians and Surgeons, Keokuk, Ia., in 1871; member of the American Medical Association and of the Associaton of Military Surgeons of the United States; formerly acting assistant surgeon of the United States army and superintendent of the Iowa Institution for the Feeble Minded, Glenwood; and the North Dakota Hospital for the Insane, Jamestown. He was a prominent oculist and aurist

William Henry E. Masser, aged 53, from intestinal obstruction, at the Good Samaritan Hospital, Sunbury, Pa. He was graduated from the department of medicine of the University of Pennsylvania, Philadelphia, in 1880. At one time he was an officer in the Navy, and later a practitioner of Los Angeles, Cal.

James Hedenberg, aged 74, July 26, from heart disease, at his home in Medford, Mass. He was graduated from Castleton (Vt.) Medical College in 1852; member of the Massachusetts Medical Society and of the Middlesex South District Medical Society, and for several years a member of the Medford school board.

George W. Wackerhagen, aged 59, July 25, suddenly, at his home in Brooklyn, N. Y. He was graduated from the College of Physicians and Surgeons, New York City, in 1869; member of the Medical Society of Kings county; of the Brooklyn Pathological Society, and ex-president of the Brooklyn Surgical Society.

Uriah Long, aged 75, July 16, from cardiac dropsy, at his home in Schuyler, Neb. He was graduated from Bellevue Hospital Medical College, New York City, in 1865; three times coroner of Colfax County, Neb.; twice city physician of Schuyler; and a member of the State and county medical societies.

Alexander T. Mitchell, of Vicksburg, Miss., July 18, at the St. Joseph's Infirmary, Lexington, Ky., after an illness of two years. He was graduated from the University of Virginia, medical department, Charlottesville, in 1894. He served as surgeon in the navy during the Spanish-American war.

Frederick C. Hill, August 14, from blood poisoning at his home in Scranton, Pa. Some six years ago, while performing an operation on a patient, Dr. Hill contracted blood poisoning, which later led to paralysis. He was graduated from the Medico-Chirurgical College, Philadelphia, in 1894.

Alexander P. Nelson, aged 77, July 19, from cerebral hemorrhage, at his home in Kirkwood, Illinois. He was graduated from Rush Medical College, Chicago, in 1864. He served as assistant surgeon of the Eighty-fourth Illinois Volunteer Infantry during the Civil war.

Seth Boggs, aged 53, August 10, was stricken with heart disease in his carriage while making the rounds of his professional calls and died soon after arriving at his home in Brooklyn. He was graduated from the Bellevue Hospital Medical College, New York City, in 1886.

George A. Hewitt, aged 57, of Philadelphia, August 1, at Cape May, N. J. He was graduated from Jefferson Medical College in 1877. He was engaged in the practice of his profession for thirty years, and at one time was engaged as an editorial writer.

Robert F. Beattie, aged 35, of Brookline, Mass., August 5, was stricken with heart failure while in bathing at Phillips Beach, Swampscott, and was drowned before assistance could reach him. He was graduated from McGill University, Montreal.

Lewis Lynn McCabe, aged 55, July 27, from disease of the stomach, at the Mullanphy Hospital, St. Louis, Mo. He was graduated from the St. Louis Medical College in 1872 and for 25 years was a member of the staff of the Mullanphy Hospital.

Alva H. Shelton, aged 40, July 25, suddenly, from cerebral hemorrhage, at his home in Long Beach, Cal. He was graduated from the Cincinnati College of Medicine and Surgery in 1886; member of the American Medical Association.

John M. Edwards, aged 51, July 31, from gastritis, at his home in Bevier, Mo. He was graduated from the University of the State of Missouri Medical School, Columbia, in 1883.

John H. King, aged 48, of Pokomoke, Md., August 12, at Ocean City, Md. He was graduated from the University of Wooster, medical department, Cleveland, Ohio, in 1872.

FOREIGN.—**Edmund Wadams,** recently, at his home in Malvern, England. He was graduated M.R.C.S. in 1843. For 37 years he was medical officer, under the Upton Board of Guardians, for Malvern and Powick districts. **Charles Hooper,** aged 75, July 16, at his home in Aylesbury. He received the degrees of L.S.A. and M.R.C.S. England, in 1852 and 1853 respectively. At the time of his death he had been in private practice for upwards of 50 years. He held the post of Medical Officer of Health to the Aylesbury Urban Council and for many years was one of the honorary surgeons to the Royal Buckinghamshire Hospital, chairman of the Aylesbury division of the South Midland branch of the British Medical Association, and an associate of the Sanitary Institute. **J. L. Chaufleury van Ysselstein,** aged 86, formerly professor of medicine at Amsterdam.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended August 12, 1905:

SHILLOCK, Major PAUL, surgeon, will proceed to Camp Keithley, Mindanao, for duty.

BOWEN, EDWARD N., contract surgeon, will proceed to his home, New York City, for annulment of contract.

BROWN, WILMOT E., contract surgeon, is granted leave for two months, to take effect upon the arrival at Fort Walla Walla of First Lieutenant Frederick A. Dale, assistant surgeon.

GEORGE, WILLIAM R. S., contract surgeon, will proceed from New York City to Fort Monroe for duty.

HARDENBROOK, BURTON, sergeant first class, Allegheny Arsenal, Pa., will be sent to the Army General Hospital, Washington Barracks, for observation and treatment.

LA GARDE, Major LOUIS A., surgeon, leave granted July 25, is extended one month.

HARRIS, First Lieutenant JESSE R., assistant surgeon, leave granted June 7, is extended 14 days with the understanding that he will sail for the Philippine Islands on the transport leaving San Francisco, Cal., about September 5.

BOURKE, First Lieutenant JAMES, assistant surgeon, is relieved from further temporary duty at Fort McHenry and will proceed to Fort Howard for temporary duty during the absence on leave of First Lieutenant Compton Wilson, assistant surgeon, upon whose return to Fort Howard Lieutenant Bourke will return to New York City and resume duty at the medical supply depot in that city.

The following changes in the stations and duties of assistant surgeons are ordered:

KIERSTED, First Lieutenant HENRY S., is relieved from duty at the Presidio of Monterey, and will proceed to Fort St. Michael, Alaska, for duty, relieving First Lieutenant Robert H Pierson. Lieutenant Pierson will proceed to Fort Gibbon, Alaska, for duty, relieving First Lieutenant Levy M. Hathaway. Lieutenant Hathaway will proceed to Seattle, Wash., and report by telegraph to the military secretary of the army for further orders.

TUKEY, WILLIAM H., contract surgeon, is granted leave for two months to take effect when in the opinion of the commanding general, department of the Columbia, his services can be spared.

RAFFERTY, Major OGDEN, surgeon, is granted leave for 1 month and 10 days from about August 24.

WILSON, First Lieutenant COMPTON, assistant surgeon, is granted leave for two months.

BERNHEIM, JULIEN R., dental surgeon, leave granted July 22 is extended 10 days.

BURKARD, OSCAR, sergeant first class, now at Rome, N. Y., is relieved from further duty in the Philippines Division, and on or before expiration of furlough will report at Plattsburg Barracks for temporary duty and to accompany the battalion of the 5th infantry which is to take station at Fort Ontario. Upon arrival at Fort Ontario he will report to the commanding officer for duty.

BORDEN, Major WILLIAM C., surgeon, is granted leave for one month from about August 8.

SMART, First Lieutenant WILLIAM M., assistant surgeon, having reported his arrival at Seattle, Wash., will proceed to Fort Caswell for duty.

CLAYTON, GEORGE R., contract surgeon, will accompany the first detachment of recruits to be sent from Columbus Barracks to San Francisco, Cal., and after his arrival at San Francisco will proceed by the first available transport to Manila, P. I., for assignment to duty.

CLARKE, ISAAC C., sergeant first class, now at Fort Schuyler, on or before expiration of the three months' delay granted him, June 9, will report at Watervliet Arsenal, N. Y., to relieve George Griffith, sergeant first class. Sergeant First Class Griffith will be sent to Fort Harrison to relieve George C. Van Sickle, sergeant first class. Sergeant First Class Van Sickle will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him by the first available transport to Manila, P. I., for assignment to duty.

JACKSON, HOWARD R., sergeant first class, now at Franktown, Colo., is relieved from further duty in the Philippines Division, and on or before expiration of furlough will report to the commanding officer, Fort Logan, who will send him to Fort Washington to relieve John L. Collins, sergeant first class. Sergeant First Class Collins will be sent to the depot of recruits and casuals, Fort McDowell, Cal., reporting to the commanding officer, who will send him by the first available transport to Manila, P. I., for assignment to duty.

SUGGS, FRANK, contract surgeon, is relieved from further duty in the Philippine Islands, and upon the expiration of his present sick leave will proceed to Fort Mansfield for duty.

BAKER, First Lieutenant FRANK C., assistant surgeon, leave is granted for two months, with permission to apply for an extension of one month.

Changes in the Medical Corps of the U. S. Navy for the week ended August 12, 1905:

WISE, J. C., medical director, orders of July 29, 1905, modified; ordered to report to the surgeon-general of the navy, August 10, 1905, for duty in command of the Naval Medical School—August 5.

BOYD, J. C., medical director, ordered to additional duty as President of the Naval Examining Board, and the Naval Medical Examining Board, Naval Medical School, Washington, D. C.—August 5.

SELLERS, F. E., HATHAWAY, G. S., assistant surgeons, appointed assistant surgeons, with rank of lieutenant (junior grade) from August 1, 1905—August 8.

SPRATLING, L. W., surgeon, ordered to the Naval Station, New Orleans, La.—August 9.

TAYLOR, J. L., assistant surgeon, detached from the Naval Hospital, Pensacola, Fla., September 29, and ordered to Washington, D. C., October 2, for course of instruction at the Naval Medical School—August 9.

Changes in the Public Health and Marine-Hospital Service for the week ended August 9, 1905:

IRWIN, FAIRFAX, surgeon, leave of absence for one month from August 5, 1905, granted by bureau letter of July 12, 1905, revoked —August 6, 1905.

BLUE, RUPERT, passed assistant surgeon, to report at Washington, D. C., for special temporary duty—August 6, 1905. To proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 7, 1905.

GREENE, J. S., passed assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty —August 6, 1905.

LAVINDER, C. H., passed assistant surgeon, to proceed to Fontainebleau, Miss., and assume command of detention camp—August 4, 1905.

MCMULLEN, JOHN, passed assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 6, 1905.

STANSFIELD, H. A., passed assistant surgeon, relieved from duty in the Canal Zone, and directed to proceed to New York, N. Y., and report arrival by wire—August 9, 1905.

CURRIE, D. H., passed assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty —August 6, 1905.

AMESSE, J. W., passed assistant surgeon, to proceed to Cairo, Ill., and assume temporary command of the service—August 6, 1905.

RUCKER, W. C., assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 6, 1905.

EBERT, H. G., assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 7, 1905.

SMITH, F. C., assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 6, 1905.

STEGER, E. M., assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 6, 1905.

ASHFORD, F. A., assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 7, 1905. Bureau order of August 7, directing him to proceed to New Orleans, La., revoked, and directed to proceed to the Immigration Depot, New York, N. Y., and report to Surgeon G. W. Stoner for duty—August 8, 1905.

MCKEON, F. H., assistant surgeon, relieved from duty at United States Marine-Hospital, New Orleans, La., and directed to report to Surgeon J. H. White for special temporary duty—August 8, 1905.

SWEET, E. A., assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 6, 1905.

FROST, W. H., assistant surgeon, to proceed to Norfolk, Va., and assume temporary charge of the service—August 6, 1905. To proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 7, 1905.

MULLAN, E. H., assistant surgeon, to proceed to New Orleans, La, and report to Surgeon J. H. White for special temporary duty—August 8, 1905.

OLSEN, E. T., assistant surgeon, relieved from duty at Immigration Depot, New York, N. Y., and directed to proceed to New York, N. Y. (Stapleton), and report to medical officer in command for duty and assignment to quarters—August 3, 1905.

BOYD, F., acting assistant surgeon, granted leave of absence for thirty days from August 1, 1905—August 2, 1905.

HUNTER, S. B., acting assistant surgeon, granted leave of absence for thirty days from September 1, 1905—August 2, 1905.

KEATLEY, H. W., acting assistant surgeon, granted leave of absence for two days from August 6, 1905, under the provisions of paragraph 210 of the regulations.

SAFFORD, M. V., acting assistant surgeon, granted leave of absence for four days from August 4, 1905, under the provisions of paragraph 210 of the regulations.

STEWART, W. J. S., acting assistant surgeon, granted leave of absence for thirty days from October 1, 1905—August 4, 1905.

TARBELL, B. C., acting assistant surgeon, granted leave of absence for five days from August 20, 1905—August 7, 1905.

TOWNSEND, W., acting assistant surgeon, granted leave of absence for five days from August 7, 1905—August 7, 1905.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

THIRD SESSION.

At the third meeting, Arthur P. Bevan, chairman of the **Committee on Medical Education,** reported that conferences had been held with 42 States and Territories, the Army representatives, the United States Public Health and Marine-Hospital Service, the Association of American Medical Colleges, and the Southern Medical College Association. The consensus of opinion of these bodies was about as follows: The Council on Medical Education should be considered a nucleus about which shall crystallize the effort to elevate the standards of education; there should be an annual conference of the licensing bodies of the States and Territories, the representatives of the medical faculties, and of the faculties of colleges of liberal arts; a permanent organization of the council is needed. The council recommended Geo. W. Webster for secretary of the permanent organization, and requested sufficient equipment and financial aid for the efficient prosecution of its work. The committee urged the following requirements: 1. A high school education, with examinations to prove the students' fitness. 2. A four-year course of seven months each, no two in the same year, the course to be approved by the Council on Medical Education, by licensing boards of the States and Territories, and by the faculties of the medical colleges. 3. The satisfactory passing of examinations, conducted by the licensing board of the State or Territory within whose bounds the candidate expects to practise. With regard to reciprocity between the licensing boards of the various States and Territories, it was the opinion of the council that the time was not ripe for such a measure.

The Report of the Committee on National Incorporation was read by the chairman, J. D. Bryant (New York).

The Report of the Committee on Organization.—J. N. MCCORMACK (Kentucky) chairman, said the plans of the committee have been accepted by all but two States, viz., Maine and Virginia. E. ELIOT HARRIS (New York) offered a resolution to the effect that the Reference Committee on By-laws be requested to report an amendment to the by-laws, which shall place all arrangements for the annual sessions, including place of meetings, exhibits, etc., in the hands of the Board of Trustees. Referred to the Reference Committee on Amendments to the Constitution and By-laws. T. J. HAPPEL (Tennessee) offered a resolution to the effect that if needed, after due consideration of rates, accommodations, meeting halls, etc., the place of meeting for the annual session might be changed by the Board of Trustees, provided that no change should be made within three months of the time for the session to convene. Referred to the Reference Committee on Amendments to the Constitution and By-laws. C. J. SMITH (Oregon) presented, by request, a resolution that the American Medical Association shall aid the regular practitioners of Alaska in their effort to secure the passage, by Congress, of a bill to regulate medical work in Alaska. Referred to the Committee on Medical Legislation and Political Action. W. H. SANDERS (Alabama), after referring to what he considered some faulty methods in keeping the minutes of the House of Delegates, a special point being their inaccessibility, moved that a committee of five be appointed to investigate the question and to report during the present session. The motion was seconded and carried, and President MCMURTRY appointed Sanders chairman of the committee. C. J. Smith presented a resolution that the American Medical Association should recommend to Congress the support of the Department of Public Health and Hygiene. E. Eliot Harris introduced a resolution regarding the representation of New York, which was referred to the Committee on Amendments to the Constitution and By-laws. The Section on Medicine presented a resolution heartily endorsing the Council on Pharmacy and Chemistry, and recommending the entire removal of nostrum advertisements from the pages of *The Journal.*

FOURTH SESSION.

Report of the Reference Committee on Amendments to the Constitution and By-laws.—A. R. CRAIG (Pennsylvania), chairman, stated that its members held firmly the conviction that the least change possible in the existing constitution and by-laws should be made. The proposed amendment providing for the election of section lecturers, who should occupy 30 minutes' time before the section and whose lectures should be based on special research work, the lecturers to be chosen by appointment or competition, was reported adversely. The proposed amendment providing for the biannual election of section delegates was not favored. The amendment providing for the succession of vice-presidents to the president's work in ranking order was favorably reported. The proposition to

change the plan of apportionment of delegates, so that the apportionment should be changed oftener, was unfavorably reported.

The amendment to Chapter vii, Section 1, was reported favorably:

Nominations for office, except that of the treasurer, shall be made orally, but no nominating speech shall exceed two minutes in length. Any nominee receiving a majority of the votes cast shall be declared elected. The treasurer shall be nominated by the Board of Trustees.

The following amendments (Chapter iv, Section 1, Chapter iv, Section 3) were not recommended:

Chapter iv, Section 1.—Striking out Section 1 and inserting in lieu thereof the following: "*Time of Elections.*—The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the session."

Chapter iv, Section 3.—Striking out said Section and inserting in lieu thereof the following: "Nominations for president shall be by ballot. All other officers shall be nominated by a committee of seven, representing the various geographic divisions of the country as nearly as may be."

The following amendment to change the name of the Section on Pharmacology to the "Section on Pharmacology and Therapeutics," was unfavorably reported, in spite of the fact that the request for the change came from the section itself:

Chapter viii, Section 1.—That the name of the Section on Pharmacology be changed to the Section on Pharmacology and Therapeutics.

The amendment was finally referred to the Committee on Sections and Section Work. Upon motion, the report of the committee as a whole, together with its recommendations, except the last amendment as reported, was adopted.

A resolution introduced by E. F. WELLS (Illinois), calling attention to the fact that at present there is no adequate provision made by the government for the prevention of disease and avoidance of preventable deaths in case of war, was referred to the Committee on Public Health and Hygiene.

The Section on Pathology and Physiology presented a communication recommending the following men for associate membership in the American Medical Association: Lea, New York; Fisher, California; and Kemp, Illinois. This section also proposed an amendment to the by-laws, providing for the reading of papers before more than one section by the various participants in section work. The object of the amendment was to permit joint meetings of sections or some other arrangement, whereby papers of interest to more than one section might be accessible to all who were interested.

The Section on Gynecology presented a similar amendment, and both were referred to the Committee on Amendments to the Constitution and By-laws.

The Section on Obstetrics and Diseases of Women presented a resolution to inaugurate work for the prevention of uterine cancer, which recommended the distribution of pamphlets discussing the disease; the establishment of free pathologic laboratories, where diagnoses may be made, and the organizing of lecture courses for instruction of the public. A committee of five to prosecute the work was suggested. The resolution was referred to the Committee on Hygiene and Public Health.

T. J. HAPPEL (Tennessee) proposed an amendment providing for the election of a chairman of the House of Delegates daily, in order that the president might be relieved of the onerous and monotonous duty of presiding over all the sessions and that there might be opportunity to choose men of parliamentary skill to the end that business should be expedited. The matter was referred to the Committee on Amendments to the Constitution and By-laws.

The Section on Ophthalmology recommended J. Hirschberg (Berlin) for election to honorary membership, which, according to rule, was referred to the Committee on Sections and Section Work.

The Section on Stomatology introduced a resolution decrying and deprecating the practice of employing contract surgeons and dentists in the army, on account of the danger of friction between them and the commissioned men with the necessary detriment to the service. The resolution was referred to the Committee on Medical Legislation and Political Action.

F. H. Wiggin (New York City), secretary of the Judicial Council, tendered his resignation from the council, to take effect at the close of the session. The resignation was accepted.

[*To be continued.*]

Practice of Medicine.

SECOND SESSION (CONTINUED).

Cylindruria.—CHARLES P. EMERSON (Baltimore) discusses briefly the formation and significance of casts with especial relation to the hyaline epithelial casts. These are significant if they consist of kidney tubules which have been broken off and are excreted in the urine. Most of the socalled epithelial casts are only hyaline on which are gathered a few cells with round nuclei. Pus casts and blood casts occur often in temporary conditions, particularly after unaccustomed exertion. Occasionally there is a sudden elimination of a large number of casts in the urine. In diabetes this is indicative of the early establishment of diabetic coma. Casts predominate in acute conditions of the kidney. Certain substances occasionally have a tendency to give rise to casts in the urine. Among these may be mentioned asparagus, salicylic acid, mustard, spices, etc.

Kidney in Puerperal Eclampsia.—PHILIP KING BROWN (San Francisco) studied as a foundation for his paper, statistics of 54,000 births. In 105 of these some symptoms of eclampsia developed. He considers eclampsia a problem in metabolism and elimination. Thyroid enlargement is quite common in pregnancy, but eclampsia would seem to be related more definitely to the intoxication occurring with an insufficiency of the thyroid substance. The reduction in urea excreted does not constitute a danger signal. The author's conclusions were as follows: Albumin was present in fully 80% of normal pregnancies. Albumin and casts were found in 30% at least of all pregnancies. There was no reason to suppose that the renal condition thus revealed was the cause of eclampsia. That there was some connection, however, between the albuminuria and the extrarenal cause of the eclampsia, was likely in view of the nearly constant association of the two. It has been shown that neither any normal end-product nor any known intermediary product of metabolism was the cause of eclampsia. It was reasonable to suppose that deficient thyroid activity played a part at least in some of the cases of eclampsia. There were probably several causal factors to the separate or concomitant action of which eclampsia seemed to be due. The most significant experimental work done up to this time pointed to the fact that in the placenta were found the toxic substances which probably were responsible for eclampsia. There was good evidence that these same substances were in all probability the causes of the headaches, edema, abdominal pain, and particularly the albuminuria present in the noneclamptic and nonnephritic cases. The nervous systems of pregnant women were in an abnormally sensitive condition. Their blood had been shown to be abnormally toxic. There was no conclusive proof of an increased or diminished toxicity of the urine. Brown's experiments have shown that the muscles of the pregnant guineapigs could be thrown into convulsion more easily than those of nonpregnant animals.

[*To be continued.*]

Surgery.

THIRD SESSION.

Surgery of the Liver to Reestablish Continuity and Control Hemorrhage.—JACOB FRANK (Chicago) was of opinion that primary union is nearly always possible in surgery of the liver, and that therefore wounds of this organ are far less grave in prognosis that was formerly supposed. The necessary points for favorable results were the control of hemorrhage and restoration of continuity of surface. His chief object was to bring his flaps together, and obliterate all dead space, as this reestablished the continuity of the liver surface, and left no raw surface nor ragged edge. He makes a large thoracic incision including resection of the lower four costal cartilages. In resection of the liver, surfaces are left with flaps forming a trough for apposition and coaptation. It is necessary to employ very slight tension. He believed it was possible to readily control hemorrhage in liver operations, and urged that liver surgery should be put on a plane with appendicitis.

Gallstones in the Common Duct.—W. D. HAGGARD (Nashville, Tenn.) mentioned a number of cases on which he had operated, and looked upon stones in the feces as an indication for operation. He considered that operation in the presence of prolonged jaundice was dangerous, and mentioned a number of differential points between tumor and stone obstruction. He dwelt particularly on the incidence, the different locations and the frequency, and detailed the typic symptoms, dwelling on the similarity to ague. He then reviewed recent literature of the condition. He was always dubious about accepting the statement of a patient that they had passed gallstones unless they could produce them.

Noncalculous Cholecystitis.—DAVIS S. FAIRCHILD (Des Moines, Iowa) called attention to the number of cases of operation for gallstones in which no stones were found. Practically no changes were sometimes observed in the appearance of the gallbladder in spite of the supposed gallbladder disease. The changes noticed were usually in the nature of a slight thickening of the wall of the gallbladder; associated with enlargement of the lymphatic glands along the tract. Sometimes the head of the pancreas is enlarged and sometimes chronic interstitial pancreatitis exists. Many of the most serious cases of gallbladder disease occur when no stones are present.

Penetrating Wounds of the Abdomen.—R. WINSLOW (Baltimore) dealt particularly with military wounds, and stated that stab wounds are not so serious as gunshot wounds. He gave some of his personal experiences in civil practice, with the results of treatment. He gave Civil war statistics and quoted articles by S. D. Gross in 1843, and Marion Sims in 1881. Laparotomy and repairs of injuries is supposed to be fixed principle, but the experience of the Spanish and Boer wars casts a doubt on the propriety of this procedure in military practice. The proper treatment of penetrating wounds of the abdomen on the field and at base hospitals is, therefore, still *sub judice*. In civil practice penetrating wounds of the hollow viscera are practically always fatal, and injuries to the solid organs are

usually so, hence prompt operation should be done. Wounds of thorax below fifth rib must be considered as possible penetrating wounds of belly. Wounds of back and pelvis also liable to penetrate. In some cases drainage should be established, although when there had been but little contamination he did not think this necessary.

[*To be continued.*]

Obstetrics and Diseases of Women.

THIRD SESSION (CONTINUED).

Operation for Pyosalpinx without Ligature, Clamp, Artery Forceps or Bleeding, by Overthrow Provisional Suture Method.—W. D. KELLY (St. Paul) considered the etiology, pathology, symptoms, diagnosis, complications, etc., of pyosalpinx, described this method, and reported 59 cases with but one death. He treats the abdominal wound with two thick strips of gauze on either side, leaving practically an open wound when the adhesive strips are applied. His conclusions were: (1) That pyosalpinx is due mostly to abortion or gonorrheal infection; (2) occurs between the ages of 16 and 40; (3) mortality less than measles; (4) occurs in the ampulla; (5) complicated with appendicitis; (6) associated with cystitis, ovaritis, etc.; (7) associated with general peritonitis; (8) tube seldom ruptures; (9) operation bloodless; (10) drainage never necessary; (11) no counter opening; (12) extratubal or peritubal.

Fourth Detailed Report of the Superior and Lasting Results of My Biinguinal Operation for Simple and Complicated Aseptic Retroversion of the Uterus.—A. GOLDSPOHN (Chicago) prefers to treat movable, separable retroversions by use of pessaries. He considers Alexander's operation good for women who cannot conceive, but insists that bi-inguinal celiotomy should transplant the Alexander operation in all cases, because: 1. The infections in the pelvis occur in the fallopian tubes, and the ends of tubes are more frequently adherent. These are very hard to diagnosticate. 2. The round ligaments frequently cannot be drawn out of the broad ligaments sufficiently to shorten them, hence, the operation is inefficient. 3. Clinical proof shows that there is a return of retrodisplacement as a result of Alexander's operation in 7% to 12.5% of cases. He reported 55 cases in which operation was done by his method, making a total of 190 cases reported, of which only three were failures, and these for special regions. Return of displacements after his operation is very rare.

[*To be continued.*]

Diseases of Children.

SECOND SESSION (CONTINUED).

Ataxia of Central Origin Appearing in Childhood: A Study of Six Cases.—ARTHUR W. FAIRBANKS (Boston) said this disease is a rare type and varies greatly in names according to different observers. Only a small number of cases ever come in any one person's experience. It is characterized by muscular incoordination in early childhood, appearing first in the legs, then in the arms, body, and head, slow speech, nystagmus, oscillations of head, even choreiform movements, later spinal curvatures, and finally paralysis, muscular spasms, and contractures. Some of the symptoms that are hardly to be classed as characteristic are: Vertigo, headache, impaired vision and impaired ocular movements, hysteric laughter, and very rarely, trophic disturbances in the skin and loss of power over the sphincters. Some psychic phenomena are manifested, and epileptiform convulsions may occur. Friedreich described the disease in 1851 so fully that there have since been no standard variations noted. The late symptom-complex depends upon the derivation and extent of the process in the central nervous system. All cases observed were noted first by an unsteady gait, widespread feet, swaying movement, with short quick steps. There was wellmarked ataxia in the arms in three cases out of the five. In two cases the speech was affected, in the fifth case it was not abnormal. The knee-jerks were not lost in any case. There were six autopsies, showing in one case general smallness of nerves without pathologic changes. In the other five, there was marked degeneration in the columns of Clark, in the anterior horns and nerve roots and in the direct and cross pyramidal tracts of the lateral columns. The nerves showed a reduction in size and atrophy with loss of the medullary sheaths, and proliferation of neuroglia, especially the glia cells, and interstitial proliferation. The columns of Gall, Clark and Burdach showed characteristic changes. Secondary to the degenerative changes, there was sclerosis of the direct cerebellar tract. Partial or complete extirpation of the cerebellum in monkeys and dogs will cause many of the same symptoms.

Discussion.—C. F. WAHRER (Fort Madison, Ia.) asked if the choreic movements mentioned included socalled athetoid movements. GARRISON (Dixon, Ill.) asked if Fairbanks had ever noted any tuberculous tendency in his cases, and reported a case in her own service. In closing, FAIRBANKS said the choreic movements did not include the athetoid movements which, in his opinion, rarely occur. He also added there were frequently nutritive changes in the nerve tracts with extreme atrophy of the white fibrous tissue of Schwann. The bloodvessels in the cord frequently exhibit changes. There is no good ground for thinking tuberculosis is an etiologic factor, but it may be a termination. Since the case reported by Garrison recovered, he felt like calling the diagnosis wrong, because all these cases died. Fairbanks is coming more and more to believe it always begins in early childhood.

[*To be continued.*]

Ophthalmology.

SECOND SESSION.

Demonstration of a Simple Method of Accurately Localizing by the Röntgen Ray a Foreign Body in the Eye.—VARD H. HULEN (San Francisco) exhibited his method with apparatus and patient. The instrument for holding the tube and fixation of the patient was very simple, and such that the patient could not move. Fixation of the head was secured by means of the teeth fastening upon a piece of soft wood. The tube was so placed that the point where the wires cross and the V-shaped sight were in a direct line. The anode could be raised or lowered, and moved from side to side. A lead strip was used upon the lower lid, and the measurement from the center of the cornea to the top of the lead taken; then the distance posteriorly from the apex of the cornea to the piece of lead, and the distance from the anode to the cross wires. The method of plotting the location from these measurements was demonstrated by means of charts upon the board.

Discussion.—JNO. E. WEEKS (New York) said the first work in determining the location of foreign bodies in the eye had been done by Sweet, of Philadelphia, who antedated McKenzie Davidson by about a year. He thought an improvement upon the apparatus might be made in having the patient in a recumbent position with the head strapped to the plate holder. DIXON (New York) had devised a head rest of this kind. He thought, too, that the patient should fix some object, and used for that purpose a little ball held just above the head, parallel to the plane of the plate holder. There was a possibility of error in the relation of the marker to the eye ball when it is placed on the lid because the patient did not at all times keep the lid still. Dixon and the speaker had devised a chart for plotting the localization of foreign bodies in which millimeter squares were used so that one could see at a glance the exact location and distance from any given point. EDWARD JACKSON (Denver) was very much pleased with the simplicity attained by Hulen in his method, and thought the fixation by means of the teeth very excellent.

Blasting Eye Injuries.—JOHN A. DONOVAN (Butte, Mont.) described the various methods employed in mining, and explained the causes of accidents. He concluded that with but few exceptions, blasting injuries resulted from want of care on the part of the patient or his associates; that the eyes should be examined immediately, the larger foreign bodies removed, atropin used and the subsidence of general reaction awaited; when reaction subsides, remove particles as symptoms indicate, when not practical to remove at once; foreign bodies inside the eye had better be removed as soon as located; in children, anesthesia to be used if the specks were deeply embedded; favorable prognosis should always be guarded, deep internal changes often being produced; never operate to restore vision until inflammatory signs have disappeared; nothing should be done or said that could not be substantiated in the courts, careless remarks encouraging patients into litigation, the ultimate consequences of which were disastrous to the client.

[*To be continued.*]

Nervous and Mental Diseases.

SECOND SESSION (CONTINUED).

The Tabetic Foot; Its Importance in the Causation of the Ataxia of the Lower Extremities.—SIDNEY I. SCHWAB and NATHANIEL ALLISON (St. Louis), after discussing in detail the theories of the causation of this condition, the mechanics of the tabetic functional flat-foot, and the hypotonic ankle, together with the importance of these factors in the establishment of the typic gait, gave in detail the methods employed by them directed toward the correction of the gait in locomotor ataxia by mechanical means. The observations upon this point covered a series of 15 cases, extending over a period of two years. They stated that the pronation of the foot is a factor in all these cases and to the correction of this defect must the physician's efforts by mechanical appliances be directed. The shoe which is employed by the authors in these cases has the sole so constructed as to counteract this pronation, and an additional advantage has been obtained by putting cleats on the soles. Several cases showing the results of treatment were reported, prominent among them being the case of a motorman, whose condition at the time of the commencement of treatment was such that he could not follow his regular occupation, and such improvement has now taken place that he is able to go about his regular duties for a period of eight hours a day. The authors do not put this forth as a cure for locomotor ataxia, but merely as a mechanical correction of the gait.

Discussion.—H. T. PERSHING (Denver, Col.) believed that anything which would produce even moderate improvement in the gait would be of great service, and would be warmly

welcomed both by the patient and the profession. He referred to the fact that a certain shoemaker in the past had been selling a certain kind of shoes at an enormous price for the correction of the gait, and believed that by the conjoint work of the neurologist and orthopedist as was done by the authors of this paper, would the best result be obtained. JOHN PUNTON (Kansas City) felt that the profession and the patient as well, would welcome any appliance that would tend to relieve this annoying gait. SMITH ELY JELLIFFE (New York) referred to the tendency of physicians to tire of patients suffering with locomotor ataxia and similar chronic nervous diseases, and believed that this tendency alone was responsible for many of these cases drifting into the hands of irregular practitioners, and referred to a shoemaker in New York, who had also been selling shoes for the remedying of this defective gate at an enormous price. DAVID I. WOLFSTEIN (Cincinnati) had also observed certain shoemakers selling shoes at an enormous price for the correction of this condition as related by the last speaker. He expressed the opinion that for the successful treatment of the condition the work of the neurologist must go hand in hand with that of the orthopedist. PUTMAN (Buffalo) felt that the greatest advance in the treatment of tabes was made when Fränkel introduced his movements. He believed that in conjunction with these movements, mechanical appliances were of great value, but without the movements felt they would be of but little use. SCHWAB, in closing, stated that the greatest relief to the tabetic's mind was obtained by correcting his gait; and that very few of them paid any attention to an Argyll-Robertson pupil, or an absent knee-jerk, if the gait was fairly normal, they were made much happier. He did not think this treatment had any effect upon the hypotonicity of the muscles or joints, and that it was advanced rather as a means of mechanical correction than as a therapeutic agent, and that it had not yet been in use a sufficient length of time to enable them to give any opinion as to its permanency.

[*To be continued.*[

Stomatology.

FIRST SESSION (CONTINUED).

The Physician's Duty to the Child from a Dental Standpoint.—ALICE M. STEEVES (Boston) said the general practitioner has vast opportunity for dental missionary work among the children because of his relationship to the family. He should instruct the mother as to the care of the child's teeth from the appearance of the first white pearl, explaining to her the necessity of giving as much care to the first teeth as should be given to the permanent set. These first teeth should receive the attention of a dentist as soon as a cavity appears, and should not be removed until such time as they have fulfilled their mission. Internal medicine is important in this connection because of the relation of the mouth to normal digestion, and because of the effects of various medicines upon the teeth.

The Medical Relations of Certain Conditions of the Mouth.—L. DUNCAN BULKLEY (New York) said the mouth is actively concerned in the first step in digestion, and therefore in the process of life and health. Although subject to continual irritation from foreign substances, and although the seat of many varieties of microorganisms, its tissues show remarkable powers of healing after surgical or other injuries. The normal alkaline secretion varies with different conditions of the system. The saliva has an important function, but the average individual eats too hurriedly. In gout and rheumatism there is increased acidity and a consequent gingivitis and pyorrhea. Syphilitic conditions of the system are more frequently evidenced by the condition of the mouth than is generally supposed. Chancres are found in all parts of the mouth and on the tongue.

Discussion.—V. A. LATHAM (Chicago) said that the conditions of the mouth and teeth are based almost entirely upon systemic conditions. Syphilis has much more to do with the condition of the teeth than is generally supposed. She has seen cases in which the teeth have been in splendid condition before contracting syphilis, and afterward discoloration, decay, erosion and abrasion have been quite severe, and interstitial gingivitis resulting in pyorrhea alveolaris with wasting of the alveolar processes. B. V. I. BROWN (Milwaukee). The central idea is that we need better education to the end that we may make better diagnoses. The value of our work lies in being able to diagnose early. We have many cases in which diagnosis of syphilis has not been made, and in which the one thing the patient needs is the proper treatment for syphilis, without which other measures would be useless, and probably result in serious injury to the patient. On the other hand, time is often wasted in trying to overcome systemic conditions which do not exist. M. L. RHEIN (New York) the main portion of the medical profession has had no education as to what is the normal physiologic condition of the mouth, and consequently when they examine an abnormal mouth they are at a loss to make a proper diagnosis, either of what may be wrong, or as to whether it is even abnormal. BULKLEY in closing said American dentistry is recognized all over the world. There are many cases of pyoalveolaris that it would unquestionably be folly to send to a physician. Undoubtedly in these cases the first item is proper surgical treatment and perfect dental cleanliness. Almost everybody who has had syphilis at some time or other has had mucous patches. He has seen chancre in almost every part of the mouth and tongue. He does not know whether the saliva in syphilis is modified or not—as to quantity. He has never happened to come across any cases of gonorrhea of the mouth. Legally we do not speak of syphilitic leukoplakia any more than syphilitic psoriasis. We have a great deal of leukoplakia sometimes from smoking and other causes.

[*To be continued.*]

Laryngology and Otology.

THIRD SESSION.

The Correction of Saddle-nose by Bone Implantation.—CULLEN F. WELTY (San Francisco) does not think we are justified in assuming the risk of possible blindness for the correction of nasal deformities. Plastic surgery should be recommended when possible, because of the foregoing complication. If paraffin injections are needed at all, the cases should be selected, the paraffin should have a melting-point above 115° F., and a screw piston syringe, as recommended by Smith should be used, so that by each complete turn of the piston, a definite quantity will be introduced. We cannot conclude positively what becomes of the paraffin, but in the greatest number of experiments it has disappeared, leaving connective tissue. Welty believes the development of the new tissue is due to a ferment that destroys the paraffin and produces new connective-tissue. He is satisfied that only a small number of the accidents have been reported that have followed the use of paraffin as he is familiar with two cases in his own city; in one, complete blindness in one eye; in the other, partial blindness of one eye. Welty has found that the implantation of bone from the lower animals is not entirely satisfactory, and therefore he decided to use a piece of bone from the patient himself; the most desirable was that of the spine of the tibia. At the end of five weeks the bone was in place, and it is now five months since the operation, and he has every reason to believe the bone will remain in place permanently, provided it has sufficient nourishment; if not, it will atrophy with the possible formation of new connective tissue, which would be more ideal than at present. The bone did not unite. It has become apparent that had the bone united, a fracture would have followed the slightest traumatism. In all cases of saddle-nose there is an apparent widening, and in some instances, a real widening of the base of the nose. This is overcome by lifting the bridge with a lowering of the tip; and this can be brought about by the length and thickness of the bone implanted. With good surgical principles adapted to it, the use of bone implantation for the correction of saddle-nose will surpass all other methods.

Discussion.—W. S. ANDERSON (Detroit) ceased using paraffin so frequently after reading of blindness following this apparently simple operation. O. S. FREER (Chicago) had been surprised at the ease with which depressed noses may be molded back into shape even several weeks after the original fracture. H. FOSTER (Kansas City) had at first some trouble using paraffin because it was too hard, boiling at about 150°. Excellent results have followed the use of paraffin at 115°. As to the risk in these operations, some objection may be raised to almost any operation. The reports of blindness from this procedure have come largely or altogether from oculists. With proper technic and absolute cleanliness it is an ideal operation. W. W. PENNELL (Mt. Vernon, O.) reported a fractured nose successfully treated with splints of rubber tubing. ROBERT C. MYLES (New York) laid emphasis on injecting paraffin cold and in small quantities. WELTY closed the discussion, declaring that the use of paraffin would be ideal if we could eliminate the dangers.

[*To be continued.*]

Pharmacology.

SECOND SESSION (CONTINUED).

Therapeutics of Neuritis.—D. R. BROWER (Chicago) hoped that the name of the Section on Pharmacology would be changed to the Section on Pharmacology and Therapeutics. He stated that in looking over the 14 papers in the Section on Practice of Medicine, that one is on treatment, and of the 26 papers in the Section on Nervous and Mental Diseases, one is on treatment, and further stated that he was of the belief that the whole program would no doubt show the same deplorable neglect of therapeutics. Intoxication was probably the basis of all cases of neuritis, and of all the agents alcohol is the most important, followed closely by arsenic, lead and the coaltar products, and asserted that no case could be successfully treated until the cause was removed. The usual cause of death in multiple neuritis is cardiac and respiratory failure. The stimulants most useful are strychnin sulfate and spartein sulfate, in grave cases hypodermically, the dose of the former being from $\frac{1}{15}$ gr. to $\frac{1}{15}$ gr. and of the latter $\frac{1}{2}$ gr. to $\frac{1}{2}$ gr. in from three to six hours. Absolute rest is essential in every case. The depressing coaltar products must be avoided. Often heat or cold, as

intense as possible, will give relief. The galvanic current will often give prompt relief from pain. When the galvanic current fails, a hypodermic injection of morphin and atropin may be used. The bowels, skin and kidneys must be made active. The treatment in the majority of cases should begin with a mercurial purge, calomel by preference. After the bowels have been made active, if insomnia and pain continue, a dose of Dover powder at bedtime will be a valuable sedative. Hypodermic injections of strychnin into the muscles will often aid in the restoration of the functions when massage and electrics fail. (1) Guard against cardiac and respiratory failure; (2) secure absolute rest; (3) remove the cause; (4) relieve the pain; (5) eliminate the toxins; (6) remove inflammation from nerve trunks; (7) attend to general constitutional state; (8) improve nutrition of paralyzed muscles.

Discussion was confined to the suggestion that the name of the section be changed to Pharmacology and Therapeutics. STERN (New York) emphasized the necessity for a Section on Therapeutics, and urged the section to instruct its delegate to the House of Delegates to work toward the end of having Therapeutics added to the present name of this section. CHAMBERLIN (Ohio) moved that the delegate be instructed to strive for the restoration of the title of this section to the name of Pharmacology and Therapeutics. HALLBERG (Chicago) in explanation of the adoption of the present name, quoted the definition of the term pharmacology, published in *The Journal* some four months ago, quoting the German and French authorities, who define pharmacology as comprising practically all the sciences of material medicinal agents, materia medica, pharmacodynamics, or of drug therapy, as distinguished from other agents used in the treatment of disease, contending that pharmacology, considered etymologically, is the broadest and most comprehensive term that can be applied to the science of drugs. Stern replied that the very moment we must explain the reason for a name, or that we must explain the name itself, that very moment the name has no value.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 264.*]

Carcinoma of the Larynx.—S. E. SOLLY (Colorado Springs) reported this case. The patient was a woman of 43, who came under observation in September, 1904. Two years before that date she had first complained of hoarseness, which gradually became more severe, until her voice was completely lost. Three months ago she had begun to suffer from gradually increasing dyspnea. Inspection of the larynx showed a nodular tumor growing from the anterior wall, and involving about two-thirds of its circumference. Upon microscopic examination of a section of the growth, it was demonstrated to be carcinoma. A tracheotomy became necessary to relieve the dyspnea, and subsequently W. W. Keen, of Philadelphia, did a total laryngectomy. About a month later, some enlargement was observed over the right lobe of the thyroid. The patient refused further operative interference, and died about two months after the operation, the direct cause of her death being obscure, even after a thorough postmortem investigation. One theory advanced was that the direct cause of death was a lack of parathyroid secretion, one of the parathyroids having been removed at the operation, while the remaining three were involved in the recurrent carcinoma.

Discussion.—CHEVALIER JACKSON said the case reported by Solly was an exceedingly interesting one, and had been skilfully managed. Professor Keen's technic for total laryngectomy was well known, and could not be much improved, excepting in regard to the Trendelenburg anesthetizing tube, which he would probably eventually abandon. All the chloroform that was required could be very easily given on a gauze sponge held in a hemostatic forceps. Keen had abandoned preliminary tracheotomy and Jackson said he thought it was entirely unnecessary to keep these patients breathing through a tracheotomy canula for a week prior to the operation. The tracheotomy, if one was necessary, could be done at the time of the operation, the only argument against this being the advantage of a preliminary union of the trachea to the neck integument. It was a good idea to have these patients sit up as early as possible after the operation, as many of the pulmonary complications were the result of keeping them in bed too long, especially if supine. Morphin and deep anesthesia were the other two causes of pneumonia. The speaker said there was one feature of the treatment described in Solly's paper that he wished to criticise, and that was the giving of nutrient enemas. He regarded them as a delusion and a snare, although it was sometimes necessary to give them to satisfy the family. He did not think they were of any value as a means of prolonging life. While the rectum was a good thing to drink out of, it was a poor thing to eat out of. Thirst could be quenched, but hunger could not be appeased. A stomach-tube was harmless, and enabled the placing of food where it could do some good. The odor of rejected alleged nutrient enemas made one hope that none had been absorbed. JACKSON said that in one of his cases of total laryngectomy, he removed the involved pneumogastric nerve and the common carotid and jugular, and the patient apparently suffered no ill-effects from it. About four months later the malignant process for which the operation had been done, recurred in a gland on the opposite side of the neck; this increased in size until it pressed upon the pneumogastric nerve on that side, with resulting cadaveric paralysis, so that the patient could not expectorate, and he literally drowned in his own secretions. With each respiratory movement, the secretions bubbled up into the larynx, and then receded into the bronchi, until cyanosis and death occurred. While he regarded Solly's ingenious parathyroid theory plausible, and probably correct, he would ask if any nerve involvement had been noted. H. W. LOEB (St. Louis) said that of five cases of laryngectomy that had been under his observation, the first three died of a recurrence of the disease. In one of these there was a partial laryngectomy, followed by a total laryngectomy, and finally death. In the other two, recurrence and death took place within six months after the complete operation. The fourth case was that of a stone mason, who had been treated by another physician for supposed syphilis of the larynx. The case proved to be one of carcinoma, as demonstrated by the microscope, and the entire larynx was removed. The man made an uneventful recovery, and was still enjoying good health, working at his trade, fifteen months after the operation, without any signs of a recurrence. In the fifth and last case the larynx was removed without a preliminary tracheotomy. For a week after the operation the patient was fed by means of the stomach-tube. On the seventh day, while sitting up in bed, he had a sudden gush of blood from the mouth, and died. At the postmortem the operative wound was found to be in excellent condition, and death proved to be due to a pulmonary embolism. JOHN F. WOODWARD (Norfolk) said that in 1899 he was consulted by a man of 40, who complained of hoarseness. There was neither swelling nor tumor, nor other apparent cause for the hoarseness. About three months later, however, a swelling was noticed between the true and false cords on the left side. He was treated for a time, and his symptoms improved, but subsequently he complained of dyspnea, and there was a swelling over the entire inner portion of the left larynx. A swelling of the thyroid was also noticed at that time. He was lost sight of again, and when he reappeared, about six months later, he said that he had visited the Johns Hopkins Hospital, where he had been told that he had carcinoma of the larynx and thyroid. At first he refused operation, but finally returned and begged to have something done for him. With the assistance of Joseph White, of Richmond, Va., a tracheotomy was done under cocain with considerable difficulty, on account of the thickened tissues. The patient returned to his work as a railroad man, and remained comparatively well for about 18 months. The pneumogastric nerve then showed evidence of involvement by pressure, and the patient died by being drowned in his own secretions, as in the case reported by Jackson. Woodward doubted the value of late operations in these cases, inasmuch as tracheotomy seemed to promise as much comfort and prolongation of life. WENDELL C. PHILLIPS (New York) said that in connection with the discussion of Solly's paper, the fact should not be lost sight of that those men who operated with comparative frequency for the removal of the larynx, either partial or complete, advocated a preliminary tracheotomy, and they did so for the reason that their final results were better, so far as the occurrence of septic pneumonia was concerned. E. FLETCHER INGALS (Chicago) said we should not lose sight of the rule that laryngectomy should not be done in extrinsic cases; that is, when the disease had extended outward beyond the walls of the larynx, but in intrinsic cases the results were often very favorable. The speaker said he had in mind two such cases where the operation was done for him between two and three years ago. In both instances the laryngectomy was done by the Keen method; in one of them a preliminary tracheotomy was done, and in the other it was not. Whether such a preliminary tracheotomy tended to prevent the onset of a septic pneumonia was doubtful. An interesting feature in connection with his cases was that both patients were able to enunciate very distinctly after the operation, although the trachea was stitched to the skin, and one of them had learned to talk so that he could be heard distinctly 15 ft. or 20 ft. SOLLY, in closing, said that in the case he had reported, the condition was an intrinsic one, and very clearly defined. In the case reported by Jackson, the patient's death was apparently due to pressure on the opposite pneumogastric, and this might have occurred in his own case, although no nerve elements were found in the tissues removed at the autopsy, and there were no evidences during life that the opposite pneumogastric was involved in the recurrent growth. The patient raised a little frothy secretion just prior to his death, and on section of the lungs, some frothy matter was found there. The postmortem was very carefully made, and no thrombus nor embolus was discovered; neither were there any evidences of renal disease, although one of the kidneys was small.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE HUMANE USAGES OF WAR.

BY

V. HAVARD,

Assistant Surgeon-General United States Army.

To the Editor of American Medicine:—The appended paper has been handed me by gentlemen of my acquaintance, who vouch for its genuineness. I believe it is a true copy of the protest made by Russian surgeons to the chief of the Red Cross, as published in the *Novoe Vremya*, of St. Petersburg, May 11, 1905. We, of the medical profession, have taken pride in the humane spirit which, so far as we know, has inspired the surgeons on both sides during this war, impelling them to attend friend and foe with the same devotion. If this spirit has been violated by the Japanese at Port Arthur, it seems eminently proper that the world should be informed of it; if, on the other hand, they have been misrepresented, the publication of this protest in a friendly country will give them the opportunity of setting themselves right before public opinion.

Russian Doctors on Japanese Hospitals.

To the Editor of American Medicine:—I hope that you will not refuse to publish an official protest from a group of Russian physicians to the Japanese chief of military sanitation in Port Arthur. Mr. Balashoff, the chief of the Russian Red Cross, sent it as an official document to the Executive Committee of the Red Cross, and *Novoe Vremya* published it on May 11.

THE PROTEST.

"During January, by order of the Japanese authorities, a great effort was made to transfer the sick and wounded from the Russian to the Japanese hospitals. During this activity some of the Russian hospitals, as for instance, Transfer Hospital No. 5, were closed up, and all their patients moved to Japanese hospitals; and others, as for example, Hospitals No. 7 and No. 10, were wholly given over, buildings and patients with them, to the Japanese authorities.

"At this time, the arrival of fresh provisions in the city, and the decrease in the number of patients, made it possible to have the medical work in the Russian hospitals quite satisfactory, the supplies being in the hands of a Japanese-Russian Committee, and the treatment and care of the patients still remaining in the hands of Russian physicians.

"Having heard of the dreadful condition of our sick in the Japanese transfer hospitals, we, the undersigned, went to investigate the truth of these rumors. On March 11 we examined the second division of the first Transfer Hospital, and also the hospital occupying the barracks of the Ninth Regiment.

"Throughout both the above-mentioned places the conditions of life and the medical department do not correspond to the very lowest standard which can be accepted for temporary medical institutions. We found that most of the rooms were not heated; that material for bandages was completely lacking; that there was a deficiency of service; and that there was a serious deficiency of hospital clothing, crockery, and washing facilities. The quarters are nothing but a completely unfurnished barrack, the men lying on planks, or even simply on the dirty floor.

"On questioning the patients, we found that in these hospitals no systematic medical care was given to them. From our personal observations and the testimony of the patients, we found that the food was deficient in quantity and unsatisfactory in quality. The patients received no tea, either in the morning or in the evening. Hot food was distributed only once a day, often after it was half cooled, and it was served without forks or knives, in coarse mugs. This food looks like an opaque liquid with a few vegetables swimming in it. The portions were about a half glass per patient (in the Ninth Regiment). Hunger forced the patients to spend the little money they had on buying eatables from the Chinese. While the meal was being served we noticed that the Japanese hospital servants were very few in number and that their manners were rude. Owing to all this, the spirits of the patients were very depressed; recognizing Russian doctors, hungry, shivering men groaned aloud, begging for help and deliverance.

"We must make it known that the Japanese hospitals not only do not answer to the lowest medical standards, but that they are nothing but a caricature on medicine. Even during the busiest days of the siege, when all the hospitals were full to overflowing, we did not see anything so horrible; yet these are the conditions of many who are seriously ill, or even dying, some of whom have died, after several days deprivation of any kind of assistance, and even of the chance to get a little warmth, by drinking something warm.

"This is a cursory and rather pale picture of the institutions. A separate mention must be given to the second division of the First Transfer Hospital, which occupies the barracks of the Eleventh East Siberian Regiment, and in which the conditions were so dreadful as to be almost indescribable. The hospital consists of three large rooms. The third room is almost in ruins, as its ceiling and its stove were crushed by cannon balls; the next room is not inhabited, as all its windows and doors are broken, but the wall between it and the third room of the hospital is also broken down for about 14 feet; naturally the temperature of the room is the same as that of the outer air, and the wind blows freely through the room. In it were gathered about 20 men, all suffering from serious forms of scurvy and dysentery. The patients lay on their planks, trying to protect themselves from the cold by piling on themselves cloaks, tunics and blankets. Through lack of care, the majority of these patients lay on their excretions, some as long as six days, their underwear not being changed. Patients whose cases were lighter, could go no further than the places where they lay, so that all the passages in the room were filthy. Among the sick, we found two dead bodies, which had remained there among the living from 11 o'clock on the previous evening; one of them was removed in our presence. It is worthy of note that in this especially uninhabitable room were gathered all the worst cases. We received the impression that the men who were so wretchedly ill as to need the most care were carried here with the object of getting rid of them, because it was clear for anyone that in these conditions they must necessarily die. Once in this room, they were left without any care or assistance.

"In the two remaining rooms, there were about 150 men; the dysentery patients being placed side by side with the scurvy patients, and, no doubt, infecting their neighbors.

"There was no question of any kind of dietetic treatment, as all the patients, whatever their disease, were given the same insufficient food, and drank unboiled water.

"Having convinced ourselves as to the results of transferring a part of our sick to Japanese hospitals, where medical help is almost completely absent, where dirt, cold, and hunger reign, we, the undersigned, protest against this inhuman treatment of sick men. And in order to avoid future mortality, and to stop excessive suffering, which is inflicted on our soldiers now in the hands of the Japanese after 11 months of exhausting siege and sickness, we now demand:

"1. That all our sick should be immediately returned to the Russian hospitals.

"2. That until their recovery, we should forthwith cease giving our sick into the hands of the Japanese.

"3. As it may take several days to put our first demand into effect, and as the sick need immediate care, help and assistance, we demand the immediate and free right for the superior and inferior Russian medical staff to share in the medical treatment of our sick now placed in the Japanese Transfer Hospital.

"4. Though some of us, owing to the above mentioned evacuation, are now free not to carry on our medical duties, in the interest of our sick and wounded we, the undersigned, refuse to return home to Russia, and shall remain in Port Arthur with the object of taking care and giving help to the patients who were sent from the Russian hospitals.

"We are convinced that our demands of elementary humanity will be supported by all civilized nations, as the rights of all the sick and wounded are guarded by the regulations of the International Convention of Geneva."

The following is the editorial comment of *Novoe Vremya*, of date May 12, on the foregoing protest:

"The protest of a group of Russian doctors addressed to the Chief of Japanese sanitation in Port Arthur, which we published yesterday, is very depressing, in spite of its dispassionate official style. There is no ground whatever for doubting the sincerity and accuracy of this document, especially in view of the fact that its authors have sealed all their accusations against the Japanese by the most convincing proof within their power; they did not accept permission to return to Russia, which they had already received, and remained in Port Arthur with the single object of delivering our wounded from the criminal negligence of the Japanese 'doctors.'

"It is known that the position of the sick and wounded prisoners is regulated by the Sixth article of the Geneva Convention of 1864, which claims that 'the wounded and sick soldiers are to be received and taken care of equally, whatever nation they belong to.' This convention was signed by the Japanese in their turn, and therefore it is unquestionably binding on the people who are now at the head of the sanitary department at Port Arthur. Therefore, they must now prove that the Japanese wounded and sick are treated in the same abominable way as the Russians. And if they cannot do so, it is proved that they have broken a fundamental rule of international life.

"The Protest describes the conditions of two transfer hospitals especially assigned to Russian soldiers: The Ninth Regiment Hospital and the First Transfer Hospital. The fact alone that the two abominable hospitals visited by our doctors were filled *only* by Russians, gives rise to a serious suspicion. As far as our information goes, Russian hospitals have no separate accommodations for the enemy. When we take charge of a Japanese patient he is placed along with Russians, and is thus guaranteed against inferior conditions of lighting, heating, and service. The people of the Russian Sanitary Department obey the Sixth article of the Geneva Convention to the letter. Whatever they have is divided in a most brotherly way, and what is

lacking is lacked by all alike. This we think the right way to act, because the moment the hospitals begin to choose between the patients it may easily happen (human nature is so weak) that the soup in the Russian hospitals will not be as good, and there will be less scrubbing in it, and its servants will sleep more than elsewhere. We may be told in reply that the numbers of the Russian wounded were so great that there was no possibility of 'diluting' them with Japanese. Of course, such an objection must be taken into consideration; but the Japanese must first prove, statistics in hand, that it is well founded. The more so, in view of the fact that when the fortress was stormed it could hardly be that the besiegers had less losses than the besieged. Without the support of exact statistics, it would be impossible for the Japanese physicians to clear themselves of the accusation brought against them by the Protest, especially if we remember that in the First Transfer Hospital the Russian doctors were struck by the fact that the worst room contained the weakest patients, as if they were gathered together to be got rid of, by creating conditions which must necessarily be followed by the death of all the patients.

"Moreover, even if we admit that the isolation of the Russians in separate hospitals was done without evil intent, the accusations in themselves remain shocking, and bring disrepute to the accused: 'Even during the busiest days of the siege, when all the hospitals were full to overflowing, we did not see anything so horrible; yet these are the conditions of many who are seriously ill, or even dying, some of whom have died, after several days, deprivation of any kind of assistance, and even of the chance to get a little warmth, by drinking something warm.'

"The Japanese have several times boasted in print that the sanitary conditions of their army are so good that the percentage of their wounded who die is incredibly small (if we are not mistaken, it is only 3%). The conclusion to be drawn from this is, that in all probability, they do not let *their* wounded die without giving them a chance to get warm by drinking something warm.

"History is written slowly. Having conquered at Port Arthur, the Japanese have so far found it possible to hide their crimes from public opinion. But history is also written unswervingly. And every dirty Japanese hole like the 'First Transfer Hospital,' will in time find an unprejudiced judge, because, through the criminal heartlessness of the Japanese, in each of these holes, our sons and brothers are dying useless and unnecessary deaths."

A SCYTHE KNIFE.

BY

FREDERIC GRIFFITH, M.D.,

of New York.

A new form of cutting instrument, which should prove of value in dissection work, especially about the neck or axillary spaces, consists of a knife patterned after the mower's scythe. Whoever has seen the master surgeon correctly gauge the thickness of a belly wall, as with one sweep of the scalpel he uncovers the depths almost down to the peritoneum at the out set of a laparotomy, cannot but compare this apparent reckless

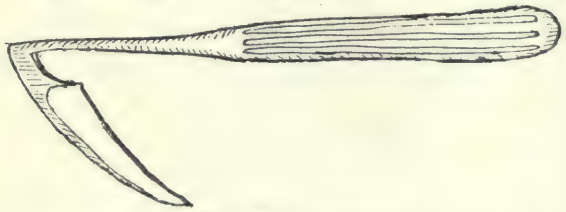


Fig. 1.—Scythe scalpel.

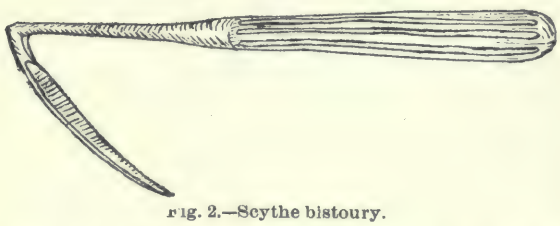


Fig. 2.—Scythe bistoury.

ness with the hesitancy oftentimes displayed by the same operator in his close dissection work. By giving thought to the matter it becomes evident that possible danger during scalpel and forceps dissecting arises from the direct action of the implements employed. With the dissecting forceps in one hand, grasping the tissues and scalpel in the other, the surgeon must of necessity either project his knife blade directly onward or (however unconsciously or instinctively done) draw the grasped tissues against the knife edge held rigid. By the use of a knife formed as shown in the figure (with a curved, well-heeled blade of from three-quarters of an inch to one and a half inches in length, fitted to a well-balanced handle) it is evident the cutting principle used in ordinary dissection work is reversed and the danger from direct scalpel incisions is removed.

Every surgeon will allow that cutting down upon a grooved director is the safer, though slower, way to carry out dissections. In the knife described I believe I have produced an implement which combines speed and safety.

NORMAL SALT SOLUTION AS AN INTESTINAL EVACUANT.

BY

J. J. LEISER, M.D.,

of Seattle, Wash.

To the Editor of American Medicine:—Normal salt solution used under given specifications is probably the most effective intestinal evacuant we have. The directions are: One pint in quantity, in the morning on an absolutely empty stomach, no food or drink to follow for half an hour. It simply sluices out the bowels without a cramp or pain and in several loose watery movements. Conditions in which it fails are: If made too strong or too weak, if the bowels are so full as to absorb the solution or as to resist its force, or the recumbent position. It seems to need the assistance of gravity or motion. One medium teaspoonful table salt in a pint of water only hot enough to drink rapidly. It seldom fails to act. It is a most desirable dose to give preliminary to surgical operation to such patients, who might be allowed to sit up a half hour following administration, as it does not in the least degree exhaust the patient. Some persons find it hard to drink the quantity of solution; some vomit it up. It may be administered by means of the stomach-tube, just as is done in washing out the stomach. At the present time most of my patients with chronic constipation substitute this salt solution for their old dose of physic or enema.

A Plea for Care of Eyes of Enlisted Men.—As an army is said to depend upon the soldier's feet, so does the navy depend upon the sailor's eyes, for unless a good look-out be kept collision is inevitable sooner or later. In older days the navy was also largely dependent on the sailor's teeth, for salt beef and "hard tack" required a good deal of mastication during the long sea trips that were then the rule rather than the exception. Nowadays high speeds allow of shorter trips between port and port, and ships' bakeries are beginning to supply "soft bread" at all times. The decision of the admiralty to appoint a dental surgeon to each of the naval ports will, nevertheless, be welcomed as a step in the right direction. The measure is apparently a tentative one, as the appointments are for only a period of 12 months; but little doubt is felt that dental surgeons will eventually develop into a permanent addition to the surgical staff of the fleet. At present dental work is, for the most part, done at the hospitals, and men will attend there on fixed days for treatment. This, however, can only be a temporary measure if it be desired to give the men the maximum benefit. To be largely useful, the dentist must be ready at hand when wanted afloat. It is a fact that the majority of the men will not go through the whole complication of red tape necessary at present before they can reach the hospital and the dental surgeon; on the other hand, if these surgeons attend on board the larger ships in port to examine the teeth of the men, many will present themselves who would otherwise allow their whole masticating apparatus to run to decay, and who may thus be saved for the service. While, however, it is left to the initiative of the men, and with all the forms necessary to be gone through before sanction is granted to attend the dental surgery, there will be few applicants, and the navy will not reap the full benefit of the change. Altogether, the step is a wise one, and will, we believe, prove to be popular and beneficial to the service. But, as we said, the eyes of the seamen are also an all-important item, and eye specialists may, with advantage, follow the dental surgeon, and we commend the suggestion, made on several occasions in this column, to their lordships' notice.—[*The Naval and Military Record, London.*]

ORIGINAL ARTICLES

THE MATAS OPERATION FOR THE CURE OF ANEURYSM, WITH THE REPORT OF A CASE.

BY

JOHN H. GIBBON, M.D.,

of Philadelphia.

Associate Professor of Surgery, Jefferson Medical College; Surgeon to the Pennsylvania and Bryn Mawr Hospitals.

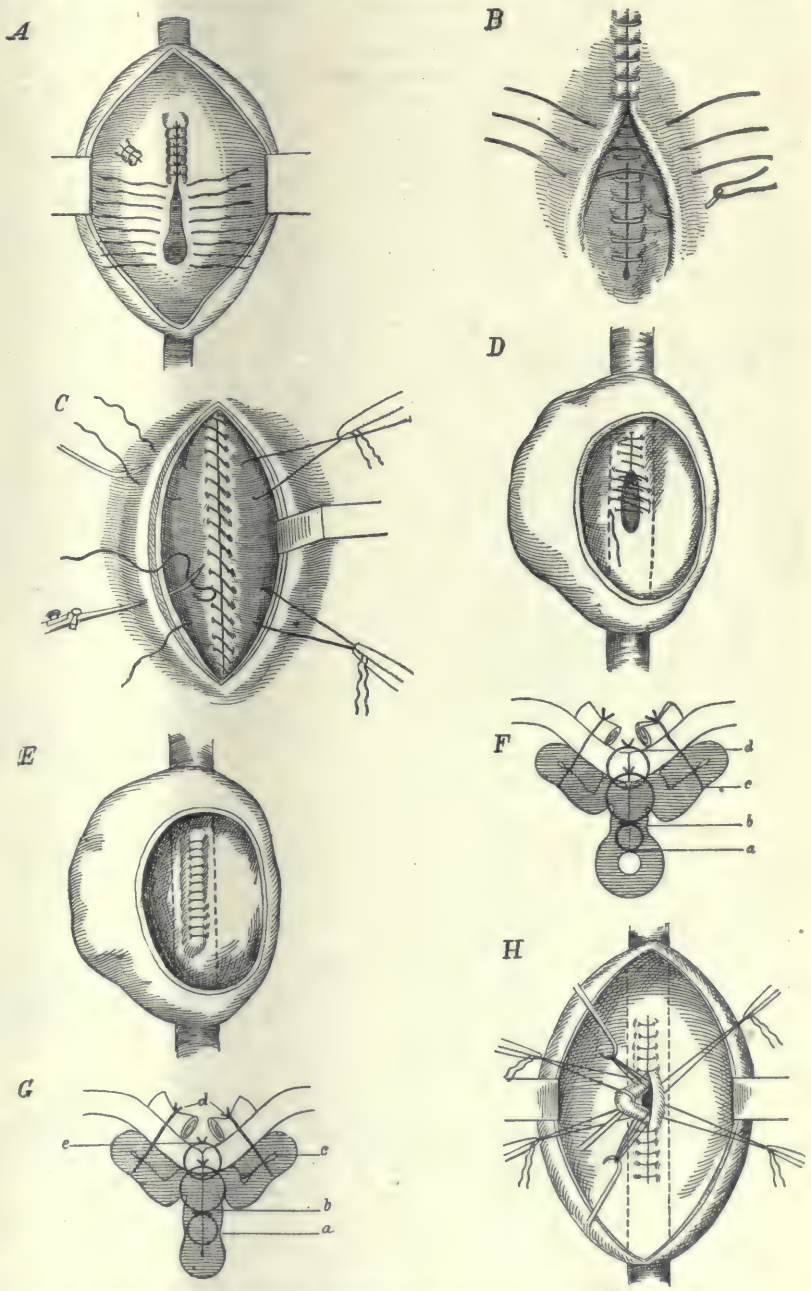
It is unnecessary to enumerate and describe the various procedures which have been recommended and practised for the cure of aneurysms of the large arterial trunks—they are nearly as numerous and varied as the operations which have been devised for the radical cure of hernia. We have at last settled upon a type of operation which when properly done will cure nearly any hernia, and I believe that an operation which will give correspondingly good results in aneurysms of the large arteries is that described by Matas.[1] This operation would appear as great an advance over the older ones as that of the Bassini operation for hernia is over its predecessors.

I will not describe minutely this operation of Matas, as the author's very complete description, accompanied by excellent illustrations, was so recently set before the profession, but rather would I attempt to accentuate its advantages and report a case showing its applicability. The operation was suggested to Matas by the wonderful results obtained in the repair of injuries of the large arteries by suture and by the fact that the lining membrane of the aneurysmal sac was practically the same as that of the artery itself, and, therefore, possessed the same adhesive quality. Arteriorrhaphy can certainly now be substituted for ligation in many cases in which formerly the latter was considered absolutely necessary, and this fact has resulted in the saving of numbers of extremities which might otherwise have been amputated for gangrene resulting from the ligation of the main artery. Since, therefore, the arterial wall lends itself so readily to suture, Matas saw no reason why the procedure should not be applied for the cure of aneurysm.

His operation briefly consists in controlling the flow of blood in the diseased vessel by compression; the free incision of the sac from end to end; the evacuation of its contents; the closure by suture of the arterial openings in it; and then the obliteration of the sac by plication and infolding of the skin. In the case of a sacciform aneurysm but one opening requires closure, and when this is done the caliber of the vessel is, of course, reestablished. In this variety of aneurysm, then, we can say that the operation stands so far ahead of ligation as not to be compared with it. In the fusiform aneurysm there are two courses open to the operator—one of closure of the two openings of the artery into the sac, and of any collaterals which might originate within the sac, and then the entire obliteration of the sac by continuous rows of sutures; or, he may follow the suggestion of Matas of reconstructing the arterial caliber by utilizing a portion of the aneurysmal sac and suturing it over a catheter which is withdrawn before the last sutures are tied. If this latter method should prove applicable in only a limited number of cases, its advantages over the older methods of ligation or excision are innumerable. But even when it is impossible to reestablish the vessel itself, this procedure of Matas possesses advantages which strongly appeal to us. In the first place, the aneurysmal sac is as completely done away with as if it were extirpated, and again, and most important, there is less interference with collateral circulation than by any of the various methods of ligation.

A favorite site for the development of aneurysm in the arteries of the extremities, is in the neighborhood of the joints, and here are given off numerous anastomotic branches which preserve the limb in case ligation is done. Ligation in these, if done at a proper distance from the sac, necessarily does away with the collateral circulation to a large extent, and is accompanied by the danger of a resulting gangrene.

The operation of Matas is applicable to all aneurysms



The radical cure of aneurysm based upon arteriorrhaphy (Rudolph Matas).

[1] Annals of Surgery, February, 1903.

in which there is a distinct sac, and in which the cardiac end of the main vessel can be thoroughly controlled. Although especially applicable to the aneurysms of the extremities, it may also be used in the intraperitoneal variety. Matas stated in his original paper that he did not believe his method could be applied to the cure of arteriovenous aneurysms, but recently Bickham recommends its application in such cases, and describes the technic by which it may be performed. The aneurysmal sac is freely incised, and the opening into the vein and into the artery closed with sutures. A sufficient number of cases have now been reported to bear out Matas in practically all his claims for this new operation. In these reports there have been some slight variations from his technic, the most important of which is the entire obliteration of the sac by plicating rows of sutures instead of combining the infolding of the skin with these. I had an opportunity recently to employ the Matas operation in the following case of large popliteal aneurysm at the Pennsylvania Hospital:

The patient was a negro, aged 31. At the time of his admission, October 27, 1904, the aneurysm was about the size of two fists, and could be easily seen projecting beyond the normal line of the leg on each side. The leg and foot were so enormously swollen as to resemble a marked elephantiasis. The patient stated that eight or nine months previous he had been struck with a stick on the back of the leg, and attributed the development of the aneurysm to this injury; he denied syphilitic infection. There was no difficulty in making a positive diagnosis of aneurysm of the popliteal artery, as all the typical signs were present. After two days, rest in bed the edema of the leg greatly decreased, but we were never able to detect any pulsation in either the anterior or posterior tibials. Two days after admission, after elevating the leg and applying an Esmarch constrictor well up on the thigh, I made a long incision in the middle of the popliteal space over the aneurysm. The sac was laid freely open from end to end, and a quantity of liquid blood and clot in various stages of organization evacuated. At the upper and lower part of the sac could be demonstrated the opening of the vessel. I thought for a while that it must be a sacciform aneurysm, as I could not find the point of exit of the artery, but finally was able to do so near the upper part of the lower end of the sac; in other words, the sac had developed posteriorly and extended under the inner head of the gastrocnemius. Because of the shape of the sac it was impossible to reestablish the caliber of the vessel, and I therefore followed Matas' plan of closing the openings of the artery with a small chromicized suture carried on an ordinary curved intestinal needle. I found no openings of collateral vessels in the sac, and therefore loosened the constrictor. There was no bleeding even after this was done, and I therefore thoroughly cleansed the sac, rubbing its interior with weak mercuric chlorid solution followed with salt solution. The sac was then entirely obliterated with repeated rows of chromicized gut sutures. There was considerable oozing from the cut edges of the sac, but this was controlled by a whip stitch. The skin was closed entirely and a dressing applied. After the operation the patient did well, but on the second day his temperature rose to 103°, and he complained of considerable pain in the leg. As he had had increased temperature before the operation, I did not think it was due to infection; this idea, however, was an erroneous one, as within a few days there was evidence of infection of the wound. The stitches of the skin were removed and a large quantity of pus evacuated. After this the temperature fell and the patient was much more comfortable. The circulation remained good in the foot. The heel became sore some days after the operation, and there developed a necrotic area about the size of a silver dollar. This was undoubtedly due to pressure which should have been avoided. It is now practically well, but has given the patient more trouble than the popliteal wound. There was considerable contraction of the leg after removal of the splint, but now he is able to extend it to nearly a normal degree. There still remains an irritated scar in the popliteal region. This is due, I think, to the want of care which he has given to it since he left the hospital. During his convalescence he took very large quantities of potassium iodid with impunity, and he is now taking 2 gm. (30 gr.) three times a day. There is no evidence of a redevelopment of the aneurysm.

In a number of the other cases which have been reported, an infection of the wound has taken place, but in none of them has it interfered with the cure of the aneurysm. The fact that suppuration seems to be frequent in these cases would lead me in another case to put in a superficial gauze drain, not into the sac, but down to it.

EXPLANATION OF PLATE.

A, The orifices in the aneurysmal sac in process of obliteration by suture. The first plane of sutures may be made with fine silk, but chromicized catgut is preferred. The sutures are applied very much like Lembert's sutures in intestinal work; the first plane of sutures should be sufficient to secure complete hemostasis. The orifice of the collateral vessel on the left upper side of the sac is shown closed by three continuous sutures.

B, A second row of sutures,—a technical detail of the operation which is advantageous, but not necessary in every case. The first row of sutures has been completed and the arterial orifices have been obliterated. As the walls of the sac are usually relaxed, it is easy to insert a second series of sutures which add security to the first row, and, in addition, reduce the size of the cavity which is to be obliterated by inversion of the skin and surplus sac walls at a later stage in the operation. This second row of sutures is applied as in the first series, by either the continuous or interrupted method with a curved needle, and Nos. 1, 2, or 3 chromic catgut. A large surface of the sac is thus brought in apposition, and the best opportunity given for adhesion by plastic or exudative endarteritis. If the floor of the sac is rigid or too adherent to the underlying parts, this second row may be omitted, and the operation can be advanced to the last step,—*i. e.*, obliteration of the sac after suture of the orifices.

C, The deep supporting sutures in position and the details of transfixion of the flaps. The Reverdin needle is used to carry the free ends of the threads through the flaps formed by the skin and aneurysmal walls.

D, The sac opened. The dotted lines indicate the position and relations of the main artery to the sac and to the orifice of communication. The object of the operation in this case is to close the orifice of communication without obliterating the main artery.

E, The obliteration of the orifice of communication completed. The appearance following the application of interrupted suture is shown. If the suture has been properly applied, the hemostasis will be complete, and the circulation of the main artery restored. After this has been done, the second protective row of sutures shown in *B* and other details of the technic of the obliteration of the sac should be carried out precisely as in dealing with aneurysms of the fusiform type. Anomalous orifices or collaterals opening into the sac, in addition to the main orifices, are less liable to exist in the sacciform aneurysms than in the fusiform aneurysms, in which a large area of the arterial wall is involved. In any event, however, should such additional orifices exist, they should be individually closed by a few continued sutures, as shown in *A*.

F, Sectional view of the obliterated aneurysmal sac when the lumen of the parent artery is preserved and the vessel originally communicates with the aneurysm by a single orifice: *a*, First line of sutures which close the orifice of communication and restore the lumen of the parent vessel; *b*, second row of protecting sutures which also reduce the size of the sac; *c*, supporting through-and-through sutures, which bring the roof and floor of the aneurysm in contact; *d*, sutures which hold the skin flap and sac in contact with the bottom of the cavity.

G, Method of obliterating the aneurysmal sac in the fusiform type of aneurysms with two openings. In this class of cases the tunics of the parent artery blend with the sac and the arterial channel cannot usually be restored. The diagram shows the first row of sutures (*a*) which obliterates the orifice of the artery at the bottom of the sac. The second row of sutures is shown higher up (*b*), and also the effect of this row in reducing the capacity of the sac. The obliteration of the remaining part of the cavity by the folding in or inversion of the sac walls, with the attached overlying skin is shown in *c*. The function of the deep sutures (*d*) tied over gauze pads, and of the more superficial skin sutures (*e*) in obtaining firm contact of the opposed surfaces, is also shown. This drawing is purely schematic: it gives an exaggerated idea of the size of the sac walls, and is chiefly intended to give an idea of the position of the sutures and other parts.

H, The sutures are nearly all tied, and the new channel is completed except in the center. The two middle sutures are hooked and pulled out of the way while still in position, and the catheter is withdrawn. The obliteration of the sac and final steps of the operation are carried out precisely as previously described.

THE TREATMENT OF CHANCRE AND CHANCROID.[1]

BY

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The individual treatment suitable for each chancre or chancroid will vary with the local condition, but not with the etiology, whether syphilitic or nonsyphilitic. The reason for employing similar treatments for these entirely different diseases is twofold: First, it is impossible to diagnose certainly between them until the time for the appearance of secondary symptoms. Second, specific treatment is positively contraindicated in the primary stage of syphilis, while for the chancroid there is no specific treatment. Since we are limited to attacking the local disease, local means only can be employed and our whole effort will be comprised in our devices to obtain the sum of treatment for any infected ulcer—cleanliness.

Therefore, for the purposes of treatment, and without wishing to say one word prejudicial to the importance of correct diagnosis and early prognosis, I classify the venereal ulcer not into chancre and chancroid, but into

A. The simple uncomplicated ulcer. B. The ulcer

[1] Read before the Surgical Section of the Buffalo Academy of Medicine, Jan. 3, 1905.

complicated by phimosis. C. The ulcer complicated by paraphimosis. D. The phagedenic ulcer.

Class A.—*The simple uncomplicated ulcer* presents for the surgeon's care an indolent sore, often sloughy and with a foul discharge. Our first object should be to clean off this ulcer with wet dressings. The dressings should be changed at least as often as the patient urinates if located where they are liable to be soiled with urine. Otherwise they should be changed from two to eight times a day according to the amount and character of the discharge—in any case with sufficient frequency to



Fig. 1.



Fig. 2. Fig. 3.

Plate I.—Illustrates the use of the penis square. Fig. 1.—Foreskin retracted, showing simple uncomplicated subpreputial venereal ulcer. Fig. 2.—Same, showing glans passed through central hole in penis square. Fig. 3.—Same, showing foreskin drawn forward to retain the penis square in its place.

keep the parts sweet and clean. Between dressings the gauze should be kept damp. The patient should be instructed to irrigate the sore freely with a hand syringe each time the dressing is changed, using as much force as he can without causing pain. Should he possess human intelligence it will be comparatively easy to arouse his interest in washing off at each irrigation as much of the discharge and slough as possible. If he appreciates the importance of this point and beats out the slough at each treatment, improvement should be rapid and healthy granulations soon replace the foul-smelling, moth-eaten sloughs.

The dressing to be used when the foreskin is very short or the ulcer is on the shaft is a thin compress and a circular or spica bandage, retained by a strip of rubber adhesive plaster completely encircling the organ and overlapping itself.

Ulcers on the under side of the foreskin or on the glans require the familiar penis square used in the treatment of gonorrhea. This is used as follows: A square of gauze is cut with a hole in the middle. The foreskin is retracted and the glans passed through the hole. The foreskin is then drawn down over the glans covered with gauze, which it retains in place (see Plate I). This dressing prevents autoinoculation or maceration of granulations by contact with mucous membrane. It allows free escape of discharge and yet protects the clothing until the ulcer cleans off. It should be kept damp.

The solution used for wet dressings and irrigations is of very little moment. Decinormal saline solution, 2% boric acid, or Thiersch's solution will do, although I prefer a mercuric chlorid solution—1 to 4,000; lotio nigra, half strength; or lotio flava, half strength—as I believe, if freely used, these latter preparations form with the slough and discharge an insoluble, incorruptible albuminate of mercury, thus preventing their toxins from attacking the granulation tissue.

As soon as the sore cleans off and loses its specific appearance it should be treated as any indolent ulcer. The number of dressings should be reduced to one a day. Stimulation will generally be indicated. For this purpose balsam of Peru answers best. It should be diluted with castor-oil or dermatitis may result.



Plate II.—Simple venereal ulcer of the glans (Hunterian chancre).

As the granulations assume a perfectly healthy appearance and the skin begins to grow in from the edges, dry dressing should be substituted for the balsam. For dry dressing my personal preference is leaf silver, but any desiccating powder—whether red, white, or brown, is of no consequence—will meet the indication. Leaf silver has the advantage that it absolutely prevents adhesion between dressing and sore and is therefore the least painful dressing that can be used. It also has this physical property: When the whole or any part of the sore entirely ceases to discharge, the silver will adhere closely to the dry part. If, however, there is the slightest discharge from any part of the ulcer, the silver will adhere to the dressing over that part and allow free escape of matter around its edges. Thus the new skin and that portion of the ulcer which is free of discharge are protected from the trauma of frequent dressings, while that portion which is discharging is freely accessible to cleansing solutions. In a few days the sore becomes wholly coated with a silver scale and no further treatment is necessary, except such dressings as will prevent friction from rubbing off the silver. The strong antiseptic properties of this metal may possibly contribute to its beneficial action, but it is worthless until the virulence of infection has been controlled.

It is rare indeed that this line of treatment will fail to check quickly the venereal ulcer and start the healing process. The complete cure will be a matter of

weeks under this or any line of treatment, but progress should be steady. If it is not, the patient must be submitted to the ordeal of treatment by iodoform. This is for venereal ulcers a better stimulant than balsam of Peru, a better cleanser than wet dressings, with which, however, it may be combined. It seems to have a faint specific action in both chancre and chancroid. There are, however, only a very few patients who cannot be cured without its aid. The socalled odorless iodoform substitutes lack its virtues, and act simply as drying powders. Moreover, many of them have a worse odor.

The use of escharotics, I mention only to condemn.

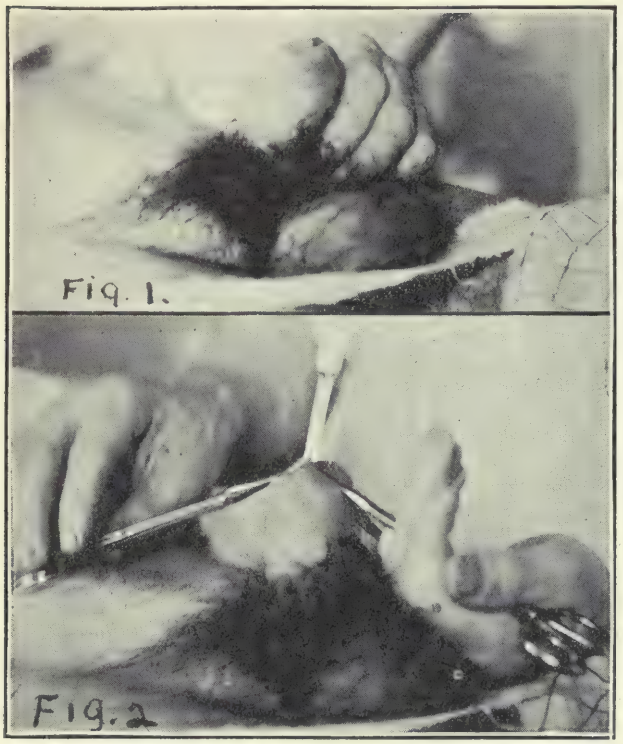




Fig. 3.

They do least harm where the granulation tissue is redundant or the sloughs thick, when they act as a poor substitute for the curet. Silver nitrate is especially bad, as it not only delays healing, but causes induration of the cicatrix, which confuses diagnosis at a later stage, and it must be remembered that the diagnosis and proper treatment of secondary syphilis are of far more moment to the patient than any ordinary sore on the penis. The belief that ulcers can be disinfected with antiseptics, is, it seems to me, fallacious. When an escharotic is applied to healthy skin or mucous membrane, an infected ulcer is, as a rule, produced. In other words, while some of the organisms existing in healthy tissue are destroyed by the antiseptic, those that remain alive find the necrotic tissue produced by a strong chemical so favorable a culture medium that their virulence is heightened to a point where they become capable of pathogenic action. Precisely the same thing occurs when a septic ulcer is treated with an escharotic. Some of the organisms are killed. The remainder find a nutritious diet in the eschar, and their virulence is heightened so that the socalled "irritative" or "reactionary" inflammation is produced. I know that many men get good results who habitually use escharotics. They are, however, the men who use the milder ones and very little of them. If they used none at all, their results would be even better.

CLASS B.—*Venereal Ulcers Complicated by Phimosis.*

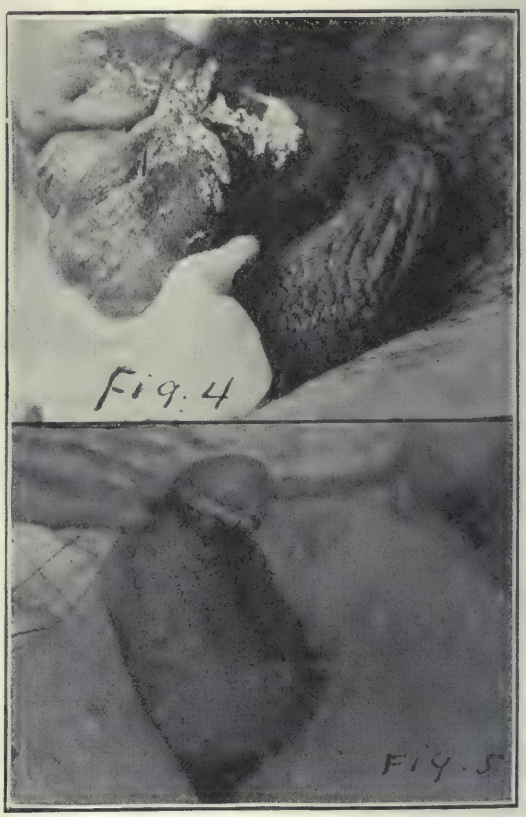


PLATE III.—Operation of lateral incisions for venereal ulcer complicated by phimosis. Fig. 1.—Phimosis before operation. Fig. 2.—First step in operation; grooved director inserted beneath foreskin to corona glandis. Fig. 3.—Operation complete; foreskin completely divided into equal dorsal and ventral halves by two lateral incisions. Fig. 4.—Twenty-five days after lateral incisions; flaps entirely healed, but much swollen; shows typic swelling of flaps in a patient confined to bed after operation. Fig. 5.—Same patient later, showing final result after plastic circumcision.

—In this class, if the foreskin was reducible before infection, an attempt should be made to subdue the inflammation to such a point that the foreskin becomes again reducible, when further treatment is as in the uncomplicated cases. For the reduction of the swelling and edema, the patient should be put to bed and on a fluid diet and a hydragog cathartic administered. If he is unable or unwilling to go to bed, the chances of reducing the phimosis are small. A trial may, however be made, keeping the penis elevated with a jockey strap, T-bandage, or strip of adhesive plaster. In either case the parts should be cleansed with frequent subpreputial irrigations, administered either with a subpreputial syringe or with an ordinary hand syringe and catheter.

If, however, the phimosis existed before infection, or if treatment fails to quell rapidly, the inflammation of the foreskin, the ulcer must be exposed by free incision. Incision may be made with phimosis or other heavy scissors, but better with a sharp knife on a grooved director between two artery clamps. I prefer the knife to the scissors for two reasons: 1. If the operation is performed under local anesthesia, a knife cut is much less painful than one made with the scissors. The tissue attacked is brawny and very dense, and even the specially constructed phimosis scissors will sometimes slip sideways and pinch without cutting—a performance which no safe amount of cocain will render painless. 2. The clean cut of a knife is always less susceptible to infection, and heals more quickly than the contused wound of scissors.

The operation of lateral incisions for inflammatory phimosis is best performed as follows:

Two pairs of artery clamps are applied on each side of the edge of the foreskin at points just half-way between the end of the median raphe and the end of the dorsal median line of the penis, exactly opposite the raphe. A grooved director is next inserted beneath the foreskin between the two pairs of clamps on one side and its tip pushed in the direction of the root of the penis until it reaches the corona glandis. The foreskin is divided on the grooved director with one sweep of the knife, while an assistant keeps the parts tense by traction on the artery clamps. The incision is repeated on the opposite side. These two incisions should lay off the foreskin into a dorsal and a ventral flap, which are equal in size and symmetric about the median line. The operation completely exposes the glans and under surface of the prepuce for treatment. [See Plate III.] This method of dividing a phimosis between artery clamps on a grooved director I learned from the late Arthur Line, U. S. A.

For several days after incision the dressings should be kept moist with decinormal saline solution. The patient need not be kept in bed, although there will be less swelling of the flaps if he is.

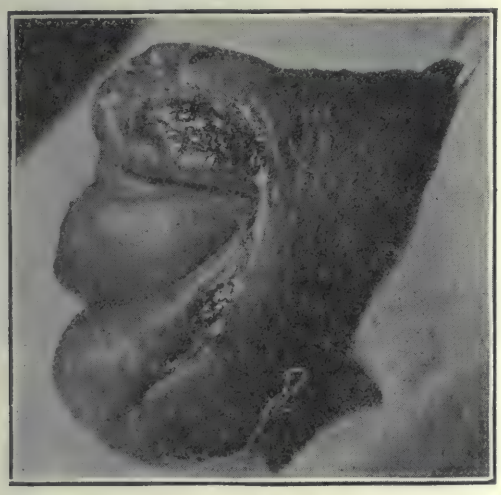


PLATE IV.—Operation of lateral incisions for venereal ulcer complicated by phimosis; photographed ten days after incision from a patient treated in the University of Buffalo Dispensary, by Drs. Bebee and Wright; shows incisions covered with healthy granulations and nearly healed; the swelling of the flaps is typical of that usually found in ambulatory cases.

(Plate III, Fig. 4, shows swelling of flaps in a bed patient. Plate IV shows swelling of flaps in an ambulant patient.)

As the reaction following the incisions subsides, they and the sore on the penis may be dressed with the diluted balsam of Peru, powder, or silver leaf, according to the condition present. Three weeks is about the minimum time for the healing of these incisions. During this process a condition resembling elephantiasis is certain to be established in the flaps. The swelling is greater in ambulant patients than in those who are kept in bed, but in either always requires a secondary operation. Not till ulcer and incision are entirely healed should a plastic circumcision be performed. This will make the total time of treatment, dating from the incision of the phimosis, somewhere between one and two months.

Primary circumcision for phimosis complicated by chancre or chancroid is so bad an operation it is surprising it should ever have been attempted. The swelling following an attempt at primary union in an acutely infected area usually tears out the stitches, and even if spreading cellulitis is not caused, the deformity following primary circumcision requires an operation for its correction, and this operation is far more difficult than the one for correction of the deformity left by lateral incisions. Plate V shows a typical deformity left after this operation. The operator is unknown. This patient applied to the clinic of Drs. Bebee and Wright for correction of the deformity.

CLASS C.—*Ulcer complicated by paraphimosis.* These patients, if seen early, present a condition of strangulation which should be remedied at once. Sometimes reduction may be effected by compression of the glans and squeezing of the edematous foreskin, followed by firm pressure pushing the glans within the constrictin bands. Sometimes multiple puncture of the edematous tissue will be necessary. Incision, even, of the constriction may be required. After reduction, the case will belong in one of the classes already mentioned, and treatment should be according as phimosis exists or not.



PLATE V.—Typical result after primary circumcision for inflammatory phimosis.

When paraphimosis is neglected, that is when it is not immediately reduced, we get a very peculiar condition. The glans and tissue distal to the constriction do not slough *en masse* nor even undergo serious impairment of their vitality. They do, however, become enormously swollen, and this swelling after a time takes on a condition resembling lymphangiectasis, being absolutely permanent and not reducible by the aid of puncture or relief of the constriction. The skin and mucous membrane distal to the constriction are liable to sloughing and ulcerations, but these ulcers scarcely ever, unless assisted by nitric acid, extend to the cavernous tissue. They may, however, completely destroy the foreskin, performing circumcision by gangrene (see Plate VI, Figs. 5 and 6). The mechanism of this change seems to be as follows: The corpora cavernosa and corpus spongiosum —very vascular and protected by their dense fibrous envelopes—are constricted by the loose areolar tissue of the foreskin, less vascular and less dense than the erectile tissue. Consequently the constriction sloughs, and we get a kind of spontaneous cure accompanied by a severe deformity, which can only be relieved by a rather elaborate plastic operation. This operation should not be undertaken till after the ulcerations in the foreskin have cicatrized. Plate VI illustrates five cases of spontaneous cure.

Hence it follows: 1. If paraphimosis is seen in its early stage while the circulation is still affected by the constriction, no time should be lost in relieving the partial strangulation.

2. If the paraphimosis is not seen until after sloughing has released the constriction and restored the circulation, expectant treatment should be adopted until the ulcerations have been entirely healed, when a plastic operation will remedy the deformity and restore the organ to a usable shape and appearance.

CLASS D.—*The Phagedenic Ulcer.* In phagedena, as in paraphimosis, the sloughing process rarely extends to

the cavernous tissue unless an escharotic is used or the penis is constricted by a foreign body, as when a degenerate ties a string or puts a ring around the penis. It is in these cases that the homeopathic treatment of adding the phagedenic action of an escharotic to the phagedenic action of the infection produces the very worst results.

Vigorous treatment must, however, be instituted. If phimosis exists, a single dorsal incision is better than the two lateral ones ordinarily used, as one incision presents less surface for absorption than two, and these patients are often in a septic condition. They should be placed in bed with the parts elevated and a hydragog cathartic administered. To those of alcoholic habit enough whisky should be given to prevent delirium tremens. Morphin is usually indicated. The local treatment is of course by far the most important. The phagedenic sore must be irrigated for 20 minutes every two hours, day and night. This will necessitate the care of one or two orderlies. The irrigator should contain several gallons of 1 to 10,000 mercuric chlorid solution and be about three feet above the patient. The force of the stream should be further augmented by using a tapering nozle. The tip of a minim dropper answers very well. Between irrigations the sore should be kept powdered with iodoform and covered with gauze wet with 1 to 10,000 mercuric chlorid solution. Under this treatment the soft deliquescent sloughs assume a leathery consistency and soon separate—usually in about three days. The phagedenic process is now controlled, and further treatment is as for a simple ulcer. The frequency of irrigation is gradually diminished and as healthy





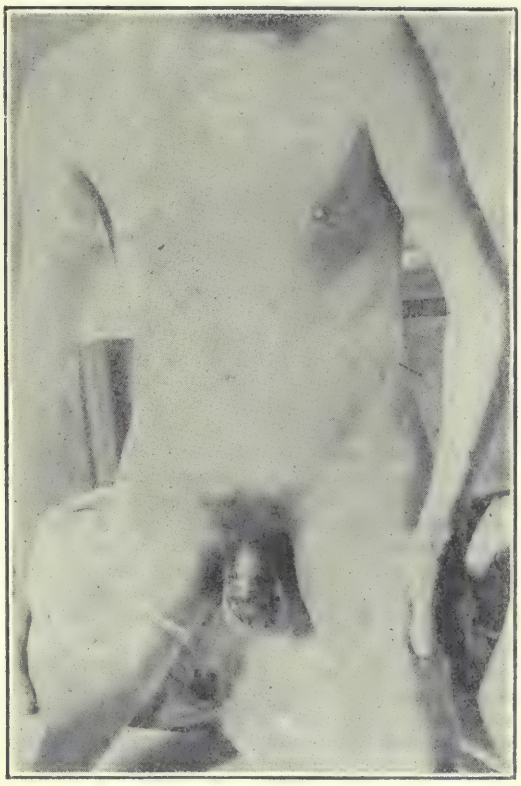


Fig. 5.

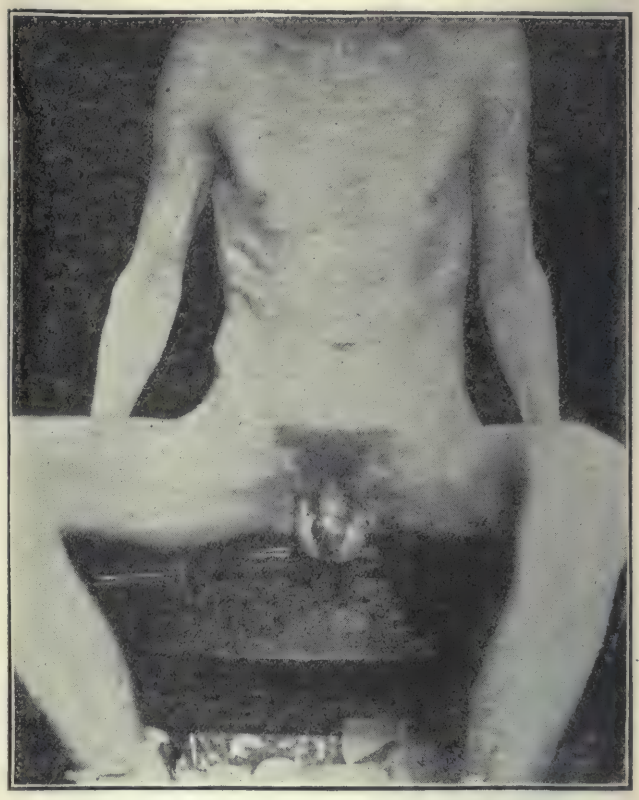


Fig. 6.

PLATE VI.—Neglected paraphimosis; in these cases paraphimosis had existed so long that the constriction had sloughed and the circulation been restored before the patients came under observation; in all, the paraphimosis was irreducible when first seen, and all healed under palliative treatment. Fig 1.—Claimed to have been strangulated for one week before admission to Erie County Hospital. Fig. 2.—Claimed to have been strangulated for ten days before admission to Erie County Hospital. Fig. 3.—Claimed to have been strangulated for two weeks before admission to Erie County Hospital. Fig. 4.—Claimed to have been strangulated for two weeks before admission to Erie County Hospital; patient married; stated infection occurred during an erotic dream. Figs. 5 and 6.—Claimed an iron bar fell on penis sixteen days before admission; shows paraphimosis, with ulceration and complete sloughing away of whole foreskin, "circumcision by gangrene;" also shows a papular syphilid.

granulations spring up, dry dressings employed. Often so much tissue has been destroyed before the patient receives proper surgical care that a plastic operation at a later stage is necessary. I have never seen any extension of the phagedenic process while the patients were under the treatment outlined.

CONCLUSIONS.

1. The venereal ulcer of the penis is best treated by simple mechanical cleanliness, the frequency with which it must be washed to secure cleanliness varying



Plate VII.—Phagedenic venereal ulcer. H. H., U. S. A., single, aged 40; plumber, was admitted to the Erie County Hospital June 18, 1904. First noticed discharge from penis two weeks before admission. Five days before admission penis began to swell and became painful and tender. On admission his mental condition was stuporous, apparently partially due to morphin and chronic alcoholism, partially to sepsis. There was a gangrenous phagedenic sore of the foreskin extending to the mucous membrane of the glans. June 18, did not arouse from partial coma when dorsal incision of foreskin was made. Treatment, irrigation for 20 minutes 12 times daily with 1 to 10,000 mercuric chlorid, iodoform and wet dressing—whisky by mouth. June 21, sloughs separate, granulations healthy, dry dressing. June 22, mental condition cleared. June 28 (see Fig. 3.), ulcerations nearly healed. July 2, discharged. Figs. 1 and 2 illustrate the condition on admission. Fig. 3.—Five days later, after separation of black gangrenous foreskin.

with the severity of the infection and the amount of discharge.

2. Mercurial solutions are slightly preferable to others, probably, because they form with the discharges an insoluble albuminate of mercury.

3. Iodoform seems to have only slight specific action, and on account of its disagreeable and compromising odor should be reserved for the severest forms of infection.

4. Deformities of the foreskin forming mechanical obstruction to the circulation or to cleanliness should be relieved at once, but operations for cosmetic effect should not be performed in the presence of infected ulcers.

THE ELIMINATION OF ENDOGENOUS URIC ACID IN A CASE OF CHRONIC GOUT.

BY

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During the past few years as the result of numerous investigations of uric acid metabolism, views concerning uric acid formation have been greatly modified. The theory, once almost universally accepted, that in mammals, uric acid is a product of the metabolism of all albumins and represents a stage preceding the formation of the end-product, urea, has been abandoned. A considerable number of definite new facts has been established and new theories have been brought forward to explain them.

Only a brief summary of the more important points in regard to this work will be given here. For more complete information and for references to the extensive literature the reader is referred to reviews by Baumgarten, Futcher and others.[1]

According to recent views the uric acid eliminated by the normal human body when the individual is on a mixed diet is from two sources; that from the food, which is called the "exogenous" uric acid; and that from the metabolic processes of the individual which is known as "endogenous" uric acid. The same terms, first used by Burian and Schur,[2] apply also to the bodies closely related to uric acid known as the xanthin or purin bases. Uric acid and purin bases together are called "purin bodies" or "purins." It is stated[3] that of the purins eliminated in the urine nine-tenths are present as uric acid and one-tenth as purin bases. Kaufmann and Mohr[9] however find variations in the relations of uric acid to total purins.

As a result of the work of Mares,[4] Horbaczewski,[5] and others, the exogenous purins in the urine of mammals are believed to arise, not from the decomposition of all albumins, but only from the nucleins and the preformed purins which they contain. The other nitrogenous elements of the food are said to produce no uric acid or purin bases in the urine.

More recent investigations, particularly those of Burian and Schur,[6] Siven,[7] and others, have led to general conclusions regarding the formation and elimination of exogenous and endogenous uric acid. The validity of some of these conclusions may fairly be questioned.

According to these investigators the endogenous uric acid and purin bases found in the urine arise from metabolic processes which go on independently of the amount or composition of the food, *e. g.*, from the destruction of the nuclein of body cells.

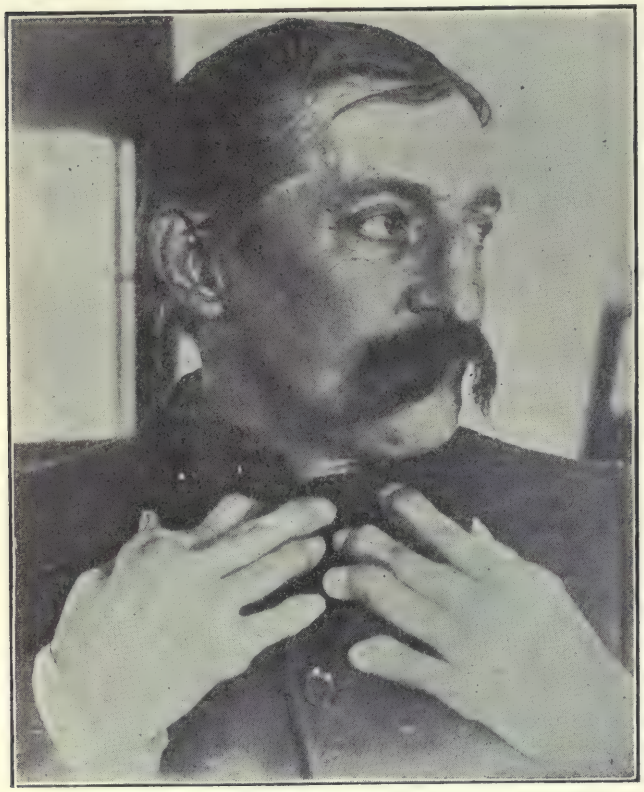
Burian and Schur have also claimed that the exogenous and endogenous uric acid and purins found in the urine of man can be separately and accurately determined. From analysis and experiment they conclude that the following articles are practically free from nuclein causing uric acid elimination: milk, cheese, eggs, white bread, butter, rice, lettuce, cabbage and potatoes. Such a diet they call a "purin-free diet." They consider that the uric acid eliminated by an individual on a purin-free diet is derived exclusively from endogenous sources. They have also attempted to analyze accurately articles of food rich in nucleins that produce purin elimination. Such foods are thymus, liver, pancreas, spleen, kidney, and among the vegetables, peas and beans. The extractives from muscle also contain nuclein.

It has been contended by Burian and Schur and others that the endogenous uric acid normally eliminated by man on a purin-free diet is a constant quantity for each individual, but that this may vary in different individuals. In one individual the value of the daily endogenous uric acid elimination was found not to vary more than 0.03 gm. in determinations made at different times in a period of 18 months. In different individuals it varied from 0.2 gm. to 0.7 gm. It is stated that this constant value represents the minimum amount of uric acid secreted by the individual; that the constant figure indicates normal metabolism; that its increase points to increased cell destruction going on in the body. The statements in this paragraph apply only to uric acid metabolism in health.

From experiments the conclusion has been drawn that it is also possible, when a person is on a mixed diet, to determine what portion of the uric acid elimination is endogenous and what portion is exogenous. The degree to which the foods rich in nuclein and preformed purins cause uric acid elimination is said to depend not on the individual, but on the amount and kind of food ingested. For example, it is claimed by Burian and Schur that about 50% of the amount of uric acid or other oxypurins taken into the body with the food under normal conditions is constantly eliminated as uric acid, and that while the remaining 50% may undergo further decomposition in the course of metabolism, being changed into other

products, this certain definite portion is eliminated unchanged. This would give a method for determining the exogenous portion of the uric acid elimination, providing the nuclein content of different foods could be accurately estimated. If the metabolism of exogenous and endogenous uric acid were carried on in the same way and in accordance with this law, the endogenous uric acid eliminated in the urine would represent 50% of that normally formed by the metabolic processes of the body independently of the food. Variations from these proportions would show that the metabolism was not normal and the degree to which the body could eliminate, as uric acid, the purin bases taken with the food would indicate the degree to which it could oxidize the uric acid arising in itself.

These views regarding uric acid metabolism in health are largely the result of the experimental studies of Burian and Schur, and Siven and have been somewhat widely accepted. They have also been made the basis of some few studies with regard to uric acid metabolism in disease, and especially in gout. The studies of Vogt and others[8] lead them to the conclusion that in gout the exogenous purins are more slowly excreted than in health. Kaufmann and Mohr[9] have published studies which indicate that the values of both endogenous and exogenous uric acid between attacks are within normal limits. It is generally admitted that in the acute gouty attack there is constantly a greater excretion of uric acid



than in the free intervals, and that probably it is preceded by diminution. When attacks follow each other irregularly the picture becomes confused. There has been considerable discussion as to whether the curves of the uric acid and of the phosphoric acid excretion are parallel in gout, but the matter cannot be said to be entirely settled.

The present investigation was undertaken for the purpose of obtaining, if possible, further information on these points.

The case here reported is one of chronic gout in which a few urinary tests were made while the patient was on a purin-free diet. The first series of analyses cover a period of 10 days. The 24-hour quantity, the specific gravity, and the daily amount of uric acid and of phosphates were determined.

The uric acid was determined by the Folin-Hopkins method, and the phosphoric acid by titration with uranium nitrate. The conditions under which the patient lived were constant as regards exercise (which consisted of light work about the ward) and sleep. Movements of the bowels occurred regularly. The urine was collected and kept in a large stoppered bottle in the bath-room of the ward until the 24-hour amount was obtained, and then placed on ice. The room temperature varied from 72° F. to 85° F.

CASE.—C. F., male, aged 52, gardener and storekeeper, American, was admitted to the Albany County Hospital October 23, 1902, complaining of swollen joints of hands and feet. His father was born in England, used alcohol freely; mother still living, born in this country of English parents. Her people used liquors freely. There is no family history of gout or rheumatism.

The patient has used alcohol all his life. Ale has been his favorite beverage. He has always eaten freely, especially of meats and sweets. He has never been compelled to do much hard work. The first attack of gout affecting the great toe of the right foot, occurred about 12 years before his admission to the hospital. Since then he has had recurring similar attacks in various joints. The joints of the fingers and toes have repeatedly become swollen and now tophi may be seen in the fingers, toes, heels, in both ears, and on the nose. Physical examination of the chest is negative as regards the lungs; the heart is enlarged and aortic murmurs, both systolic and diastolic, are heard. The urine contains a trace of albumin, and a few hyaline and granular casts, but no sugar. Clinical determinations of urea by the Doremus method give uniformly low values, 8 gm. to 26 gm. per day. Leukocyte count July 15, before dinner, 6,000.

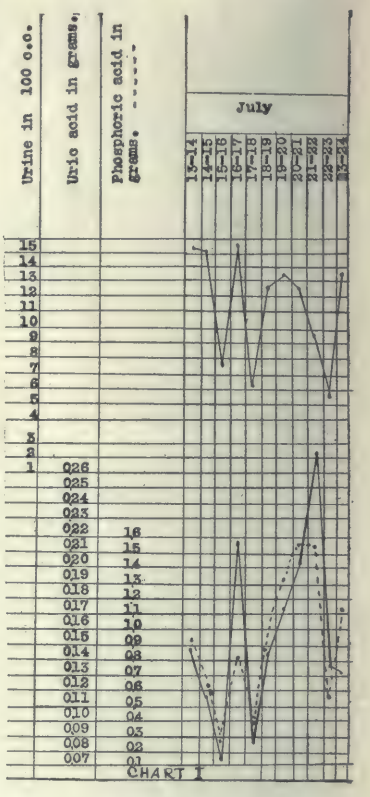


Chart I.—Showing 24-hour amount of urine and daily uric acid and phosphoric acid excretion.

The tests were commenced July 13, 1904. At first the diet was not modified, and consisted of oatmeal and milk for breakfast; tea, bread, and vegetables for dinner, and bread and tea for supper. As the patient ate no meat, it was practically a purin-free diet. July 19 he was put on the following purin-free diet: breakfast consisted of white bread and milk, with an egg;

TABLE I.

Date. 1904.	Urine in cc.	Specific gravity.	Uric acid in grams.	Phosphoric acid in grams.	Remarks.
July 13-14..	1520	1010	0.149	0.912	Patient feeling well; temperature normal; about ward.
" 14-15..	1505	1011	0.116	0.622	
" 15-16..	770	1010	0.075	0.269	
" 16-17..	1540	1010	0.219	0.800	No marked pains.
" 17-18..	620	1010	0.087	0.372	
" 18-19..	1265	1009	0.142	0.875	
" 19-20..	1335	1010	0.173	1.33	
" 20-21..	1206	1010	0.205	1.575	Severe pains in several joints; temperature, 100.6°.
" 21-22..	970	1010	0.271	1.57	Patient in bed.
" 22-23..	550	1011	0.188	0.583	Feeling better today.
" 23-24..	1335	1012	0.132	1.140	Feeling well; out of bed.

dinner was the same as breakfast; supper consisted of bread and milk.

The patient was about the ward and able to help in light work, though suffering some slight pain, until the early morning of July 21 (2 a.m.), when he began to have severe pains in the fingers, shoulders, and hips. His temperature, which had previously been normal, rose to 100.6° at 7 a.m. He remained in bed during the day, and by night the pains had become less severe. On the morning of July 22 the house physician prescribed wine of colchicum, of which the patient received 18 drops on July 22, and also the same amount on July 23 and 24. On July 24 he was out of bed.

Table I and Chart 1 give the total amount of urine in 24 hours, the specific gravity, uric acid, and phosphoric acid.

The second series of analyses cover a period of about 22 days. On four days (August 25, 26, 27, and September 3) no tests could be made. The urine was collected in stoppered bottles and put, as soon as passed, on ice, in a small refrigerator placed in the ward for that purpose, and it remained on ice until the tests were made. (The fact that the urine was placed on ice at once without waiting until after the 24-hour amount was collected makes the results in the second series of tests somewhat more accurate than those in the first.) A record was kept of the temperature, pulse, respiration, and number of stools.

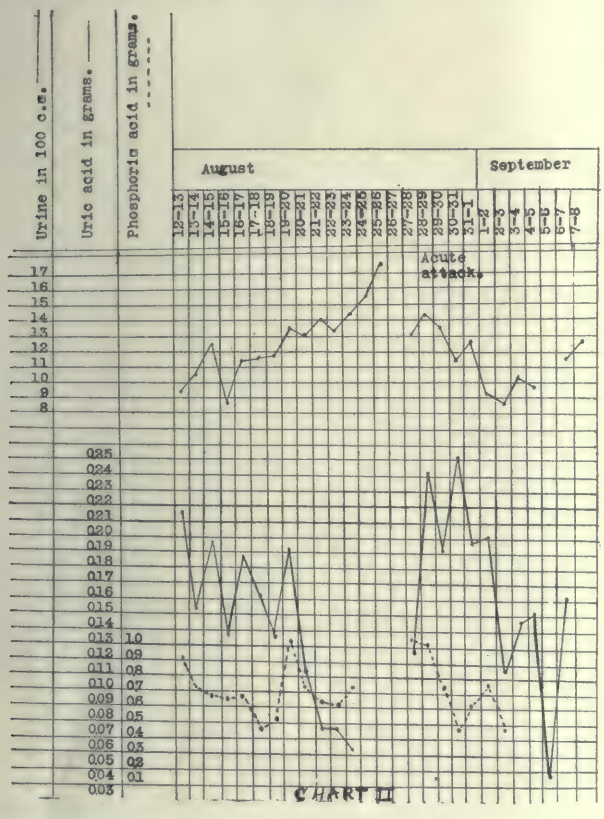


Chart II.—Showing 24-hour amount of urine and daily uric acid and phosphoric acid excretion.

Frequent leukocyte counts were made. The 24-hour amount of the urine, the specific gravity, and the daily excretion of uric acid and phosphoric acid were estimated, the same methods being used as in the first series. A number of determinations of the total acidity of the urine was also made. Both the Freund and the Folin methods were used in parallel tests. The room temperature varied from 70° F. to 83° F.

During this series of tests the patient was kept on the following diet: Breakfast, an egg, soft boiled, with bread and butter and glass of milk. Dinner, same as breakfast. Supper, a bowl of bread and milk. The only modifications were: August 27, he ate no eggs; August 31, the egg was omitted at breakfast; September 1, breakfast consisted of a slice of bread and butter; September 2, no eggs were eaten. Water was allowed, but the patient drank little of it (except on August 28, when he drank six glasses); on August 30 and 31 he did not take any water.

With regard to exercise and bodily exertion, the patient walked about the ward and helped in light work, such as washing dishes and making beds.

He was quite free from pain until August 19, when one of the joints of the right forefinger became painfully swollen, and August 20 the skin ruptured, and a discharge of whitish puriform material occurred. He had little pain from that time until August 29. August 29, 6 a. m., the left heel became swollen and painful. August 30, patient in bed. The skin over the heel broke, and a profuse bloody discharge containing white particles occurred, which gave marked relief. At this time there was pain on swallowing, pain and soreness in the neck and about the clavicles, with more or less pain throughout.

TABLE II.

Date.	Urine in cc.	Specific gravity.	Uric acid in grams.	Phosphoric acid in grams.	Remarks.
August 12-13...	985	1015	0.216	0.908	No marked pains.
" 13-14...	1030	1010	0.154	0.715	
" 14-15...	1230	1010	0.196	0.682	
" 15-16...	890	1012	0.138	0.649	
" 16-17...	1140	1015	0.188	0.684	
" 17-18...	1180	1014	0.161	0.483	
" 18-19...	1190	1012	0.138	0.505	Joint of forefinger swollen.
" 19-20...	1350	1014	0.192	1.026	Discharge from forefinger.
" 20-21...	1300	1015	0.112	0.728	Comparatively free from pain.
" 21-22...	1400	1014	0.079	0.63	
" 22-23...	1320	1011	0.076	0.60	
" 23-24...	1420	1011	0.063	0.724	
" 24-25...	1550	.....	.....	.....	
" 25-26...	1750	.....	.....	.....	
" 26-27...	.....	.....	.....	.....	
" 27-28...	1300	1011	0.126	1.059	Left heel swollen; painful.
" 28-29...	1420	1010	0.231	1.022	Heel discharging freely.
" 29-30...	1350	1011	0 192	0.735	
" 30-31...	1150	1011	0.250	0.493	.....
September 1-2	1280	1011	0.196	0.62	Pain less marked.
" 2-3	930	1011	0.202	0.781	.....
" 3-4	1010	1012	0 111	0.484	No pains.
" 4-5	980	1012	0 147	.....	Patient out of bed.
" 5-6	.....	.....	0.152	.....	.....
" 6-7	1150	.....	0.046	.....	.....
" 7-8	1260	.....	0.160	.....	.....
" 8-9	1525	.....	.....	.....	.....

TABLE III.

Date.	Hour.	Temperature.	Pulse.	Respiration.	Stools.	Leukocytes. Hour.	Leukocytes. Number per cm.
August 12-13...	10.30 a.m.	98	72	24	0	.....	.....
" 13-14...	9.20 a.m.	97	80	25	0	.....	.....
" 14-15...	11.15 a.m.	97.2	80	16	1	11.15 a.m.	9,000
" 15-16...	10.15 a.m.	97.6	72	24	1	4.30 p.m.	7,000
" 16-17...	3.30 p.m.	97.6	72	20	1	3.30 p.m.	7,000
" 17-18...	9.30 a.m.	97.6	72	20	1	9.30 a.m.	6,000
" 18-19...	2.30 p.m.	97.8	80	18	1	.....	.....
" 19-20...	5.50 p.m.	98.8	68	30	1	5.30 p.m.	6,400
" 20-21...	2.30 p.m.	98	72	20	1	.....	.....
" 21-22...	3 p.m.	98.8	64	24	1	3 p.m.	5,200
" 22-23...	6.15 p.m.	98.4	68	20	1	6.15 p m.	5,200
" 23-24...	3.15 p.m.	98.4	68	20	1	3.15 p.m.	6,440
" 24-25...	4 p.m.	98	72	18	1	.....	.....
" 25-26...	9 p.m.	99.6	72	18	1	.....	.....
" 26-27...	2.30 p.m.	98	64	20	1	2.30 p.m.	6,060
" 27-28...	8 30 a.m.	98	84	20	1	8.30 a.m.	6,000
" 28-29...	11 a.m.	98.8	84	20	1	11 a.m.	6,000
" 29-30...	9.30 a.m.	98	72	20	1	.....	.....
" 30-31...	5 p.m.	100.2	72	20	1	5 p.m.	7,000
" 31-1.....	9 30 a.m.	98	72	20	1	.....	.....
September 1-2	11 a.m.	97	72	16	1	11 a.m.	7,000
" 3-4	9 a m.	98	72	.....	1	.....	.....
" 4-5	.....	99	80	18	1	.....	.....

TABLE IV.—ACIDITY.

Date.	Cc. of uranium solution used for 50 cc. urine.	Freund method. Corresponding number of cc. of N/10 NaOH per 100 cc. urine.	Freund method. Cc. of N/10 NaOH per 24 hours.	Cc. of N/10 NaOH per 25 cc. urine.	Folin method. Cc. of N/10 NaOH per 100 cc. urine.	Folin method. Cc. of N/10 NaOH per 24 hours.
August 17-18...	1.35	3.69	43.54	2.8	11.2	132.16
" 18-19...	1.2	3.27	38.91	2.9	11.6	138.04
" 19-20...	2.1	5.71	77.08	3.95	15.8	213.30
" 20-21...	1.2	3.27	42.51	5.87	23.58	307.54
" 21-22...	1.55	4.23	59.22	5.95	23.8	333.20
" 22-23...	1.2	3.27	43.16	5 1	20.4	269.28
" 23-24...	1.15	3.17	45.01	5.15	20.6	288.85
" 24-25...	.....	.....	.....	.....	.....	.....
" 25-26...	.....	.....	.....	.....	.....	.....
" 26-27...	.....	.....	.....	.....	.....	.....
" 27-28...	2.65	7.24	94.12	7.67	30.68	398.84
" 28-29...	2.5	6.83	96.98	6 6	26.4	374.88
" 29-30...	2	5.46	73.71	5.15	20.6	278.10
" 30-31...	1.2	3 27	37.60	4.85	19.4	223.10
" 31-1.....	1	2.73	34 94	5.3	20.52	262.71
September 1-2	1.47	4.01	51.32	7.7	28.8	257.84
" 2-3	.....	.....	.....	.....	.....	.....

the entire left side. Hot lead water and laudanum were applied to the painful areas. At 5 p. m. the temperature was 100.2°. August 31, the pain and stiffness were much less marked. September 1, some headache and stiffness about the back of the neck. September 2, pains all over the body. September 3, pains had disappeared, and patient felt better. September 4, patient out of bed. No medicine was given during this series of tests.

Table II and Chart II give the amount of urine in 24 hours, the specific gravity, and daily excretion of uric acid and phosphoric acid. Table III—the temperature, pulse, respiration, stools, and leukocyte counts. Table IV—the determinations of the total acidity of the urine.

Daily microscopic examinations of the urine showed constantly a trace of albumin, and a few hyaline and granular casts. Clinical urea determinations by the Doremus method gave low values—17 gm. to 20 gm. per day.

It will be noted from a study of the tables and charts that the endogenous uric acid elimination was, for the most part, below that of a normal individual. According to the investigations quoted, the extremes in daily excretion in different normal individuals were 0.2 gm. and 0.7 gm. In this case the daily excretion was always below 0.2 gm., except at the time of acute exacerbations, when the highest point reached was 0.27 gm. The lowest point reached was 0.046 gm. Between these two extremes were marked fluctuations. The values in the intervals between acute exacerbations were not invariably low, but on several occasions approached the highest values reached during an attack. Kaufmann and Mohr[9] found the endogenous uric acid excretion in five cases of chronic gout to be within normal limits, varying between 0.357 gm. and 0.660 gm. per day in different cases. One of Futcher's[10] patients, during three periods of 24 hours each, had practically no uric acid excretion.

In a general way in the first series, the phosphoric acid curve follows the uric acid curve, as closely, certainly, as in Cases II and III, reported by Futcher.[10] It will be noted, however, that in the second series of tests, between August 27 and 31, the phosphoric acid curve fell, while the uric acid curve was rising to its highest point. This recalls Futcher's statement in regard to his Case III: "There was, however, an unexplainable drop in the phosphoric acid curve between April 8 and 17, when it failed to correspond at all with the uric acid curve." In the paper referred to there is no statement indicating that the patient was kept on a purin-free diet. It will be noted that the daily excretion of phosphoric acid in this case is considerably below the normal given by Futcher (2.5 gm.); the highest point reached in our determinations being 1.57.

The leukocyte counts made at irregular intervals in connection with the second series of tests do not suggest any definite relationships between the number of leukocytes and either the phosphoric acid or uric acid excretion. No constant digestive leukocytosis was noted, and the count was always distinctly within normal limits.

The total acidity was determined both by the Freund[11] method (which is based upon the assumption that the acid reaction of the urine is referable exclusively to the diacid phosphates) and by the Folin[12] method. Folin believes that the Freund and all similar methods are open to the fatal objection that a considerable part of the acidity of the urine is due to organic acids. He titrates the urine with decinormal sodium hydrate solution after first guarding against the disturbing effect of calcium and ammonium salts by the addition of about 20 gm. of powdered potassium oxalate to the 25 cc. of urine titrated.

In this series of tests the Folin method gave uniformly higher values than the Freund method. Even the determinations by the Folin method were below the normal values given by Folin[13] as varying, in 30 normal urines, between 554 cc. and 669 cc. of decinormal sodium hydrate solution per 24 hours, and below values he obtained for individuals on a similar purin-free diet. The highest value obtained in this series was 398 and was found on August 28. It was nearly as high on August 29. These were the days when the patient was suffering more pain than usual. No constant relationship appears to exist between the total acidity and the excretion of uric acid in this case.

Definite conclusions regarding uric acid formation cannot be drawn from such experiments as are here reported. While it has been considered justifiable to make important deductions regarding uric acid formation in health from a study of uric acid excretion, the presence of diseased conditions introduces disturbing factors. The recent work of Löwi,[14] Folin[15] and others, indicates that even the widely accepted theories of Burian and Schur regarding uric acid metabolism in health are not well founded. Löwi claims that it is impossible by our present methods to determine accurately the amount of exogenous or endogenous purin eliminated. Folin[15] has not found the endogenous uric acid elimination in health to be constant on certain purin-free diets. He questions whether all the endogenous uric acid eliminated in health is derived from the nuclein of body cells. The possibility of the synthetic formation of endogenous uric acid in man, even in health, is asserted by several investigators.[16] If it were true, as has been claimed by Burian and Schur, that in health the uric acid eliminated in the urine represented half of that found in the body, and this proportion remained constant in disease, quantitative uric acid determinations would certainly be of great value. Other factors in metabolism, such as digestion, sleep and exercise, would, however, still have to be considered. Digestion affects uric acid elimination decidedly, if constipation or diarrhea occur. According to Schittlhelm,[17] the purin bodies found in feces are in part derived from unabsorbed parts of the food, in part from bacteria, and in part from the secretion of intestinal glands. In diarrhea, a rapid passage of food purins through the intestine would increase the fecal output, and less purin would be absorbed to be excreted in the urine. In this case there was no diarrhea, the bowels moving regularly, as noted in Table III. Siven,[18] Pfeil and Rockwood have found the elimination of uric acid to be greater by day than by night; Rockwood suggests that the difference is due to a lessened rate of cellular metabolism during rest in bed. Sherman[19] has failed to find any increase in uric acid elimination resulting from vigorous exercise. Rockwood[18] found an increase in endogenous uric acid elimination after exhaustive labor, but not after moderate exercise. It has been maintained[20] that if the subject is in poor physical training, exercise causes an increase in uric acid elimination. It is probable that there was chronic nephritis in this case; this introduces another disturbing factor.

Whether there is really a constant relationship between the endogenous uric acid elimination and the "endogenous" phosphoric acid elimination in this case, cannot be inferred, since the diet, while purin-free, was not free from elements containing exogenous phosphoric acid. Phosphorous may be taken into the food in other forms than that contained in the nucleins, and according to Chalmers Watson[21] and others, this prevents any possible parallelism in the curves. Kaufmann and Mohr[22] state that phosphoric acid excretion varies with the varying needs of the body for phosphoric acid.

Horbaczewski's theory that endogenous uric acid was derived exclusively from the breaking down of leukocytes is no longer accepted. The work of Magnus-Levy,[23] Richter,[24] and others, has demonstrated the fallacies of his arguments and there does not now seem to be any reason why the leukocyte curves should parallel the uric acid curve. There is no constant parallelism between the two in this case.

SUMMARY.

The uric acid elimination in a case of chronic gout kept on a "purin-free" diet was below the socalled normal limits of normal. In the intervals between these

exacerbations there was marked variation in the amount of uric acid eliminated. Low values were reached preceding acute symptoms, and at times during the intervals the excretion was very low, at other times, however, the highest values reached during an attack were approached.

The phosphoric acid elimination was below normal. In the first series of tests the phosphoric acid curve followed the uric acid curve quite closely; in the second series, not at all.

The leukocyte counts were normal. They did not vary with the uric acid excretion. No digestive leukocytosis was noted.

The acidity was at all times below the average normal acidity. The highest values were obtained during one of the acute exacerbations.

Present views regarding uric acid elimination may be summed up in a few words: The principal source of the uric acid eliminated by man under normal conditions is the nucleins. We find an increased elimination of uric acid following the ingestion of substances containing nucleins. This source of uric acid can be controlled. The endogenous uric acid is probably derived from more than one source. A large portion comes from the decomposition of the nuclein of body cells, but a part is probably formed by direct synthesis. When certain purin-free diets have been used, the endogenous uric acid has in certain individuals shown a somewhat constant value in health, when other factors in metabolism were constant. When other forms of purin-free diet were employed the amount of endogenous uric acid was not constant, even in health. In disease the elimination of uric acid has shown marked fluctuations. How large a portion of the endogenous uric acid elimination under pathologic conditions is formed by synthesis is not known. The nucleins are one source of the phosphoric acid excretion in the urine, but not the only source, and there is no constant relationship between uric acid and phosphoric acid excretion. Though the leukocytes are a source of endogenous uric acid they are by no means the only source, and their number has no constant relationship to the excretion of uric acid. The work of the past few years has shown the fallacies in certain generally accepted theories regarding the source of uric acid and established definitely a very few facts in regard to uric acid metabolism. The part which uric acid plays in gout is still unsettled.

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ANTITUBERCULOSIS WORK IN THE UNITED STATES ARMY, NAVY AND MARINE-HOSPITAL SERVICES.

BY

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General Deathrate for Pulmonary Tuberculosis.—Pulmonary tuberculosis is every year responsible for more than 150,000 deaths in our country, the average mortality rate for this disease at the time of the last United States census in 1900 being about 187.3 per 100,000 population in the registration area of the United States.

As regards sex and age, for males the greatest mortality for any decade was between the ages of 25 and 34, a period which was responsible for 32.5% of all tuberculosis deaths for males and 33.1% of all tuberculosis deaths among females. These figures are the registration area figures of the 1900 census. (The registration area of the United States deals with the population of Connecticut, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and the District of Columbia, in all about 38% of the population of the United States, and is sufficiently diverse in environment and population as to make it a fair average. The morbidity and mortality records of these States are so comprehensive and well kept as to make deductions therefrom far more reliable than from the figures from other States.)

In the registration area of the United States the mortality from pulmonary tuberculosis among the two sexes, in proportion to deaths from all causes in each sex was almost equal, the percentage for males being 10.7%, and for females 10.3%, although the deathrate per 100,000 living males was 203, and for females only 172. Between the ages of 25 and 44 among males in the registration area, 56.8% of all deaths from tuberculosis took place, the percentage for women during the same age period being 54.2%. These figures suffice to show the widespread character of the disease and the large proportion of viable adults who become its victims.

When the *causal relation of occupation* for the United States registration area is examined, so far as they relate to the vocations of patients treated in the three public services—the Army, the Navy, and the Marine-Hospital Service—we find the patients of the Marine-Hospital Service have the highest mortality of the three. The mortality rates per 100,000 living persons in the same occupations are as follows: For sailors, pilots, fishermen, and oystermen the rate was 333.0; for United States soldiers, sailors, and marines the rate was 134.7 per 100,000 strength. Or as regards rank in a list of 53 classes of occupations, the individual occupations of which approximated one another in environment and effects, the sailors, pilots, fishermen, and oystermen came fourteenth, while the United States soldiers, sailors, and marines were forty-seventh; this ranking being based on the mortality rate per 100,000 living persons of the same occupation.

The vital statistics of the last United States census do not give very extensive information concerning the effects of service in the United States army and United States navy, nor of the occupations most frequently met among the patients who enter the marine hospitals for treatment. For instance, in the nine major groupings under which all occupations are classed, the major group entitled the "Personal Service, Police and Military Group," includes beside United States soldiers and sailors, such subclasses as barbers and hairdressers, janitors and sextons, and policemen, watchmen and detectives. The major group entitled, "Agriculture, Transportation and Outdoor Occupations," includes beside boatmen and canalmen, sailors, pilots, fishermen and

oystermen, such occupations as dairymen, farmers, miners, and railroad employes.

There is, then, a scarcity of exact information concerning the frequency of pulmonary tuberculosis morbidity and mortality in the United States army and navy, and among the patients in the hospitals of the United States Public Health and Marine-Hospital Service. As those services have an interest for all citizens, it was thought a paper that would show the morbidity and mortality from this widespread disease in these services, and the measures taken by them to treat and combat the disease, might be of interest.

The material here used is gathered largely from the vital statistics of the United States for the census year 1900, and from the annual reports of the year 1904 of the United States Army, Navy, and Public Health and Marine-Hospital Service. The data is considered in two divisions, the first dealing largely with statistics of morbidity and mortality, and the second being devoted to modes of treatment, results obtained, laboratory researches bearing on tuberculosis, and other activities.

1.—AS TO MORBIDITY AND MORTALITY STATISTICS IN THE PUBLIC SERVICES.

A. United States Army.—During the year 1904, the United States army had a mean strength of 67,643, and the new cases of pulmonary tuberculosis which were recorded during the year were 283 (a morbidity rate of 389 to every 100,000 soldiers). Soldiers with this disease who were discharged from the service were 189 (a discharge rate of 279 per 100,000 strength), and the deaths were 36 (a mortality rate of 53 per 100,000 strength), while the average mortality rate from pulmonary tuberculosis in civil life for the registration area of the United States was 187.3 per 100,000 living persons.

The mortality rate, according to race, among the white soldiers, was 37 per 100,000 strength, as against 174 per 100,000 population among the white persons of the registration area of the United States. For the negroes in the army, the mortality rate per 100,000 strength of that race was 314, as against 484 per 100,000 population of that race in the registration area, or as against 37 per 100,000 strength among their companion white soldiers. The Filipinos in the army had a mortality rate of 84 per 100,000 strength of that race, as against 37 per 100,000 white soldiers, or 314 per 100,000 black soldiers.

The morbidity rate, according to race, among the white soldiers, was 389 per 100,000 strength of that race, as against 471 per 100,000 strength for the negroes, or 731 per 100,000 strength for the Filipinos. In other words, the tuberculosis morbidity for whites and blacks was almost on a par, while that of the Filipinos was almost twice as great as either. And yet, while the Filipino morbidity and mortality agreed in being only about twice that of the whites, the negro mortality rate was more than eight times as great as the mortality rate for whites, although the negro morbidity rate was only about twice that of the morbidity rate for whites. No explanations are given for these rather strange figures.

According to divisions of the country in which these tuberculous soldiers were supposed to have acquired the disease, the morbidity rate for continental United States was 362 per 100,000 strength; the discharge rate was 386.0, and the mortality rate was 69.0; for Cuba and Porto Rico, the morbidity rate per 100,000 strength was 384.0, the discharge rate was 64.0 and the mortality rate was zero; and for the Pacific Islands and China, the morbidity rate per 100,000 strength was 437.0, the discharge rate was 105.0, and the mortality rate was 29.0 per 100,000 strength.

According to arm of service, the morbidity rate per 100,000 strength for the infantry was 336.0, the discharge rate was 274.0, and the mortality rate was 62.0; for the cavalry, the morbidity rate was 295.0, the discharge rate 199.0, and the mortality rate was 48.0; for the artillery, the morbidity rate was 396.0, the discharge rate was 227.0, and the mortality rate was 85.0 per 100,000 strength.

To summarize, for the United States army there were carried over from the hospital rolls of 1903, about 122 patients suffering from pulmonary tuberculosis, 263 new patients afflicted with that disease were placed on the sick rolls, 34 of the entire number recovered sufficiently to return to duty, 36 died, 112 remained under treatment, and 203 left the service by discharge or otherwise. The total average morbidity from pulmonary tuberculosis in the army was 389.0 per 100,000 strength, and the total average mortality was 53.0 per 100,000 strength. The average length of treatment for the tuberculous patients under observation was 160.43 days.

B. The United States Navy.—The mean strength of the United States navy for the year 1903 to 1904 was 37,248, and the sailors and marines suffering from pulmonary tuberculosis were 234, as against 130 for the preceding year, an increase of 104 cases.

According to place of service of these patients, there were credited to the force afloat, some 122 cases; to the shore stations, 42 cases; to the naval hospitals, 70.

According to results of treatment, there were: Returned to duty, 11 afloat men, 7 shore men, 48 naval hospital men; total, 66 men; and there were invalided some 137 afloat men, 40 shore station men, and 161 naval hospital men.

According to mortality, the force afloat was credited with no deaths, the shore stations with 2 deaths, the naval hospitals with 8 deaths; deaths elsewhere, 19; total, 28 deaths.

In a diagram showing the *relative prevalence of morbidity in special diseases* and injuries, pulmonary tuberculosis, with a morbidity of 234 cases, was nineteenth from the head of the list, which was led by tonsillitis, with 2,519 cases to its credit.

In a different diagram, showing the *relative mortality from special diseases*, injuries, and accidents, pulmonary tuberculosis, with 29 deaths, led the list, being followed by drowning with 22 deaths, pneumonia (both lobar and bronchopneumonia included) with 21 deaths, typhoid fever with 20 deaths, burns with 12 deaths, wounds with 12 deaths, cerebrospinal fever with 8 deaths, and so on.

C. Public Health and Marine-Hospital Service.—The Marine-Hospital Service is designed to furnish treatment more especially for sailors who are in the merchant marine of the United States. In addition, employes of coast and geodetic service and various other governmental bureaus are eligible to treatment, but the great majority of patients are seamen. The total number of patients receiving treatment during the fiscal year 1904 by the Marine-Hospital Service was 58,556. At the beginning of the year there were 187 tuberculous patients in the various marine hospitals and during the year 746 new patients suffering from that disease were admitted, the total receiving treatment being 933 seamen.

According to results of treatment of these patients, who were scattered among the marine hospitals in the districts of the Atlantic, Gulf, Ohio, Mississippi, Great Lakes, Pacific and Pacific Islands, there were credited as: Cured, some 32 men; improved, some 495 men; not improved, some 67 men; died, some 143 men. Remaining in the hospitals at the close of the year were 246 men. In addition to the 933 admitted to marine hospitals, some 306 men received dispensary treatment, so that the Marine-Hospital Service treated a total of 1,239 tuberculous patients. The mortality rate, based on the 58,556 seamen receiving treatment, for all causes, was 244 per 100,000 seamen treated.

D. Other Morbidity and Mortality Comparisons between the Three Services.—For the army, the morbidity rate, *i. e.*, the rate for injury and disease from all causes, was 1,451.13 per 1,000 soldiers, the rate for disease alone being 1,228.45 per 1,000 strength, and for injuries alone being 222.8 per 1,000.

The army mortality rate from all causes was only

9.30 per 1,000 strength, although some 23,379 troops were in foreign service. The mortality rate for disease alone was 7.02 per 1,000 strength and for injuries or external causes, 2.28 per 1,000 strength.

For the navy, the morbidity rate from injury and disease from all causes was 782.24 per 1,000 strength, the rate for disease alone being 671.82, and for injuries alone was 110.14 per 1,000 strength.

The navy mortality rate from all causes was 6.01 per 1,000 strength, that for disease alone being 4.40, and for injuries alone being 1.60 per 1,000 strength.

For the Marine-Hospital Service similar comparisons cannot well be made, because the total number of seamen eligible for treatment was not under constant supervision, but the total number of seamen who actually received treatment, for all classes of injury and disease, reached, as previously stated, the enormous figure of 58,556 for the year 1904.

2.—AS TO MEANS OF COMBATING PULMONARY TUBERCULOSIS IN THE PUBLIC SERVICES.

A. The United States Army: Sanatorium Activities.—The army sanatorium for pulmonary tuberculosis is known as the Fort Bayard, N. M., General Hospital, and has an altitude of 6,150 feet. During the year 1904, some 644 soldiers suffering from that disease were treated at that place, of which number 204 had been admitted during the previous year. At the close of the year some 257 of these patients were still at the institution.

The general line of treatment was the hygienic-dietetic.

For purpose of local residence and convenience in treatment, the patients were divided into four classes, as follows: CLASS I, consisting of ambulant convalescent cases, quartered in tents; CLASS II, consisting either of febrile ambulant cases or convalescent ambulant cases in which the subjects were losing weight, both subclasses being quartered in tents; CLASS III, consisting of far-advanced but uncomplicated cases, quartered in a special building near the infirmary dining room; CLASS IV, consisting of far-advanced cases requiring constant supervision. These patients were quartered in the infirmary or in tents near by.

According to stage of the disease and results of treatment, the patients were divided into the following classes: GROUP I (consisting of patients who were permanently afebrile and in whose sputum no tubercle bacilli were present), a total of 95 men, and for these the results of treatment were as follows: Disease arrested, 18 men, or 18.95% of this group; improved, 73 men, or 76.84%; unimproved, 4 men, or 4.21%; died, 0, or 0%. GROUP II (consisting of patients who were permanently afebrile, and in whose sputum tubercle bacilli were present), a total of 235 men, and for these the results of treatment were as follows: Disease arrested, 4 men, or 1.75% of this group; improved, 168, or 71.48%; unimproved, 59, or 25.1%; died, 4, or 1.7%. GROUP III (consisting of patients who were permanently febrile, and in whose sputum tubercle bacilli were present), a total of 304 men, and for these the results of treatment were as follows: Disease arrested, 0, or 0% of this group; improved, 96, or 31.57%; unimproved, 142, or 46.71%; died, 66, or 21.71%. GROUP IV (consisting of patients who were permanently febrile, but in whose sputum no tubercle bacilli could be found), a total of 9 men, and for these the results of treatment were as follows: Disease arrested, 0, or 0% of this group; improved, 3, or 33.33%; unimproved, 3, or 33.33%; died, 3 or 33.33%.

The results of treatment in the entire 643 cases reported on were as follows: Arrested, 22, or 3.42%; improved, 340, or 52.88%; unimproved, 208, or 32.34%; died, 73, or 11.35%.

Laboratory Activities.—As regards routine laboratory work, 4,960 sputum examinations, 1,350 blood, and 1,576 urine examinations, were made.

As regards special researches, investigations were carried on to determine to what extent tubercle bacilli were present in the sewage of the post; to determine the effect of light and air upon the virulence of tubercle bacilli found on the surface of the sewage farm; to determine what danger, if any, existed to persons living below, on a stream which passed through part of the farm.

The result of those investigations showed that in spite of crematory destruction of sputum, the sewage contained virulent tubercle bacilli in large numbers, that virulent tubercle bacilli could be found on the surface of the sewage farm; that two weeks exposure to light and air on the surface of the sewage farm reduced their virulence to a minimum; that debris from the stream flowing through the farm, taken from a point below the farm, was virtually free from tubercle bacilli.

B. The United States Navy: Sanatorium Activities.—The navy has just made a beginning in special treatment of pulmonary tuberculosis by establishing at Pensacola, Florida, the Pensacola Camp for Consumptive Seamen. Prior to this, a small number of selected cases was sent through the courtesy of the army, to the Fort Bayard institution, but the difficulty of enforcing army discipline upon members of the navy prevented the extensive use of that institution. Accordingly, the Pensacola Naval Camp was established in Florida. Twenty-one tents, each adapted for two persons, were set up, but other facilities were crude, there being no bathrooms or modern lavatory facilities, no supply of running water, no well-equipped laboratory or other needed accessories.

The general line of treatment was the hygienic-dietetic and in spite of rather discouraging equipment, very hopeful results were obtained. Patients whose maximum temperature did not rise above 100° F. were required to take breathing exercises, and were urged to take daily walks, or daily swims in the bay.

According to the quantitative degree of pulmonary involvement, the patients were divided into the following classes: One lung only involved in 8 patients; both lungs involved in 36 patients, this latter group being divided into 24 second stage and 1 third stage case.

At the end of the year the results of treatment were tabulated thus: Cured, 1 patient; much improved, 10 patients; improved, 16 patients; arrested, 7 patients; failing, 6 patients; died, 2 patients.

The largest gain in weight was 18½ pounds, and in the great majority of patients the temperature had become almost normal. For a tidewater elevation in a humid climate with hot enervating summers, these are certainly very excellent results.

The medical bureau petitioned the Secretary of the Navy to allow them to transform the unused naval station at Port Royal, South Carolina, into a naval sanatorium, but the request was not allowed.

Incidental to the value of breathing or setting-up exercises, the director of the Naval Medical School at Washington, D. C., spoke elsewhere in the annual report concerning the results attained therefrom on the 31 student officers at the school. The setting-up exercises were gone through between 9 a.m. and 10 a.m., and at the end of the year these young assistant surgeons, lately recruited from civil life, had made an average gain in weight of about 10 pounds and had made an average increase in chest expansion of about an inch, and the director of the school was convinced that these results were largely due to the setting-up exercises. Such active exercises as these would be, of course, more valuable as prophylactic measures in building up the resistance of the individual than as treatment proper to tuberculous patients.

C. The Public Health and Marine Hospital Service: Sanatorium Activities.—The Marine-Hospital Service sanatorium for tuberculous patients is located at Fort Stanton, New Mexico, and has an altitude of about 6,000 feet.

A total of 386 patients was treated during the year,

of which number 281 gave a nontuberculous and 105 a tuberculous history in parents.

Tubercle bacilli were not found in the sputum of 26 patients, but were found in the sputum of the remaining 360 seamen. Patients who had pulmonary hemorrhages prior to admission included 107 seamen; patients who had their first pulmonary hemorrhages after admission included 115 seamen; patients who had pulmonary hemorrhages both before and after admission included 28 seamen.

According to stage of the disease, one classification of these patients, based upon general physical condition when admitted to the sanatorium, was as follows: 1. Good condition (well-nourished and without grave complications), some 83 seamen. 2. Bad condition (poorly nourished or with complications not necessarily grave), some 159 seamen. 3. Very bad condition (much emaciated or with grave complications), some 144 seamen.

The classification based upon extent of pulmonary involvement was as follows: 1. Right lung only, some 20 seamen. 2. Left lung only, some 15 seamen. 3. Both lungs, some 346 seamen. 4. Doubtful, some 5 seamen.

The classification based upon degree of involvement by stages was as follows: 1. First stage cases (no consolidation or excavation), some 34 seamen. 2. Second stage cases (considerable involvement and consolidation without excavation). 3. Third stage cases (considerable involvement and consolidation with excavation), together numbered 200 seamen.

According to results of treatment, the classification of the condition of the 192 seamen who left the sanatorium during the year, of their own accord or otherwise, was as follows: 1. Apparently cured (average stay at the sanatorium, one year), numbered 15 seamen. 2. Disease arrested (average stay at sanatorium, 11 months and 12 days), numbered 9 seamen. 3. Improved (average stay at the sanatorium, 7 months and 12 days), numbered 87 seamen. 4. Unimproved (average stay at the sanatorium, 8 months and 11 days), numbered 19 seamen. 5. Died (average stay at the institution prior to death, 5 months and 10 days), numbered 62 seamen, this last item indicating that the patients who died belonged largely to the third stage group.

The general line of treatment was the hygienic-dietetic-symptomatic. A few patients were receiving specific therapy, but had not been under observation long enough to warrant definite conclusions as to the value thereof.

The surgeon in command of the sanatorium regretted the absence of an international nomenclature which would allow results from all parts of the world to be compared. A plea was made that Congress pass a law allowing suitable convalescents to do light cabinet and other work, so that through earning some little money, and by keeping themselves occupied, the patients would be both more contented and be more willing to remain at the sanatorium for a longer period. The sanatorium at the present time has a very good general equipment, and seems to be well adapted for its purposes. The passage of a rule was also asked for that would permit the medical officers to prevent a patient from leaving the sanatorium until his recovery was either assured or until the incurability of his condition had been demonstrated.

Laboratory Activities.—As regards routine laboratory work, there were made some 1,112 sputum, 545 urine, 141 blood-examinations, and some 52 necropsies.

As regards special researches, experiments were made to determine to what extent the dust in the halls and dormitories of the sanatorium was free from tubercle bacilli, and the conclusions arrived at were that the infective dust was largely that which came from the floors or from the baseboards, 2 ft. to 3 ft. from the floors, and accordingly all floors in ordinary use were mopped with kerosene, weekly, and in places where there was especial danger a 1 to 1,000 mercuric chlorid solution was used.

The herd of 60 dairy cattle were tested with tuberculin. Considerable laboratory work was done with *Bacillus X* of Mayer.

Miscellaneous Activities of the Public Health and Marine-Hospital Service.—The Public Health and Marine-Hospital Service activities in the tuberculosis work were not, however, confined to the Fort Stanton institution.

Hygienic Laboratory at Washington, D. C.—The director of the hygienic laboratory gave considerable attention to railroad coach sanitation. He advocated plain, smooth surfaces that could be easily cleaned and disinfected, and emphasized the danger of tapestried and upholstered fittings. He believed there should be a separate sink for teeth cleaning and throat gargling. Experiments were also being carried on to determine what degree of danger existed from dried tuberculous sputum, adherent to the furniture and bedclothing of railroad coaches.

Other bacteriologic investigations were carried on to determine, if possible, the relation of the tubercle bacillus of man to other acid-fast bacilli, and another series of experiments was on the relation of the human and bovine tubercle bacilli to one another. The results of these investigations were not, however, ready for publication.

Incidentally, a note is elsewhere made that in our tropical possessions more people die of tuberculosis than of any other disease, and that it was the duty of the United States to improve the sanitary conditions of those places and to teach the inhabitants what measures to follow in order to reduce infection to a minimum.

Detail of Public Health and Marine-Hospital Service Officers to Attend Medical Meetings.—Officers of the Public Health and Marine-Hospital Service were detailed to attend, take part in, and report upon the meetings of the following medical associations and meetings: The Mosquito Extermination Convention, American Medical Association, American Röntgen Ray Society, Mississippi State Medical Association, Eleventh International Congress of Hygiene and Demography, Texas State Medical Association, and in the organization of the National Association for the Prevention and Study of Tuberculosis at Atlantic City, N. J., during the 1904 meeting of the American Medical Association, Surgeon-General Walter Wyman, of the Public Health and Marine-Hospital Service, was elected a member of the first board of directors of that organization.

CONCLUSIONS.

The public services of the United States—the Army, the Navy, and the Public Health and Marine-Hospital Service—are fully alive to their duties and responsibilities in the antituberculosis warfare, which is at the present time engaging the interest of so many medical men, lay workers, and philanthropists throughout the world. The excellent results obtained by the medical officers in charge of the sanatoriums, as well as in the laboratory researches, must necessarily be reflected with good effect upon similar activities instituted by the medical profession in civil life. Future reports will be awaited with interest, and if the three services, as well as private sanatoriums, adopt the nomenclature drawn up by Dr. Turban at the Central International Bureau Conference on Tuberculosis, held at Copenhagen, Denmark, in May of 1904, and which was adopted by that organization, it will be possible in a few years, provided future reports are made out in accordance with such nomenclature, to come to some very definite conclusions as to the value of the various modes of treatment in pulmonary tuberculosis.

The work already done in combating pulmonary tuberculosis in the public services is in fact the best indication of what excellent results may be expected from the future.

TREATMENT OF INFECTED OTITIS MEDIA.

BY

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In a previous paper I discussed the general principles underlying the treatment of chronic otitis media.[1] That paper brought a number of letters telling of difficulties and unsatisfactory results and raising a number of questions. In order to answer these properly I propose to set forth, somewhat more in detail, the general plan of treatment as practised in my office. This will explain and answer questions that have been raised. The dangers attending certain forms of otitis media, the delicacy of presenting a plan of treatment in detail and the desirability that no one should attempt to give this treatment unless he is fully prepared and has proper equipment and facilities for the same, are things of which I am unpleasantly conscious. The danger is also great, not only because of the nature of the treatment, but because of the difficulty experienced in the selection of cases in which a certain form of treatment is indicated and in which a knowledge of when such treatment should be supplemented or replaced with surgical or other methods is required. If all of our cases could be so classified that we could positively say that in a certain class, a certain method of treatment is indicated, the practice of medicine would be very much simplified. It is just here that medical minds will ever continue to differ, for everyone will base his conclusions to a large extent on the character of his experiences and on a certain intuitive knowledge, if I may use that expression, which is the result of observing and noting numerous apparently insignificant details in the make-up of the patient or of his condition, that may be difficult to mention and may not be observed by others. Two cases may be perfectly alike so far as the grosser symptomatology is concerned, yet the physician supplied with this intuitive knowledge will have no difficulty in readily separating them into two distinct classes that may require radically different methods of treatment. This knowledge cannot be obtained from books and lectures, but can only be acquired in the school of clinical experience and for that reason it is so exceedingly difficult to lay down hard and fast rules to guide one in the selection of his cases. And again, the impression is daily growing stronger with me that such a thing as a pure, simple, uncomplicated otitis media is a very rare thing. We always have more or less trouble with the eustachian tube and I believe that the mastoid cells are more commonly affected, at least with a mild inflammation, than is ordinarily thought. These complications may not be sufficiently marked to require radical and direct treatment and yet in a certain percentage of cases at least, these primary and apparently insignificant inflammations and infections may lay the foundation for what in after years may become sufficiently serious to endanger life. As a case in point I may relate that about two years ago I treated and apparently cured a really troublesome case of suppurative otitis media which I believed at that time to be complicated with mastoid infection. Under treatment all symptoms of infection and inflammation disappeared for more than a year when they suddenly reappeared with such virulence as to require immediate radical surgical intervention. In this and in other similar cases that have come under my notice, I believe that the original infection took place at the time of the first attack of otitis and that it left the lining membrane of the mastoid and of the middle-ear in a condition in which they would be more easily and seriously influenced by a subsequent and new infection whenever that might take place. In other words, I believe the effect of a single attack of otitis media upon the mastoid membrane is to predispose it to inflammation which under the proper conditions may at any moment assume alarming symptoms and that one attack predisposes to subsequent attacks. In this it is very similar to appendicitis. The first attack may not be alarming, or it may even be so mild as to escape attention but each subsequent attack becomes increasingly more dangerous. I deem it necessary to call attention to these facts to show the difficulties that have to be met and the necessity of a most thorough and painstaking examination and daily watching of conditions in order that the proper treatment may be applied as the individual case requires. But given a case in which we have a chronic suppurative otitis media with a suppurative salpingitis and possibly a mild inflammation of the mastoid cells, what is the treatment?

We look for the following symptoms: Pus discharging from the perforated drum; pus may or may not be discharging from the eustachian orifice in the pharynx, depending on whether the eustachian tube is patent or occluded. A dull aching sensation of varying degree over the temporal region, at times possibly slight chills and fevers, with their usual accompaniments of furred tongue, loss of appetite, and constipation, etc. No pain on palpation or percussion over the mastoid; no redness or bulging of the posterior wall of the external auditory canal; no sharp, well-defined pain in or over the mastoid and no decided infectious fevers. The auditory apparatus in such a case may be likened to a tube beginning at the external auditory meatus, ending at the eustachian orifice in the pharynx, more or less tortuous, with pockets and openings leading into side passages, lined with mucous membrane, every crypt and space infected by pus-breeding germs.

Manifestly, the first consideration is to obtain a condition of surgical cleanliness; and that method of treatment which will best accomplish this, is to be recommended and used. To obtain surgical cleanliness, it is imperative that the egress of pus shall not be interfered with in the least. Given perfect drainage, suppuration of the middle-ear, like suppuration elsewhere, tends to cure itself. It, therefore, becomes necessary to destroy as much of the drum membrane as may be required to give free external exit to pus and to dilate the eustachian tube fully. The drum membrane may be cut out, or it may be destroyed by a strong caustic. The method is of minor importance, so long as the desired results are obtained. The eustachian tube may be dilated by any one of the several methods mentioned in my previous paper. But the method which, in my experience, has proved most valuable, is as follows: Having introduced a eustachian catheter connected with a vaporizer containing iodin, menthol, and creosote in oil, I connect it with a large air tank, having the air compressed up to 30 pounds. Having opened the valves, a continuous current of antiseptic air is forced through the catheter and into the eustachian tube until the pressure goes down to 20 pounds; this requires several minutes. By this means I accomplish two objects, and avoid at least one danger. The objects accomplished are the thorough and complete dilation and the cleansing and disinfection resulting from the use of the antiseptic solution used. The danger avoided is that which so often results from the use of Politzer's air-bag and other methods of inflation, viz., the driving of infected material that may be present in the eustachian tube into the deeper parts of the middle-ear, instead of dislodging and expelling them. In other words, a single puff or a succession of single puffs of air, can and does have but one effect on the infected material in the eustachian tube, and that is to drive it into the deeper parts of the middle-ear where its presence is extremely undesirable, and where it may be expected to bring about any kind of mischief. But a continuous current of air will have practically the same effect as a continuous current of water would have in removing a foreign body from the external auditory canal. It expels and forces out anything that may be present in the eustachian tube,

[1] *American Medicine*, Vol. viii, No. 14, pp. 600-602.

whether it is pus or mucus or anything else. The continuous application of this disinfecting vapor must have a favorable influence wherever it reaches. I have at least demonstrated, to my own satisfaction, that in a certain percentage of cases this vapor may be forced into the mastoid cells. If the proper precautions have been taken to have every part of the auditory apparatus thoroughly disinfected and cleansed, there can be no harm done and no objections to its use. On the other hand, I believe some cases in which I have instituted treatment along this line have yielded results that would have been impossible to attain if I had not used it. While I would not advise the inexperienced man to try this method, yet in the hand of a careful and trained specialist, I have no doubt it will often give very brilliant results.

In the use of the eustachian catheter we must not lose sight of the possible danger of injuring the mucous membrane near the eustachian orifice and forcing air through this lesion into the submucous tissues, giving rise to emphysematous swelling. The causes for this accident are a poorly constructed catheter, ignorance of the technic required or ignorance of the delicacy of the tissues to be treated. All of them are avoidable.

The reason why many practitioners are discarding the Politzer air-bag method of inflation for emptying the eustachian tube of undesirable contents, is because many a case has suddenly assumed an alarming condition immediately after its use, particularly in the acute cases, in which the drum membrane was still intact. The increase of pain and fever could be explained on no other grounds than that of having forced infected material into the deeper parts of the middle-ear instead of removing it.

I have been asked how soon after the appearance of an acute attack of otitis media, inflation with the catheter and compressed air should be used. As a general rule, I believe this should be done immediately. I do it the first time the patient visits my office, particularly if there is any evidence of hypersecretion or of fluid in the tympanum.

The established treatment of these patients as practised by prominent otologists and recommended by the standard textbooks is incision of the drum membrane. Dench says: "It is of great importance to perform this operation early, and not to wait until it is evident that spontaneous rupture will take place." If now this fluid can be successfully removed without incising the drum, it must be admitted to be a highly desirable procedure. That it can frequently be removed by means of the eustachian catheter and a continuous current of medicated vapor, has been repeatedly demonstrated in my office in the presence of other physicians.

So long as there is no infection of the middle-ear or of its contents, incision of the drum membrane is rarely necessary and is not a justifiable procedure until other means have been tried and failed. The use of compressed air in these cases, however, requires a high degree of tact, experience, technic, and good judgment. The degree of pressure should be as low as is consistent with the condition of the patients. If, for example, a five-pound pressure will open, inflate, and clean out the eustachian tube and middle-ear, then a six-pound pressure is not justifiable. We must bear in mind that we are dealing with a diseased ear in which the drum membrane may have become highly attenuated on account of degeneration, the result of inflammation. Any unnecessary pressure may be highly injurious to this delicate membrane or may rupture it. This danger is particularly great if in the introduction of the catheter it is so tightly fitted into the pharyngeal end of the eustachian tube as to prevent the exit of the return flow of air.

I cannot enter further into the subject of acute otitis media and have digressed so far only that I might answer questions that have been put to me and that might be of assistance to others.

Having established perfect drainage by thoroughly opening both ends of the auditory passages or canal, the next question is one of disinfection. The external auditory canal may be disinfected by syringing or mopping out with antiseptics, but no amount of syringing as ordinarily practised can disinfect the middle-ear, the place that most needs to be disinfected, and the real object of the treatment. It is rare that the fluid can be made to pass beyond the drum membrane. For disinfection of the middle-ear two methods may be used singly or combined.

The tip of a middle-ear syringe may be introduced through the perforated drum membrane and by successively turning its point in different directions while forcing the fluid through, the entire middle-ear may be saturated with the disinfecting fluid. If sufficient force is used, especially if the eustachian tube has been previously dilated, the fluid may be forced through so as to emerge at the pharyngeal end of the eustachian tube. This procedure should be repeated several times at each sitting so as to insure thorough antisepsis. Practically the same result may be obtained by tilting the patient's head sideways until the direction of the external auditory canal is upward. Fill the canal full of the antiseptic desired. Place the ball of the thumb or of the finger snugly over the meatus and bear down successively several times, producing a sort of force pump action, whereby the fluid will be readily forced through the middle-ear and made to emerge at the eustachian orifice in the pharynx. This also should be repeated several times at each sitting.

The next step in the disinfecting process should not be taken unless the foregoing has been thoroughly carried out so that as much of the infected material may have been forced out or neutralized as it is possible to do by that method. Then having introduced a eustachian catheter and connected it with an ordinary Davidson spray bottle containing the antiseptic fluid, the eustachian canal and the middle-ear may be sprayed out, and the parts that may have escaped thorough disinfection by the previous step of the treatment will now become exposed to the action of the antiseptic in a manner that would not be possible by the other method alone. It is not possible to use a syringe in connection with the catheter, but with a spray bottle it is comparatively easy to force a certain amount of fluid through the entire length of the auditory canals so as to emerge at the external auditory meatus. A considerable part, however, will be lost in the pharynx to be hawked and spit out by the patient. It will be readily seen that by this method, if carefully and thoroughly carried out, we cannot fail to produce antisepsis of the entire auditory tract, and if this is possible, the cure of the patient will follow as a necessary result. I have stated that in my opinion it was possible to force medicated vapor into the mastoid cells. I will now state that, judging from the expressions of the patient and the results obtained in certain cases of what appeared to me mastoid infection, I believe it is possible to force the antiseptic fluid by means of the spray connected with the catheter into the mastoid cells, and thus to disinfect them also.

I am not ignorant that this procedure may be open to objections. However, I maintain that whenever a sufficient quantity of an efficient disinfecting fluid can be introduced into these cells that it will inhibit and prevent the growth of microorganisms, and therefore can do no harm, but on the contrary, its influence will be beneficial. I make this statement not only because it seems logically true, but also because it is founded upon a certain amount of clinical experience.

The toilet, after this treatment, is similar to that usually followed. The patient is treated daily, and in severe cases, two and three times a day until the character of the discharge changes from a purulent to a mucopurulent or mucoid appearance. As the improvement continues, the length of time between the treat-

ments may gradually be increased. I have made no mention as to the necessity of obtaining a normal condition of the nose and nasopharynx as a *sine qua non* to successful treatment of the ear. As a general proposition, any treatment of the ears without due consideration of these organs is doomed to failure. But the limits of this paper forbid me going into this matter any further than simply to mention it. I have considered only the treatment of the ear without mentioning anything relative to the various complications that so universally attend nearly every case of otitis media.

SUMMARY.

1. Chronic suppurative otitis media is an infectious condition of the entire auditory tract.

2. It is impossible to disinfect this tract in its entire length simply by means of syringing as ordinarily performed.

3. No cure can be expected unless this tract can be made surgically clean by forcing the antiseptic fluids through from end to end of the entire tract.

4. It is necessary to have a large opening in the drum and a thoroughly dilated condition of the eustachian tube, both for the purpose of drainage and of efficient cleansing.

5. It is important to have a continuous current of antiseptic vapor passed through a eustachian catheter into the eustachian tube both for cleansing and dilating purposes.

6. It is necessary to treat the parts sufficiently often to maintain as nearly as possible a condition of antisepsis.

7. No treatment can be considered thorough that does not recognize the relation existing between pathologic conditions in the nose and nasopharynx and the ear.

"ENTEROTOXISMUS" AS A SUBSTITUTE FOR "AUTOINTOXICATION."

BY

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The significance attributed to the word "autointoxication" is so utterly at variance with the definitions given in medical dictionaries that inevitable confusion has resulted. Frequently used in one place to designate one class of diseases, and as often in another to indicate entirely different conditions, its employment has become scientificly inaccurate.

Gould recognizes several distinct conditions as autointoxications, viz.: (1) "That due to the action of excessive, unneutralized, or modified discharges from the cells of any tissue acting upon other tissues without previous discharge from the body; or (2) that due to the action of products of decomposition and necrosis of any tissue acting in a similar manner; or (3) that due to microendoparasites or macroendoparasites." These three are termed "endogenous." Further he says that exogenous autointoxication is "that due to the action of poisons entering the system from without, through the skin, the digestion, the respiratory or genitourinary tract, as by the absorption of retained excreta or of decomposition products developed in the external excretions through the action of these secretions" (Adami).

A large variety of morbid conditions may be included under these definitions. "Excessive, unneutralized or modified discharges" would indicate uricacidemia, the acidoses of diabetes and allied diseases, the toxemia of exophthalmic goiter and many others. The second definition would embrace suppurative and malignant diseases. The anemia of ankylostomiasis is a fair example of the "autointoxication" included under the third.

By common usage, however, the diseases mentioned, with the exception of the acidoses, are not indicated when "autointoxication" is used. Still, the view is too diffuse. "Ptomain poisoning," its first cousin in the family of diseases, understanding thereby the symptoms resulting from the ingestion of nitrogenous food previously putrefied, is often mistaken both clinically and theoretically for enteric intoxication although purely exogenous in character. Attempts have been made to classify atrophic hepatic cirrhosis of alcoholic origin as an autointoxication, on the ground that the alcohol must first be absorbed through the gastrointestinal tract (quoted by Vaughan.)

Confusion has resulted also from the use of the word "autoinfection." This is, of course, a distinct pathologic occurrence, and occurs only when the specific organisms are carried to parts distant from the initial lesion. "Autotoxemia" has been regarded as a synonym of "autointoxication."

Various phrases have come into vogue to distinguish properly between the several conditions mentioned and an intoxication of enteric origin. Among such may be mentioned "intestinal toxemia," "intestinal putrefaction" or "fermentation" and more particularly from a surgical standpoint, "intestinal paresis." Many of these are open to the objection of being indefinite or labored, and others are positively inaccurate.

In order to bring the condition complex of true enteric autointoxication well within the realm of clinical entities, obviate misunderstanding, bring into use a word which will etymologicly express the exact meaning to be conveyed, and at the same time have a word which will take its place with the nomenclature of allied conditions, the word "enterotoxismus" is suggested. In defining it, the following is presented:

Enterotoxismus—that morbid condition characterized by the absorption of substances from the gastroenteric tract which are toxic by virtue of their quantity or quality and which are produced therein by the disintegration of foodstuffs through the perverted or prolonged action of enzymes or the activity of entophytes.

Several arguments may be advanced for the general adoption of such a word as this, which possesses the foregoing definite meaning. From an etymologic standpoint it is correct, the derivation being *ἔντερον* (bowel); *τοξικόν* (poison); and the suffix denoting a "tendency toward." Having a termination which is common both in German and French, it may be easily transplanted. The Germans are more fortunate in having the word "Darmfäulnis" to express the idea.

The word suggested follows also the form initiated by Vaughan, who named the various food poisonings, such as "ichthyotoxismus" (fish poisoning), "galactotoxismus" (milk poisoning), etc. These terms are now in common use. It is to be noted, however, that the main distinction between the poisonings described by Vaughan and enterotoxismus is that the former are essentially exogenous, while the latter is endogenous.

By definition, certain conditions are excluded which heretofore might be considered as autointoxications, viz.: 1. "Ptomaïn poisonings" (a term, by the way, which now is known to be a misnomer) in which the toxic substances are formed in the food prior to ingestion. 2. Toxemias referable to glands having internal secretions. 3. Absorption of toxins resulting from distinct lesions in the gastrointestinal tract as gastric cancer, or ulcerative colitis. It is obvious that enterotoxismus may be and usually is a complicating condition. 4. Diseases characterized by retention of secretions which normally empty into the gastrointestinal tube as in obstructive jaundice (particularly catarrhal) or epidemic jaundice (Weil's disease). 5. Autoinfections such as occur when tuberculous sputum is swallowed, or particularly when microorganisms are absorbed from the intestinal tract. 6. Toxemias referable to the presence of entozoa as in ankylostomiasis. 7. Surgical conditions in which the toxemia is dependent upon disintegration of tissue. 8.

Toxemias referable to the production of substances, "excessive, unneutralized or modified," by general cellular malactivity, as in acetonemia.

Such conditions as defined lend themselves to classification in various ways: 1. Acute enterotoxismus; oftentimes loosely spoken of as "biliousness," "spring fever," or perhaps erroneously diagnosticated as a "touch of typhoid" or "touch of malaria." At present it may be safely called upon to explain the symptoms when other diseases have been excluded, when there is a previous history of overindulgence in nitrogenous food, and large amounts of ethereal sulfates are found in the urine. It may or may not be accompanied by fever or bowel disturbance.

It may appear also as a cause, result, or accompanying complication of other diseases, as in ileus, or the acute infectious enteric diseases (typhoid or the acute gastroenteritis of babies). It should be kept in mind that in those diseases characterized by catarrhal states of the enteric and colic mucosa, there is inflammation, due not only to the direct action of the poison on the mucosa, but that the poison after absorption is again secreted by these membranes into the bowel, causing further lesions. 2. Chronic enterotoxismus, usually without subjective symptoms, the amount of indican in the urine roughly corresponding to its degree, leading to the production of arteriosclerosis (H. T. Brooks); mild parenchymatous kidney irritation, chronic interstitial nephritis and possibly suboxidation (Herter and others). It is always secondary to and complicates chronic diseases of the gastrointestinal tract, and may be regarded as a disturbance of the equilibrium of the normal bacterial content of the small intestine.

A classification may be tentatively made, according to the substances absorbed: 1. Proteoses and peptones, without the change by the gut wall which normally occurs (Mandel). 2. Products of proteid putrefaction, either intermediate or final, with or without change in its passage through the gut wall, as the amino acids and their derivatives. 3. Products of carbohydrate fermentation. 4. Substances possibly formed by the synthetic activity of microorganisms, such as the volatile, fatty acid group.

It will be noted that etiologicly the natural classification would be: 1. Products due to the activity of bacteria, both saprophytic or pathogenic. 2. Products due to the activity of the blastomycetes, and possibly hyphomycetes. 3. Products of perverted or prolonged enzymotic action.

It is not the intention to show the relation which enterotoxismus bears to many diseases, both medical and surgical, and in which it may be an important factor. It will be sufficient to mention the probability that uremia is a complex toxemia, and to a degree of intestinal origin (Bouchard). It may be noted that enterotoxismus is the determining factor in many diseases of climax, such as epilepsy (Donath and others), and narcolepsy (Stern). There is much evidence to support this view.

Whatever may be said as to the theory of enterotoxismus and its relation to other diseases, it may be taken as an approved fact that there may be intestinal putrefaction and fermentation with or without direct symptoms or lesions. Such a condition would certainly be better understood by "enterotoxismus" than "autointoxication."

Appeal of Christian Science Case.—Judge Platt sustained the demurrers of John Quimby, his wife, Georgiana, and John G. Lathrop, Christian scientists, of White Plains, N. Y., to the indictments against them for manslaughter in the second degree. They were indicted for allowing Esther Quimby, a child, to die of malignant diphtheria without calling in a physician. Assistant District Attorney Frederick E. Weeks, of Westchester county, announced that an appeal will be taken to the appellate division, and if necessary, higher, against Judge Platt's decision.

SPECIAL ARTICLES

A SYSTEM OF VENEREAL PROPHYLAXIS THAT IS PRODUCING RESULTS.

BY

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The system of prophylaxis here presented has been inaugurated in the State of Washington. That its value and the possibility of development along enduring lines may be recognized, the principles governing its construction are given; likewise the facts from which these principles are deduced.

For convenience, the following classification has been adopted:

I. *Scientific Facts and Principles.*—Scientific facts are stated and principles deduced that are in accord with the eternal laws of nature, over which man must recognize he has no control, but by means of which he evolves in proportion as he interprets the principles of the natural laws correctly.

II. *Business Facts and Principles.*—These indicate conditions as they exist and the extent to which the principles deduced from the scientific facts may be applied to attain that which is possible, the next degree of evolution. To illustrate, every one is aware that a business, if it be successful, cannot be conducted upon the amount of capital the organizer would like to have in the bank; and it is equally true that man cannot construct a theory of ethics or morals upon human conditions as he would like to have them and have it produce concrete results. In both instances the system or law of conduct to be pursued must be applied to the actual conditions or capital; and all things being equal, the system that will produce the largest and most rapidly increasing returns will be the one that is constructed upon conditions seen as they are and dealt with as they appear, not as the organizer would like to have them.

I.—SCIENTIFIC FACTS AND THEORY OF ACTION.

1. The law of sex is inherent in every human being.

2. It is essential to life and given man for two reasons: (*a*) To perpetuate the species; and (*b*) to rivet the tie between man and woman, not only by offspring, but by mutual endearment.

3. It is immutable and the most powerful law of nature and underlies all conditions of life and fabrics of society.

4. Sexual intercourse is a phenomenon of this law, given by the Creator to man and woman as a means of expressing their love, which is no mere operation of the mind, no sheer intellectual process, but even in the purest, it is of necessity an alloy, made up like themselves of body and mind, with a physical side so influx with the mental that the one finds its most passionate expression in the fruition of the other.

5. Venereal diseases are dependent for existence on this law, and are pathologic results due to its transgression.

6. The law of sex is transgressed whenever, in sexual intercourse, there is a mental or physical attempt to interfere with or thwart its purpose, *i. e.*, the propagation of the species and the desire of offspring, which strengthens home life by mutual endearment; and though custom, tradition, and human laws (legal marriages) may sanction such transgression, there will be no mitigation of the individual's penalties, which are unhappiness, venereal diseases, ill-health and death, since the penalties are always enforced at some time, and by a power beyond human control.

7. Every man must make his own morality, because he is endowed with a mind that possesses individual volition and reason; hence he must be rendered capable of making it for himself by being enlightened, guided, advised, and placed in a position to judge by those who have time, experience, inclination, and ability to study the law of sex and teach its phenomenon, so that he may choose those measures that apply to him.

8. Minds are brought into agreement by furnishing them with universal and necessary principles, while principles of moral action and hygiene, like truth, cannot be imposed by brute force, but must be proposed by some, accepted by others,

and thus become common thought through free adhesion of minds.

The foregoing axioms have been given so that the principles of action by which this system of prophylaxis is governed and which are stated in the conclusion and recapitulation to follow, will be recognized as true principles, inasmuch as they are correct deductions made from immutable laws of nature, insofar as we can read them; therefore, principles that mankind must accept in the construction of any ethical system that will, in actuality, govern human action.

Conclusion.—Man will indulge in sexual intercourse in compliance with the law of sex. It is an absolute right of the individual—a part of his natural liberty to do so; therefore, in his indulgence he has a right to act as he sees fit, without restraint or control, except by the law of nature. However, every individual, as a member of society, is compelled to pay at least the minimum price of membership, which, in this instance, is that he shall give up part of his natural liberty to the extent that, no matter how abandoned his principles or vicious his practices, he can indulge himself in them provided he keeps his wickedness to himself or does not offend against the rules of public decency; and if he so acts, he is out of reach of human law.

As a result of this natural limitation of human law, his actions can only be directed toward morality by influencing his mind through education. Man does not wish to have venereal diseases, but venereal diseases are results of transgressing the law of sex—that is, wilful indulgence in promiscuous sexual intercourse, not for the purpose of propagating the species, but for the personal, pleasurable gratification obtained.

The foregoing statements contain indisputable facts, irrefutable truths; therefore the only hope of those who desire man's morality lies in educating the individual in the law of sex; and those who wish to escape venereal diseases, in obeying that law. The system of education employed must consist in letting man make his own morality, after proposing and presenting to him, in a form that he can comprehend, moral and hygienic theories that have as their premises universal and necessary principles deduced from the study and observation of the law of sex. Then morality will be increased and venereal diseases lessened through bringing the minds of men into agreement that the education of man in the law of sex is essential to his happiness and prosperity.

II.—Business Facts and Principles or the Adaptation of the Means to the End.

Business principles signify systematization that permits the obtaining of the object sought at the minimum expenditure of time, money, and energy; and under this heading it is purposed to describe the method of making a system of venereal prophylaxis practical by applying, according to business principles, a proposed theory of action to every-day life.

The fact exists that the question of morals is interwoven with every phase of venereal prophylaxis; therefore, any attempt to overthrow old views and prejudices may cause opposite results and alienate the majority, especially the influential portion of the public who must be convinced, and in whom custom and tradition have fostered false modesty, prudery, and ignorance of the sexual instinct to such a degree that these sentiments oppose any attempt at systematically educating humanity in the law of sex, and present an almost insurmountable obstacle that must first be overcome, whatever system of prophylaxis is inaugurated.

Realizing the necessity and importance of eradicating these sentiments, the first step in constructing this system necessitated the devising of means of overcoming them. The scientific facts and principles, since man through his reason and volition must make his own morality, indicated that printed pamphlets containing knowledge that mankind should know should be selected as a means, for there exists a necessity of creating a demand for honest literature upon this subject, and of the medical profession controlling the output, and practical business methods have demonstrated that this is one of the best means of obtaining such results, provided the knowledge, like a good commercial product, will bring profit to the dispenser and consumer. Though it must be remembered that the rate of consumption will depend greatly upon the profits and intrinsic value of a commodity to buyer and consumer, and of its value over others of like character; and that knowledge of the law of sex, like apparent luxuries, man cannot be made to buy unless as an individual he sees the necessity and possesses the desire; and in increasing the demand for either there is no difference in the principles involved, only in the medium of barter, since, for knowledge man pays time, for the commodity money; and it is his privilege to spend either as he likes.

Having determined upon this method of creating a demand for the commodity, the pamphlets must be so compiled that they will interest man, cause him to recognize the value of and create a desire for the commodity—knowledge of the law of sex. The obtaining of these results naturally depends upon the compilers' and distributers' ability.

1. To ascertain the best medium of distribution, that is, the class of retail dealers whose occupation and character, as the business man would say trade, will cause ready appreciation of the commodity offered; then the pamphlets may be distributed logically and systematically, at the minimum cost that will bring (there being no waste of time or material) the greatest immediate and increasing returns.

2. To recognize the needs and character of the purchasers, and in compiling the circulars, make them attractive by concisely stating facts that will appeal to their immediate needs, secure their attention, and by stating these facts forcibly and honestly, create a feeling of confidence, yet not overburden the reader with ideas, but retain some for future use, that, having aroused their interest, it may be stimulated for further knowledge.

Nevertheless, it must be remembered that the end sought by a system of venereal prophylaxis is an altruistic one; and success, as it should be, will depend upon maintaining this characteristic in reality. So it becomes apparent that the foregoing conditions and principles, scientific and practical, can only be complied with and a successful system on these lines constructed, provided it is self-evident to the consumer that the source of information is reliable and authentic and the individual workers are receiving no direct reward; that is, self-advertisement.

The fact that 80% of all men have gonorrhea at some time of life, and that the majority of these men are seen by physicians, at once indicates the steps to be taken at this stage of evolution and under existing conditions to organize a system of educational prophylaxis.

The steps in sequel are as follows:

(1) Have each State Medical Association appoint a permanent committee, to consist of three members, the title of which shall be the "Committee on Prevention of Venereal Diseases of the (Washington) State Medical Association." The duty of this committee shall be to compile and issue pamphlets and furnish information sought. Thus the medical profession will be in control of the character of knowledge to be distributed; and what is of greater importance, in a position to place the pamphlets where they will arouse the least opposition and do the most good; and in causing the value of such literature to be recognized so place itself as a profession that mankind will perceive, when civil government does take action, the value of the work accomplished, and the demonstrated fact that knowledge on this subject must be obtained from the medical profession. Then the science of medicine, not politics, will control, as it should, the future progress of this humanitarian undertaking.

(2) Attach to each pamphlet "Issued by the Committee on Prevention of Venereal Diseases of the (Washington) State Medical Association," chairman's name and address. This makes the source of information self-evident, its authenticity indisputable, the movement will maintain its altruistic character and, above all, increase the respect of the laity for the science of medicine by giving concrete evidence of the profession's altruism.

(3) Designate where these pamphlets may be obtained, and render them easily obtainable; otherwise, if interest be aroused it will not be carried to a higher plane, but may be lessened or destroyed by unnecessary "red tape."

(4) Place the compilers and distributors in a position that

they may classify and systematize the knowledge obtained by the demand for, comments on, and suggestions regarding the pamphlets, method of distribution, etc., then they can not only perfect the system of education undertaken, but by systematizing the work, permit others readily to assume the duty of those who, from various causes, resign.

(5) The results desired in Nos. 3 and 4 are obtained by attaching to the committee's title the word "chairman," and and where to address, omitting the chairman's name or that of any individual.

At the time when each of the 80% of men has an attack of gonorrhea, he instinctively appreciates the value and need of a knowledge of venereal diseases. Physicians more than any other class see these men at this psychologic moment and are capable of appreciating its value. The pamphlets are offered to facilitate and permit of their taking advantage of this state of mental receptivity. In other words, the physicians become the class of retail distributors to be appealed to and the 80% of men the consumers. This brings us to step

(6) The tabulating of inducements offered to the retail dealers, that is, the physicians, to distribute these pamphlets. They are (*a*) the furnishing of data in a concise form which is of value to them in controlling, teaching, and treating their patients, which data, as general practitioners and specialists in other branches of medicine, inaccessibility to information, financial expense in obtaining literature, variety of diseases treated, etc., they have not the time and cannot afford to compile, while the committee can. (*b*) The compiling of the pamphlets so that every physician, as a true humanitarian, will see in the work undertaken the means of preventing suffering, promoting happiness and giving aid to his patients. (*c*) The explaining of the principles governing this educational system so as to enable every physician to realize that it is a mutual benefit association in the true sense of the word, inasmuch as he controls the appointment of the committee; and as the pamphlets are distributed only through him, the character of the context, even, may be made to conform to his individual views, for the pamphlets being in a series and the data classified, he may select the pamphlet that he prefers or which suits the occasion. Moreover, each pamphet is so arranged that a pencil passed through any statement will not destroy the context of the whole. (*d*) Having the committee recognize, in compiling the pamphlets, that there are several roads to Rome; therefore, omit all therapeutic methods of treatment, individual forms of hygiene and, not only the names of the committee, but also of the authorities quoted and deal only with the universal and necessary principles of the law of sex, giving them a weight of authority that, as an individual, no one man can, by attaching the title of the committee. (*e*) The classifying of the pamphlets issued alphabetically, A, B, C, etc., and enumerating every statement on each pamphlet 1, 2, 3, 4, etc., in order that any physician desiring the authority, significance, and object of a statement or literature upon that point, by referring, for example to "Pamphlet A, statement 5," may be readily furnished with a reply.

(7) Tabulate inducements offered to consumers in order that the pamphlets will be read.

1. Have the pamphlets at first contain only knowledge, the advantage of which the patient's individual need will cause him to recognize.

2. Have context brief, so that not more than three minutes will be consumed in reading.

3. Have pamphlets of such size that they can be conveniently carried in envelope or pocketbook, and be thus readily referred to.

There are many incidental factors in the compiling of these pamphlets to be noted, which will become self-evident when the pamphlets are read, so for brevity the first five compiled are appended, though not all have been issued.

It will be recognized that the system of venereal prophylaxis here proposed is in reality a system of education and but the primary step in the solution of a great question that has for its object the prevention of venereal diseases and an increase in morality through the education of humanity in the law of sex; and as incessant change is the law of the social quite as much as of the organic and physical world, success cannot be attained by issuing a few pamphlets and stopping, so one pamphlet is to be issued every three months. Later, the contents of those once issued will be revised and expressed in a new and attractive manner; and as progress is made, pamphlets dealing with masturbation, continency, etc., added; also new data that will anticipate the knowledge desired and direct interest into proper and healthy channels.

That this entails an immense amount of labor which is not to end here cannot be denied, yet the Committee of the Washington State Medical Association is endeavoring and will continue in its attempt to attain results along this line. The cost to the association up to the present has been $50, though this is not the total cost for the two years, the excess being borne by those interested in the undertaking.

In closing, it may be stated that this paper has been written in response to inquiries from a number of physicians in different States for the pamphlets and information as to the work of this committee, due to the fact that Dr. Ludwig Weiss, of New York City, in his report as secretary of the Committee on Prophylaxis of Venereal Diseases of the American Medical Association, at the annual meeting held in Atlantic City in June, 1904, stated that pamphlets were being issued in this State; and partly to a paper delivered by myself at the annual meeting of the Washington State Medical Association, in July, 1904, published in *Northwest Medicine* and abstracted by several journals, the title of which was "Humanity and Common Sense vs. Idealism in Venereal Prophylaxis." This paper aimed to prove that at the present stage of evolution, the education of the individual was the only possible means of lessening or preventing venereal diseases and that pamphlets should be issued as a means of disseminating knowledge, those presented here and others being outlined.

Further, I must express my appreciation of the loyal support of the profession in this State, especially the doctors on the committee, E. M. Brown, of Tacoma, and W. S. Durand, of Everett, without which this work could not have progressed to its present stage of usefulness.

PAMPHLET A.[1]

VENEREAL DISEASES: FREQUENCY AND ECONOMIC DANGERS.

1. Statements given are results of scientific investigations and authentic information. No personal opinions of compilers quoted.

2. Danger of venereal diseases proved with such evidence that further debate upon the subject superfluous. "Conclusion First International Congress for Prevention of Venereal Diseases."

3. Men having had gonorrhea may only marry after skilled treatment and tests for cure, after which must wait from 3 to 24 months. "Report of Special Committee of Physicians appointed to investigate this question by American Medical Association."

4. Eighty percent of all operations upon women for diseases of womb and ovaries caused by clap or gonorrhea.

5. Cost of venereal diseases in British army during 1896, 1897 and 1898 was $2,244,750 yearly, with a total loss of 1,738,688 days' service per annum. Average strength for the three years, 201,200 men; average yearly admissions to hospital for these diseases, 54,334; an explanation as to army inefficiency of interest to the taxpayer.

6. Average strength United States navy, 1903, 37,248; in hospital for venereal diseases, 4,560; loss of service to navy, 114,571 days, equivalent in fighting strength to loss of second-class battleship yearly.

7. One-eighth total of United States army in hospital for venereal diseases in 1903. In this and previous statements, those suffering from the disease not included when disease did not necessitate confinement to hospital.

8. Twenty percent of all blindness due to germs of gonorrhea or clap getting into eyes of children at birth.

9. Eighty percent of all men in large cities have gonorrhea or clap once or several times; 45% infect their wives.

10. Fifty percent of all involuntary childless marriages due to gonorrhea or clap.

11. A natural explanation of apparent "race suicide" is thus found in statements 9 and 10.

12. In Prussia, increased expense and decreased incomes due to venereal diseases, as approximately estimated, represents a yearly monetary loss of $22,500,000—an amount that supersedes tuberculosis.

13. VENEREAL DISEASES ARE PREVENTABLE DISEASES.

14. By referring to "Pamphlet A" and number on pamph-

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let, information as to authority and data in full concerning statements will be furnished on application.

PAMPHLET B.[1]

FACTS CONCERNING GONORRHEA OR CLAP.

1. It is a crime against humanity to compare gonorrhea or clap with a cold in the head.
2. It is a serious disease. No man should refuse to accept proper treatment.
3. It is the most common of all diseases; 80% of all men in large cities at some time of life get it.
4. It is contracted through sexual intercourse with an infected person.
5. A man and woman free from the disease cannot infect one another.
6. The discharge, if carried to the eyes, will cause permanent blindness. Avoided by washing the hands after handling the affected parts, not using public towels and the same towel twice, and by destroying, preferably by fire, cotton or other dressings upon which discharge collects.
7. *It is no proof of cure that the discharge can no longer be seen at mouth of organ.*
8. *Sexual intercourse should not occur until physician pronounces patient cured.* Even when all painful symptoms and running has stopped, the gonorrheic very frequently will carry infection.
9. This disease may cause death in men, frequently does in women.
10. Eighty percent of all operations upon women for diseases of the ovaries or womb, are caused by gonorrhea or clap.
11. This disease, in simple (acute) cases, takes from *three weeks to three months to cure;* in chronic, an indefinite time, *from three months to a year and a half*, especially if the prostate is involved.
12. As soon as the disease is suspected, see a physician, that complications may be prevented, possibly the disease aborted.
13. No man who has ever had gonorrhea ought to marry, unless examined to ascertain if he still carries the germs of gonorrhea—the gonococcus. He may do so for years unconsciously.
14. The results in sequence that may follow either an acute or fresh dose of clap, a chronic dose often called gleet, and more especially one of those supposedly cured cases, when the discharge has stopped, are as follows:
15. To the physician, patient and others, possible blindness; to the patient, inflammation of the lymphatic glands (blueball), seminal vesicles or reservoir for the semen, the testicles, bladder and kidneys; and as a result of the inflammation extending to these organs, abscesses of prostate, strictures, stone in bladder, Bright's disease, neurasthenia, nervous prostration, impotency, sterility, rheumatism of the most chronic form, heart disease, etc.
16. One or all of these conditions may be present in any one case. Perhaps the patient may not suffer much pain or inconvenience for years, yet he has the poisonous bacteria within himself, and should he marry? A child might be born blind; 20% of all the blind born with normal vision owe their blindness to this disease. Again, a wife, pure and innocent, is now a chronic invalid, mentally and physically wrecked, of no use to herself or to the world, often sent to the operating table, where, if she does not die, she is rendered sterile and sexless; or is not benefited and still continues her sufferings—a martyr to ignorance or wilful carelessness. Nor is the additional distress, caused by the financial losses of such conditions, to be overlooked.

PAMPHLET C.[1]

RULES FOR PERSONS HAVING GONORRHEA OR CLAP.

A crime against humanity is to compare gonorrhea or clap with cold in the head.

Gonorrhea is a local infectious disease, therefore serious and requires treatment until physician pronounces a cure.

To avoid infecting others:

1. Always wash hands after handling affected parts; avoid public towels and using the same towel twice. Discharge if carried to the eyes will cause permanent blindness.
2. Get dressings, cotton, etc., ready before handling parts. Do not touch objects that others may use while dressing organ.
3. Do not allow others to use your toilet articles, especially towels, wash cloths, etc., nor bed linen to become soiled with discharge. Sleep alone.
4. Destroy by burning or throwing in toilet, dressings or cotton soiled by discharge.
5. Syringe: Clean with scalding hot water daily; never loan; destroy when cured.
6. Before bathing, always urinate, change dressings, apply condom and scald bath-tub when through. Do the same with any vessel in which the organ is bathed.
7. No SEXUAL INTERCOURSE until pronounced cured by physician, as the disease may be given to a woman even after the discharge has apparently stopped.

RULES TO PREVENT COMPLICATIONS AND AID CURE.

1. When discharge is profuse, keep off feet as much as possible, even walking and standing should be limited, especially first week. During disease, no bicycling, horseback riding, or like violent exercise, as dancing, baseball, etc.
2. Erections always aggravate and lengthen the disease; therefore, positively avoid sexual intercourse, even kissing, loving, and all scenes, exhibitions, literature, conversation, and company that will cause sexual excitement.
3. Never strip or squeeze organ to see if discharge has stopped.
4. Change dressings at least six times daily, moistening with 1 to 2,000 mercuric chlorid carried in bottle labeled "poison."
5. Sleep nine hours, mattress hard, covering light. Do not sleep on back. Prevented by tying towel around waist, knotted in back.
6. Bathe organ in water hot as can be borne once or twice daily, during acute stage. Take at least two hot baths a week.
7. Avoid getting feet wet or sudden changes in temperature.
8. Always wear well-fitting suspensory.
9. Bowels should move daily; kept free by teaspoonful Rochelle salts night and morning.
10. No alcoholic drinks; this includes beer, and especially gin. Drink milk, lemonade, noneffervescent waters, and from six to ten glasses of water daily between meals; tea and coffee in moderate quantities.
11. Avoid fried stuffs, red meats, acid fruits, and pastry, rhubarb, asparagus and tomatoes, and condiments such as mustard, pepper, horseradish, and stimulating sauces. Lightest meal at night; no night lunches.
12. Tobacco, moderately, not more than three cigars daily.

PAMPHLET D.[1]

FACTS CONCERNING SYPHILIS OR POX.

1. Syphilis is in the blood; affects any part of the body, brain, lungs, bloodvessels, heart, liver, intestines, bones, nerves, etc.; causes death, and chronic, often incurable diseases, with symptoms characteristic of the part of the body in which the syphilitic poison at the time locates itself. Examples —if in the brain, insanity or brain tumors; if in the bone, death and decay of the bone; in the arteries and nerves, apoplexy, paralysis, etc.
2. Syphilis commences as a local sore, called "hard chancre," that for some time may cause little pain and no other symptoms.
3. Syphilis is a curable disease.
4. Takes three years' treatment to cure, no less.
5. Syphilis is most frequently contracted through sexual intercourse, therefore, ascertain immediately the character of any sore upon the genitals.
6. Seventy to eighty days are sometimes required to be sure a local sore is a hard chancre.
7. A hard chancre appears from 10 to 70 days after infection, usually 21.
8. A syphilitic, if not cured, will transmit the disease to his or her children; they will be born deformed and syphilitic and will give the disease to others.
9. A syphilitic should not marry for three years after infection.
10. *Syphilis is not a venereal disease* for the secretions of a syphilitic will cause syphilis in a healthy person if it gets into any wound, even if pin-point in size.
11. The principal means of communication outside of sexual intercourse: Kissing; use of any article that a syphilitic is apt to put in his mouth, as forks, spoons, pipes, lead pencils, etc.; by hereditary syphilitic children infecting nurses; by physicians when operating upon syphilitics; by midwives examining syphilitic women and infecting others whom they afterward examine; from wives so infected, husbands, children and friends may take the disease. Dentists contract syphilis from the mouths of infected subjects, and patients may be infected by instruments smeared with secretions from a previous syphilitic patient. Children may be infected by ritual of circumcision, as practised by the Jewish rabbi.
12. Articles likely to carry infection: Cigars, cigarets and holders, pipes, toothpicks and brushes, drinking utensils, razors, shaving brushes, pins, needles, sponges, towels, communion cups, children's toys, especially those put in the mouth, fish horns, whistles, manicuring instruments, barber's caustic sticks, etc.
13. Syphilitics must be careful lest unconsciously they infect others who will suffer more severely and spread the disease broadly because unconscious of its character.
14. Mercury is not dangerous when properly administered.
15. A chancroid, called "soft chancre," is also a local sore contracted during sexual intercourse; is a local disease, not in the blood, and takes ten days to two months to cure.

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PAMPHLET E.[1]

INSTRUCTIONS FOR PERSONS HAVING SYPHILIS OR POX.

1. Syphilis is a curable disease.
2. Three years' treatment is necessary to cure.
3. Patients' secretions, as saliva, etc., will infect others when in active stage of disease.

RULES FOR FIRST YEAR.

1. Sleep alone.
2. Do not have sexual intercourse.
3. Do not kiss anyone.
4. Brush teeth night and morning, and wash mouth frequently with wash prescribed.
5. Have teeth put in good order by dentist, doing same every two months. Tell dentist that disease exists so he may protect himself and others.
6. Smoking, chewing, or the use of tobacco in any form, *absolutely* prohibited; it will cause sores in the mouth, infect others, and delay cure.
7. No alcohol except light wine at meals if prescribed by physician; at least six glasses of water daily.
8. Meals regular; no heavy night lunches; avoid acid foods and drinks; food nourishing and simple; meats, vegetables, soups, etc., but no pastry or fancy dishes.
9. Sleep at least nine hours.
10. Mild out-of-door exercise, as walking, tennis, golf, etc., as much as possible.
11. Guard against bruises, sprains, and injuries.
12. Never overexert mentally or physically.
13. Clothing appropriate to climate and season should be worn; avoid wet feet; do not catch cold.
14. Bathe daily, hot or cold water as agreeable, followed by brisk rub with coarse towel. At least two Turkish baths each week; if possible, tub bath at bedtime. No cold shower or plunge after Turkish or hot bath, as they are taken for the purpose of sweating.
15. Do not allow anyone to use articles that have been in your mouth, as pencils, toothpicks, pipes, spoons, forks, knives, cups, cigars, etc. In public restaurants do not use chipped cups; destroy toothpick used.
16. Under no condition allow razors, towels, combs, shaving brushes, etc., to be used by others.
17. Symptoms of indigestion, constipation, or headache report to physician.
18. When saliva increases, gums become sore and bleed when touched, tenderness noted when teeth come together, breath smells bad and there is a metallic taste in the mouth, cramps in bowels, or diarrhea, notify physician.
19. Marriage must not occur for three years after infection.

Founder of Tufts Medical School to Retire.—Charles P. Thayer will retire from the position of secretary and chief executive officer of Tufts College Medical and Dental Schools. Though secretary of both of these departments, he has been chiefly identified with the medical school, of which he was the founder. He is succeeded by F. N. Briggs.

Tuberculosis Station for the Navy.—Surgeon-General Rixey renews the recommendation he has made of converting the abandoned naval station at Port Royal, S. C., into a tuberculosis outdoor hospital and detention camp. The camp for naval tuberculous cases at Pensacola, Fla., has had beneficial results of the most practical sort. The station at Port Royal would serve a very useful purpose in this direction, added to which Dr. Rixey would have a farm or hospital camp in the country and at a slight elevation, where naval patients might be sent in warm weather. Such a farm could be almost self-sustaining, he believes, by means of a dairy feature and its garden truck, so that in the end the cost of maintenance would be comparatively slight.

Old Age in the Philippines.—The reports of the army surgeons who are on duty in connection with the Board of Health for the Philippine Islands contain some interesting mortuary statistics, in which is the record for advanced age attained in the cases of three women who died of senile debility. These were Josefa Villanueva, a widow, resident of the District of Sampaloc, who died at the age of 105; Maria de los Santos, single, resident of the District of Santa Cruz, who at the time of her death was 115; and Maxima Capulong, a widow, residing in Tongo, who died after having lived a century and a quarter. Interesting details connected with the remarkable longevity of these people are lacking from the very matter of fact documents of the sanitary officers, says the *Army and Navy Register*, who run largely to tabulated figures, with the bare mention of such noteworthy incidents as the death of a woman who had lived for more than 125 years. There seems to be the chance of prolonged life even in the Philippines, at least for some people who are able to withstand the hardships of existence there.

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THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

August 12, 1905. [Vol. XLV, No. 7.]

1. The Sunshine and Shadow in Medical Endeavor. J. D. BRYANT.
2. The Correction of Exophoria by Development of the Interni. W. H. ROBERTS.
3. Subconjunctival Salt Injections. S. D. RISLEY.
4. Incising and Suturing the Liver: A New Method to Reestablish a Continuity and for the Control of Hemorrhage. JACOB FRANK.
5. Gallstones in the Common Duct. WILLIAM D. HAGGARD.
6. Noncalculous Cholecystitis. DAVID S. FAIRCHILD.
7. Surgical Bacteriology of the Mouth. A. H. LEVINGS.
8. The Oral Manifestations of Diabetes Mellitus. HERMANN PRINZ.

1.—Sunshine and Shadow in Medical Endeavor.—J. D. Bryant covers the subject of the recognized results of medical science in relieving human suffering as well as the numerous annoyances and drawbacks experienced by the profession in its beneficent work. He gives entertaining illustrations of some of these drawbacks, the wiles of quackery, the much misled credulity of the public, the misappreciation of the differences between thrifty commercialism and ethical proprieties, the tendency to fads in the profession itself and to the overdoing of certain methods, etc., and the risks of falling into ruts and superficial contentment. Against all these, however, he balances the great achievements of the profession, the triumphs of surgery, the great advances made in the knowledge and origin of diseases and in their treatment, and the vast increase of knowledge within the last few years all tending to diminish human suffering and adding infinite possibilities of comfort and enjoyment in human existence.

2.—See *American Medicine*, Vol. X, No. 4, p. 179.

3.—Subconjunctival Salt Injections.—S. D. Risley reports his personal experience with subconjunctival salt solutions which are, he says, always innocuous and often markedly beneficial in various pathologic eye conditions. Illustrative cases are reported of its use and value in corneal abscess, keratitis, hemorrhage and suppuration of the retina, etc. The mode of its beneficial action, Risley thinks, is through the well-known protective influence of the serum albumin poured out into the aqueous humor. It is probable the injection of neutral saline solutions of low specific gravity dilates the clogged channels of exit and dilutes their contents, thus hastening the flow of the lymph and albuminoid substances through their normal channels, and that this fluid is replaced by a fresh supply still richer in albuminoid substances carrying a fresh nutritive supply to the tissues. Recent observations have led him to think that similar good effects can also be produced by the prolonged application of saline stupes at body temperature directly to the conjunctival sac.

4.—See *American Medicine*, Vol. IX, No. 6, p. 220.

5.—See *American Medicine*, Vol. IX, No. 19, p. 766.

6.—See *American Medicine*, Vol. X, No. 8, p. 303.

7.—Surgical Bacteriology of the Mouth.—A. H. Levings has studied the bacteriology in a large number of mouths of ordinarily healthy individuals, as well as in persons suffering from various pathologic conditions. He divides the nonpathologic cases into four classes, clean mouths, ordinarily kept mouths, filthy mouths, and tobacco chewers' mouths. Bacteria were found in great abundance in the first class (20 cases), but were innocuous, with the exception of streptococci (2 cases); *B. coli* (3 cases); *B. subtilis*, staphylococcus, and *Micrococcus tetragenes* (8 cases). In 30 ordinarily kept mouths, bacteria were still more numerous. They were mostly, however, putrefactive germs, which, growing rapidly, kill off others. The grip bacillus was found in 2 cases. In 30 filthy mouths there were generally some pathologic conditions present, such as decayed teeth or diseased gums. Millions of bacteria were present, and a much larger percentage were virulent. In 10 cases the pneumococcus was found and *Micrococcus tetragenes* was present in a large number. Staphylococci occurred with the purulent cases. Putrefactive germs and gas-forming bacteria were common, accounting probably for the bad breath of these persons. Tobacco chewers' mouths were worst of all, the tobacco not restraining bacterial growth. The majority of the mouths were pathologic, containing decayed teeth, ulcers, etc.,

showing lack of care. Experiments were made to show the effect of coughing on the dissemination of bacteria, which was quite marked, even at a distance of five feet. Tests of various methods of cleansing the mouth and their effects on germs showed that scrubbing with warm soap and water, and later normal salt solution, thoroughly for several minutes each was about as useful as any method. Disinfectants alone, with the possible exception of hydrogen peroxid, were not reliable.

8.—The Oral Manifestations of Diabetes.—H. Prinz includes diabetes mellitus as one of the diseases producing a distinct form of pyorrhea alveolaris, which, according to some physicians, is classed as a prodromal sign of the primary disease. He does not recognize any one organism as the cause of the pyorrhea, but considers that its general depressant effect on nutrition is sufficient to make way for the infection. While sugar has not been found in the saliva, the acid action that is produced is followed by an increased sensitiveness about the necks of the teeth. The circular ligament becomes swollen and relaxed, thus affording a ready gateway for the microorganisms. Pus pockets and necrosis naturally follow, and, according to Arkoevy, a distinct separation of the two upper centrals occurs. The upper arch becomes weakened in consequence, and more or less prognathism occurs. The rapid formation of soft, light-colored tartar is another diagnostic symptom. As far as local therapeutics is possible, the usual routine treatment should be followed, but little can be expected during the continuance of the primary disease.

Boston Medical and Surgical Journal.

August 10, 1905. [Vol. CLIII, No. 6.]

1. Notes on X-light. WILLIAM ROLLINS.
2. Three Cases Illustrating the Practical Importance of Recognizing the Postepileptic State. MORTON PRINCE.
3. Remarks on the Present Status of Surgical Treatment of Hepatic Cirrhosis. CHARLES GREENE CUMSTON.
4. Peroneal Resection as a Means of Correction in Rigid Valgus. CHARLES F. PAINTER.

1.—Notes on X-Light.—W. Rollins contributes short notes on derma-ray tubes and portable nonradiable cases, the article being well illustrated. The technic of röntgen-ray treatment of the prostate is also detailed. The general opinion is that blood-vessels, more than many other tissues of the body, are injured by the röntgen rays. Rollins explains this on the basis of the ionization theory, by the action of the ions produced by röntgen rays and radioactive substances. These exist for some time after their production, and may be carried to considerable distances. They are constantly carried through the cells of the vessel walls by the fluids which pass in and out, and upon those cells exert their greatest destructive action. [A.G.E.]

2.—Importance of the Postepileptic States.—Morton Prince believes the possibility of the paralytic and mental conditions following epileptic fits in simulating gross lesion of the brain is not so fully realized as its importance demands. The postepileptic state may easily be mistaken for cerebral hemorrhage or tumor, this mistake occurring in 2 of the 3 cases he reports. The other case illustrates the difficulty in determining between postepileptic and syphilitic paralysis. Prince states that the pathology of postepileptic paralysis is entirely unknown. Ascribing it to exhaustion of the motor centers is purely speculative and has almost nothing in its support. The gush of serum which occurred when the dura in one of the reported cases was opened, suggests the hypothesis that the paralysis may be due to localized edema. This explanation comports with the symptoms but as yet lacks objective evidence. [A.G.E.]

3.—Surgical Treatment of Hepatic Cirrhosis.—C. G. Cumston says in cases of ascites due to cardiac cirrhosis, surgical interference means only a total failure. Syphilitic cirrhosis will hardly ever be surgically treated, except from an erroneous diagnosis, but some cases are so obscure that only a laparotomy will furnish exact indications for medical treatment. Laparotomy frequently results in cure of simple ascitic tuberculous peritonitis with tuberculous cirrhosis of the liver. The socalled alcoholic cirrhoses may, for convenience, be divided into the hypertrophic and atrophic forms. The former is the most amenable to treatment and hence gives the best surgical results. They may be cured by puncture, by incision, or by omentopexy. The prognosis in atrophic cirrhosis is far more serious, but often an exploratory incision is necessary to confirm a necessarily doubtful diagnosis; if the peritoneum be healthy, omentopexy may be done. Later, when the peritoneum is diseased, omentopexy becomes useless. [A.G.E.]

4.—Peroneal Resection in Rigid Valgus.—C. F. Painter says that there are three types of flat-foot requiring surgical intervention and his results have been much better since recognizing the distinctions between them. The first is inability to allow inversion at the mediotarsal joint, the second is the peroneal class, and the third includes cases of bony deformity. Peroneal resection may be demanded in all three types and in certain cases of bony deformity resection of the scaphoid is the principal thing demanded. Before the distinction between rigid valgus due to intertarsal adhesions and the same condition produced by peroneal spasm was recognized, recurrence of the latter cases was common. Peroneal resection is simple, but removal of the scaphoid is a difficult procedure. Painter reports 30 cases of peroneal resection and 12 of resection of the scaphoid; results after two or three years in both series are extremely satisfactory. [A.G.E.]

Medical Record.

August 12, 1905. [Vol. 68, No. 7.]

1. A New Method of Orchidopexy. CARL BECK.
2. Ascending Currents in Mucous Canals and Gland Ducts, and Their Influence on Infection: A Study in Surgical Pathology. C. J. BOND.
3. Dynamics of Dreams. AXEL EMIL GIBSON.
4. Length of the Enteron (Small Intestine). BYRON ROBINSON.
5. The Position of the Bladder in Fibroid of the Uterus. J. A. SCHMITT.
6. Dual Genital and Extragenital Chancres—Chancre a Distance. M. L. HEIDINGSFELD.

1.—A New Method of Orchidopexy.—C. Beck says that the widespread opinion that a retained testicle will descend from the inguinal canal to the scrotum at the age of puberty is erroneous, and that while it may sometimes occur, he has never seen it do so himself. He, therefore, thinks it unwise to defer surgical action until puberty, owing to the risk of atrophy, and advises operation after the third year, unless there is some contraindication. His method of operating, which he calls the "necktie operation," is essentially as follows: The incision is like the Bassini incision, prolonged downwards, and the testicle is lifted from its bed and freed from all adhesions. It is then pulled down into a pocket prepared for it in the scrotum. In order to secure it there, a flap is dissected from the outer margin of the inguinal ring downward, and turned in such a manner that it can be attached to the opposite layer in a semilunar shape. Thus this band surrounds the testicle like a necktie, the testicle being retained as in a buttonhole. The length of the semilunar flap will be dictated by the greater or lesser extensibility of the cord. The aponeurosis is then united above.

2.—See editorial, *American Medicine*, August 12, 1905, p. 253.

3.—Dynamics of Dreams.—A. E. Gibson presents an exhaustive analysis of the physical and psychic basis of dreams. Dream and waking differ in degree and form of manifestation only, not in principle and essence. Like waking consciousness, dream reveals, but does not create. The same world that surrounds the waking individual surrounds the dreaming, only the viewpoints and mediums of observation are changed. As the life experience of an individual in his waking consciousness receives its character and value by and through his power of response to environment, so in a similar way the value of a dream depends upon the power of the Ego to respond to consciousness in its various forms of emotions, ideas, and feelings which constitute the environments of the subjective or dream plane. Waking or dreaming, the individual is, or becomes, what he chooses to be at any given moment of his existence. Ordinary dreams are made up by longings, desires, anticipations, idle hopes, and miscarried realizations, which, occupying the mind during the day, are overtaken by sleep before having reached their fruition. Hence

the mixture, in most dreams, of the sane and the insane, of truth and delusion.

4.—Length of the Small Intestine.—Byron Robinson reports the results of measurements made at the autopsies in Cook County Hospital during the past 12 years. The figures used in this communication are based upon the examination of 450 males and 150 females. The average length of the enteron in the males was 23 feet, and in the females was 19 feet. The length of the enteron may be very much modified by local or general disease, especially during childhood, and also by the character of the food consumed. The enteron increases in length most rapidly a few months subsequent to birth, when it may grow 1½ feet a month, and it assumes its chief length in early childhood. A subject with a maximum length of enteron possesses a stronger constitution than a subject with minimum length.

5.—The Position of the Bladder in Fibroid of the Uterus.—J. A. Schmitt says that many abnormalities of position of the bladder may be noted in abdominal operations, and disregard of some of these may lead to injury of the organ either in making the abdominal incision or later on while separating the bladder from the uterus, etc. A tumor may cause the bladder to be (1) pushed up by pressing on the fundus of the organ or on the urethra; or (2) drawn up by (*a*) peritoneal adhesions, (*b*) subserous adhesions, (*c*) traction on the peritoneum after the vesicouterine fold has been obliterated. Of these various agencies the subserous adhesions are the most frequent cause of an upward displacement of the bladder. It is important to bear this in mind, as an attempt to detach the bladder with the fingers may easily lead to an injury to this viscus, The bladder may also be higher than normal, owing to a fault in development by which it does not descend into the pelvis as it should, and retains its infantile type. The different forms of contracted pelvis are apt to be associated with infantile bladder, but it is well always to bear in mind the possibility of its existence. The elevated bladder, when detached, readily resumes its place in the pelvis, but the infantile bladder does not. The former has a peritoneal pouch in front of it, but the peritoneum passes directly to the summit of the infantile bladder. A conical shape and thickened urachus confirm the diagnosis of the latter condition.

6.—Dual Genital and Extragenital Chancres—Chancre a Distance.—M. L. Heidingsfeld cites a number of cases reported in which dual chancres were observed, and then describes a case. The patient was a young woman whose husband infected her shortly after marriage. When seen by the author, she presented typic chancres of the right tonsil and right labium majus. The latter lesion did not appear until about five weeks after the tonsillar one. He directs attention to the occurrence of genital and extragenital infection in a female, the exquisite clinical type of the lesions, the remote disposition of the lesions on the surface of the body, and the long interval between the development of the initial and postinitial lesions.

New York Medical Journal.

August 5, 1905. [Vol. LXXXII, No. 6.]

1. Some Recent Advances in Surgery. HOWARD LILIENTHAL.
2. Recurrent Tuberculous Peritonitis after Incomplete Operation, with a Report of Such a Case Treated by the Röntgen Rays. JOHN B. SHOBER.
3. The Treatment of Pott's Disease, and of Rotary Lateral Curvature, by the Plaster-of-paris Jacket and the Aluminum Corset. CHARLES OGILVY.
4. The Management of Summer Diarrhea in Infants and Young Children. Observations Based on 5,000 Cases in Private and Dispensary Practice. E. MATHER SILL.
5. The Premature Infant. DEWITT H. SHERMAN.
6. A Case of Foreign Body in the Rectum. CHARLES S. WHITE.
7. The Significance of Sudden, Severe, Abdominal Pain. EDMUND A. BABLER.
8. Some Suggestions in the Treatment of Wounds. HOWARD D. COLLINS.

1.—Recent Advances in Surgery.—Howard Lilienthal calls attention to some of the recent advances in surgery, and compares the surgery of today with that of 18 years ago. [C.A.O.]

2.—Tuberculous Peritonitis.—John B. Shober says that until we have more precise methods of differentiation, most cases of tuberculous peritonitis will be operated in under some other diagnosis. Celiotomy and removal of the primary focus of the disease offer the best prospect of cure. The abdomen should be thoroughly irrigated and closed without drainage. A short course of röntgen-ray treatment immediately following operation is advisable in all cases, but it is especially important in those cases in which the primary focus has not been removed. Should recurrence take place in these cases, a secondary operation—to remove, if possible, the primary focus—is advisable; and this operation should be followed by a course of röntgen-ray treatment. [C.A.O.]

3.—Pott's Disease and Rotary Lateral Curvature.—Charles Ogilvy says that rest for inflammation finds no exception in Pott's disease of the spine. Absolute fixation, immobilization, and protection bring about a condition of affairs which relieves the symptoms, arrests the disease, and produces a firm basis of support by ankylosis and by the throwing out of a bony deposit around the vertebras involved—thus the process is arrested and the disease is cured. The beneficial effects of stimulating and nourishing diet, of fresh air, sunlight, and good hygienic surroundings cannot be overestimated. Pressure upon the body of the diseased vertebras must be relieved. This is done by superextending the spine, and by so doing throwing the superincumbent weight upon the transverse and articular processes. To prevent irritation, as complete fixation as possible should be obtained. The spine must be carefully protected against further injury. By superextension and fixation is meant superextension and fixation all the time, both day and night. These essentials of treatment are to be carried out for at least three years and often longer. By far the most beneficial results in scoliosis are obtained by bracing and exercises combined, and many of the exercises should be done while the patient has on the aluminum corset. [C.A.O.]

4.—Diarrhea in Infants.—E. M. Sill bases his observations on 5,000 cases in private and dispensary practice. The salient pointers are: 1. Absolute rest for the inflamed mucus membrane of the stomach and intestines, attained by stopping all food and giving nothing but water. 2. By eliminating the cause, namely, a foreign substance which is causing irritation, as fermenting or indigestible food, this being done by the use of castor-oil or calomel. 4. Success lies in the mode of gradually increasing the strength and quality of milk, beginning in all cases, irrespective of the age, up to a year, with a very weak cream mixture. [C.A.O.]

5.—Premature Infants.—This report, by D. H. Sherman, is based upon the statistics at the Children's Hospital in Buffalo, where up to date 29 premature infants had been received. Of these, 13 had a subnormal rectal temperature upon admission. Of the 10 babies having a rectal temperature of 96° or less, all but two died. The author emphasizes the necessity of maintaining the normal temperature after birth, that the child may be given a chance. He gives no initial dose of castor oil, possibly a little water, and almost immediately commences feeding with breast milk, diluted with an equal amount of water, to which has been added 1% or 2% of milk sugar. He medicates with great caution with small doses of brandy and strychnin as stimulants, and gastric antacids and digestants, and iron in the form of fresh expressed beef juice. The child's position is frequently changed in the incubator to prevent hypostatic congestion and head deformities. No general baths are given until the child is 10 to 12 weeks old, and its nutrition and general condition are good. Up to that time they may be sponged, when absolutely necessary, and they are anointed daily. [C.A.O.]

Medical News.

August 12, 1905. [Vol. 87, No. 7.]

1. An Analytic and Clinical Study of Thirty Cases of Ectopic Pregnancy. SAMUEL M. BRICKNER.
2. The Treatment of Chronic Nasal Catarrhs with Sulfur. LOUIS KOLIPINSKI.
3. Treatment of the Individual Case in Appendicitis. CHARLES C. ALLISON.
4. Diseases of the Pancreas. O. M. LONGENECKER.
5. Malarial Hemoglobinuria. LORIN A. GREENE.
6. The Doctor and the Public School. THEODORE TOEPEL.
7. A Case of Cervical Spina Bifida: Syringomyelomeningocele with Hydromyelus and Hydrocephalus. D. J. DAVIS.

1.—Thirty Cases of Ectopic Pregnancy.—S. M. Brickner reviews these cases from the standpoints of etiology and diagnosis. He finds that sterility does not necessarily precede. The chief character of the bleeding in ectopic gestation is irregularity, there being no type. The pain in tubal pregnancy is usually localized over the site of the lesion and has no definite character. The usual symptoms of pregnancy may be present, but their absence does not militate against the possibility or probability of ectopic pregnancy. Tenderness on palpation of the mass adjacent to the uterus, when taken in connection with the history and other pelvic findings, is of great diagnostic value. A rise of temperature to between 99° and 100°, in the absence of signs of infection, is worthy of consideration in the diagnosis. The causative factors of tubal pregnancy are probably numerous. We have as yet no definite data by which to make a differential diagnosis between all the varieties of ectopic gestation. The value of Werth's dictum to regard every unruptured tube in the light of a malignant neoplasm has not diminished. [A.G.E.]

2.—See *American Medicine*, Vol. IX, No. 19, p. 767.

3.—The Individual Case in Appendicitis.—C. C. Allison says eastern surgeons have paved the way in appendicitis, but do not now secure as low mortality as do the western operators with their conservative, analytic methods. The point specially emphasized is the giving rest to the inflamed area by withdrawing food and avoiding cathartics, and emptying the lower bowel by repeated enemas. These measures encourage peristalsis with origin at the inflammatory zone, instead of a painful and damaging wave which terminates there. A large number of acute cases respond to this treatment, though they may seem to grow worse for two, three, or even four days, before flatus is expelled. A fixed rule is that if, in a severe attack, gas does not escape before operation, peristalsis will not be established after operation. Allison has during the last 12 months operated on 231 cases, 71 of them suppurative, with only two deaths. It is time for the eastern surgeons to abandon rules which bring them a mortality of nearly 10%. [A.G.E.]

5.—Malarial Hemoglobinuria.—L. A. Greene advocates the hypodermic use of quinin in every case of estivoautumnal malaria before the appearance of hemoglobinuria. Its use is also justifiable after the first hemoglobinuric paroxysm, if it has not previously been administered. After a thorough cinchonization, even if the hemoglobinuria continues, Greene sees no indication for continuing the quinin. His plan is to begin early the hypodermic injection of mercuric chlorid and continue its use at intervals throughout the attack. The intravenous injection of saline solution has also proved most useful. The principle to be followed is: After the proper administration of quinin, treat the condition as any other toxemia due to a localized lesion should be treated. [A.G.E.]

6.—Physicians and Public Schools.—T. Toepel calls the attention of physicians to the child and its environment during the school life, from 6 to 14. Though not every physician is a politician, his professional standing carries sufficient weight to influence public opinon, and a great amount of good would result if physicians in general would take more interest in the child at school. They are just as capable of filling positions on boards of education as are members of other professions. The paper discusses the various ways in which school habits and surroundings are prejudicial to the young child; kindergartens as the first step in school life, are especially recommended. [A.G.E.]

7.—Cervical Spina Bifida.—D. J. Davis reports a case of this condition observed in a female child of 11 weeks; death followed operation. The operative and postmortem findings were a dilation of the ventricles of the brain and their various communicating passages and dilation of the central canal of the cord. At the level of the eighth cervical nerve was a narrow tube leading from the central canal through a pedicle and opening on the lower side of the sac, which was the size of a half lemon, in a dimple. The sac had a smooth inner surface. The condition may be denominated a syringomyelomeningocele in combination with hydromyelia and internal hydrocephalus. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Duration of Life after the Appearance of Albuminuric Retinitis.—Retinal changes are now recognized as being indicative of a serious prognosis in renal disease. S. Snell[1] maintains this view by a consideration of a series of cases. He believes that a line must be drawn between hospital and private cases in this respect, the latter having a much better prognosis, on account of their ability to adopt strict hygienic measures. His series consists of 28 private cases, in whom the average duration of life, after the detection of albuminuric retinitis, was 12 months. This compares very favorably with the average of 4½ months, given by Wiley for hospital patients. The statistics show that retinal changes must be considered as a very serious sign in Bright's disease, as it portends a fatal termination in a few months, and rarely longer than two years. [B.K.]

Cholelithiasis.—Naunyn[2] takes up this disease from all standpoints. He remarks on the possibility of stones forming very rapidly, perhaps within a few hours by the absorption of fluid from bile in the gallbladder and the gradual thickening of the bile until it becomes a mush and finally solidifies. Stones formed in this way may have a solid kernel of slow formation. Diagnosis of disease of the gallbladder is generally easy, but the recognition of stones is more difficult. Thick bile is less pervious to röntgen rays than cholesterin stones and more than calcium phosphate. Passage of stones through the bowel not preceded by attacks of pain denotes enterocystic fistula. Intermittent icterus is more often due to attacks of cholangitis than ball valve action, etc. As regards treatment: Cholagogs given with a view to increasing the flow of bile are ineffective, as the bile cannot flow freely through the gallbladder. The elasticity of this is lessened by the presence of the stone, and as the pressure of the bile in the ducts never exceeds that of 300 mm. of water and it requires 700 mm. to force open the sphincter of the gallbladder, the flow in it is not increased. Acute cases may best be treated by cataplasms locally, and large amounts of hot Karlsbad water internally. Nothing is to be expected from disintegration, as although this occasionally happens, the pieces remain behind and form nuclei of new stones. Operation should be reserved for chronic recurrent and obstructive cases and empyema of the gallbladder. [T.S.G.]

The Prognosis of Asthma.—G. N. Jack[3] says the successful management of asthma is an art to be acquired only by years of patient study and clinical observation. The prognosis in uncomplicated cases of the condition is positively good. Nature may require two or three years to bring about a cure, and during that time the patient should be under constant supervision of a physician. Rules essential to successful management of a case are: (1) Physiologic measures are, when possible, to be substituted for drugs; (2) blood showing an excess of lymphocytes indicates the withholding of lymphogenous foods, as milk and raw oysters; (3) blood giving a pronounced iodophilia indicates the withholding of starches; (4) a lack of fibrin elements in the blood indicates the giving of gelatin; (5) a toxic cadaveric stool indicates withholding proteids or meats; (6) urine containing indican, intestinal toxemia, indicates restricted diet. [A.G.E.]

Grocco's Paravertebral Triangle as a Diagnostic Sign in Pleural Effusions.—The presence of small pleural effusions is generally inferred from a conjunction of minor signs and symptoms, rather than from a physical demonstration. W. Ewart[4] believes that Grocco's sign will prove of great value in such cases. This consists in the demonstration of a paravertebral triangle of partial dulness on the sound side. The base of this triangle is 3 cm. to 10 cm. long and corresponds with the twelfth rib, while its height is exactly that of the effusion. The

[1] The Lancet, July 15, 1905.
[2] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.
[3] Buffalo Medical Journal, August, 1905.
[4] The Lancet, July 22, 1905.

genuineness of this triangular dulness may be proved by its disappearance when the patient lies on the side of the effusion, thus showing that it is due to a mobile fluid. The author believes that this phenomenon is due to the vertebras acting as a pleximeter in conducting the flat percussion note of fluid to the opposite side of the chest. [B.K.]

Gelatin and Blood Coagulation.—Laudmann[1] claims that the action of gelatin in causing coagulation of hirudin blood, is entirely due to the solidification of a solution of gelatin in the cold. If blood drawn after injection of hirudin, followed by gelatin, is allowed to coagulate in the cold, it immediately liquefies on being warmed. Blood drawn and kept at body temperature, coagulates after several hours, whether gelatin is injected or not. The same amount of gelatin is required to solidify normal blood defibrinated as to solidify hirudin blood, and the amount of hirudin injected bears no relation to the amount of gelatin required. This proves conclusively that gelatin only solidifies hirudin blood by its ordinary gelatinization. [T.S.G.]

Force of Contraction of the Gallbladder and Course of Its Motor and Inhibitory Nerve Fibers.—J. A. Freese[2] finds as a result of experiments that where stimulated through its motor nerves the bladder is capable of contracting against a pressure of at least 220 mm. of Ringer's solution, specific gravity 1.004. The maximum force of contraction does not exceed materially the maximum secretion pressure of the bile. The musculature is provided with motor (constrictor) and inhibitory (dilator) nerve fibers. These fibers are found in the splanchnic nerves. Both motor and inhibitory fibers arise from the spinal cord in the roots of the sixth to the thirteenth dorsal nerves. The maximum outflow for the constrictor fibers is in the tenth, eleventh and twelfth dorsal nerves. The dilator fibers appear slightly higher up and are most in evidence from the eighth to the twelfth dorsal nerve inclusive. [H.M.]

Digestive Action of Fresh Fruits.—J. G. Sharp[3] demonstrates that many fruits contain digestive ferments similar to the papain and bromelin of pineapple. He shows that the pulp of fresh strawberries, cherries, oranges, pears, and apples will convert egg and serum albumin into albumoses when brought in contact with it. Canned fruits do not have this property, as prolonged high temperature destroys the ferments. Short baking or stewing does not have this effect. To obtain the most benefit from fruits they should be eaten at the end of the chief meal. As a stimulant to the lethargic intestine in constipation, however, the stewed fruit should be taken on an empty stomach, preferably a half hour before breakfast. [B.K.]

Primary Tuberculosis of the Spleen.—Bayer[4] says that from the observations he has made, he cannot agree with Littens, who states emphatically that tuberculosis of the spleen independent of a similar condition in other organs, did not occur, and that in tuberculosis of the spleen, the condition was always inconspicuous in comparison to the condition in other organs. Bayer notes that from the study of his cases, the condition in the spleen was very prominent when tuberculosis of other organs was present, and that he has found primary tuberculosis of this organ apart from the general miliary and chronic tuberculosis of the lungs. The first symptoms of the disease occurred in the left hypochrondrium, where the patients complained of lancinating pains and sensation of weight. For some time no other symptoms appear except occasional attacks of dyspnea, dyspepsia, and anorexia. In the course of six to ten months the organ became palpable and appeared as an oval tumor that reached as low as the left iliac fossa and occupying the greater portion of the left abdomen. The patients may die without the onset of fever through general debility and cachexia, or the condition may involve other organs. If the operation is undertaken before the process is complicated with perisplenitis, there is little difficulty in removing the organ; if perisplenitis is present, he suggests that that organ be attacked extraperitoneally. If the operation is performed, Bayer maintains not only that other organs remain free from the disease, but that the patients recover from the disease; this view is based upon the seven observations reported by him. [J.F.]

Pulmonary Infection with an Acidfast Actinomyces.—E. E. Butterfield[1] reports a clinical history and an autopsy showing that the pathogenesis is about as follows: Entrance of the actinomyces into the respiratory passages and lodgment in the bronchioles where an active emigration of leukocytes into the lumen of the bronchioles, and especially into the adjacent alveoli, is incited; farther removed from the organisms the inflammation is less intense, and is expressed by a fibrinous exudate; and in more distant parts still an inflammatory edema results; by the confluence of the nodules, composed largely of leukocytes, and subsequent softening of the resulting mass, cavity formation ensues. The close agreement of the organism in morphology and staining properties with the organisms of Aoyama and Miyamoto, Schabad, and others, and especially the similarity in the lesions, make the identity highly probable. A peculiarity in the acidfast resisting properties of this organism is the failure to demonstrate it in sections of the hardened tissue by methods designed for the tubercle bacillus. The case reported is an exception to the rule that all diabetic phthisis is tuberculous. [H.M.]

Chronic Ankylosis of the Spinal Column.—Ehrhardt,[2] in a very interesting article, states that the ankyloses of the spine fall into two classes, angular (traumatic and tuberculous), and arched (arthritis deformans and progressive ankylosis). The last is characterized by the fact that the disease involves only the joints of the vertebras and their ligaments and has little tendency to cause exostoses. Arthritis deformans, on the other hand, produces its deformity by exostoses, which generally spring from the intervertebral plates and join one another in the form of arches. A very interesting spine is described in detail, in which every vertebral joint was firmly united by bony union and the entire spine, including the femurs and occipital bone, was one solid rod. The disease involved all the intervertebral discs, all the articular process, and almost all the interspinous, subflava, and intertransverse ligaments. The anterior and posterior common ligaments formed continuous bony plates. The two articulations of each rib were ankylosed throughout, as were the coccygeal vertebras and the bones of the pelvis. The entire space included by the capsular ligament of the hip was filled by a uniform bony mass. The ossification of the intervertebral bodies began as a ring of bone around the outside; the early stages of the other joints could not be determined. [T.S.G.]

Role of the Typhoid Bacillus in the Pulmonary Complications of Typhoid Fever.—G. C. Robinson[3] states that the typhoid bacillus frequently invades the lung. It may invade hemorrhagic infarcts, producing abscesses and gangrene. It may cause bronchopneumonia. Lobar pneumonia as a complication is usually due to the pneumococcus. This may be present in the circulation with *B. typhosus*. It is probable that both *B. typhosus* and *B. paratyphosus*, type B, can produce a massive pneumonia, lobar in type. The pneumonia is then of a peculiar hemorrhagic character which may be recognized by the bloody sputum. *B. typhosus* is frequently found in the sputum of patients with pulmonary complications. This should be emphasized in order that spread of the disease by this means may be prevented. [H.M.]

Tachycardia in Pulmonary Tuberculosis.—G.W. Norris[4] says that tachycardia in pulmonary tuberculosis may arise from a number of causes. The most common of these is toxemia, which may act not only on the nerves of the heart, but also on the vasomotor apparatus. Another cause of tachycardia lies in pressure on the pneumogastric nerves by enlarged bronchial and mediastinal lymphatic glands. Extension of tuberculous inflammation to structures surrounding the heart or its nerves may also produce changes in the pulse-rate. In 54 autopsies at the Phipps Institute, 13 cases had exhibited

[1] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.
[2] Johns Hopkins Hospital Bulletin, June, 1905.
[3] The Lancet, July 22, 1905.
[4] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, 1904, Bd. xiii, Heft 4 and 5.

[1] Journal of Infectious Diseases, June 24, 1905.
[2] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.
[3] Journal of Infectious Diseases, June 24, 1905.
[4] Zeitschrift für Tuberkulose, etc., Bd. vii, Heft 4, p. 295.

tachycardia during life. Among the pathologic conditions found, beside those already mentioned, were nephritis, cardiac dilation, and enlarged thyroid, any of which might have accounted for the rapid pulse. In 1,261 dispensary and hospital cases, 185 had a pulse over 120 per minute. The bad influence of the rapid heart action on the course of the disease was noted in the early cases, as well as the late ones. Increased heart action may often be accounted for by abnormal pressure in the pulmonary circulation, indigestion, pyrexia, or anemia. The author places considerable importance on the diagnostic value of an increased pulse-rate in obscure cases of pulmonary tuberculosis. The pulse is also a useful index in the prognosis, and a gradual slowing during the course of treatment is to be considered as a favorable sign. The treatment of the tachycardia varies with the cause, which must be sought and removed if possible. Drugs are of little use, except as indicated by anemia, neurosis, or other cause. [B.K.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON LAWRENCE HENDEE
J. COLES BRICK JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Subcutaneous Intestinal Rupture.—Rubritius,[1] in this article, deals with rupture due to trauma to the abdominal wall and classifies the lesions into three different forms: 1. The contusion. 2. The avulsion. 3. The explosive. In the first type the rupture may not occur immediately, but may be incident to the necrosis that follows the trauma; the second is the most frequently seen at such points where a freely movable portion of the intestine becomes more or less fixed, as flexure duodenalis; the third is extremely rare and the lumen of intestine must be obliterated above and below before the condition can occur. Of the 15 cases he reports, 12 were of the first type, 2 of the second, and 1 was of the third type. These cases gave him an opportunity to study all forms of peritonitis; only two of which were circumscribed and of these one case died. With reference to the symptoms Rubritius says shock is no criterion of the existence of perforation for severe state of shock may be present consecutive injury to the abdominal without rupture of the intestines; he also maintains that the condition and character of the pulse will give no clue as to the presence of perforation. The most significant symptoms are the character of the expression of the face and the character of the breathing. If the patient glances anxiously from side to side, if the face is pale and the eyes sunken and dull, if the breathing is superficial and frequent, interspersed with occasional long deep breath to relieve an approaching attack of pain, one can be pretty certain of perforation. Then too, the tenderness of the abdominal wall is of great diagnostic import. The tenderness is usually localized at the site of the injury and manipulation of the part is followed by a reflex contraction of the abdominal muscles, as Ebstein maintains that this rigidity is the initial symptom of perforation peritonitis. Of the 5 cases which Rubritius brought to operation in the first 12 hours, 2 recovered; of the 4 operated upon from 13 to 30 hours after the injury, 2 recovered; of the 4 cases seen several days after the injury 1 recovered. [J.F.]

Danger from Phosgene in Chloroformization.—According to C. Armand and J. Bertier,[2] the combustion of illuminating gas in a closed space containing chloroform vapor, will produce a toxic gas. This gas is manifested as a whitish vapor, which is very irritant to the mucous membranes. As this irritant effect is wanting in the anesthetized patient, serious toxic symptoms may suddenly arise from its presence, without any premonition. These symptoms are principally cyanosis and respiratory syncope. The toxic gas is carbonyl chlorid, or phosgene, having the formula $COCl_2$. Prophylaxis consists in the employment of electric light in the operating-room, or in the use of chimneys to convey the products of gas combustion to the exterior. Bunsen burners should be excluded from the operating-room. If these precautions are impossible, ether should be used instead of chloroform to produce the anesthesia. [B.K.]

[1] Prager medicinische Wochenschrift, Bd. xxx, No. 29, 1905.
[2] Revue de Chirurgie, Ann. xxv, No. 7, July, 1905.

Strychnin before Chloroform Narcosis.—T. S. Evenkhoff[1] warmly recommends the subcutaneous use of strychnin sulfate before administering chloroform. The pulse is very favorably influenced by the stimulant and this may obviate accidents. No ill after-effects could be observed from combining strychnin with chloroform. As to dosage, the author found the average quantity to be $\frac{1}{60}$ gr. to $\frac{1}{30}$ gr. (0.001 gm. to 0.002 gm.) strychnin sulfate for an adult. This dose must be increased in weak heart action and diminished in people with a strong pulse. The aim being to obtain blood-pressure of a certain satisfactory degree, it is the duty of the anesthetist to regulate the strychnin dosage accordingly. Thus, if the initial dose has not produced the desired effect in five to eight minutes, another small quantity should be injected ($\frac{1}{100}$ gr. to $\frac{1}{60}$ gr.). The author is hopeful as to the future of his "strychnin-chloroform narcosis." [L.J.]

Cesarean Section upon the Moribund.—Füth[2] speaks of an instance in which shortly after the onset of mild pains the woman suddenly became dyspneic, stridulous, cyanotic, bloody froth oozed from her mouth, and the muscles of her face began to twitch. Death seemed certain. He at once did cesarean section and removed a cyanotic child, which recovered from the cyanosis in a very short time. After the operation the patient regained consciousness; the pulse, which at the time of the operation was imperceptible, became perceptible; the woman lived for five days. Füth repeats the indications for the procedure laid down by Runge; they are as follows: (1) When the diagnosis and prognosis indicate death of the patient; (2) when the child is still alive; (3) when delivery by this method insures a better prognosis for the child than delivery through the pelvic canal; (4) when the induction of labor will not stay the approaching death. [J.F.]

Wounds of the Thoracic Duct in the Cervical Region.—The size of the terminal part of the thoracic duct depends upon the presence or absence of branches to the various veins in its course through the thorax. Where no such branches exist, almost all the lymph enters the vascular system through the terminal part of the duct, and a wound of this part becomes more serious. Vautrin,[3] in this paper, considers only the wounds received in the course of operation, and maintains that the consequences of such wounds may be more serious than has heretofore been believed. The first symptom is usually the appearance of lymph in the field of operation. This may not be noticed at first owing to its mixture with blood, and the lymphorrhea may only come to light sometime after the operation. In the course of a few days the patient begins to fail rapidly in flesh and strength, an intense thirst develops, vertigo, cyanosis, and syncope become manifest, and the patient may die of exhaustion, if the loss of lymph is not checked. A spontaneous cure may result from the closure of the wound by a lymph clot and the establishment of collateral outlets for the contents of the duct. If the canal is of considerable caliber, and the wound is large, spontaneous coagulation will not occur. In the treatment of this condition, simple compression may be employed, but it is often inefficacious. The only rational treatment is immediate ligature of the duct. In some cases lateral ligature, suture, or compression by forceps may be suitably employed. Ligature cannot be employed if the walls of the duct are friable, and is dangerous if there is no collateral circulation. [B.K.]

Renal Decapsulation for Bright's Disease.—L. F. Schmauss[4] reviews the literature of this subject, and reports with minuteness the details of a case upon which he operated. The patient was a girl of 27, with large, white kidneys. Bilateral operation was followed by very satisfactory improvement. Schmauss believes the operation is deserving of further trial. He calls attention to the difficulties that may be met during the operation, high location of kidney under ribs, perinephritic adhesions and undue mobility of kidney. The vertical incision, recommended by Edebohls, he did not find satisfactory, and

[1] Russki Vratch, June 18, 1905.
[2] Zentralblatt für Gynäkologie, No. 23, 1905.
[3] Revue de Chirurgie, Ann. xxv. No. 7, July, 1905.
[4] St. Paul Medical Journal, August, 1905.

prefers an oblique incision parallel with the twelfth rib, resecting the latter if necessary. Considering the lesions of the kidneys in these cases, it is not surprising that patients should have exacerbations after operation; this emphasizes the necessity for careful after-treatment and supervision of the patient. [A.G.E.]

The Occurrence of Icterus Catarrhalis in the Children of Prag and the Vicinity.—Langer[1] concludes that, as in other larger cities, the children of Prag and the neighboring towns suffer during the fall and winter months with a form of jaundice, the clinical course of which simulates that of catarrhal icterus. The disease is most frequent in children whose ages vary from 2 to 6, while children during the first year are rarely affected. In about a fifth of the cases, the disease can be traced to dietetic errors, whereas in the remaining four-fifths, the etiologic factor or factors are obscure. Owing to the fact that the disease begins with fever and enlargement of the spleen, and owing to the fact that members of the same family are affected at longer intervals than the preceding and following member, Langer regards the disease as being due to some living virus. He notes that it is possible that the jaundice is merely a symptom of some unknown infectious fever. Although the distribution of the disease seems to be irregular over the city, yet by long-continued observation there appears to be a certain amount of grouping in neighboring streets or even in houses. The serum of these patients does not reveal any agglutination with Ficker's diagnosticum. [J.F.]

Pylorectomy and Gastrectomy in Cancer of the Stomach.—A. Poncet and X. Delore[2] report the results in 12 cases, treated by pylorectomy or gastrectomy within the past two years. In eight cases the operation was successful; two of these died later of recurrence, and the remaining six were well after varying intervals of two years or less. The four deaths succeeding operation were due to extreme cachexia, diffusion of lesions, or imperfect technic, which has been since corrected. The authors advocate an immediate laparotomy in every case where cancer of the stomach is suspected. If exploration confirms the diagnosis, they recommend a more or less extensive resection of the cancerous stomach. The immediate results of this operation are much better than those of gastroenterostomy or any other procedure, and the patient always has the chance of a complete and lasting cure. [B.K.]

Anatomy and Origin of Tumors of the Sternocleidomastoid Muscle.—While Pincus[3] admits the traumatic production of such tumors during birth, he notes that there are spontaneous easy births which can scarcely be responsible for the causation of the condition. He cites a case of a child born of an anemic mother and nonsyphilitic father, which died 14 days after birth. Already on the second day of life a hard, insensible nodule the size of a hazelnut, was observed in the left sternocleido muscle. The head was not drawn to one side, nor was there any assymmetry or obliquity of the neck. The microscopic examination revealed a fibrous myositis. Blood pigment was absent, which fact displaces to a degree the idea of a relationship that the trauma suffered by the mother four weeks before the birth may bear to the cause of the tumor in the muscle. Possibility of the intrauterine production of the condition, perhaps congenital, should not be forgotten, however. The bacterial origin, as suggested by Kader, Pincus says, cannot be accepted until further confirmed by bacteriologic investigation. [J.F.]

Arteriovenous Aneurysms of the Subclavian.—E. Pluyette and A. Bruneau[4] report a case of their own, and have collected 19 cases from literature. This condition predominates in the male sex, between the ages of 20 and 33, on account of the liability to traumatism. The cause was an incised wound in 9 cases, gunshot wound in 8, and fracture of the clavicle in 2. The third part of the artery was usually the seat of the aneurysm. Primary hemorrhage was often abundant, and a hematoma was noted in 10 cases. The latter limits the hemorrhage, and its organization forms the basis of the aneurysmal sac. A pulsatile, painless tumor of varying size is found in the clavicular region. A thrill and bruit are the most constant and characteristic symptoms. The veins of the arm, neck, and chest are often dilated, and edema may be present. Changes occur in the pulse of the affected arm, amounting at times to total suppression, with corresponding decoloration, coldness of the extremity, and rarely gangrene. Secondary hemorrhage is a grave possibility, but is rare. Both sensibility and motion are frequently affected. The prognosis as to life is usually favorable, but impairment of function is usually more or less permanent. The only possible treatment at the time of accident is compression. After the formation of the aneurysm, the question of operation comes up. The results heretofore have been so bad, that it should not be attempted unless there is an urgent indication. [B.K.]

[1] Prager medicinische Wochenschrift, Bd. xxx, No. 27, 1905.
[2] Lyon Médical, July 23, 1905.
[3] Zentralblatt für Gynäkologie, No. 20, 1905.
[4] Revue de Chirurgie, Ann. xxv, No. 7, July, 1905.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Peculiar Action of Safranin.—Mulert[1] reports the case of a pregnant woman, who during the early months of her pregnancy took safranin repeatedly. Just before term she was taken with a chill, this recurred the next day. A child with golden yellow skin was born, the amniotic fluid was yellow, as was also the interior of the placenta. The child died on the third day. She had chills daily for several days, but recovered ultimately under the use of quinin. No cause for chills and fever could be discovered. [E.L.]

Dechloridation Treatment of Epileptics.—R. Voisin and L. Krantz,[2] from a study of the urine of epileptics, confirm the presence of periods of discharge and of retention of urinary products. The attacks of epilepsy are not crises in the true sense; they are the consequence of an intoxication arrived at its maximum and not the termination of the intoxication. From a therapeutic standpoint the writers find that salt-free diet, by causing more active elimination, is of value for patients with this disease. To obtain the best results, however, bromids must be given in conjunction with such diet, though the larger part of the benefit is derived from the osmotic phenomena induced by the dechloridation. [A.G.E.]

Boric Acid in Enuresis.—Etterlen[3] saw recovery in three cases of incontinence in children following the use of boric acid, in doses of 0.5 gm. (7½ gr.) two to three times daily by mouth. [E.L.]

Treatment of Erysipelas with Colloidal Silver.—L. Feldmann's[4] patient, a woman of 28, was seized suddenly with a chill nine days after her confinement; high fever followed, associated with a state of coma; 24 hours later she had a second chill; 15 minutes afterward the typic picture of erysipelas of the face developed. No improvement was noted during the first four days and slowly her pulse became more rapid and weaker; stimulants were necessary. On the fifth day she had 2.5 gm. (38 gr.) of colloidal silver rubbed into her back, and as this was followed by improvement, additional 2.5 gm. were rubbed into her thighs the next day. She recovered slowly from this day on. Worthy of note in this case are the sudden appearance of the erysipelas and the long lasting action of the silver ointment, which kept the temperature normal after the second dose, even though the erysipelas spread considerably yet. [E.L.]

FORMULAS, ORIGINAL AND SELECTED.

Muene[5] employs the following mixture in **whooping-cough**:

Antipyrin Veronal	of each	1 gm. (15 gr.)
Distilled water		100 gm. (3 f. oz.)
Syrup of cinnamon		20 gm. (5 f. dr.)

Dose.—A teaspoonful after breakfast and after dinner; half hour before and just before going to bed.

[1] Therapeutische Monatshefte, 1905, xix, No. 4, 217.
[2] Archiv de Medecine Experimentale, March, 1905.
[3] Therapeutische Monatshefte, xix, No. 4, 224.
[4] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 3, 105.
[5] Therapeutische Monatshefte, 1905, xix, No. 4, 220.

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The criminal alliance between newspapers and patent medicines is discussed in a vigorous and aggressive article in *Collier's* for July 8, and that periodical also announces its policy to exclude such advertisements from its columns in the future, and to wage a persistent warfare upon this form of swindling. There is a promise of future articles dealing with the harm done by quack remedies, not only from the drugs themselves, but also from the fact that the sick man depends upon his own diagnosis, and is apt to neglect the proper treatment for an unrecognized condition. Attention is directed to the fact that very many alleged tonics which are so strongly commended by temperance advocates, are nothing but wines and alcoholic mixtures. It is certainly a matter for public congratulation when lay journals take this attitude. There is, no doubt, a great deal of harm done by self prescribing for a supposed disease which may not even exist, and this injury really increases the business of the regular physicians who treat the cases afterward. It is not true, of course, that the medical profession is opposed to all this quackery because they are deprived of business—such a sordid view of the matter is merely in the minds of those who profit by the swindling. The real attitude of the profession is in the direction of preserving public health, and would actually lessen their own income. Any other position is not only untenable, but unthinkable, for anyone who would desire to increase public sickness to increase his own business is not a man.

The harm done by advertising quacks and patent medicine swindlers, nevertheless, is chiefly a moral one. It is no doubt true that only rarely do secret nostrums contain substances which of themselves are harmful, such as those containing morphin or cocain, and these, of course, are so distinctly pernicious as to demand prohibitive legislation. The vast majority contain neutral substances, whose chief harm is possibly the gastric irritation they cause, and they merely satisfy the patient's mind at the very time, perhaps, when he should be under rational management or even under surgical care. It is the swindling feature which must appeal to laymen, and it is this degrading combination between respectability and crime which is at last causing thinking men to stand aghast at the enormity of the immorality. As we have before mentioned, the lay press has never fully realized that they were partners in a business which is as immoral as burglary, even if public opinion does not so regard it. Hence, it is in the direction of enlightening the public as to the real condition of affairs, that the medical press could most wisely direct its energies in the interest of the public good.

The economic side of quackery is rarely mentioned, though it is of such extreme importance that it deserves attention from political economists. It might be said that there is no economic loss to the country, as the money remains in it, merely changing hands from the producing class to the parasitic class, but if such a thought is to be tolerated for a moment it could be applied to pickpockets. It is true that every civilized community has its drones, and that the nimble witted can survive if they know how to derive support from the workers, but that does not warrant us in considering it respectable or anything else than harmful to the public weal. It is also boldly stated that there is an immense population which gains its living in the manufacture, sale, and advertisement of patent medicines and that the prosperity of the country is increased thereby, but the same could be said of makers and sellers of burglar's tools. As a matter of fact, if this part of our population were transferred to the production of something beneficial instead of useless, the prosperity of the country would be that much increased. Such transfer cannot be accomplished without compulsion on the part of the public. The whole matter, then, is one which is not beneath the dignity of statesmen if they have the welfare of the country more at heart than the welfare of their particular political party.

The demand for nostrums is based upon a mental deficiency from which most men suffer. We have not yet eliminated all those absurd savage superstitions of our ancestors. We still believe in the miraculous healing powers of all kinds of ceremonies and mystic influences. Even physicians are not freed of this human trait. Every new drug which is said to possess some special property is taken up with keen interest. The profession stampedes to it and then gradually drops it. We cannot expect ignorant laymen to be free of the defects which we ourselves are so prone to show. Nearly everyone believes that there is some medicine with cura-

tive powers for each disease. They demand advertisements and as long as it pays and is considered respectable, the lay press will accommodate them. As we have repeatedly mentioned, it is not likely that restrictive laws will be tolerated as long as this state of public opinion lasts. We must depend first upon enlightening the journalist conscience. The medical press will therefore do wisely if it gives the greatest publicity to the good work of *Collier's* and other periodicals in the restriction of this form of criminality, in the enlightenment of the public mind and in the stimulation of the public conscience. Then restrictive laws will become possible, for the mass of people will turn against their parasites.

The advertisement of proprietary medicines in medical journals occupied the attention of the House of Delegates at the recent meeting of the American Medical Association. The discussions brought out the fact that there is no dividing line between reputable useful proprietary medicines and disreputable, useless nostrums. The discovery of a new and valuable coaltar product, for instance, is at once patented by the chemist, who is not bound by any ethical code to give it to the public, so that the profession is compelled to use certain of such substances of known composition and value, and this modern development has made the opening through which advertisements of worthless mixtures have sneaked into medical journals. The temptation is so great that even reputable manufacturers have fallen from grace, and advertised things which it is practically impossible to grade as nostrums, though they may have no therapeutic virtue whatever, not to mention the venal manufacturers, whose sins are too well known. Hence there was a just protest against a sweeping condemnation of all pharmaceutical preparations, and even some objection to the advertisement of the composition of mixtures whose ingredients are of official record, though there was a substantial agreement that some means is necessary to sort the sheep from the goats. Nevertheless, there was an evident gain, as there must be from every discussion of this unhappy business, and it is not too much to predict that the movement will continue until no substance or mixture will be offered to the profession unless its composition is known and its value proved. There is a growing suspicion that in this matter, as well as in that of nostrums, the general government has a function which has hitherto been neglected, but that is another matter which requires much discussion. In the meantime the association passed resolutions of thanks to the *Ladies' Home Journal*, *Everybody's Magazine*, and *Collier's*, for the stand they have taken against the admission to their columns of the advertisements of vicious nostrums.

A law against quack advertising has been enacted in the State of Washington, but it is limited to a prohibition of the advertising of the treatment or cure of venereal diseases. Though this law appears on the surface to be a step in the right direction, it has been adversely criticised as a dangerous precedent, interfering with old anglo-saxon freedom of the press. But the freedom of the press is not an old anglosaxon rule, for the press was originally under the greatest restrictions, and gained its freedom only after many tribulations and editorial sufferings. Like all other rights, it becomes a wrong when it interferes with the rights of others, and there is a respectable and growing body of thinking men who are of opinion that the present freedom of the press does need restriction in the same manner that we curtailed our former liberty to enslave others. Nevertheless, the great mass of the people demand newspapers in which there shall be no restrictions, and when an alleged wrong on the part of a paper is proved, the jury itself is prone to award nominal damages. Under such a public opinion it is inevitable that individuals must here and there suffer at the hands of an unscrupulous paper, though it is evidently the high personal standard of journalists as a class which restricts within narrow limits what would otherwise be an intolerable evil. The freedom which the people demand in their papers is one which is not good for them, and it is not at all unreasonable to restrict it, though the wisdom of the particular law in question may be questioned. The people want all kinds of bad advertisements, and will naturally resist any restrictions which they will rightly assert could be easily carried to the point of a censorship as oppressive to our liberties as that of the Russian government. It is quite likely that any further extension of such laws will be resisted, and the elimination of vicious advertising be attained only by appealing to the better side of the journalists. The present conditions are certainly dreadful, not only from the physical harm done to the sick, but also from the enormous sums of money of which the sufferers are swindled. The effect of the Washington law should be carefully studied, and if it proves to be wise, we can then unanimously advocate its further extension.

Chicago Throws Stones at New York.—In his Bulletin for July 15, Dr. Whalen, Health Commissioner of Chicago, gives space to a patriotic citizen, who charges the department with "persistently belittling the population of the city." This critic thinks the City Directory estimate, 2,272,760, is more nearly correct than that of the health department (1,990,750), based on the annual increment determined by the United States Census Bureau. In reply, the health commissioner says that the population is undoubtedly above 2,000,000, but the need of an authoritative method of estimating the growth of cities has influenced the department to use the United States Census method. Beside, he says, if the City Directory figures are used in computing the deathrate, the result would be a deathrate of 12.4 per 1,000. "Chicago's deathrate," he continues, "most conservatively computed, is already the subject of envy and incredulity elsewhere. If it were computed on population figures in excess of those of the United States Census, as is the case in almost all the large cities of the country —New York, for example, computes on 46,094 more than the government figures; if it excluded certain classes of decedents—New York, for example, excludes the deaths of all nonresidents and of infants under two weeks, thereby achieving a 'corrected' deathrate about 5% less than its actual rate; if, in short, Chicago did not

give other communities all advantages of inflated populations and minimized decedents, its figures would, indeed, be something for other cities to be even more afraid of than they now are." Since Dr. Whalen has mentioned the subject, we may express pleasure at the opportunity of discussing the population and deathrate of Chicago from the viewpoint of the incredulity which Dr. Whalen recognizes. In 1901 Chicago published a deathrate of 13.88 per 1,000, the lowest in the history of any great city, and Dr. Whalen has forecast a lower deathrate for 1905. He promises, "with a fair degree of certainty," that the deathrate for Chicago at the end of this year will be 13.56 per 1,000.

A violent difference of opinion existed in 1900 between the Chicago Health Department and the Census Bureau. The census authorities credited Chicago with a population of 1,698,753, while Chicago claimed, and estimated her deathrate on a population nearly a quarter million greater. The census bureau said, moreover, that Chicago had made the opposite error in counting her deaths. The census enumerators turned in 1,930 deaths, which were not accounted for in the returns of the City Health Department. Thus it appeared that Chicago had made a plus error of 15% in estimating her population and a minus error of 6% in counting the deaths. The census bureau said that the 1900 deathrate of Chicago was 16.2 per 1,000. In the very next year, 1901, Chicago published her famous low deathrate of 13.88, which, Dr. Whalen says, this year's deathrate will surpass. Of course, the deathrate for 1901 was discredited. The statement that 1901 was a remarkably healthy year throughout the world did not remove the doubt which the census results had thrown on Chicago's vital statistics. The department itself later yielded the point of population and accepted the census figures. The discrepancy in the mortality was allowed to slumber and Chicago offered no satisfactory explanation of the 1,930 death records which the enumerators turned in and which the census bureau added to the records furnished the Health Department of Chicago. It is well known that the census enumerators' returns of mortality are about 40% short. Since these returns are based on inquiry at every house concerning the deaths during a 12 month preceding, the results can hardly be expected to exceed 60% of the deaths truly chargeable to the period. A comparison of the enumerators' returns in 1900 with the mortality returns furnished by the Health Department of Chicago (16,059 and 27,752) shows that the enumerators did not get quite 60% of the true returns. If, therefore, the 1,930 records appearing in the census schedules, but absent from the city returns, really belonged to Chicago's mortality for 1900, the indications are quite clear that the mortality upon which the health department based its deathrate was less than the true mortality by 3,216 deaths, and that Chicago was fairly chargeable with a deathrate in 1900 of 18.23 per 1,000, two points more than the census rate and about four points higher than the rate which Chicago published.

Will New York Take Notice?—The suggestion of Dr. Whalen that New York inflates her population figures is not supported by an examination of the census reports, nor did the twelfth census indicate a short count of the New York mortality in 1900. The advantage gained by the recent census of New York (46,000 above the population estimated on the experience of the previous decade), is far too small to justify a suspicion of padding; but Dr. Whalen's suggestion that New York "corrects" her mortality sheet by excluding all deaths of nonresidents and all deaths of infants under two weeks, opens up a question of great importance in American mortality registration. There is no agreement among American registration offices as to the elements of mortality rates. The cities of this country are absolutely unanimous in the exclusion of nonresident decedents, unless Chicago counts them in. Only a few cities, however, publish statements of the nonresident mortality, and not one explains what is meant by a nonresident. It would help the cause of registration tremendously if New York would make public answer to Dr. Whalen's definite charges of unfairness, and if Chicago would also define her practice. Let us have from each city, answers to the following questions: Are the deaths of nonresidents, occurring in the city, included in the total mortality on which the deathrate is figured? Are the deaths of citizens, taking place outside the city, included in the deathrates? What rule determines the question of residence in cases of death within the city? What rule determines the question of residence in cases of death without the city? Is any part of the infant mortality excluded from the deathrates? Are stillbirths included in the total mortality? What definition of a stillbirth governs your registrar?

Promotions and Age Limits in the Army and Navy.—The burning question in official circles of the army and navy centers about the subject of age. Togo's victory has made it especially acute in the navy. The average age of our battleship captains is said to be 57, while in the German and English navies it is 48, and in the Japanese between 45 and 46. A determined effort is being made in the British fleet to secure younger captains. Since the passing of Osler—to England—the attempt is to be made to fix the retiring age there at 40! In our navy, retirement for age at 62, or for physical disability, has been the only method of creating vacancies before President Roosevelt recently ordered a certain number of retirements of apparently capable officers. Rear-Admiral Converse would retire all commanders at 50 and all captains at 55, although another authority contends that we have excellent flag-officers aged 57 or over. It is true that a long list of victories and recognized service could be made out of those naval officers whose ages ran from 55 to 65. With the political and military aspects of the question we have, of course, nothing to suggest as a profession, but medically and physiologically there can be no doubt that, as a general rule, in a life where activity of body, senses, and intellect should necessarily be of the keenest, the age limit must be brought sharply down. In professional, business, and civil administration it is a very different matter. But in military life the natural lessening of vitality and instant physiologic response consequent upon age, even of those about 50, coupled with the

increasing incidence of disease, make it imperative that vast responsibilities should be put on those only with physical vigor. It will some time be known that Togo's victory was not due to the youth of his captains, and that factor may, therefore, be left out of the count. It is certain that on the average our physical impairments increase in geometric degrees after we are 50, while the years add slowly one by one.

Compulsory Vaccination. — Especial attention should be given to the subject of the paper of Dr. Bracken in another column of this paper. The experience not only of Germany but of Japan has demonstrated beyond all question that vaccination, universally and scientifically carried out, with active and pure virus, is an absolutely certain prophylactic measure. Why then longer allow the rabids and cranks needlessly to imperil the health of the community, and to bring disease, suffering, and death to thousands of our people, beside the waste and expense of millions of dollars a year? Why quarantine, with its at best partial failure, if we are convinced that vaccination does prevent? If we do not advocate compulsory vaccination, if we do not abolish quarantine it follows that we do not thoroughly believe our own philosophy of the disease, or that we do not think compulsory vaccination can be carried out. This journal has always urged its readers, and medical societies generally, and especially the American Medical Association, to bend all energies to obtaining compulsory vaccination. We have dilly-dallied long enough! It will take some time to bring our legislators to their duty of listening to and following the advice of the medical profession instead of that of a few ignorant faddists who know nothing of the matter. Ours none the less to do our duty and not to stop until compulsory vaccination is the law of every State in the Union.

The responsibility of sanitarians is at last being recognized by the lay press. The New York *Herald*, *e. g.*, says: "The time has gone by when the expert sanitarian is to be considered a mere fussy and cranky enthusiast. His mission is as much an educational as an executive function," and again, referring to the Panama Canal: "The most important question of all is the possibility of stamping out the yellow fever once and for all in the speediest and most effectual way. The responsibility for such a result rests upon Colonel Georgas, and he should have every power to discharge it." Judging from the published instructions given by the war department to Colonel Gorgas, and to the governor of the zone, it is quite evident that the early deplorable organization with its military subordination of sanitarians has been ended, and that the quoted opinions are in reality those of the administration. While this tardy recognition of a great truth by the lay press is a matter of intense satisfaction, it is to be hoped that there will be a further application of the same principles to military sanitation. There would be a different history had the lay press and the public taken such a position during the Spanish war. With apologies to the *Herald* we can paraphrase its remarks, and wish they had been published seven years ago. "The time has gone by when the military sanitarian is to be considered a mere fussy and cranky enthusiast. His position is as much an executive as an advisory function. The most important question of all is the possibility of stamping out typhoid fever from our camps once and for all. The responsibility rests upon the medical officers, and they should be given every power to discharge it." Opposition may be expected from those who are wedded to the system which produced the camp conditions of the late war, but it is not too much to ask the administration to suppress those who have not moved with the times. It has made a splendid beginning. Let there never again be the possibility of anyone in authority daring to reprimand a sanitarian for renewing an ignored suggestion—such men are too dangerous, but the system which lets them do this is worse.

A city's medical bill-of-fare is thus listed by a newspaper of Chicago:

A death every fifteen minutes.
A birth every eight minutes and twenty-seven seconds.
A murder every seventy hours.
A suicide every eighteen hours.
A serious accident, necessitating nurse's or physician's care, every four minutes.
A fatal accident every five hours.
A case of assault and battery every twenty-six minutes.
A burglary every three hours.
A hold-up every six hours.
A disturbance of the peace, to attract attention, every six seconds.
A larceny every twenty minutes.
An arrest every seven minutes and thirty seconds.
A fire every hour.
An arrest for drunkenness every fifteen minutes.
A marriage every twenty minutes.
A case for the coroner every three hours.

This is a way of putting the vital statistics of a city, which, if accurate, may provoke more thought than is suggested by a passing smile. The force of gravity, for instance, is vaguely conceived by most people, although every act of life is concerned with the weight of things. How many could, offhand, come within thousands of the answer if asked what would be the force of attraction of two masses of 415,000 tons each, placed a mile apart? One is surprised to learn that the answer is *one pound*. So the large numbers which vital statisticians use in epitomizing medical facts, often leave the mind empty of definite and vivid conceptions. This newspaper way of reducing them to terms of easy comprehensibility is, therefore, of decided value.

The International Surgical Congress will meet at Brussels beginning September 18, under the presidency of Theodor Kocher, M.D., professor of surgery in the University of Berne. The morning of each day will be arranged for visits to hospitals and clinics, and for the presentation and examination of patients, and for other matters of interest connected with the congress as well as the city of Brussels. The afternoons will, as far as possible, be reserved for the consideration of the subjects selected for discussion. These are as follows: (1) The value of the examination of the blood in surgery; (2) the treatment of prostatic hypertrophy; (3) surgical intervention in noncancerous diseases of the stomach; (4) treatment of articular tuberculosis; (5) the treatment of peritonitis; (6) the diagnosis of surgical diseases of the kidney. Other communications of a practical nature (of which due notice should be given, as well as the time they will occupy) including the presentations of patients, specimens, and surgical instruments and appliances may be made. The official languages of the congress are English French, German, and Italian.

AMERICAN NEWS AND NOTES

GENERAL.

Candidates for Army Assistant Surgeonships.—There are 49 candidates for appointment as assistant surgeon in the army. At present there are 21 vacancies in the medical department and 8 approved candidates. In the list of 49 candidates are a number of contract surgeons and officers who have served in the volunteers, whose services in the army medical department would be of great value. There is no probability that there will be a waiting list, even were there more qualified officers than there are vacancies. The authorities will be satisfied if they are able to find enough officers to fill the existing vacancies.

Personal.—General Leonard Wood, who has been resting near Boston after an operation on his head to remove an exostosis following an injury, expects to sail next month for the Philippines.—**Dr. John H. Doyle and Dr. Annie G. Greaney** were married in Fall River, Mass., last week. Dr. Bartel, of Boston, was matron of honor, and the best man was Dr. A. B. Butler. Four other physicians acted as ushers. The bridegroom is a native of Fall River, but is now practising in Grafton, W. Va.—**Dr. J. Howard Taylor,** for years chief medical inspector of the Philadelphia Bureau of Health, fell on the sidewalk last week and was badly hurt. He is 75 years old, and has been connected with the Bureau of Health for almost 40 years.

Two Swindlers Wanted.—A man giving the name of A. W. ORRISS has been swindling physicians in all the States from Florida to Pennsylvania. His method is to offer to exchange any old medical books for the latest editions of the best works, allowing so much for the old ones and collecting half the difference between this and the price of the new books, the balance to be paid when the books are delivered, but they never are. He is a man of perhaps 50 or 55, has iron gray hair, an uneven, bristling, iron gray moustache which hangs partly over his mouth in an endeavor to hide his prominent upper teeth, one of which is missing or very widely spaced, and another half, perhaps more, of gold. He is a good talker and is familiar with all medical works. If notice is sent of his appearance in any locality, a warrant will be sent for his apprehension. C. V. GRIFFIN has been calling on physicians in Philadelphia and nearby towns soliciting orders for *American Medicine*, having in his possession literature which he claims gives him the right to take orders. He is wanted for forging the name of the American-Medicine Publishing Company on checks given him by physicians and which he had cashed. He is about 5 ft. 9 in. tall, of pleasing manners and a good talker. He claims to have studied medicine and says he comes from Westfield, Mass. Information leading to his apprehension will be appreciated.

Vital Statistics of Steerage Immigrants.—Acting Secretary Murray, of the Department of Commerce and Labor, has received a report from Collector Stranahan, of New York, showing that during the past three fiscal years, ended June 30, 1905, from the ports of Europe, 1,932,934 steerage passengers embarked for New York, of whom 423 died on the voyage, or about 22 deaths per 100,000 passengers. Allowing 12 days for the average voyage, the rate is equivalent to an annual death-rate of about six and a half (6.56) per 1,000. (The last federal census shows the annual deathrate per 1,000 in 1900, in New York City, was 20.4; in Washington, 22.8, and the lowest rate for large American cities, St. Paul, Minn., 9.7, and Portland, Ore., 9.5. The federal census gave the deathrate for Hungary at 30.3; Italy, 24.6; Germany, 22.8, and Norway, 16.5.) The highest monthly rate for the three years, was January, the month of smallest travel, 38 deaths out of 87,260 in the steerage; the lowest rate, also 38 deaths, out of 256.838 steerage passengers, was May, one of the months of heaviest steerage travel to New York. From Northern Europe, there were 242 deaths out of 1,351,221 steerage passengers; from southern Europe, 181 deaths out of 581,713. Of the steerage passengers, 31,873 were babies under 1 year, and 116 more were born in the steerage, two mothers dying in childbirth; 126,993 were children over 1 and under 8 years, and 1,774,068 passengers were over 8 years. Under 8 years, 211 died; over 8 years, 212. The census figures for 1900 give deaths under 9 years in the United States, so exact comparison is not practicable. In the steerage, one and a third died out of every 1,000 children under 8 years. Only 1 steerage passenger out of nearly 2,000,000, died on shipboard from accident, and only 1 from yellow fever; 23 committed suicide and 7 disappeard (suicide, accident or murder). The principal causes of death were heart failure, 75 (20 children); pneumonia, 64, (37 children); inflammation of bowels, 40 (all children but 5); meningitis, 34 (14 children); convulsions 28 (children); apoplexy, 17; alcoholism, 17; marasmus or weakness, 17 (13 children); tuberculosis, 16 (8 children); bronchitis, 15 (12 children); congestion, 10; 5 children died from scarlet fever and 5 from measles. The remaining 47 deaths were due to 27 miscellaneous diseases.

Medical Education in the United States.—The annual educational number of the *Journal of the American Medical Association*, August 19, gives details about the location, course, faculty, equipment, students, etc., of every medical college in the country. During the year ended June 30, 1905, 26,147 persons (including 1,073 women) studied medicine at 157 colleges in 36 States and Territories, and 5,606 of these graduated. The students numbered 1,995 less than the number in 1904; graduates, 141 less. The attendance at regular schools, 24,119, was an increase of 457 over 1904, but a decrease of 801 below 1903 and 759 below 1902. Attendance at homeopathic schools has been decreasing steadily since 1900, when it was 1909; this year it was 1,104. At eclectic schools, attendance increased yearly from 1900, when it was 552, to 1904, when it was 1,014, but this year it dropped to 578—a falling off of nearly half. All graduates number 141 less than last year, 92 less than 1903. Homeopathic graduates in 1903 were 420; 1904, 371; 1905, 1,276; but eclectic graduates (153) numbered more in 1905 than in any year since 1900. Three of the 157 colleges are exclusively for women, 63 for men, and 91 coeducational. In 1904, 56 8% of the colleges had terms of less than eight months, now only 39% are in this class. Six months schools have decreased from 27 (16.3%) to 15 (9.4%). Nine months schools were 19 (11.6%) in 1904, now they are 38 (24%). *The Journal* says that the standards of preparation of study and of graduation have been raised considerably, showing that there is a disposition on the part of all concerned to elevate the standard of the profession by bringing into it men and women who are better prepared to practise medicine, and who will be a credit to the profession in every way. There has been a distinct gain in the entrance requirements during the past two or three years. This change for the better is due, in part, to a few individual colleges, but largely it is the result of concerted action on the part of several organizations which have it in their power to promulgate and to enforce rules and regulations for the government of colleges. The State examining boards, in particular, have exercised a most wholesome influence by raising the requirements and by taking an ac ive part in the regulation of preliminary or preparatory education. It is evident that the length of the term does not sway the student in his selection of a college, because over 61% of students attended long-term colleges. Students are more and more taking into consideration the standing of the college and what it has to offer. Fees, entrance requirements and length of term are secondary considerations with the better class of students.

EASTERN STATES.

Boston's Deathrate.—The number of deaths reported to the Board of Health for the week ended August 19 was 226, as against 217 the corresponding week last year, showing an increase of 9 deaths, and making the deathrate for the week 18.76. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 39 cases, 3 deaths; scarlatina, 5 cases, no deaths; typhoid fever, 30 cases, 3 deaths; measles, 9 cases, no deaths; tuberculosis, 51 cases, 24 deaths. The deaths from pneumonia were 13; whoopingcough, 2; heart disease, 17; bronchitis, 4; marasmus, 5. There were 7 deaths from violent causes. The number of children who died under 1 year was 66, under 5, 93; persons over 60, 45; deaths in public institutions, 81.

NEW YORK AND VICINITY.

Examinations of the milk supply of New York City have been made by the summer corps of the health department and thousands of gallons have been thrown away. Whenever the temperature of the milk is above 50° F. it is destroyed. The sanitary condition of the shops and utensils used in handling the milk has been improved.

Special Train for Lunatics.—The State Lunacy Commission chartered a special train on the New York Central Railroad last Monday to transfer 600 patients from the Long Island State Hospital, in King's Park, L. I., to the hospitals at Rochester and Willard. The transfer is necessary on account of the overcrowded condition of the Brooklyn institution. The majority of the patients went to Rochester, where the State has just completed buildings capable of accommodating 750 patients.

Typhoid Fever in New York.—A slight decrease in the number of cases of typhoid fever in Greater New York was shown in the returns to the Department of Health up to noon August 19, showing 252 cases as against 252 the previous week. As in the previous week three-fifths of the cases were in Brooklyn, the many cases in the Thirtieth ward supposedly due to unwholesome water being responsible. It is thought that many of the cases in Manhattan are really those of persons who have been subjected to the unhealthful conditions in certain Brooklyn suburbs and who developed typhoid upon their return to Manhattan.

PHILADELPHIA, PENNSYLVANIA, ETC.

Suicide, to Escape Surgery.—Rather than submit to a surgical operation which physicians decided he must undergo, Harold Grimm, of Turtle Creek, Pa., committed suicide by shooting.

Alvarenga Prize.—The College of Physicians of Philadelphia has awarded the Alvarenga Prize to Dr. Chalmers Watson, Edinburgh, for an essay on the "Importance of Diet: An Experimental Study from a New Standpoint."

No Decrease in Typhoid.—One hundred and twenty-five new cases of typhoid fever were reported to the Health Board for the week ended August 19. The rate of new cases is about the same as that which has prevailed weekly for many months. Last week 16 more cases occurred than were reported the previous week. Since the beginning of the year 4,458 new cases have been reported.

A Cow Gives "Bloody Milk."—Milk coming from a big dairy farm near Tunkhannock was found to have a pink tinge, which increased in tint on standing,—the socalled "bloody milk" of biblical times and of certain superstitious persons in the State. Investigation resulted in the isolation of one cow from the herd, and the proving that the coloring matter was due to *Bacillus prodigiosus*.

Must Carefully Inspect Schools.—The medical inspectors of the Bureau of Health have been instructed to make a thorough inspection of every school building in the city, and whenever there is cause for complaint as to sanitation to make report and to have disinfection made. Conditions that require special appropriation to relieve will be reported to the Board of Education. An inspection will also be made of all public bath houses to determine whether they are kept in sanitary condition.

SOUTHERN STATES.

Typhoid at Washington.—Twenty-nine new cases of typhoid fever and two deaths from the disease were reported to the health office on Monday. Health officials are making a house-to-house inspection of back yards and cellars with a view to remedying insanitary conditions.

Smallpox Quarantine in Jail.—The 186 prisoners in the federal jail, Washington, D. C., have been quarantined for 16 days because of a case of smallpox, the origin of which cannot be traced. The patient has been immured without contact from the outside for a month preceding his illness.

Typhoid at the Naval Academy.—Typhoid has broken out at the Naval Academy, but the medical officers have no apprehensions regarded the general health of the midshipmen. An epidemic may be successfully handled at the Academy since it has all the facilities for treating disease, the means of isolation of individual cases and the maintenance of hygienic rules.

Pure Water for Washington.—The first filtered water entered the mains of Washington Monday from the $4,500,000 municipal filtration plant at the head of North Capitol street. The water from but one bed was turned into the distributing system, but the expectation is that the other beds will be available for use at the rate of at least one every other day until the number necessary to provide pure water to the amount of the daily consumption of 63,000,000 gallons is complete. There are 29 filtration beds, each having a capacity of 3,000,000 gallons. Twenty-one of the filtration beds are practically completed, while the eight others are in course of construction.

Fighting Yellow Fever.—Evidence of the fact that the visitation of mosquito fever is not only being controlled here, but that there is a chance of its eradication, can be found in the daily reports of cases and deaths. For several days the number of new cases has shown a decline, while the number of deaths has been remarkably lower, considering the number of cases reported a week ago. Telegraphic advices from Mississippi report four new cases there, and further infection along the coast. It is estimated that between 45,000 and 50,000 of the 68,000 premises in New Orleans were fumigated and cleared of mosquitos in accordance with the suggestion made by the United States Public Health and Marine-Hospital authorities. The remaining 20 odd thousand were those belonging to persons who have left the city, or who had already taken full precaution by reason of the existence of fever within a square of their locations. Comparison with the visitation of 1878 would seem to prove that the disease is being controlled. So successful have the authorities been in removing foci in the upper section of the city that the physicians believe that if the first cases in the city had been promptly reported, the infection could have been stamped out and New Orleans spared a quarantine of long duration. The low death-rate is due to the fact that the whole community has been educated to the necessity of calling a doctor the moment high temperature develops. A case was discovered Monday in a prisoner at the dock of the Second Criminal Court. The man was found ill among a number of prisoners, and the doctor who was called promptly diagnosed the case as yellow fever. The screened ambulance immediately carried the man to the emergency hospital. The dock and the court-room were thoroughly disinfected. The patient was an Italian, who was arrested on Saturday night and remained in prison until Monday. The jail will also be fumigated. Prof. Ronald Ross and Prof. Boyce, from the Liverpool School of Tropical Medicine, arrived on the Campania, and at once proceeded to New Orleans to cooperate with the authorities in dealing with the epidemic. The state of the epidemic, August 24, is as follows: New cases, 53; total cases, 1,556; deaths, 5; total deaths, 219; new disease centers, 10; total disease centers, 353; remaining under treatment, 312.

WESTERN STATES.

Chicago's Moneymaking Health Department.—In his annual message to the City Council, 1905, Mayor Harrison showed the Health Department laboratory to be "a moneymaker," turning into the city treasury annually from $40,000 to $50,000 more than the cost of its maintenance, and urged upon the Council that some share of this excess, "if not every dollar of it," should be used for its further development.

Official Doctor for Auto Club.—The Automobile Club, of Oak Park, Chicago, has elected a physician as one of the regular officers, and it is not unlikely that other clubs may follow the example. The official surgeon always will be ready with liniment and bandages to care for the members who receive cuts or bruises. He will accompany the club on its runs, and when it takes part in parades he will be in constant attendance.

Dying Physician Aids in Collecting His Bills.—That his sister should have no annoyance with attorneys or collection agencies, Dr. Philip Fischer, who died in Cincinnati, Ohio, last week, made unique provisions for her material welfare. Realizing that his ailment was sure to end fatally, he transferred the deeds of his property to her. Then he had bills made out to all patients delinquent to him for professional services, and with each bill there was a brief note. This told of his fatal illness, and said that being anxious to have all accounts settled before he died, an early remittance would be appreciated.

Chicago's Health.—During the first 3 days of the week ended August 14, 325 certificates of death were received and recorded by the Bureau of Vital Statistics—a daily average of 108, and annual rate of 19.79. A large proportion were belated coroner's certificates of deaths by suicide or other form of violence, the total from these causes during the week amounting to 69, or nearly double the number of the previous week, when only 1 suicide and 34 other violent deaths were reported. The excess of the total deaths is thus almost entirely accounted for. During the remaining 4 days of the week the reported deaths fell to an average of 63 per day, or 9 less than the daily August average of the previous decade. Among the important causes of death showing decreases are apoplexy and heart diseases, each 6 less; bronchitis and sunstroke, each 3 less; acute intestinal diseases, 55 less and pneumonia, 14 less. Among those showing an increase are: Bright's disease, 5; tuberculosis, 10; cancer, 4; nervous diseases, 16; whooping-cough, 4. The hospital population remains nearly stationary—1,747 in the 6 principal hospitals, as compared with 1,739 at the close of the previous week. There is an increase in the number of pneumonia patients—6 and 3 respectively—and a slight decrease in the typhoid cases—60 and 65 respectively for the 2 weeks. To the generally good sanitary quality of the public water supply is attributed the decrease of acute intestinal diseases and the low typhoid fever deathrate.

CANADA.

The New Toronto Hospital.—The city of Toronto is to have a new hospital at an estimated cost of about $800,000. Of this amount the city council has been asked to make a grant of $200,000, the remaining $600,000 to be collected from private citizens. Much discussion has taken place as to whether or not the hospital so far as the medical staff was concerned should be a close corporation controlled by a select few or whether if public money is used to erect and maintain the institution, all qualified medical men should have equal rights.

FOREIGN NEWS AND NOTES

GENERAL.

Bequests to Charity.—By the will of the late Miss Agnes Abercrombie, of Doune Terrace, Edinburgh, $5,000 has been left to the Royal Infirmary of Edinburgh.

Metric System in Australia.—At a meeting held in June the General Council of the Chambers of Commerce of the Commonwealth passed a resolution expressing satisfaction at the increasing public interest in the metric system of weights and measures and expressed the hope that the system would shortly be adopted for England and its colonies.

Personal.—Surgeon-General **Sir Benjamin Franklin**, K. C. I. E., late Director-General of the Indian Medical Service, has been appointed a Knight of Grace of the Order of St. John of Jerusalem in England.—The Baly gold medal of the London College of Physicians; which is awarded every second year for the most distinguished work in physiology, has been conferred on **Professor Pavlov**, of St. Petersburg.—The Mary Kingsley medal of the Liverpool School of Tropical Medicine has been awarded to **Dr. Laveran**, of the Pasteur Institute, **Sir Patrick Manson**, F. R. S., and **Sir D. Bruce**, F. R. S.—London University has awarded the Rogers prize of £100 to **B. J. Collingwood**, M.B., B.C., for his essay on "Anesthetics, Their Physiologic and Clinical Action." The essay submitted by **A. G. Levy**, M. D., was highly commended, and the senate awarded him a prize of £50.—**Fred Neufeld**, assistant in the Berlin Institute for Contagious Diseases, has been given the title of professor.

OBITUARIES.

Clarkson C. Schuyler, aged 55, August 16, from cirrhosis of the liver, at his home in Plattsburgh, N. Y. He was graduated from the Albany Medical College in 1875. He served as surgeon to the Troy Hospital for fourteen years; was State forest commissioner in 1893, serving two years; member of local county medical societies, the Association of Military Surgeons of the United States, the Holland Society, Society of Colonial Wars, and the Military Order of Foreign Wars.

L. J. Frazee, aged 86, August 12, from senile debility, at his home in Louisville. He was graduated from the medical department of the University of Louisville, in 1841, and was a member of the faculty of his Alma Mater for many years; also of the Kentucky School of Medicine. He was one of the leading physicians, writers and medical teachers in his day, but retired many years ago from the practice of medicine and devoted his time to industrial and literary pursuits.

Louis Haycintha Laudy, August 17, at his home in New York. For 35 years he occupied the chair of chemistry in the Columbia University. He was a member of the alumni of Cooper Union; fellow of the New York Academy of Science, of the Association for the advancement of Science; life member of the American Institute, of which he was secretary for several years; and an honorary member of the New York Electrical Society.

Samuel Sherburne, aged 72, August 13, at his home in Philadelphia. He was graduated from the Long Island College Hospital, Brooklyn, in 1882, and later from the College of Physicians and Surgeons, N. Y., and took a postgraduate course at Jefferson Medical College. He served as assistant surgeon in the army during the Civil war.

Horace Laidlaw, aged 45, August 2, at his home in San Francisco. He was graduated from the University of California, medical department, San Francisco, in 1880. He was chief surgeon of the Oceanic Steamship Company for five years, and surgeon to the Spreckels' plantation at Maui, Hawaii, for three years.

Thomas J. Mitchell, aged 82, August 3, from dropsy, at his home in Bement, Ill. He was graduated from the University of Louisville (Ky.) medical department, in 1848. He served as surgeon in the One Hundred and Seventh Illinois Volunteer Infantry during the Civil war and was a prisoner in Libby Prison.

Merritt E. Graham, aged 49, of Rochester, N. Y., August 3, from intestinal disorders, at the Graham Sanatorium, Rochester. He was graduated from the University of Michigan Homeopathic Medical College, Ann Arbor, in 1878, and for nine years served as coroner of Monroe county.

Joseph Samuel Demaree, aged 38, of Frankford, Ky., August 4, from typhoid fever, at the home of his father near Bagdad, Ky. He was graduated from the Memphis (Tenn.) Hospital Medical College in 1898. He was a member of local State and county medical societies.

Frank B. Donnelly, aged 42, August 3, shot and killed himself in his office in Providence, R. I. He was suffering from tuberculosis which was pronounced as incurable. He was graduated from the New York University, New York City, in 1893.

Julius C. Bowen, aged 74, August 2, at his home in Rochester, N. Y. He was graduated from Jefferson Medical College in 1856. He served as major-surgeon of the Second Iowa Volunteer Cavalry during the Civil war.

William D. Pettus, aged 62, August 13, at his home in Rep, Ala. He was graduated from the University of Nashville (Tenn.), medical department, in 1868. He served in the Confederate service during the Civil war.

Robert J. Clark. August 18, at his home in Chestnut Level, Pa. He was graduated from the University of Pennsylvania in 1868, and for thirty years had practised medicine in Lancaster county.

William D. Nutter, aged 43, of Malden, Mass., August 18, at Bustin's Island, Casco Bay. He was graduated from the University of Vermont, medical department, Burlington, Vt., in 1887.

Thomas Philander Vaughan, aged 93, August 11, at his home in Brusly Landing, La. He was a veteran of the Mexican war, having enlisted in the Thirty-sixth Louisiana Regiment.

John W. Morrow, aged 68, August 5, at his home in Tionesta, Pa. He was graduated from Jefferson Medical College in 1872, and was said to be the oldest practitioner in Forest county.

William Ray Bramlet, aged 43, August 2, from septicemia, at his home in Florence, Ala. He was graduated from the University of Louisville (Ky.) medical department, in 1881.

Edward W. Doty, aged 49, of Paterson, N. J., August 20, at the home of his father in-law, at Dover, N. J. He was graduated from the Long Island College Hospital, in 1886.

Joseph W. Kumpe, aged 58, August 4, at his home in White Sulphur Springs, Mont. He was graduated from the Medical College of Alabama, Mobile, in 1873.

James Parker, aged 63, August 2, from heart disease at his home in Ballard, Wash. He was graduated from Trinity Medical College, Toronto, Ont., in 1871.

J. B. Amos, aged 80, August 21, at his home in York, Pa. He was one of the oldest and best known physicians in York county.

William R. Nevin, aged 45, August 2, at his home in Jersey City, N. J. He was graduated from the New York Homeopathic Medical College, in 1887.

Joseph Plumb Cochran, of typhoid fever, in Uramia, Persia.

FOREIGN.—**Thomas Boles Eames,** aged 83, recently, at his home in Welford-on-Avon. He received his medical education in Dublin, became a member of the Royal College of Surgeons of England in 1845, and in 1859 obtained the license of the Royal College of Physicians of Edinburgh. His practice extended over a large area, and many patients regret his loss as a doctor and friend.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 12, 1905:

	SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles	July 22-Aug. 8	5	
Florida:	Jacksonville	July 22-Aug. 5	2	
Illinois:	Chicago	Aug. 5-12	6	
	Danville	July 29-Aug. 8	1	
Indiana:	Southbend	July 29-Aug. 12	2	
Kentucky:	Lexington	July 22-29	3	
Louisiana:	New Orleans	July 29-Aug. 12	5	
Massachusetts:	Lowell	Aug. 5-12	1	
Missouri:	St. Joseph	July 22-29	1	
New Hampshire:	Nashua	July 23-Aug. 12	3	
New York:	New York	July 29-Aug. 5	3	1
Ohio:	Cincinnati	Aug. 5-12	5	
Pennsylvania:	Altoona	Aug. 5-12	1	
	York	Aug. 5-12	2	
	SMALLPOX—INSULAR.			
Philippine Islands:		June 3-10	1	
Porto Rico:	San Juan	June 1-30	Present	
	SMALLPOX—FOREIGN.			
Brazil:	Bahia	July 1-8		1
	Rio de Janeiro	July 2-9	18	1
Chili:	Iquique	July 15-22	1	
France:	Paris	July 15-22	33	2
Great Britain:	Birmingham	July 15-22	3	
	Bristol	July 15-22	1	
	London	July 8-15	2	
	Manchester	July 15-22	1	
	Newcastle-on-Tyne	July 8-22	5	
	Nottingham	July 22-29	1	
India:	Calcutta	June 24-July 8		7
	Madras	July 1-7		3
Italy:	Catania	July 21-27		2
Russia:	Moscow	July 8-22	7	9
	Odessa	July 15-22	3	
Turkey:	Constantinople	July 16-23		3
	YELLOW FEVER—UNITED STATES.			
Louisiana:	Sellers	Aug. 7	4	
	Shreveport	Aug. 1-9	2	
	New Orleans	July 21-Aug. 11	720	118
	YELLOW FEVER—FOREIGN.			
Brazil:	Rio de Janeiro	July 2-10	37	12
Guatemala:	Livingston	July 15-22		2
	Zacapa	Aug. 3		9
Honduras:	Choloma	July 26	10	4
	Puerto Cortez	July 1-24	25	6
	San Pedro	July 26	100	19
Mexico:	Coatzacoalcos	July 30-Aug. 5	1	
	Vera Cruz	July 30-Aug. 5	4	1
Panama:	Colon	July 18-25	6	2
	Panama	June 18-25	8	2
	CHOLERA.			
India:	Guayaquil	June 18-July 8		20
	PLAGUE—INSULAR.			
Philippine Islands:	Cebu	June 3-10	4	3
	Manila	June 3-10	1	1
	PLAGUE—FOREIGN.			
Australia:	Marlborough	June 10-17	10	7
Brazil:	Rio de Janeiro	July 8-16	2	
India:	General	June 18-24	5,078	4,563
	Calcutta	June 18-July 8		56

Changes in the Medical Corps of the U. S. Army for the week ended August 19, 1905:

WICKLINE, First Lieutenant WILLIAM A., assistant surgeon, will proceed to Camp Daragay, Albay, for duty, relieving First Lieutenant Jay W. Grissinger, assistant surgeon, who will proceed to Fort William McKinley, Rizal, for duty.

BAILEY, First Lieutenant HOWARD H., assistant surgeon, will report to the commanding officer, Cuartel de Espana, Manila, for temporary duty.

CHAMBERLAIN, Captain WESTON P., assistant surgeon, is granted leave for one month and fifteen days, with permission to visit China and Japan, effective about July 10.

JOHNSON, CHARLES W., contract surgeon, is relieved from duty at Reina Regente, Mindanao, and will report on the transport Liscum, for duty as transport surgeon.

EASTMAN, First Lieutenant WILLIAM R., assistant surgeon, is granted leave for one month, with permission to visit China and Japan, effective about August 15.

HOWELL, First Lieutenant PARK, assistant surgeon, will proceed to Cotabato, Mindanao, for duty.

WICKLINE, First Lieutenant WILLIAM A., and BAILY, First Lieutenant HOWARD H., assistant surgeons, will report to the commanding general, department of Luzon, Manila, for assignment to duty.

HUMPHREYS, First Lieutenant HARRY G., assistant surgeon, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

HOWELL, First Lieutenant PARK, and BROWN, First Lieutenant HENRY L., assistant surgeons, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

In connection with orders directing companies of coast artillery to Sea Girt, N. J., for annual small arms practice, the following is ordered: First Lieutenant William Roberts, assistant surgeon, will accompany the detachment from Fort Hamilton on September 12 and remain in camp, in charge of the medical department, until the close of the practice. One private, first class, or private of the hospital corps, will accompany the detachment from Fort Hamilton on September 12. One non-commissioned officer and two privates, first class, or privates of the hospital corps, will accompany the detachment from Fort Wadsworth on September 12. One private, first class, or private of the hospital corps, will accompany the detachment from Fort Schuyler, N. Y., on September 18. Two privates, first class, or privates of the hospital corps, will accompany the detachment from Fort Totten on September 18. One private, first class, or private of the hospital corps, will accompany the detachment from Fort Slocum on September 18. The non-commissioned officers and privates of the hospital corps will take their full field equipment, and upon their arrival at camp will report to the commanding officer for duty at the field hospital under the medical officer in charge, until the return of the last detachment, when they will be sent back to their respective stations.

WOODBURY, First Lieutenant F. T., assistant surgeon, one noncommissioned officer, one private, first class, and two privates of the hospital corps, with full field equipment, will be detailed by the commanding officer, Plattsburg Barracks, to accompany the third battalion, fifth infantry, to Sea Girt, N. J., and return with it to station. The field hospital at Plattsburg Barracks, N. Y., will be shipped to Sea Girt, N. J., for use of the battalion in camp and of the artillery troops ordered there for small arms practice, and will then be shipped back to Plattsburg Barracks.

YOST, First Lieutenant JOHN D., assistant surgeon, is granted leave for one month, from about August 4.

BUCK, First Lieutenant CARROLL D., assistant surgeon, Fort Leavenworth, will proceed to Jefferson Barracks to accompany recruits to Fort Walla Walla.

RAND, Captain IRVING W., assistant surgeon, is granted leave for one month, with permission to apply for an extension of one month, to take effect when his services can be spared.

ARTHUR, Major WILLIAM H., surgeon, is granted leave for one month from about August 20.

WOODBURY, First Lieutenant F. T., assistant surgeon, will proceed to Madison Barracks and report for duty with the first battalion, twenty-third infantry, under orders for Sea Girt, N. J. Lieutenant Woodbury will return with the battalion to Madison Barracks, and thereafter return to his station, Plattsburg Barracks.

BOWMAN, MADISON H., contract surgeon, leave granted March 27 is extended one month.

OTTO, JAMES H., private first class, upon his own application, will be placed upon the retired list,

CARTER, Major EDWARD C., surgeon, leave granted July 12 is extended one month.

HEARD, First Lieutenant GEORGE P., assistant surgeon, having reported his arrival at San Francisco, Cal., will report for assignment to duty at the Army General Hospital, Presidio of San Francisco.

PEDDICORD, HARPER, contract surgeon, will proceed to Fort Worden for duty.

CORNMAN, LEIGHTON R., contract surgeon, now at the Army General Hospital, Presidio of San Francisco, will proceed to his home, Lowell, Mass., for annulment of contract.

HILL, EDWARD J., sergeant first class, now at the Army General Hospital, Presidio of San Francisco, will be sent to Jefferson Barracks for duty.

WAGNITZ, EDWARD J., sergeant first class, Presidio of San Francisco, Cal., will be sent to Manila, P. I., for assignment to duty.

WILLIAMS, THOMAS G., sergeant first class, Fort Reno, will be sent to Frankford Arsenal, Pa., to relieve Sergeant First Class Robert S. Miller. Sergeant First Class Miller will be sent to Fort Reno for duty.

CLAYTON, GEO. R., contract surgeon, is granted leave for one month.

MCGLOIN, PATRICK, sergeant first class, Fort Sheridan, will be sent to the depot of recruits and casuals, Fort McDowell, to be sent to Manila, P. I., on the transport leaving San Francisco, Cal., about September 5, for assignment to duty.

DAVIDSON, First Lieutenant WILSON T., assistant surgeon, is relieved from duty at the Army General Hospital, Presidio of San Francisco, and will proceed to the Presidio of Monterey for temporary duty.

KREBS, First Lieutenant LLOYD LE R., assistant surgeon, is relieved from temporary duty at the Presidio of Monterey, to take effect August 24, and assigned to duty in the United States transport service, with station at San Francisco, Cal. He will report at the proper time to the medical superintendent of the United States transport service at San Francisco for such duty as may be directed by the surgeon-general of the Army.

KIERULFF, H. NEWTON, contract surgeon, is relieved from further duty in the United States transport service, and will proceed to the Philippine Islands by the first available transport, and upon arrival at Manila will report to the commanding general, Philippines division, for assignment to duty.

BRUNS, First Lieutenant EARL H., and GIBNER, First Lieutenant HERBERT C., assistant surgeons, are relieved from duty with the troops now on duty at the Yosemite and Sequoia National Parks, to take effect upon the return of those troops to the Presidio of Monterey, and will then report to the commanding officer, fifteenth infantry, for duty, to accompany that regiment to the Philippine Islands, and upon arrival at Manila will report to the commanding general, Philippines division, for assignment to duty.

WHITMORE, First Lieutenant EUGENE R., assistant surgeon, will proceed without delay to Fort Washington for temporary duty, until the return to duty of First Lieutenant Robert Smart, assistant surgeon, when he will rejoin his proper station.

LAUDERDALE, CLARENCE E., contract dental surgeon, is granted leave for one month, to take effect upon completion of the special duty assigned to him at Fort Sam Houston.

BURCH, WILLARD E., sergeant first class, now at the depot of recruits and casuals, Fort McDowell, will report for duty aboard the transport Buford on her next trip from San Francisco to Manila, P. I., and return. Upon the completion of this duty Sergeant Burch will be directed to rejoin his proper station.

BURKARD, OSCAR, sergeant first class, now at Rome, N. Y., is relieved from further duty in the Philippines Division, and on or before expiration of furlough will report to the commanding officer, Madison Barracks, for temporary duty and to accompany the battalion of the Twenty-third Infantry, which is to take station at Fort Ontario. Upon arrival at Fort Ontario he will report to the commanding officer for duty.

The following changes in the stations and duties of officers are ordered:

PORTER, Captain RALPH S., assistant surgeon, is assigned to temporary duty in the transport service and will report at San Francisco, Cal., for assignment as transport surgeon of the Buford during the next voyage of that transport from San Francisco to Manila. Upon arrival at Manila, Captain Porter will report to the commanding general, Philippines Division, for assignment to duty, as heretofore ordered.

METCALF, First Lieutenant RAYMOND F., assistant surgeon, is assigned to temporary duty as transport surgeon of the Buford during the next voyage of that transport from Manila, P. I., to San Francisco, Cal. Upon arrival at San Francisco, Lieutenant Metcalf will report by telegraph to the military secretary of the army for further orders, as heretofore directed.

Changes in the Medical Corps of the U. S. Navy for the week ended August 19, 1905:

BROOKS, F. H., assistant surgeon, ordered to the Naval Hospital, New York, N. Y.—August 12.

DUNBAR, A. W., surgeon, detached from the Wyoming and ordered home to wait orders—August 14.

AMES, H. E., medical inspector, detached from the Naval Academy and ordered to the Maine for duty as fleet surgeon of the North Atlantic fleet—August 17.

LEWIS, D. O., medical inspector, detached from duty on the Chicago as fleet surgeon of the Pacific squadron and ordered home to wait orders—August 17.

BEYER, H. G., medical inspector, detached from the Naval Medical School, Washington, D. C., and ordered to duty in connection with an international congress, Paris, France, and thence to the Asiatic fleet, for duty as fleet surgeon—August 17.

DICKSON, S. H., medical inspector, detached from the Maine and from duty as fleet surgeon of the North Atlantic fleet, and ordered home to wait orders—August 17.

BIDDLE, C., surgeon, detached from duty as fleet surgeon of the Asiatic fleet and ordered to the Chicago for duty as fleet surgeon of the Pacific squadron—August 17.

BERRYHILL, T. A., surgeon, ordered to Washington, D. C., September 1, 1905, for duty as instructor at the Naval Medical School—August 17.

GATEWOOD, J. D., surgeon, ordered to Washington, D. C., for duty as instructor at the Naval Medical School, August 22—August 17.

BENTON, F. L., passed assistant surgeon, ordered to the Naval Hospital, New York, N. Y., for duty—August 17.

MURPHY, J. A., pssed assistant surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the Des Moines—August 17.

Changes in the Public Health and Marine-Hospital Service for the week ended August 16, 1905:

SAWTELLE, H. W., surgeon, leave of absence granted for one month from July 21, 1905, amended so as to be for twenty-three days—August 12, 1905. To proceed to Norfolk and other points in State of Virginia for special temporary duty—August 14, 1905.

COFER, L. E., passed assistant surgeon, to proceed to Hilo, T. H., for special temporary duty—August 10, 1905.

LAVINDER, G. H., passed assistant surgeon, to proceed from Gulfport, Miss., to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 11, 1905.

VON EZDORF, R. H., passed assistant surgeon, relieved from duty in the Canal Zone and directed to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 11 1905.

KING, W. W., passed assistant surgeon, to proceed to San Juan, Porto Rico, for special temporary duty—August 16, 1905.

GOLDBERGER, JOSEPH, passed assistant surgeon, to proceed from Mansfield to Alexandria, La., for special temporary duty—August 15, 1905.

STIMSON, A. M., assistant surgeon, department letter of July 10, 1905, amended so as to grant him leave of absence for seventeen days instead of one month and fourteen days—August 15, 1905.

EBERT, H. G., assistant surgeon, department letter of July 13, 1905, granting him leave of absence for a period of two months from August 4, 1905, revoked—August 14, 1905.

ADDIS, W. E., acting assistant surgeon, to proceed to Jacksonville, Miss., and report to Passed Assistant Surgeon G. B. Young for temporary duty—August 11. 1905.

CLEAVES, F. H., acting assistant surgeon, granted leave of absence for one day, August 3, 1905—August 12, 1905.

GRAY, R. H., acting assistant surgeon, department letter of June 24, 1905, amended so as to grant leave of absence for twenty-five days from July 6, instead of thirty days—August 10, 1905.

HOUGHTON, M. W., acting assistant surgeon, granted leave of absence for one day, August 31, 1905—August 16, 1905.

KENNARD, K. S., acting assistant surgeon, department letter of July 26, granting him leave of absence for a period of twenty-one days from August 7, 1905, canceled by department letter of August 11, 1905.

NALL, R. P., acting assistant surgeon, to proceed to Jackson, Miss., and report to Passed Assistant Surgeon G. B. Young for temporary duty—August 11, 1905.

STUART, A. F., acting assistant surgeon, department letter of May 27, 1905, amended so as to grant him leave of absence for twenty-eight days instead of thirty days from July 3, 1905—August 10, 1905.

HOLSENDORF, B. E., pharmacist, to proceed to San Juan, Porto Rico, for special temporary duty—August 16, 1905.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

FOURTH SESSION (CONTINUED).

Committee on Reports of Officers.—FRANK BILLINGS (Illinois), chairman. This committee took up the reports referred to it in regular order. In speaking of the **report of the Board of Trustees**, the committee congratulated the Association upon the excellent condition of the affairs of the American Medical Association. The committee recommended that the Council of Pharmacy and Chemistry should be made permanent and that the Department of Agriculture should be requested to aid the council through its bureau of chemistry; it was further recommended that nostrums should be excluded from the columns of *The Journal* and that the formulas of all drugs offered for advertisement should be furnished and published. These recommendations were adopted. The committee advocated a complete directory of all legally licensed practitioners in the United States, with differentiation, by special type, of the names of members of the Association, and endorsed the purchase of the Standard, or Englehart Directory as a basis of compilation.

The original motion adopting the recommendation of the Reference Committee was carried. This committee, in regard to the work of national incorporation, recommended that it should be turned over to the Committee on Legislation and Political Action, and the recommendation was adopted.

The Reference Committee on Medical Legislation and Political Action favorably reported and adopted the resolution to aid in the passage of a bill for regulating medical work in Alaska. The committee expressed a grateful appreciation of the work of the Committee on National Incorporation and recommended the continuance of the work under the control of the Committee on Legislation. The report of this committee, with its recommendations, was adopted.

The Committee on Scientific Exhibits.—F. B. WYNN (Indiana), chairman, presented a complete statistical report of the exhibits during the past few years. A feature of the report was the mention of a new class of demonstrations, the historic exhibit. The first of these was presented in Portland and consisted of a demonstration, by means of photographs, documents, and patient, of the life and work of Bobbs, the first man to perform a cholecystostomy. The patient was an elderly woman, still vigorous. More historic exhibits are promised for future sessions. The report was adopted, with thanks to the able chairman.

The next committee to report was the **Reference Committee on Medical Education**, which commended warmly the work of the committee whose work they had examined, and heartily concurred in the plan for the permanent establishment and equipment of the committee. They also recommended for adoption the high standard set by the committee and urged as necessary additions to the curriculums of medical colleges such courses as would train the students in business methods, medical ethics and kindred lines. The report and recommendations were adopted.

[*To be continued.*]

Practice of Medicine.

SECOND SESSION (CONTINUED).

Dietetic Treatment of Nephritis.—F. C. SHATTUCK (Boston). Drugs are useless in Bright's disease, and hence the dietetic treatment is more important. Rest is a necessity, but the absolute condition is not possible, because the balance of the system would not stand it. The following principles were laid down: Such control as is possible today of nephritis, lay in diet and mode of life rather than in drugs. Such drugs as were useful, were so in their effect on the general organism or on the heart, rather than on the kidneys directly. In all cases of nephritis, the aim is to spare the kidneys unnecessary work, not forgetting that the urinary was but one of the systems which comprised the body. In acute nephritis, as well as in acute exacerbations of the chronic forms, diet and quiet were imperative. Starvation for a few days, proportionate to the intensity of the process and the strength of the patient, is the keynote of the dietetic management. In the chronic forms, we seek to lengthen and lighten life, an aim often largely within attainment. Dietary restriction should be in the main quantitative rather than qualitative. Alcohol in moderation is not necessarily a poison, and might be an aid to digestion. The excess of proteid, not proteid in itself, is harmful to the chronically sick kidney. A varied is more likely than a monotonous diet to promote the manufacture of good blood and thus to promote good nutrition of the body in general, and of the myocardium in particular. The amount of albumin is in itself no guide as to the extent of dietary restrictions.

THIRD SESSION.

(With Section on Pathology and Physiology.)

Amebiasis in the Tropics.—W. E. MUSGRAVE (Manila, P. I.) made these clinical divisions: Latent and masked infections, mild and moderately severe cases, severe cases including gangrenous and diphtheric ones, infection in childhood and in age. The clinical forms changed from the one to the other and might do this several times during the course of the disease in the same patient. In all the amebic process was essentially chronic, but frequently acute symptoms from concurrent or secondary infection by other agents were seen. In the tropics, particularly among women, constipation was a very prevalent condition, and, as might be inferred, might frequently mask amebic infection in the early stages, and the latent and less active forms until irreparable damage could be done to the colon. It is most important when latent. Sometimes the ameba is present in the intestines for a long period, causing only vague symptoms, but under favorable conditions causing severe and sometimes even fatal dysentery. One of these features of these cases is the absence of diarrhea. This latency may represent an incubation period, but it seems much more likely that it should be considered the first stage of the disease in which the lesions are high up in the colon and give no dysenteric symptoms. The mild and moderately severe cases formed the great majority of those seen in Manila at the present time. He had not seen a case of liver abscess in more than 1,000 clinical cases, and 100 autopsies of natives of the Philippine Islands. The most important in diagnosis were the bowel evacuations, particularly their odor, and the presence or absence of blood. Abdominal soreness increased on pressure, and extending particularly along the colon, was most common and one of the most valuable symptoms, particularly in socalled "indigestion." Loss of weight, especially with a good appetite, was the best guide to the progress being made by the infection. Neither one nor all of these symptoms were sufficient for an absolute diagnosis; but in cases where careful palpation revealed a thickened, tender colon in places where it might be felt, this made the nearest approach to a sure diagnosis, without microscopic examination of the feces. Waiting for bloody mucus stools to appear before making a diagnosis and instituting treatment was responsible for a large percentage of the present mortality from the disease in Manila. He offered the following conclusions: 1. Intestinal amebiasis was a peculiarly ulcerative condition of the intestine caused by *Amœba coli* (Losch) usually confined to the large intestine, though occasionally (7 in 200 cases) the ileum was affected and more often (14 in 20 cases) the appendix was involved. 2. In the majority of cases the condition affected the entire bowel (159 in 200 cases), though it might be limited to one or more portions, most commonly the cecum and ascending colon (23 in 200 cases). 3. The ulcers showed a tendency to be undermined, due to the lack of resistance on the part of the submucous layer of the bowel. 4. The organisms might enter the bloodvessels very early in the disease and might be transported to the submucosa without lesions of the muscularis mucosa. 5. The disease is a subacute chronic inflammatory process, as shown by the character of the exudate and infiltration, by the early formation of granulation tissue and by the absence of leukocytic infiltration. 6. Complete healing might be accomplished, or a condition of chronic atrophic enteritis or chronic catarrh might persist, known as sprue or psilosis.

[*To be continued.*]

Surgery.

THIRD SESSION (CONTINUED).

Meckel's Diverticulum a Cause of Abdominal Crises.—MILES F. PORTER (Fort Wayne, Ind.) reported having seen 4 cases inside of a few months, inducing him to write this paper, which included reports of 183 cases, of which 35 were not hitherto reported. He took up the causes of the condition together with the diagnosis and treatment, and expressed his belief that delay in operating was the chief cause of the great mortality. Meckel's diverticulum is present in from 1% to 2% of all individuals. It is the cause of intestinal obstruction in 6% of all cases. When present it is a greater menace to life than the appendix. Illustrations were displayed showing some of the numerous ways in which diverticulums cause trouble. Diverticulitis is likely to be diagnosticated as appendicitis. Trauma is probably a frequent cause of crisis, due to Meckel's diverticulum. Symptoms are not distinctive and a correct diagnosis is hardly possible, nor is it necessary. A working diagnosis can be, and should be, made early. Mortality in these cases is extremely high, and is due largely to delay in operation. A Meckel's diverticulum, when encountered should be removed, whether it is causing trouble or not. It should be excised, rather than inverted, using a purse-string or Lembert suture to close the opening, owing to its size and relation to the gut.

Phlebitis following Abdominal Operations.—A. H. CORDIER (Kansas City, Mo.) is of opinion that inflammation of the saphenous or femoral vein following abdominal and pelvic operation, while of rare occurrence, is seen often enough to be of much interest to abdominal surgeons. It has not been determined why the left saphenous is usually affected. It is often affected after operations on other parts of the body than

the abdomen. The complication occurs in about 2% of all abdominal operations. It follows operations on anemic patients most frequently as in abdominal hysterectomies for bleeding fibroids. Vaginal hysterectomies for the same conditions are rarely followed by this complication. It is more liable to follow socalled aseptic operations when no drainage is used. It is due to a mild type of infection and often to the absorption of the necrotic pedicle at site of operation. The disease attacks the left femoral or saphenous veins in over 90% of the cases. Anatomic peculiarity of veins on left side have not been found that satisfactorily explains why the disease has predilection for left side. That a *locus minoris resistentiæ* exists in left saphenous and femoral veins is proved by the frequency of the involvment of these veins. The disease is, primarily, an inflammation of the walls of the veins and the thrombus, when one forms, is secondary, as a rule. Many cases of postoperative pneumonia, pleuritis and cerebral emboli have their origin from this source. Treatment consists of an elevation of affected leg, tonics, etc.

Anaerobic Cellulitis.—J. CLARK STEWART (Minneapolis) said gas infections had been of clinical interest for many years. Since the identification of *Bacillus aerogenes capsulatus*, 61 cases of surgical gas infection have been reported. Careful diagnosis is increasing the number of observed cases, and early diagnosis and prompt treatment have shown that life-saving results can be obtained by the proper methods. Stewart reports a case of spreading gas cellulitis of the abdominal wall, due to *Bacillus aerogenes capsulatus*. The case was one of extravasation of urine due to a deep stricture in a man over 70 years of age, the cellulitis occupying the whole abdominal wall. Gas developed on the sixth day, and cultures showed Welch's bacillus. Treatment consisted of parallel incisions down to the deep fascia, irrigation, elevation of skin strips, and moist packing and dressings. There was no further extension of the process, and healing took place slowly, but in a normal manner.

[*To be continued.*]

Diseases of Children.

THIRD SESSION.

Pneumonia in the Young.—EDWARD F. WELLS (Chicago) said this study is interesting because of the frequency of the disease, the large number of complications that may arise, the number of faulty diagnoses that are made, the difficulties in the way of prognosis, the chaotic condition of the literature of the subject, and the many avenues of infection. It occurs oftenest in children under 10 years, much less often from 10 to 30, and somewhat oftener from 30 to 50, while after 50 it is much less frequently observed. With regard to the mortality of the disease, it may be said it is moderate in the child, and from 10 to 20 it reaches its lowest level, rising steadily from that time on. The pneumococcus is present in the upper respiratory passages of probably 50% of healthy persons. It is disseminated by coughing and sneezing. So long as it remains in the nose and throat it is harmless, but if it lodges in the alveoli of the lung tissue it sets up pneumonia; if carried into the blood stream it causes pneumococcine. However, it is found in the blood of all pneumonic patients. Once the system becomes infected, it is thought the pneumococci always remain in the nose and throat. The exhaustion of deep sleep, etc., may give rise to autoinfection. The temperature is high, from 103° to 105°, always higher than in adults. The pulse varies from 130 to 180, and upon exertion may become uncountable. The "pathognomonic" chill is almost uniformly absent in infants, and infrequent in young children. Convulsions are also infrequent. Pain points in the lungs are common. The breathing is shallow, and there is evident avoidance of nursing. A short, restrained cough is always present, but may not be noticeable upon feeding. The wellknown respiratory grunt is usually present. The child refuses food, and drinks only at long intervals, there is gastric and urinary disturbance, and a blood-examination will reveal pneumococci and active leukocytosis. Physical signs are present and discoverable, but may be hard to find. There is a diminution in pulmonary sounds in certain areas. Rales may not be observed, and bronchial breathing may or may not be heard. Friction sounds are infrequent. There is dulness on light percussion when consolidation is small. Be sure to examine the axillary regions and between the scapulas and the spine. The right lung is oftener affected than the left. There are some nervous signs, but delirium is rare, while spasms of the neck are frequent. The face is usually pale rather than flushed, and erythemas may be present. Herpes is infrequent, but there may be marked icterus. The duration is shorter in childhood than in adults. It may last less than a week, unless there is successive involvement of lobe after lobe, or a supervening empyema. Physical signs may be found after the crisis is over. Of complications, pleurisy is the rule. There may be an empyema or pleuritic effusion which may be very great, but rarely fills the entire cavity. An effusion is indicated by an irregular temperature curve. Use an exploratory needle without hesitation, if in doubt. Otitis media is not rare, and may occur in one or both ears. Rupture of the tympanic membrane is common. Pseudo-meningeal inflammation may arise, but recovery without results is common. The treatment may be exemplary, useless, or pernicious. It should be suited to the individual patient. No efficient serum treatment has as yet been discovered. Prophylaxis: Avoid too profound sleep. Give liquids as freely as possible. Normal salt solution is very useful. Tincture of digitalis should be given early with enemas. Give tepid sponging, followed by alcohol. Guaiacol is good. For rousing from toxemia or exhaustion, use strychnin, aromatic spirits of ammonia, or stimulating glycerin enemas. See that the patient has plenty of good, fresh air. Complications should have immediate attention.

Discussion.—COTTON (Chicago) endorsed the use of saline solution, saying it maintained an alkalinity of bodily fluids. He advocated enteroclysis, hypodermoclysis, or even intravenous infusion if necessary. WILLIAM BUTLER (Chicago) thought better care should be exercised in the differentiation between lobar and lobular types of pneumonia. The diagnosis is frequently overlooked through a lack of care in making the physical examination. A diminution in the respiratory murmur over the affected area is often the only sign in the first 24 or 48 hours. Rales have been infrequent in his experience with children. T. F. RILEY (New York) spoke of the great advantage obtained from the use of the phonendoscope rather than the old-fashioned stethoscope. He made a plea for the old-fashioned poultices, and said that to treat a case properly the physician should be able to see it every two or three hours. FAIRBANKS asked the essayist what cause he would assign to account for the great fetor of the breath in some cases. MORSE said that when called to see a child, whose respiration rate is increased in proportion to the pulse-rate, if he also has acute symptoms, he may safely call it pneumonia. Children frequently refer their symptoms to the abdomen. Fresh air is the first essential in treatment, but he would advocate poultices only to relieve pain. The introduction of salt solution by hypodermoclysis he has used freely, but thinks the doctor sometimes takes long chances by introducing large amounts of salt solution. The heart is the danger point, and it is obliged to work harder on account of the injection. Cotton (Chicago) said the great work of the heart in pneumonia is its struggle against obstructions in the lungs. The extraction of blood by means of leeches was again coming into favor in some quarters. The rule is, when the heart dulness extends two-finger breadths into the fourth interspace to the right, use leeches over the right hypochondrium. In closing, WELLS said that increasing the alkalinity of the blood in pneumonia may be detrimental, innocent or hopeful. There are not enough facts on this point to enable one to speak with certainty. It is true, however, the pneumococci grow in alkaline fluid and produce acid products. The absence of chlorids in the urine, so marked in adults, may not occur in infants. One may infer from this that they are needed in the blood. He would not advocate intravenous infusion. An abundance of pure air is of the highest importance, but we are not in possession of facts which lead us to believe that uncomfortably cold air is more beneficial to patients than comfortable air. As to the fetor of breath, it may be due to mouth breathing and the secretions of the nose becoming clogged and offensive.

[*To be continued.*]

Obstetrics and Diseases of Women.

THIRD SESSION (CONTINUED).

Repair of the Perineum.—(Illustrated by lantern slides.) GEORGE B. SOMERS (San Francisco) said that we must consider: (1) That the usefulness of the perineum depends more upon the action of the muscles composing it than anything else; (2) that the levator ani is the chief structure; and (3) that it is the levator ani muscle above all other structures which should absorb our attention in repair. The perineum does not depend upon the size, but upon the fact that it is the meeting point of many structures possessing sphincteric properties. We must first determine the importance of superficial and deep groups. The superficial muscles are unimportant as all these may be intact, yet we have a relaxed vaginal outlet. If the levator ani is intact but the superficial perinei gone we have the perineum still functionally intact. Therefore, when the levator is uninjured the perineum needs no repair, and conversely, repair of the perineum implies repair of the levator ani. We should attempt to make out the condition of the levator ani when injured, operations accepted by our textbooks do not repair the tear of the levator ani. Emmett's operation is supposed to be indicated when the levator ani is torn; but it is simply a "chance operation" of catching this muscle, and not an anatomic reconstruction of the perineum, and hence it is a frequent cause of failure. He thinks Hegar's operation far superior to Emmett's, but here there is no active provision for reaching the levator ani and uniting its ends. He considers the operation published in the *Journal of the American Medical Association* by Reed anatomically correct. A simple Tait flap is made, finger put down into the tissue on side until the edge of the levator ani is felt and caught up, and united on both sides. This offers a substitute, suitable in cases in which there is a large amount of rectocele or redundant tissue. We can make any sort of a denudation over the point where we have felt the levator ani; grasp the end of the levator ani and pull out where we can see it and act accordingly, uniting the other points as thought best. Failure in operating is most frequently due to the use of interrupted sutures. Sutures here used allows for swelling. He uses a silkwormgut and makes a mattress

suture, extending from the perineum externally, through the ends of the levator ani and the other structures compposing the perineal body, and out into the vagina. He takes hold of ends and pulls taut. The ends are anchored, both externally and in the vagina, with perforated shot. Three of these sutures are used and then a "whip stitch" to close in. The perforated shot allows for the occurrence of swelling—making an elastic suture. After-treatment requires no particular cleanliness of these parts as there is no strangulation of the tissues. In conclusion he emphasizes (1) the importance of the levator ani; (2) the fact that if we wish to repair the perineum, we must get the ends of the levator ani directly together in the median line, and (3) that a suture which brings the parts together and allows for swelling, is a continuous removable one.

[*To be continued.*]

Ophthalmology.

SECOND SESSION (CONTINUED).

Some Eye Injuries and Their Lessons.—F. C. HEATH (Indianapolis) presented reports of three groups of three cases each: Group 1, foreign bodies in the lens; group 2, foreign bodies in the iris; group 3, wounds in or near the ciliary region. Observations were made on and lessons drawn from the comparison of the different features of these cases as to course, results and management. The author was persuaded that the safest course is to resort to prompt surgery, at least where the prolapse is in or near the ciliary region. He had never had cause to regret resorting to such procedures.

Description of an Advancement Suture, with Collective Suggestions Regarding Operations on the Ocular Muscles.—MARK D. STEVENSON (Akron, Ohio) considered that an advancement alone or combined with a tenotomy is to be preferred to a tenotomy alone. Usually when an advancement was performed it was advisable to wholly or partially tenotomize the opposing muscle of the same eye. He described his advancement suture, which was a modified Worth's the method of suturing being the only essential difference. Circular letters had been addressed to ophthalmic surgeons throughout the United States in order to get their views regarding some of the difficult questions in ocular muscle operations, and the replies are given.

Discussion.—W. C. POSEY (Philadelphia), while he believed the operation described a good one for operating on a good stout tendon, in thin tendons would prefer the double stitch. JOHN E. WEEKS (New York) desired to protest against any stitch that bunches a muscle, which he thought the single stitch did; the muscle was not spread out and did not have the effect on the eyeball that it should; the attachment to the globe was by a few bands relatively. The operation should spread the muscle out and give a linear reattachment. MARK D. STEVENSON, in closing, thought the bunching of the muscle as referred to by Weeks occurred particularly where the capsule and conjunctiva were not included, but where they were included he did not find that to be particularly true. He considered that it gave a good attachment.

Sympathetic Inflammation Following Panophthalmitis.—WM. ZENTMAYER (Philadephia). Harmlessness of panophthalmitic eyes, was the generally accepted view until the publication of Alt's paper in 1876. The reported cases were analyzed. Schirmer's opinion, based on two cases, was that a purulent plastic condition is present in panophthalmitic exciting eyes. This view was supported by Ruge, but later combated by Ahlstrom. The analysis of the reported instances tended to confirm the view of Schirmer. The author's case was one of panophthalmitis after cataract extraction, followed by sympathetic inflammation, resulting in blindness.

[*To be continued.*]

Nervous and Mental Diseases.

SECOND SESSION (CONTINUED).

Clinical Reports of Some Cases of Hysteria.—C. C. HERDMAN (Pittsburg, Pa.) considered, first, hysteric hyperpyrexia, which he stated is usually found in females between the ages of 18 and 40, although he has observed it in males, and in children as young as 5. The highest temperature noted was in two adult females, in which it rose to 118° F., and he had also observed a temperature between 105° F. and 106° F. in a neurotic child. One of the characteristics of these patients is a violent temper, with but little evidence of desire to control it. A second factor considered was hysteria agitans, occurring usually in adults, either male or female, involving either the extremities or the whole body, the motion being either to and fro, rotary or otherwise. When in a supine position, the body may perform all kinds of twitchings, such as abdominal jerkings, similar to that observed during hiccoughs, but much more frequent, rapid facial gyrations, rubbing the feet together, falling out of bed, etc. The author stated that an essential element in the successful treatment was the cooperation of the patient, and reported several cases illustrative of the points laid down in the paper.

The Psychopathic Manifestations of the Noninsane Psychoneuroses.—JOHN PUNTON (Kansas City) urged the necessity for more careful study of psychology by the general practitioner, and particularly by the neurologist. He believed that many of the cases beginning as minor psychoses, if they had been recognized in their incipiency, were susceptible of cure, and that it also offered a wide field for the exercise of preventive therapeutics. Particular reference was made to the psychopathic characteristics of the clinical phenomena attending such conditions as neurasthenia, hysteria, dementia præcox, alcoholism, etc., their hereditary or toxic origin, and frequently occurring as the sequels of acute fevers. He stated that if you made a distinct classification between the psychoses and the neuroses, you would find insanity in each group, and that much depended upon early recognition and treatment, as these conditions are frequently the forerunners of insanity, if not corrected before the inhibitory influence is overwhelmed thereby.

Discussion.—H. A. TOMLINSON (St. Peter, Minn.) stated that he felt there was too much quibbling over terms, and that a patient must be either sane or insane, but there might be different degrees of insanity. SMITH ELY JELLIFFE (New York) favored the employment of the term neuroses or psychoses to denote the minor conditions, rather than the word "insanity," as the words did not create the same stigma in the minds of the laity, which he felt was useless and unfair to thrust upon the unfortunate patient and his family. He felt it was not the use of different terms to denote different conditions that was creating the difficulty, but the tendency to ascribe a distinct entity to each term. H. T. PERSHING (Denver) felt that the important question to be considered was, is the mind so changed by disease, or is it so imperfectly developed that the individual is unable to attend to the ordinary affairs of life? If it is, then he is insane; if not, he is sane. J. H. MCBRIDE (Pasadena) believed that there would be a word substituted for insanity that would not have the same stigmatic and distasteful influence to the laity, which in itself would probably in course of time grow to have about the same significance, and would become necessary to be replaced by another.

[*To be continued.*]

Laryngology and Otology.

THIRD SESSION (CONTINUED).

Capital Operations for the Cure of Tinnitus Aurium.—W. SOHIER BRYANT (New York City) concluded that carefully selected cases of tinnitus with the nerve stimulus located in the peripheral end of the auditory nerve, offer a good prognosis for cessation of the tinnitus after the section of the eighth nerve. That a technic which offers little inconvenience from hemorrhage, no danger from bony spicules, and a minimum of evil from the compression of the cerebrum, or especially of the cerebellum, gives a good prognosis of recovery from the operation and, in selected cases, a cessation of the tinnitus. That, if after appropriate general and local treatment, grave tinnitus still exists, we are called upon to recommend the section of the auditory nerve, provided the source of the tinnitus is believed to lie in the peripheral portion of the auditory nerve. That section of the auditory nerve will be as effective in the cure of aural vertigo as of peripheral tinnitus.

Diagnosis of Intracranial Complications of Suppurative Ear Diseases.—JOHN F. BARNHILL (Indianapolis). In the diagnosis of any intracranial complication the previous and present history of the case as concerns these open sinuses is of first importance. Barnhill lays great stress upon the fact of the denial of ear discharge, because such denial was made in three cases of brain abscess which he has seen, in which operation proved the presence of chronic aural suppuration, necrosis, and cholesteatoma. In these cases the pathologic conditions present were not productive of large amounts of pus, and the trivial quantity appearing in the external auditory meatus was readily dried into crusts, which were easily mistaken for hardened ear wax. Therefore no diagnosis should ever be regarded entirely satisfactory that does not include a thorough inspection of all the sinuses, and especially those of the ear. The symptoms of meningitis may complicate either those of brain abscess or sinus thrombosis, and so complicate and mask the real trouble as to render exact diagnosis difficult or impossible. It is also possible in any case that serious accumulations due to tubercle, or that the pressure of a brain tumor may cause localizing phenomena of such nature as to render exact diagnosis most difficult. Barnhill considered in detail sinus phlebitis and thrombosis, brain abscess, and meningitis.

The papers by Barnhill and Cott were discussed by Geo. L. Richards, Fall River; H. Hastings, Los Angeles; C. F. Welty, San Francisco; W. L. Bryant, New York; A. DeVilbiss, Toledo; K. Pischel, F. W. Hilscher, Spokane; W. W. Murphy, Los Angeles; L. A. Leland, Boston; S. L. Ledbetter, Birmingham; Robert C. Myles, New York; and by the essayists in closing.

[*To be continued.*]

Hygiene and Sanitary Science.

Cholera and Infected Waters.—CHAS. E. WOODRUFF (surgeon, United States army). The experience gained by American military surgeons during the Phillipine cholera epidemic of 1902 to 1903 has enabled them to correct a few errors in the current theories as to the methods of dissemination. These investigations concerned: 1. The manner in which the living germ was transported into uninfected territory. 2. How it was carried from patient to patient after being implanted in this new territory. The spirillum is a very frail organism and soon

perishes outside the host. It is practically a parasite. It is killed in five minutes by a temperature of 80° C., in two hours by drying. As an invariable rule the living germ is carried from place to place in the moist state either as a living host or as a culture on moist foods. Owing to the depressed cerebral circulations of cholera patients, a clear history of infection was often impossible. Almost invariably the local outbreak was lighted up by a recently imported case of cholera. The short period of incubation makes the evidence of infection startlingly clear. Death frequently occurs in less than 24 hours. Epidemics arising in healthy territory from infected food are so rare as to almost be curiosities. The Philippine epidemic probably originated in this rare manner from food imported from China. The method used by Chinese gardeners of sprinkling the growing plants with human excreta makes Chinese green vegetables of especial danger. The quarantine authorities in Manila forbade the importation of vegetables or any moist foods from infected ports. The Philippine epidemic is said to have originated in Chinese vegetables thrown overboard from a ship in the harbor. The loss of life is estimated from 150,000 to 500,000. Infected water is the chief means of spreading the disease after it originates, but is a rare source of origin of an outbreak. The spirillum dies in distilled water 24 hours, in water of canals in 1 to 4 days, in sterilized milk 10 days, unsterilized milk 1 to 2 days, tea 8 days, coffee 2 hours, beer 3 hours, wine ¼ hour. The protection of an uninfected territory is theoretically simple. Rigid quarantine of travelers at the point of destination for five days would be effective. The spirillum may persist in convalescents weeks or even months. It has been found seven weeks after recovery. Land quarantine in the Orient is apt to be ineffective. Marine quarantine can be made efficient. A rifle quarantine of Manila by military guards would have prevented the outbreak in the provinces. Public sentiment will not support these drastic measures. Commerce with infected ports need not be interrupted by quarantine, except in the case of moist foods. Interference with trade is a serious matter in the crowded Orient, and may lay the foundations for more deaths than the unrestricted spread of cholera. Without infection of the water-supply an extensive epidemic is impossible. Sporadic cases frequently arise from infected food. The water-supply of Manila was placed under military guard at once, preventing a great disaster. The few thousand cases in Manila arose from the filthy habits of the native population, particularly in the handling of foods. Stews and other mixtures of cooked foods furnished an abundant source of infection from the hands of purchasers. Sporadic cases in boarding-schools originated in salads and confectionery introduced from outside. Flies played a part of minor importance. Bad town epidemics were invariably due to infected waters. The streams are habitually used as a source of drinking water and disposal of sewage. The chances of the population depended upon the size of the stream. Towns supplied by small streams have been exterminated. Rich families supplied by rain water cisterns usually escaped. Infected wells and tanks become safe after three weeks. This fact gives a rational basis for the management of epidemics. Infected foods must be destroyed, the sale of green vegetables and fruits forbidden. Urine and feces from cholera patients must be sterilized by chemic measures similar to those used in typhoid. Milk of lime is recommended for excreta (1 to 40). The sick must be searched for, and all wells, tanks, and cisterns closed for several weeks. British sanitarians disinfect wells by the use of 2 oz. to 4 oz. of potassium permanganate. The spirilli promptly perish in the resulting solution. To be effective the water must have a faint pink tinge the day after the permanganate is used. The main reliance must be placed upon boiled water for all purposes. This can be done with soldiers, but is impossible with natives. The spread of infection is impossible among an oriental population. The permanganate method may be used in wells, but nothing can be done to the water courses. A heavy rain will sometimes check an epidemic. Patent sterilizers are unsatisfactory and dangerous outside of laboratories; portable filters are also condemned. Copper sulfate and copper foil is worthy of trial in wells and cisterns. The extreme ease of personal prophylaxis described by the writer is remarkable. He and his associates lived for a year in the midst of the disease, with natives dying all around them in their houses and even in their kitchens; all of those following a comparatively simple prophylaxis escaped. These measures were, drinking only boiled water, or bottled fluids known to be sterile, and eating only cooked or canned foods from sterile dishes. Cases can be cared for in the general hospitals; isolation was wholly unnecessary. Military campaigns have been made through districts where cholera was raging with impunity. Violation of orders was punished by imprisonment. The consequences were almost always terrible. The author's extensive experience convinces him that there is no means of treating cholera, excepting to make the patient comfortable. Morphin, hot applications, massage for the cramps, and strychnin are useful. Remedies by the mouth are rejected, and saline infusions rapidly passed by bowel. Cases surviving the acute stage can be saved by skilful management, proper food, and stimulants. The acute stage cannot be influenced by treatment. Immunity has been produced by Haffkine, in India, and Murata, in Japan, by injecting the killed spirillum. Strong, in Manila, has had encouraging results from the filtrate from the killed spirillum culture. Strong's filtrate is highly bactericidal and agglutinative, though but slightly antitoxic. The author concludes that cholera need never be feared again in this country, as the means of prevention have been wholly mastered. One more oriental plague has been removed from the list which has been the dread of the Occident, and we have the lesson that the people for their own protection had better give more authority to the sanitarians.

Discussion.—DENSLOW LEWIS (Chicago) cited his only experience of cholera, which was in Germany during the epidemic of 1903. He had the opportunity of witnessing the effectiveness of the sanitary measures there. He asked Woodruff if alcoholic stimulants were not a preventive measure, owing to the obstructive effect on the cholera organism. Woodruff replied that he did not consider small doses of alcohol particularly harmful in the tropics. The effects of hard drinking during the epidemic were always extremely dangerous. The healthy stomach destroys numbers of cholera organisms, and this is not the case in the catarrhal stomach following a spree. As regards quarantine, Woodruff believed that a complete quarantine was impossible in countries like England dependent for the food supply on abroad. A partial quarantine was practical and effective.

[*To be continued.*[

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 306.*]

An Unusual Case of Laryngeal Syphilis, Requiring Tracheotomy.—CLEMENT F. THEISEN (Albany, N. Y.) reported this case. He stated that intubation was particularly useful in those cases in which the stenosis was not extreme, and when it was caused by a thickening and infiltration of the cords and ventricular bands, thus narrowing the glottis. In some such cases, intubation might be carefully done without, perhaps, a preliminary tracheotomy. When the stenosis was extreme, or when membranous adhesions existed between the cords, leaving only a very small opening, a tracheotomy should precede attempts to dilate the stricture from above. It was in such cases that a sudden edema might be fatal, before an intubation tube could be properly adjusted. Tracheotomy, followed by laryngofissure, offered the best chances of a permanent cure when there was much cicatricial tissue occluding the glottis by uniting the cords.

A Case of Infective Thrombosis of the Sigmoid and Lateral Sinuses after Acute Mastoiditis; Death from Meningitis; Autopsy Report.—ARNOLD KNAPP (New York) reported this case, which was instructive from the following points: 1. In confirmation of Leutert's assertion that a rise of temperature persisting for more than a day or two in the usual afebrile course of an aural suppuration was always connected with disease of the sinus if we could exclude a superficial infection, pus retention in the tympanum, or purulent meningitis, and that we unquestionably erred gravely in not opening the sinus sooner than we did. 2. The macroscopic appearance of the clot did not always indicate its harmlessness. Though it seemed hardly proper to consider every clot as septic, for the formation of a thrombus was a natural process to protect the body from infection by any of the bloodvessels, yet by so doing possibly fewer errors of omission would be committed. As to the value of the socalled reestablishment of the circulation, it was generally stated that in dealing with a thrombosis the thrombus had to be removed with the curet until the return flow of blood was reestablished. This might remove all of the infectious material in many cases; at the same time, it did not necessarily cure a parietal thrombus or localized disease of the sinus wall nor arrest the pyemic process. In the case reported by Knapp, notwithstanding the reestablishment of the circulation at two operations, infectious clots reformed from a diseased sinus wall in the unopened part of the sinus near the torcular, as was shown at autopsy. It would seem much safer, in cases of unquestioned infective thrombosis in the lateral sinus, to expose that sinus to the torcular, then shut off the circulation at that point by firm pressure, and excise the entire external wall of the sinus. Any remaining disease of the inner sinus wall could then be readily observed and treated, additional infectious clots could not form, and the danger of a meningeal extension was diminished.

Killian's Inspection of the Trachea and Esophagus.—H. P. MOSHER (Boston) demonstrated this on the dead subject. Instead of attempting the operation with the patient in a sitting position, as was usually done, Mosher said that a much better view of the parts could be obtained by placing the patient on his back, with the head hanging down over the edge of the table. If Killian's method failed after a short trial, he advised doing a tracheotomy, and then inserting a pair of bent forceps and seizing the foreign body under the guidance of a Kelly cystoscope. In the removal of foreign bodies from the esophagus, Mosher said he did not favor the use of the old-fashioned probang.

[*To be continued.*]

ORIGINAL ARTICLES

THREE CASES OF TUMOR OF THE SPINAL CORD: OPERATED ON WITH GOOD RESULT.

BY

J. COLLINS WARREN, M.D.,

of Boston, Mass.

The satisfactory result obtained by operation in each of these three cases makes a brief report of their symptoms and subsequent histories of some interest. In two, extramedullary and easily enucleable tumors were found, and the symptoms of pressure on the cord have been relieved. In the third case, in which the symptoms were known to be caused by an extensive intramedullary growth, a palliative operation gave complete relief to a most distressing condition and seemed to arrest a progressing paralysis.

Case I, in which operation was done just seven years ago, and Case III, in which operation was done seven and a half years ago, were reported by James J. Putnam and myself in the *American Journal of Medical Science*, in October, 1899, but as the subsequent histories of both have been followed to the present time, a further statement seems warrantable.

CASE I.—The patient was a lady of 50 at the time of operation. The first distinct symptom of her trouble had occurred about a year and three months previously, in the onset of severe attacks of pain, which gradually increased in frequency. This pain was most severe in the region of the lower left ribs, the left side of the abdomen and groin.

The wide extent of the pain is interesting, for it was not confined, as is sometimes the case, to a definite nerve area. The next striking symptom appeared about six months later, when the patient began to have difficulty in walking, due to an inability to lift the left foot; and from that time on the pain increased in severity, until any movement of the body caused great distress and walking became impossible. At the time she was referred by Dr. Putnam for operation, she was in a helpless condition, unable to stand, and in constant pain. The deep reflexes were much exaggerated, there was impairment of sensibility in the area of the lumbar nerves, and the bladder was only partially under control. Operation was done in June, 1898, and by laminectomy the dura in the region of the eighth, ninth, and tenth dorsal vertebras was exposed. The dura was incised at the level of the ninth dorsal vertebra, where a swelling was noticeable, and from beneath a fibroma was removed, which, lying in the meshes of the pia, had offered firm pressure on the left and posterior surfaces of the cord. The tumor was about the size and shape of an olive.

The recovery in this case has been practically complete, the history having been one of slow but progressive improvement. She is in fine health, and the only suggestion of her old trouble is in an involuntary twitching and drawing up of the left foot, which is most noticeable when she is fatigued. Her gait is normal, but when fatigued she still assumes a stooping position. There is no undue excitability of the deep reflexes, motion is unrestricted, and sensibility is normal.

However, for less than a year has she been completely free from the pain which persisted so long after operation. That has been a striking feature of the convalescence. For the first few months, with the return of voluntary motion in the legs, there was associated most distressing cramps of the muscles. Up to within two years, she has been unable to walk more than very short distances without great fatigue and pain.

It seems in this case as if the restoration of function of the injured cord, though now practically complete, had been very slowly established, and in this respect it offers marked contrast to the following case:

CASE II.—This patient, a young married woman of 27, entered the Massachusetts General Hospital on December 2, 1904, having been sent by Dr. Putnam for operation. Her history was briefly as follows: For about two years she had suffered from pain in the left side, over the lower ribs and upper abdomen, varying at times in intensity and location, and strongly suggestive of nerve-root irritation.

Six months before she first noticed numbness of the toes of both feet, and for three months there had been increasing difficulty in walking, due to a dragging of the left foot. For a few days there had been constant pain in the back and complete inability to walk. There was marked impairment of sensibility of both legs and on both sides of the abdomen. The knee-jerks were lively and ankle-clonus was present. She was unable to move either leg, but the spastic condition was demonstrated on attempted manipulation. Four days later (December 6) laminectomy was performed, and the cord at a level of the seventh, eighth, and ninth dorsal vertebras exposed. The dura was incised with the escape of considerable cerebrospinal fluid, and at a level of the eighth vertebra a soft, dark-reddish tumor about three-fourths of an inch long and the width of the canal appeared. This mass was removed, and the cord was seen to be much compressed, pushed to the left and flattened.

Dr. W. F. Whitney reported the growth "to consist of a very cellular fibrous tissue with numerous small vessels, and concentric concretions infiltrated with lime salts—a psammoma."

The progress toward recovery in the case has been rapid. At the present time (six months after operation) the patient considers herself practically well. She walks about with an apparently normal gait and without support of any kind and is able to attend to her household duties. Although the knee-jerks are still increased, ankle-clonus has disappeared and sensibility seems normal over the legs and abdomen. Movements of the legs are unrestricted. A very striking feature of the convalescence has been an entire freedom from pain, so persistent before operation, which formed such a distressing symptom in the first case reported.

CASE III.—This case is mentioned to show the beneficent result of laminectory done as a palliative measure for the relief of agonizing pain in a man known to have an extensive intramedullary growth of the cord.

The patient is now aged 49, and for 25 years has shown symptoms of disease of the cord. Sixteen years ago, the signs became those of a total transverse lesion, and since then he has been completely paralyzed below the waist, as regards motion, sensation and control of bladder and rectum. Fourteen years ago, laminectomy was done by Dr. W. W. Keen, as the patient's general health was rapidly failing, and there existed a possibility of finding a removable tumor. An enlarged bluish cord was seen; the disease was plainly intramedullary. The man's health improved, and for six years there was no marked change in his condition. During all this time he was subject to periodic attacks of pain in the back and shoulders, the attacks being probably associated with the spinal disease.

In January, 1898, pain of great severity became persistent in the neck, shoulders, and arms. Nothing was successful in relieving the pain, which became intolerable. Signs of a progressing paralysis also manifested themselves by numbness in both hands. At a consultation with Dr. Putnam it was decided to perform laminectomy again, in the hope of relieving pressure in the canal. The cord above the old cicatrix was thickened, and had the appearance of soft sarcomatous tissue. No cavities were found on incising the cord, and an examination of fragments removed showed it to be made up of small round cells, probably endotheliomatous in nature. Considerable cerebrospinal fluid was allowed to escape for two weeks, when the wound closed.

There was rapid improvement in general health, which has been excellent until the present time, now seven and one-half years after. The numbness of the fingers disappeared, and during this time he has had no recurrence of the chills and pain. Within the past two years he has taken up much of his former work as an architect.

The effect of the operation has been most gratifying, for nothing more than a relief of symptoms was expected.

WHAT ACTION SHOULD BE TAKEN TO SUPPRESS SMALLPOX?[1]

BY

H. M. BRACKEN, M.D.,

of Minneapolis, Minn.

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Not long since, I prepared a paper under the title "The Control of Smallpox," in which I tried to show that the attempt to control a contagious disease by restraining the diseased and exposed individuals was apt to prove a failure under any circumstances, and that such methods were only excusable when there was nothing better to rely upon. The restraint of infected individuals by quarantine accomplishes but little in the control of any disease, and this should be abandoned when science has fully demonstrated that a disease may be controlled more completely by other methods. Quarantine never prevented the spread of smallpox when the disease was epidemic or endemic. There is always a sufficient number of mild, concealed, or neglected cases in the field to spread the infection and continue the disease until it has exhausted the nonimmune soil. On the other hand, vaccination can suppress a smallpox epi-

[1] Read before the Conference of State and Provincial Boards of Health of North America, at Washington, D. C., May 15, 1905.

demic without quarantine. There can be no epidemic of smallpox in a well-vaccinated community. We should live up to our scientific knowledge, and abandon quarantine as an attempted means of controlling smallpox, for we have in vaccination a reasonable, scientific and successful means of suppressing this disease.

Let us look into the history of vaccination and note what has been accomplished. Before the days of vaccination, smallpox was a disease of childhood, and this condition prevailed because it was almost impossible for a human being to reach adult years without having had the disease, so general was the infection. Adults were the survivors of the disease and were immune to further infection. In countries where compulsory vaccination was made a part of the law and where infancy was thus protected, smallpox ceased to be a disease of childhood, and affected adults who, through time, had lost the immunity conferred upon them in childhood by vaccination. At the present time, smallpox is again becoming prevalent among children in this country, because many of them are not protected by vaccination.

That vaccination will prevent smallpox is ably borne out by the history of the smallpox cases that have been under observation in hospital and private practice throughout this and other countries. To be definite in our statements, however, as to the protection afforded by vaccination, it may be well to quote certain statistics.[2]

The average smallpox deathrate in Copenhagen for 1750–1800 inclusive, a prevaccination period, was 3,500 per 1,000,000 population per annum—a ratio of 1 to 14 of all deaths. This represented a total of 12,309 deaths from smallpox during these years. From 1811 to 1823 inclusive (after vaccination) there was not a single death from smallpox in Copenhagen.

Sweden, before vaccination, during the period covered by the years 1774–1800 inclusive, had 119,073 deaths from smallpox, an average of 2,049 deaths per 1,000,000 inhabitants—a ratio of 1 to 13 of all deaths.

In London the smallpox deathrate during the eighteenth century represented about a twelfth of all the deaths. During the decade 1821–1830 inclusive, vaccination was in vogue in London, but was not made compulsory. During this period about a thirtieth of all the deaths was due to smallpox.

The deaths from smallpox in Berlin for the years 1758–1774 inclusive were 6,705, or about a twelfth of the total number of deaths (81,133). The mortality among children during this period was exceedingly high.

In Berlin (1758–1774), out of 6,705 deaths from smallpox, 5,876 were of children under 5, and 742 were of children aged from 5 to 10. Thus nearly 99% of these deaths were of children under 10.

Juncker estimated that 400,000 smallpox deaths occurred yearly in Europe in the prevaccination era. De la Condomine said that every tenth death was due to smallpox and that a fourth of mankind was either killed by it or crippled or disfigured for life.

In closing the paper already referred to I presented the following summary:

1. It has been fully demonstrated that the proper enforcement of vaccination will prevent the occurrence of smallpox and it is impossible to control this disease by any known methods of quarantine.

2. Recognizing this fact, our efforts to control smallpox should be based upon vaccination rather than upon quarantine.

3. Without vaccination there is no reason why smallpox in time should not again become as great a scourge throughout the world as it was in the prevaccination era.

4. Compulsory vaccination laws are important. These should be demanded by the laity.

5. Physicians should use their influence in favor of vaccination, for they know this to be the only satisfactory means of preventing smallpox. They should not place themselves in a false light, however, by trying to force legislation demanding compulsory vaccination laws.

6. The people should demand compulsory vaccination laws as a means of self-protection. But if they choose to follow the leadership of faddists against vaccination, rather than scientific teaching and actual demonstrations in favor of vaccination, upon themselves should rest the responsibility for the resulting consequences.

7. Compulsory vaccination laws should be as rigid as those of Germany, which require vaccination in infancy and revaccination at puberty.

8. Quarantine is either an evidence of a lack of scientific knowledge as to the proper means to be employed in the control of a communicable disease, or of inability to apply such knowledge.

9. The practical application of known scientific facts will control the spread of other communicable diseases than smallpox. Why, then, should we not make use of scientific knowledge in controlling smallpox, rather than continue the known impracticable methods of quarantine now in vogue?

10. The attempt to control smallpox by means of quarantine should be abandoned, for it is unscientific, impracticable, expensive, and an absolute failure.

11. The present methods of quarantine for smallpox should not be suddenly discontinued, but after a sufficient length of time has elapsed to permit of the creation of compulsory vaccination laws, sanitary authorities should take concerted action looking to the establishment of more scientific methods for the control of this disease.

Anticipating the report to this Conference of a committee upon the best means of controlling smallpox, I sent the paper quoted to various public health officials, scientists, and practitioners, asking their opinions upon this most important question. Their replies, as given below, I shall use largely as the basis for this paper.

Dr. Wm. H. Welch says:

Of course, I agree with your general argument. I should put your conclusion 10 so as to read: "As soon as we have as good and as well enforced vaccination laws as those of Germany the attempt to control smallpox by means of quarantine should be abandoned." Germany is the only country which shows the full benefit of vaccination. . . . Your point concerning the responsibility of the people in this matter of proper legislation is well taken, provided the people have been well instructed by physicians and others who are informed concerning the benefits of vaccination and revaccination. The difficulty is to instruct them, and here the medical profession has a large responsibility.

Dr. W. T. Councilman says:

I agree perfectly with the views which you have expressed in your pamphlet. The only protection against smallpox is vaccination, and to attempt to control it in any other way, as by quarantine, is not only impossible, but people will regard it as a substitution for vaccination. The responsibility for having smallpox rests upon the people themselves. For my part I am willing to go so far as to say no attempt should be made to compel vaccination of adults. With regard to children, however, there should be rigid enforcement of vaccination laws, because they cannot decide the matter for themselves.

Dr. V. C. Vaughan says:

I agree with you perfectly concerning the amount of attention and money that is spent in quarantining smallpox. Dr. Baker recently published a paper showing this State spent in 1903 about $143,000 in attempting to restrict smallpox. I am not so sure about compulsory vaccination. I am of the opinion we should urge vaccination against smallpox, and should stop all attempts to quarantine the disease.

Dr. Charles V. Chapin says:

In the main I agree with what you say most heartily. It is indeed too true smallpox can never be stamped out by compulsory isolation, though this procedure in a certain proportion of instances may prove effectual for a limited area. I also agree with you as to the hopelessness of securing compulsory vaccination through the efforts of health officers and physicians. The demand must come from the public. Your proposals are reasonable, but I do not think you can secure concerted action on the part of sanitary officials. It is a big contract to make scientific sanitarians out of routine disinfectors and nuisance inspectors. Moreover, I am afraid even you and I cannot do exactly as we think best. One should not be too far ahead of the public. The health officer should be in the lead, but within hailing distance.

Dr. John S. Fulton says:

Ours is a fairly well-vaccinated State—markedly well-vaccinated, I should say, judging from our smallpox history. We have a good school law, and we operate it with but little difficulty. In one respect we do as you suggest—we put the responsibility of protecting school-children on the school boards. Since smallpox has been active we have advised each school board we would consider such board responsible for whatever smallpox might occur among the children in the district of schoolgoing age, declaring that the State and local health authorities are charged with general responsibilities on

[2] "Smallpox and Vaccination in Europe," by E. J. Edwardes.

public health, while the school authorities are charged with a definite and exclusive responsibility for the immunity of school-children against smallpox. In one county a few cases of smallpox occurred among the school-children. The smallpox in that instance made a color discrimination, attacking whites and sparing colored children. We called upon the school board at once to explain how this was possible. The board tried hard to shift the responsibility to careless vaccinating physicians, but we held that they were responsible for the work of these physicians. . . . Your opinions upon quarantine are well taken I think.

Dr. N. K. Foster says:

We have just gone through a fight in the legislature because of our enforcement of the compulsory vaccination laws. I am satisfied we brought this trouble upon ourselves by laying too much stress upon the efficacy of quarantine and not enough on that of vaccination. While I am not ready to give up quarantine entirely just yet, it certainly is, as you say, unscientific, and we all know it is of little value.

In conjunction with the last quotation, it is interesting to note Governor Pardee, of California (a physician), vetoed the antivaccination bill passed by the last legislature of that State, and in so doing said in part:

Before the discovery and application of vaccination by the immortal Jenner, smallpox was nearly universal, and it was considered to be a grave disadvantage not to have the disease in childhood. Severe and terrible epidemics have gradually but surely become things of the past, except when from any cause vaccination has been neglected. That accidents of many kinds, even death, may follow vaccination, is not, and cannot, be denied. But that the number of these accidents, compared to the many, many thousands—even millions—of times which this beneficent procedure is practised is anything but infinitesimal is not borne out by the facts. When vaccination is compulsory, and the law is well administered, there is but little smallpox; so little that those protected by vaccination soon lose their fear of the dread disease; and turning our attention to the lesser evils of the vaccine virus, many of us conjecture a fear, not warranted by facts, against the very thing that saves us from a much worse fate. This, I think, is what has called into being the bill which I now return to you unsigned. Were it to become a law there can be no doubt that vaccination would soon fall into practical disuse; and thus would be prepared among our children (not mine, for they shall always be protected) a field for smallpox fairly to revel in.

Dr. H. B. Baker says:

I have recently made a compilation of the money expended by the various municipalities throughout the State in the restriction and prevention of the communicable diseases, which enables me to determine the amount expended on each disease and whether such expenditure is warranted. I found that large sums of money were expended in restricting smallpox, while very small amounts were spent in restricting such important diseases as pneumonia, pulmonary tuberculosis and typhoid fever. I am in sympathy with your line of thought.

Dr. Edmond Souchon says:

I beg to assure you that I fully concur in the views which you express.

Dr. H. Barton Jacobs says:

I agree with you entirely that it is vaccination and not quarantine which we want, but I think that our communities are not sufficiently educated to protect themselves, and it is not quite safe to throw the responsibility back upon them. We must lead and show them the way in all things, even to the point of bearing the onus of responsibility. Nothing short of compulsory vaccination will ever be sufficient, and it is for this that we must continually strive.

Dr. J. N. Hurty says:

In your paper upon smallpox and the necessity of vaccination as a means of protection, you have covered the subject thoroughly. I have never established a quarantine for smallpox, as the law commands, without rebelling against it in spirit. In my visits to the small towns of this State on account of smallpox, I always take occasion to call in session the town boards and as many business men and citizens as possible, and I tell them over and over again that the quarantine of smallpox is nonsense, and that the person who will not be vaccinated is very foolish.

Dr. H. H. Healy says:

I have stated several times during the past two or three years that I felt very much like giving up the quarantine of smallpox entirely, letting those who neglect vaccination suffer the consequences. Of course I have never had the courage to say this officially. I think there would be quite a scramble to get vaccinated, even among the antivaccinationists, if it became known that the quarantine of smallpox was to be abandoned. As an item of dollars and cents alone, even a small county would save thousands of dollars annually if the people were vaccinated.

Dr. C. E. Cooper says:

I am heartily in favor of general vaccination as a means of protection against smallpox. . . . There is no question in my mind but that general vaccination offers the best means at our disposal for the protection of the people against smallpox.

Dr. Joseph Y. Porter says:

You express my views exactly. This is what I have been contending for in Florida during the past five years, and, in fact, since the organization of the board. I have so frequently said to those conversing with me on the subject that "if people will be foolish and prejudiced and will not accept vaccination, and in consequence contract smallpox, upon their own heads must rest the responsibility." Your paper endorses so fully what I had just written on this subject for the annual report, that I embodied your article as an adjunct and endorsement of my views. You will remember that at our last conference at Washington, Dr. H. said "until the people demand protection for themselves through vaccination, we cannot hope to reach the ideal state of smallpox exemption in this country." I think you have struck the keynote of the subject when you say that the people must first recognize the necessity of, and then demand, protection.

Dr. P. A. Irving says:

I endorse your views fully. I was so pleased with your article that I practically copied it in our last month's bulletin. This seems to me the most rational means of controlling smallpox.

Dr. J. F. Kennedy says:

I am entirely in accord with the views expressed in your article entitled "The Control of Smallpox." I frequently write to our health officers, who report an outbreak of smallpox and who go into detail in regard to quarantine, isolation, and disinfection, but make no allusion whatever to vaccination, that in their efforts looking to the prevention of smallpox they omit the most important, if not the only real preventive measure, namely, vaccination. I have frequent occasion to tell them that if those who are exposed to the disease, as well as those who have no such exposure, were successfully vaccinated, there would be little, if any, need of quarantine or disinfection in the control of smallpox. I believe it would be not only in the interests of public health, but a great kindness to all our people to compel the vaccination of every one.

Dr. U. O. B. Wingate says:

In an article of mine published in the *North American Review* for November, 1898, I made use of the following language: "Quarantine is an antiquated method of managing infectious diseases. It is always objectionable and expensive and it works great hardship. The whole trend of modern sanitation is toward rendering quarantine less and less necessary and ultimately doing away with it altogether." You will observe from this that I stand committed on the subject. I think it is high time for the medical profession to take a strong and open stand in regard to this matter. With you, I believe the responsibility should be placed where it belongs—upon the people. In a certain locality where I formerly lived, to have smallpox was considered a disgrace, and persons not protected by vaccination were grouped in the same class as those infected with pediculosis or diseases of similar type. Some such public sentiment created in our part of the country might serve a good purpose. It certainly appears to me, to use a slang expression, that it is "up to" the medical profession to make a strong move along the lines suggested in your paper.

Dr. A. R. Reynolds says:

This subject presents a point of view which should appeal strongly to the taxpayer. Since the opening of the isolation hospital (Chicago) in 1896 up to the close of 1904 there were 1,418 cases of smallpox received and treated in that institution, involving an expenditure of $321,157.33. This sum does not include the $137,241.36 expended for the purchase of ground and construction of the buildings, but does include 4% interest on that sum annually. The average cost per case was $226.48, and at this rate the 210 cases received since December 31, 1904, will swell the total expenditure to $373,718.13 of wholly avoidable expense. It would seem to be in the interest of the taxpayer, as well as his legal duty, to exert his influence and the authority which the law gives him to secure the effective safeguarding of all those over whom he has control against this costly, loathsome, and absolutely preventable disease.

Dr. Geo. Douglas Head says:

It seems to me the views expressed in your paper are correct. It must be a matter of regret to all medical men that the laity is so slow in accepting measures proposed by an intelligent profession in the prevention of disease. The public never seems to be convinced of the soundness of our views except at a great cost of human life.

Dr. J. Clark Stewart says:

I thoroughly approve of your article, and think its conclusions eminently sound in every way.

Dr. C. A. Wheaton says:

It seems a little tough to expose our community to the ravages of this disease by putting this matter entirely in the hands of the people, but inasmuch as they are responsible for the various obstacles that have been put in the way of intelligent legislation, and as they will have to suffer the consequences, I believe I am in hearty accord with your suggestion.

Dr. John B. Brimhall says:

The conclusions set forth in your paper are in accord with my views, and my experience in medical legislation makes me an enthusiastic advocate of your conclusions 5 and 6.

Dr. H. Sneve says:

I agree heartily with your views concerning quarantine and vaccination. I believe the people should be held responsible for their decision after they have been advised by the medical profession.

Dr. C. H. Mayo says:

I have read with much interest your article on the control of smallpox. No one knows better than you the inability of quarantine alone to control this disease. As the law now stands in this State it is a half way measure. We must have more legislation relative to compulsory vaccination, and it is possible that we may obtain this more successfully by throwing the responsibility upon the people.

Dr. C. L. Greene says:

With your views in regard to the control of smallpox I am in thorough accord. . . . I am thoroughly convinced that it will be for the best interests of the country at large if the medical profession ceases for a time its activity in the control of this disease. The public has come to believe we assume the whole burden, and it is shirking its right and proper duty. If we were to remain entirely passive and announce we were prepared to leave the question with the people, I believe this would result in most drastic public health legislation, and a strict enforcement of the law. The remedy may no doubt seem heroic to many, but I believe it is the correct one.

Dr. J. Goodrich says:

Were it possible to leave in the hands of the laity the legal aspect of vaccination without in any way doing an injustice to a large class of innocent people, I would coincide most heartily with your views. The question still remains in my mind whether it is not the true physician's place to play his part in politics in securing the passage of suitable laws making vaccination compulsory, enduring the criticisms that he will be subjected to for so doing. If the adoption of such laws has been possible in other countries, and has proved a wonderful boon to humanity in general, the people of this country should be made to see and feel the advantages of vaccination.

Dr. C. A. Lindsley says:

Crudely stated, my views are somewhat as follows: When smallpox occurs in a community I would have it reported to the health authorities. This fact should be published, giving the name and residence of the patient, and cautioning people against visiting the house. It should also be made known that the infected family has been directed to abstain from free intercourse with other people, and to absent itself from public places. It should also be stated that while public sentiment demands the isolation of smallpox patients, the practice has never been found effective in preventing the spread of smallpox among the unvaccinated. The guarding of quarantined premises by officers of the law implies that the health authorities have confidence in such practice. There should be no police stationed about a quarantined house to strengthen a false sense of security. The health officer should insist and reiterate that vaccination is the only trustworthy means of protection against smallpox, and that all persons who have not recently been vaccinated, should be. Let it be known that the health officers do not hold themselves responsible for the safety of those who will not avail themselves of vaccination as a safe and sure means of protection against smallpox. It is abundantly proved that vaccinated communities are not subject to smallpox epidemics. If the public faith in quarantine can be destroyed, this will accomplish much toward diminishing smallpox.

Dr. Knute Hoegh says:

I agree with you in the uselessness of quarantine against smallpox. I also agree with you in placing exclusive reliance upon proper vaccination, but I cannot at present consent to compulsory vaccination, for two reasons: Experience proves many individuals suffer more or less from vaccination. Furthermore, experience seems to prove vaccination does not always protect. These experiences are drawn exclusively from this country and are contrary to experiences in Norway. By inspecting the vaccination scars on unknown individuals I am, as a rule, able to tell whether the individuals were vaccinated in this country, or in Norway, or in Germany. The scars are different. I have myself found the vaccinations from our usual virus act differently from those I used to see in Norway. About two years ago I sent to Norway for virus. With this I got the same benign results as my earlier experience in that country lead me to expect. I do not believe the virus usually employed here is good. Until you can provide good virus I am opposed to compulsory vaccination.

Dr. Chas. Nootnagel says:

I most heartily endorse the views expressed in your paper and sincerely hope that compulsory vaccination will prevail. Permit me to call your attention to the frightful ravages of smallpox in the Russian army prior to the last few years of the nineteenth century. Personal observations along the borders of Germany and Russia convinced me of the great value of vaccination in preventing smallpox. If "doubting Thomases" could only see the results with vaccination in the former country and without vaccination in the latter, compulsory vaccination would be here to stay as soon as our legislators were given an opportunity to pass such a law.

Finally, I wish to quote as follows from one who is eminently fitted to speak on this subject:

I fully agree with you in regard to vaccination. With the vaccination and revaccination of a whole population nothing more is to be desired. It seems to me this question is beyond argument. Unfortunately this ideal state can never be attained so long as there is not a compulsory vaccination law. I agree with you that quarantine for the control of smallpox without vaccination, is not only unsatisfactory, but farcical. . . . The educating of the laity in matters pertaining to smallpox, as well as other sanitary matters, is essential, but this is a very discouraging task for the physician, for it takes a long time for an idea to assume a concrete form in the mind of the general public. If we, as physicians, demand of the laity that it frame our public health laws, or take the initiative in so doing, I am sure nothing would be accomplished in the near future. It therefore rests upon the medical profession to put its shoulder to the wheel and go on as usual, a few leading, a few following, and a goodly number holding back; such is human nature.

With regard to vaccine virus: It is highly desirable that vaccine virus should be potent and should produce only the typical Jennerian vesicle. Unfortunately much of the vaccine virus now used fails to do this. Many reasons might be given why this virus produces poor or indifferent results, the principal one being its viability. One cannot positively state that a given vaccine virus will remain active; but while this is true, one can forecast approximately the viability of a majority of vaccines. I believe that vaccine virus should be obtained direct from the laboratory, and used immediately on its receipt, or very soon thereafter. Nearly all the vaccines now used are prepared and sent out as a commercial product, and so far as I have been able to learn, are handled very much in the same manner as drugs.

Commercialism does many things that medical men do not endorse, yet the doctors are in a way responsible for some of these. It is much easier to run to a drug store for vaccine virus than to take the trouble to obtain it direct from the laboratory. Therefore, when the doctor wishes to vaccinate he runs the risk as to the quality of the vaccine, and takes what the druggist has to give him. As a consequence he may get poor results, and if such is the case, he wonders why. A vaccine certified as active for a long time is demanded by druggists and by not a few doctors. Commercialism will furnish this virus just so long as there is a demand for it.

Still further, commercial firms are trying to do too much with vaccine. The majority of the vaccine is produced almost exclusively in the eastern part of the United States. This vaccine is distributed over the entire country. Five vaccine firms located in the eastern part of the United States are attempting to supply 76,000,000 people, covering an area of 3,000,000 square miles. In contrast with this plan there are in Germany, 26 State, besides many private institutes for supplying vaccine to a population of 56,000,000, covering an area of 209,000 square miles. In Germany and many other small European states each vaccine institute supplies a population inhabiting a small district. In the United States vaccine is sent over the entire country, subjecting it to conditions that do not exist in Europe. The difficulties of supplying a pure and potent virus will continue just so long as it is prepared and distributed as a commercial product.

The time of the year in which vaccine is produced has much to do with its efficiency. That produced during the winter months, from November to May, appears as a rule to be more potent than that produced during the summer months.

It is a rule, I think, in the majority of cities to have all school-children vaccinated before entering school in the fall. No worse time for vaccinating could be chosen than the month of September. Most of the vaccine used at this time has been produced in August, one of the worst months for producing it, and as a consequence many children are not protected, although they may hold certificates to that effect, and may have smallpox later.

With regard to the accidents following vaccination: These do occur and some are directly due to contaminated virus, while others either to lack of care in the vaccination or to the faulty treatment of the vaccinated wound. There is no excuse for a vaccine virus which is rich in pathogenic organisms being sent out from a laboratory, yet not a little of just such virus is being marketed. This is particularly true in the summer time when the longevity of the vaccine virus is an unknown quantity. The commercial people seem to want a virus that will "take," *i. e.*, that will make a sore, for if the virus fails to "take," the trade goes to a competitor. Some authorities attach but little importance to the presence of bacteria in the vaccine virus. Nearly all vaccine producers hold this view, and in the event that some accident occurs have on hand all manner of explanations and excuses. An accident following vaccination does almost as much harm as a case of smallpox, for it prevents the acceptance of vaccination by the laity.

If a vaccine virus could be prepared, tested for the freedom of pathogenic bacteria and sent out for immediate use by physicians, there would be fewer complaints than under the present system.

The foregoing are the views of men who are thoroughly familiar with the subject under consideration. Of the 29 quoted, 27 are unequivocally in favor of vaccination. One, while thoroughly in sympathy with vaccination, states he is not in favor of compulsory vaccination at present in this country because of the fact the vaccine is not reliable. One hesitates to express himself on the question of compulsory vaccination, although he is a thorough believer in vaccination, and states "we should urge vaccination against smallpox and stop all attempts to quarantine the disease."

With reference to the second point under consideration, viz., doing away with the quarantine of smallpox, 17 express themselves in favor of such action. Ten do not give their views for or against the proposition. Two state that they are not ready to give up the quarantine of smallpox entirely. One states the school boards in his State are held responsible for the protection of the school-children against smallpox through vaccination.

One State official (not quoted), while expressing himself as a thorough believer in the protection afforded by vaccination against smallpox, does not believe it is possible to enforce compulsory vaccination in this country, "where one man is as good as another, if not better;" and further, because compulsory vaccination "arouses antagonism against the medical profession." This latter point is certainly an argument in favor of the proposition already made in this paper that physicians should not place themselves in a false light by trying to force legislation demanding compulsory vaccination laws, but rather that they should use their influence in favor of vaccination, throwing the responsibility of protection by this means upon the people themselves.

One city official (not quoted) criticized me severely for the stand I took against the use of quarantine as a means of controlling smallpox, but I do not think he thoroughly appreciated the intent of my paper; otherwise I would have quoted his criticism in full.

A few who answered my letter of inquiry did not express themselves with sufficient clearness to permit of their views being interpreted as for or against one or both of the propositions under discussion.

Two of the quoted replies to my inquiry have raised some interesting questions relative to the value and safety of our vaccine. It would seem with an overwhelming sentiment in favor of vaccination, the safety and efficiency of the vaccine to be used should be established beyond all question. We recognize there is absolutely no reason or excuse for the transmission of any infectious disease through the vaccine. We must look to other sources for any reasonable objection to vaccination.

The last of the quoted replies referred to shows why vaccine virus may be useless or dangerous. Either of these conditions will bring vaccination into disrepute. It is undoubtedly true that during the past few years there have been a great many unsuccessful vaccinations due to the poor quality of lymph furnished. There have also been many instances of infected arms, and this infection may have been due to (1) carelessness upon the part of the vaccinator; (2) faulty vaccine; or (3) lack of cleanliness upon the part of the vaccinated. All of these evils can easily be avoided and to accomplish this there should be (*a*) the appointment of public vaccinators, who would be held responsible for the quality of their work; and (*b*) such a rigid inspection of vaccine as would make it impossible to place an impure article on the market.

Vaccination would not be in disrepute in this country if we had laws in force similar to those of Germany, for the demand for vaccine would then be constant and the amount needed for any given period could easily be estimated. There would be no excuse for the producers of vaccine placing upon the market an inferior or dangerous article.

If the compulsory vaccination of young children was enforced the present dangerous custom of vaccinating school-children in the fall of the year, just before their admission to school, would be done away with.

I am inclined to think there should be more vaccine producing stations and that these should be under the supervision of sanitary authorities, as is now the case in Massachusetts and New York, and I am also inclined to think the production of vaccine should be looked upon as a sanitary, rather than a commercial measure.

With these arguments in favor of compulsory vaccination, at least of children, and against the indefinite continuance of quarantine as a means of suppressing smallpox, I would urge that this Conference put itself on record as follows:

Believing that all attempts to restrain smallpox by means of quarantine in a community not protected by vaccination will fail; that rigid quarantine in a well-vaccinated community is unnecessary; that attempts to control the spread of smallpox by means of quarantine is unscientific, irrational, unsuccessful, and misleading; that in laying down strict rules for the quarantine of smallpox, sanitary authorities are favoring unscientific and illogic methods and are conveying false ideas as to safety, this Conference protests against further attempts to control smallpox by means of quarantine and requests the passage of compulsory vaccination laws similar to those of Germany, requiring (1) the compulsory vaccination of infants, (2) revaccination at puberty.

The Conference should further place itself on record as requesting that steps be taken to secure a safe and efficient vaccine, and that vaccination be carried out by official vaccinators acting under the authority of the various State Boards of Health; also that steps be taken to secure a vaccine the quality and efficiency of which are beyond question.

Legislators and the people should be advised as to their responsibilities in suppressing smallpox, and a time should be set for the total abandonment of quarantine as a means of attempting to control this disease.

THE NATURE AND CAUSE OF HUNGER, APPETITE, AND ANOREXIA.*

BY

MARK I. KNAPP, M.D.,

of New York.

In approaching the question of appetite, I am fully aware that I shall have to battle against time-honored statements and sentiments. Numerous experiments have been made, which have brought us no nearer solution of the problem than to prove what appetite is not.

The question of appetite vitally concerns everyone. By appetite is usually understood a desire for food, and it is mostly used as a synonym of hunger. We speak of loss of appetite and not of loss of hunger; lust and craving are not appetite in this sense. Fundamentally,

*Read before the Harlem Medical Association, December 7, 1904.

appetite and hunger are identical, and I shall employ these words as synonyms, in this article.

From the fact that we attach so much importance to appetite, we are justified in our expectation that physiology should give us all the information concerning it, and especially regarding what is and what constitutes appetite. Unfortunately, books on physiology either do not mention appetite at all, or else devote a few words to it, stating that they do not know what appetite is. Nor have textbooks on general medicine any liking for the subject; at most, a few remarks on pathologic appetite. A like disappointment is met if one tries to find a definition of the physiologic appetite, in the textbooks on diseases of the stomach, although the pathologic appetite is more or less discussed. I have found the following textbooks on physiology do not mention normal or pathologic appetite or hunger: Chapman's Physiology, 1899; Raymond's Physiology, 1901; Stewardt's Physiology, fourth edition; Landois' Physiology, 1901; Ott's Physiology, 1904. Kirke's Physiology, 1892, includes hunger under "common sensations such as fatigue, discomfort, faintness, satiety, in which, in addition to a general discomfort, there is in many persons a distinct sensation referred to the stomach or fauces." This is all he has to say on the question. Foster's Textbook on Physiology, 1898, is more generous and says on page 1049: "As to what is the particular change in the gastric membrane . . . we know little or nothing. . . . We have little or no knowledge as to the particular paths for the afferent impulses which we may suppose to be generated in the gastric membrane." He dismisses the subject with about three-fourths of a page.

In the American Textbook on Physiology the subject of hunger and thirst is covered in just 14 lines; this shortness presumably as a mighty protest to the insinuation of the proverbial "American dyspepsia," which an American textbook felt in duty bound to refute. It says quite cogently: "Some condition of the empty stomach arouses hunger," leaving it entirely to the imagination what this condition might be, but carefully using the word "empty." Thus it shall be known to the non-American world that we Americans feel hungry only when the stomach is empty, as by rights we should, although some unscrupulous un-American physician might swear that he knows of patients who feel hungry, even very hungry, shortly after they have had a good meal, even though their stomachs could not possibly have reached the state of emptiness. Finally, this same textbook states: "It seems probable, however, that these sensations, as usually felt, are the result of a sort of habit." B-r-r-r, what a nasty habit.

Munk[1] says: "The first sensations of hunger arise from the stomach." He condenses all the wisdom about hunger into four German sentences.

Gillespie[2] says: "Hunger is a signal . . . indicative of a general impoverishment of the circulating fluids in the body. . . . The sensation of hunger arises whether the stomach is full or empty." We here get a glimpse of the fact that the feeling of hunger does not necessarily imply emptiness of the stomach.

Martin Sidney[3] believes he discloses enough by finally saying: "The physiology of appetite is therefore complicated."

The following is an abstract of the "Encyclopædia Medica (Ch. Watson, 1899): "The desire for food depends ultimately upon tissue metabolism. . . . External cold or a cold climate, by promoting muscular activity increases metabolism, and with it the desire for food. . . . Under pathologic conditions increased metabolism may create no demand for food . . . on the other hand, mental preoccupation, surprise, or shock, may hinder the perception of the desire for food. . . . Loss of appetite is the common effect of any debilitating or depressing influence, although there are exceptions to this rule, of which the wellknown excessive hunger in diabetes is perhaps the most striking. . . . The desire for food is increased . . . when metabolism is hastened . . . unfortunately the appetite is too often great when metabolism is normal."

Anders[4] says nothing about what appetite is, and mentions only in a few words "anorexia" and "hyperorexia."

Allbutt[5] says: "It is evident that the appetite is influenced by the state of the liver. In dyspepsia, then, we may have a craving appetite, a want of appetite, or an appetite for abnormal kinds of foods. The craving appetite appears to go with an irritable condition of the stomach; it is very frequently noticeable as the first stage of what is called 'a bilious attack.'" Here we find the proper appreciation of the strong appetite as being a pathologic appetite; "lack of appetite may be associated with two conditions—either with the absence of tone and deficient circulation through the stomach or with excessive irritation bordering upon nausea." Here again we find the correct observation of anorexia in the distended stomach.

Eichhorst[6] covers in 13 lines hunger, acoria, bulimia, pica, etc.

Loomis-Thompson[7] says: "Hunger is the expression not only of a state of the stomach, but of the ultimate cells of the body. The stomach may be empty for days and still anorexia persist."

Einhorn[8] says: "The need of food makes itself felt through the sensation of hunger. The time at which hunger appears is physiologically variable, and depends upon the time persons are accustomed to take their meals." Further on in his remarks on bulima, acoria, anorexia, etc., there are sentences that seem to need more elucidation. He says: "In its normal state the stomach barely transmits any sensations whatever to our consciousness. Cold articles of food and warm beverages do not manifest their presence by any special sensations within the stomach." However, he continues: "Notwithstanding these facts it is certain that the stomach, physiologically, is not void of sensation. Thus ice water gives rise to a sensation of slight cold (faradic current) either slightly burning or cold." How are we to bring these latter abstracts into accord?

Ebstein and Schwalbe[9] say: "Physiology has not yet spoken the last word concerning the localization and nature of such physiologic subjective symptoms known as appetite, thirst, hunger, and satiety. However, according to the latest views, there are groups of ganglion cells in the medulla oblongata which produce these sensations."

Hemmeter[10] says: "The appetite ceases when the stomach is filled with food, but that does not imply that the nutritive materials are already absorbed into the blood."

Rosenheim[11] says that the sensation of hunger is by no means clearly understood. Speaking of bulimia he says: "The peripheral excitation may also ensue from the intestine (worms)."

Boas[12] defines neither hunger nor appetite, but remarks in a very few words on the importance of appetite.

Fleiner[13] begins the chapter on anomalies of the sensation of hunger and appetite very happily, and says: "To the symptoms with which the physician has to deal in almost all diseases, and which give him the most indications for therapeusis, belong changes of the appetite, disturbances of the sensations of hunger." It will be observed that Fleiner does not use the phrase, changes of the appetite *and* disturbances, consequently it is assumed that he takes the two expressions, one as explanatory of the other, as synonyms. He further states: "Most likely the sensation of hunger is effected by definite, sensory, centripetal nerves of the stomach."

Riegel[14] says: "The sensation of hunger is assumed to have its seat in the medulla oblongata, that there is a

special hunger center there which is excited when the blood is impoverished in nutritive matter to a certain degree." And, although he does not support the view that there are special hunger nerves in the stomach, he nevertheless admits that "also the stomach plays a role in the production of the sensation of hunger." He further says, "accordingly, the sensation of hunger can be produced and abolished, diminished in different ways, directly and indirectly. Also its pathologic increase and diminution can be brought about in different ways, as shown by the different causes which lead to such disturbances."

Ewald [15] has the chapter covering hunger, written by J. Rich. Ewald, and the subject is treated extensively, covering nine pages. He says: "Hunger is produced by the blood, in which there is a deficiency of nutritive material . . . again, it is not directly the emptiness of the stomach that was made responsible for the sensation of hunger, but the increased peristalsis which is associated with it at the same time."

Pawlow [16] recognizes the great importance of the appetite, and devotes to it almost all of his fourth, the fifth, and eighth lectures, three out of eight lectures. In view of the fact that Pawlow now holds the center of the stage in physiologic investigations of the problems of digestion, it amounts almost to sacrilege to disagree with him; yet I feel impelled to do it so far as his interpretation of appetite is concerned. Especially might he have left out his eighth lecture, which he devotes to the task of reconciling the present customs of eating with alleged physiologic facts. This lecture is full of empiric generalities and inconsistencies; he even seems to justify the drinking of whisky "as an appetizer" before meals.

Pawlow's assertions about appetite are mystifying, sophisticating, philosophizing, illogical. If one reads of his experiments critically he can easily ascertain that Pawlow is trying to approve present customs by experiments which he interprets misleadingly. It is true that he deserves great credit for part of his work, but that which relates to the subject of appetite is very erroneous. But who of us is always and absolutely right? Especially deluding is his experiment with sham feeding, of which he treats in his fourth lecture. For the successful issue of this experiment he cites as necessary these four conditions: 1. The animal must be normal, must feel good subjectively, and the gastric mucosa must be sound. 2. The success of the experiment depends upon the intensity of the lust for food, this depending in turn on how much and how long before, the dog has eaten, and with what he is being teased. 3. It is necessary to have for experiments impatiently anxious (gierige), passionately excitable dogs (evidently Pawlow considers such conditions normal). 4. One must reckon with the slyness and sensitiveness of the dogs. Often the animals soon find out that we only want to fool them with the food; they get angry and turn away from everything placed before them. Further he says: "So we come to the final conclusion that in our sham feeding experiments the whole secretory effect is conditioned on the psychic moment, that is, on the 'passionate desire for food' and on the pleasure of eating it; if you, for instance, prepare the dog by prolonged fasting from two to three days, you will get a very intense secretion of gastric juice whatever you may give him at the sham feeding, while the dog which did not fast (about 15 to 20 hours after the last feeding) chooses from among the foods."

How can one reconcile, scientifically, the first with the third condition? How can we admit the animal to be at once normal, and avidious, and passionately excitable? How can the condition of a dog be absolutely normal after a fast of from two to three days? Pawlow also shows, experimentally, in a dog, that the sham feeding with boiled meat which the dog did not like was not productive of gastric secretion. Concluding the fourth lecture, he says: "Consequently, we are justified in saying that the appetite is the first and most powerful excitant of the secretory nerves of the stomach; that in it is personified that certain something which causes the secretion of large quantities of the strongest gastric juice in the empty stomach of the dog at the sham feeding."

Pawlow in his experiments with sham feeding has overlooked one great factor, namely, the action upon the abdominal viscera by the voluntary and powerful contraction of the abdominal muscles. What can be done with voluntary contraction of the abdominal muscles is exemplified by the voluntary vomiting. It stands to reason, although Pawlow does not mention it, that a dog which has been starved two or three days in his "impatiently anxious desire" to get food is the more anxious to get the food since he does not feel it in his stomach and that the abdominal muscles thus called into play by the "passionately excited animal" contract strongly and in so doing increase the intraabdominal tension, which causes uniform pressure upon the walls of the stomach, and it is this compression which causes the gastric secretion. The more the animal likes the food, the greater his vain efforts to get it, the greater the contraction of the abdominal muscles, the greater the intraabdominal pressure, the greater the compression of the stomach, the greater the unfortunately, even if poetically called "psychic, igniting juice." Again, he says: "A good appetite at meals means a large secretion of strong juice from the beginning. Without this desire, without the aid of the appetite, many food articles that get into the stomach remain absolutely without gastric juice." Manifestly forgetting this statement, he says further on: Therefore, it is possible to cause the awakening of the appetite in certain dogs through masses introduced into the stomach (he also proved experimentally that the meat introduced into the stomach of a sleeping dog through a fistula was just as well digested without the presence of the "psychic juice," without appetite). But if the appetite is awakened the juice flows also. What a contradiction to the foregoing sentence. Again he says, "the appetite, the passionate desire for food, is naturally a very complicated sensation, and to effect it is often required not only the necessity for new food by the organism, but also the condition of thorough health in every part of the digestive tract. Apparently Pawlow is not familiar with the passionate desire for food, say in scarlet fever or in measles, which I have so often seen. Further on he says: "Likewise, one can imagine that the appetite is lost in long-standing stenotic conditions of the esophagus; the patients, so to say, forget their stomachs." Forget their stomachs! A phrase, how naive, and truly physiologic! But what a slap to his theory that appetite is "the passionate desire" for food is the case he narrates about himself after an attack of some fever, saying: "Feeling fully well I differed from others insofar as I could abstain from all food with ease. But, as I feared running down, I determined on the second or third day, to revive the appetite by a swallow of wine. I felt distinctly the running down into the esophagus and into the stomach, and literally instantly felt the rushing on of the appetite." Now, fearing running down, Pawlow *determined* to revive the appetite; surely this could well be taken as a "passionate desire for food." Furthermore, he had all the sense faculties which he regards as essential, beside the "passionate desire for food," and yet there was no appetite. But this much desired appetite instantly put in an appearance after the stomach had been decoyed by a little wine. While Pawlow wanted food, his stomach evidently did not share in this desire, but dared have an opinion of its own; however, it was instantly coaxed and won over by an alluring sip of wine. But perhaps Pawlow's case is an exception to the laws and rules as laid down by himself. Many more facts can be explained, according to Pawlow's theories, only after we permit them the benefit of being the exception; exceptions by the score seem to be the rule in Pawlow's teaching.

It was Schafer[17] that especially pleased me in the discussion of hunger. He says: "The nature of the stimulus provoking these local sensations is not clear. It is often said to be emptiness of the stomach. In duodenal fistula, hunger has been observed as a marked symptom, even when the stomach is full. Introduction of food into the stomach rapidly stops the feeling, even before much absorption of food can have occurred. Hunger is temporarily relieved by introducing non-nutritious material into the stomach. The dog exhibits hunger after complete removal of the stomach. After the section of both vagus nerves, rabbits continue to feed well, and therefore must feel appetite. So also after section of the cervical cord or of both the splanchnic nerves and after extirpation of the celiac and mesenteric ganglions. Neither the vagus nor the splanchnic afferent channels are therefore necessarily the single channels for the feeling of hunger." The assertion by some authorities that hunger means greater metabolism, he answers as follows: "To say this change (greater metabolism) is want of food material, is merely to restate the problem. It has been several times remarked that the stomach and intestines of fasting animals exhibit remarkably active peristaltic action. From the foregoing, it is evident that the nature of the condition of the body which is the source of the feeling of hunger, is not definitely known, nor is the manner in which the condition can react on the senses. The dogs from which the cerebral hemispheres had been removed by Goltz, became restless as feeding time grew near. This restlessness subsided when the usual quantity of food had been taken, and the dogs then invariably 'refused' further quantities of food." He further says: "Visceral pain results from excessive stimulation of afferent structures normally employed for reflex action, accompanied only in some instances by sensations, and not under usual circumstances, by feelings of physical pain."

When we now attempt to review the literature here cited, we find that nothing definite, nothing positive is known regarding the causation of hunger, regarding the cause of appetite. Neither physiologists nor clinicians give us the exact nature of what constitutes appetite; the phantastically ordained theories of Pawlow have entirely too many exceptions to be of any value. Experiments upon the nervous system have proved only that hunger has no relation to it. Nor are hunger and appetite engendered by the stomach, as excision of the stomach, experimentally and as an operative procedure (Schlatter's and other cases), was not followed by a suspension of the sensation of hunger.

To study the subject we must follow the usual methods of investigation. We observe a constancy of symptoms and the constancy of the pathologic conditions which accompany such symptoms; we then deduce from one upon the other. When we observed the constancy of cough and the characteristic rusty expectoration always found in pneumonia, we finally began to recognize the correlation of the two facts and from these obtained the clue to understand the "why" of such facts. Analogously, bulimia and anorexia should trace for us the causes of appetite and hunger. This, however, would imply that we accept anorexia and bulimia as the two extremes of hunger between which lie the other gradations and variations of appetite. What causes the normal appetite causes, if present in an increased degree, also an increased appetite, and, conversely, the absence of the cause for the normal appetite is the cause of anorexia. It is absolutely essential that we recognize one and the same cause for all degrees of appetite, one and the same cause must suffice to explain the variations in the degree of appetite. Theories which admit of any exceptions at all are never true, no matter who is the authority. Hunger is not the expression of blood impoverished in nutrition, for if such were the fact, we could not possibly experience complete satiety so soon after taking food. Such an assumption shows barbaric ignorance, of which even the first-year medical student of the present day should not be guilty. Between the ingestion of food and its elaboration so that it is capable of absorption into the circulation, hours pass, while only minutes elapse between the feeling of hunger and the sense of satiety after eating. If hunger is to be interpreted as blood needing nourishment, satiety, the counterpart of hunger, should mean that the blood already has sufficient nutritive supply. Again, if hunger is to imply that the cells "cry" for additional supply, then do not the cells need nutrition in the multitude of instances in which anorexia has lasted for very long periods without any apparent loss of flesh? If hunger expresses the need of food, how about bulimia? Has anyone observed that the metabolism of the bulimic patient is of a lightning-like rapidity? On the contrary, we know that the metabolism of the bulimic patient needs looking after.

That the sense of hunger has nothing to do with the nervous system has been proved by experiments. Nor, is the stomach alone responsible for the sensation of hunger; this has been proved by experiments upon animals and by cases of total excision of the stomach for curative purposes. Notwithstanding the absence of the stomach and hence also of the absence of any local nerve center in the stomach, both the animals experimented on and the patients felt a desire for food after the stomach was removed. Those, poetically, mystically and mythically inclined, assume that the intestine forms itself into a sort of stomach when this organ has been removed and therefore the patient regains the appetite. Unfortunately mythology has not yet lost its hold on medicine; it is so convenient to invent special deities for the special manifestations of our individual ignorance. How glibly and amazingly our great authorities speak of such theistic entities as "nervousness, reflexes, straight reflexes, crossed reflexes." When one listens to their eloquence and their familiarity with things in the upper regions, when one listens to their convincing explanations of the deep mysteries of "neurasthenia," "hysteria," "perverted and inverted metabolism," and such like, one can only wonder, why some patients under their paternal care refuse to get well even after they have carefully followed some very costly advice. In fact, the material success to the patient is often in inverse ratio to the explanations of the "great authority" and which, occasionally, an old woman from somewhere successfully offsets to the merriment of all but the physician. If hunger means that the cells, the blood, the medulla, or all combined, need nutritive supply, how are we to construe the fact that often hunger soon wanes and passes away even if no food has been ingested? In this case, by what have the cells, the blood, and the medulla been appeased? It is clear that so long as medicine shuns monotheistic truth and seeks explanation for the phenomena of health and disease in the invention of separate deities for every phenomenon so long will we read of frightful battles and carnage between the individual deities. Within the last two decades our medical books have been replete with accounts of the constant war between the individual hordes of microorganisms, which, we are told, rather sacrifice their host than submit to ignominious defeat by their opponents. How did our ancestors ever attain to ripe old age without the knowledge of that frightful and incessant battle going on within?

Let us leave for the present the question of the normal appetite and hunger, and go over the symptoms of bulimia. In bulimia our attention is first attracted by a ravenous appetite, which must be gratified, and at once; which is absolutely imperative in its demand, and which suffers no delay. The patient describes the sensation in the pit of the stomach as "gnawing, or as if the stomach were held in a vise" (zusammenklemmen). So imperative is the desire for food, that failing to get it instantly, the patients feel dizzy, faint, get headaches, buzzing in the ears, become weak around the heart. Are all these

symptoms, the effect of as many distinct and separate causes? Or is it possible that all these and a few more symptoms are the result of one cause? The fact that all these symptoms are apt to occur not only on an empty stomach, but even very soon after a full meal would, of course, negative any assumption that in bulimia there must be a too rapid escape of the ingesta into the intestine, creating an empty stomach too soon, and hence an early recurrence of hunger. That the stomach may contain enough food and the patient suffer an attack of bulimia is vouched for by Ewald, who had opportunity of observing for some time at the Augusta Hospital a typic case of bulimia, reported by Leo. In this case repeated examinations 50 to 90 minutes after the test-breakfast and more abundant meals showed that the stomach was by no means empty, but instead the amount of stomach contents which could be expressed was normal. Now, if a heightened form of hunger is not caused by emptiness of the stomach, how much less so is normal hunger? On the other hand, Ewald reports another case in a woman, who for some time was awakened every two hours during the night to satisfy her ravenous appetite; her stomach was found almost empty 30 to 45 minutes after the test-breakfast. Schafer (ibid.) says: "In duodenal fistula hunger has been observed as a marked symptom, even when the stomach was full." Schafer speaks of hunger as a "marked symptom"; undoubtedly the patient must have attached considerable importance to this symptom.

Now, if we assume that Ewald's first case gives the correct clue, then the facts of his second case would offer contrary evidence. And, if we conclude that the stomach must be empty to cause hunger, then the first case would contradict such supposition. We are, therefore, forced to the conclusion that neither the condition of the stomach's fullness nor that of its emptiness *per se*, is answerable for the pangs of an attack of bulimia; this can appear whether the stomach is empty or filled. In all cases of bulimia the call for food is attended by pain of greater or less intensity. The pain is so severe at times that often patients have food near their bed so that they can instantly have it when the painful hunger wakes them. I have already reported the case of a physician who had to carry some crackers with him even while on his professional calls, so that he could instantly subdue his painful hunger. Also, patients as a rule, point toward one spot whenever they are hungry, or whenever they are painfully hungry. This spot, known as the pit of the stomach, corresponds anatomically to the pyloric region of the stomach as well as to the first portion of the duodenum. Are these the anatomic entities that are normally the seat and the cause of the sensation of hunger? Is hunger originated within these structures? Such is my belief.

Hunger is a certain unpleasant, and often painful sensation, which, from earliest infancy we have learned disappears on introducing food into the stomach; food is but an empiric remedy for this sensation, which we have designated by the term of hunger. Hunger is a symptom, and food is the usual remedy. What is hunger a symptom of? Is it a symptom of an empty stomach? No. This opinion coincides with the conclusions of the authors cited who hold this view. Is it then a symptom of a full stomach? Hardly so; although the sensation of hunger may come on when the stomach is full. Is hunger a symptom of the cells needing nourishment? Not at all. Were hunger to signify demand for nutritive supply to the tissues, then hunger could hardly disappear so soon after eating. Were hunger to indicate a demand for food, then must anorexia—the reverse of hunger—designate the reverse of demand for nutrition—a statement that would work havoc in practical life. Knowing that it takes hours before the nutritive supply introduced into the stomach has undergone all the chemic changes which finally make the food introduced assimilable, the supposition that hunger means a demand for additional food by the tissues must be regarded as the greatest improbability. Is hunger a symptom of certain nerve conditions of the stomach? No. Excision of the entire stomach did not abolish the sensation of hunger. Then, does hunger not refer to the stomach at all? Again a negative answer. In the cases of voracious, ravenous appetite in which there was present the condition "stenosis pylori ab irritatione" (and this is the most prevalent condition) the patients were cured after proper attention to the stomach; hence the stomach was at fault. What then is the immediate substratum for the symptom "appetite"? The following has been proved, experimentally, as not being the cause of hunger: Section of both vagi, section of the cervical cord, section of both splanchnic nerves, extirpation of the celiac and mesenteric ganglions, removal of the cerebral hemispheres. Neither a full stomach nor an empty stomach nor the stomach itself is altogether necessary to produce hunger. In the cases of too acute appetite the patients speak of a "clamping" (zusammenklemmen) pain. This I hold to be the true fact. It is a "clamping," a contraction of the muscularis of that portion of the gastroduodenal section which corresponds to the pit of the stomach. Hunger is the sensation felt because of the contraction of the muscularis either of the pylorus or possibly also the entire stomach or of the duodenum, or of the contraction of the muscularis of all these structures. It is the contraction of the muscularis, most especially the contraction of the pylorus which, when felt in not too intense a degree, is interpreted as hunger. If the contraction is more intense it is felt as a painful hunger. If the contraction is slight then the sensation of the hunger is also of a slight degree, it is evanescent. Hunger is a lesser degree of pain, and is produced by the contraction of the muscularis. This is the reason why hunger passes away after a certain lapse of time, even if no food has been taken; it means simply that the muscularis becomes tired and contraction gives way to relaxation.

Were I to enumerate the several gradations of the sensations of the contractions of the muscularis of the structures named, I would begin with, "uneasy sensation, slight hunger, hunger, good and hungry, voracious hunger, painful hunger, pain, cramps, and colic." The difference between hunger and colic is only one of degree, and depends on the force and severity of the muscular contraction. In this contention I am sustained by Schafer, who says: "Visceral pain results from excessive stimulation of afferent structures normally employed for reflex action, accompanied only in some instances by sensations at all, and not under usual circumstances, by feelings of physical pain." Normal hunger is a lesser degree of pain, and is produced by contraction, and if the contraction is strong, a painful hunger results. What can I offer in substantiation of my claim that contraction is sensorially expressed as hunger? Ewald says: "Again it was not directly the emptiness of the stomach that was made responsible for the sensation of hunger, but the increased peristalsis which was associated with it at the same time." Schafer says: "It has been several times remarked that the stomach and intestine of fasting animals exhibit remarkably active peristaltic action." I have observed and already described the evidence of active peristalsis, of hypertony of the stomach, in such patients with good and hearty appetite. This active peristalsis is demonstrated by the proofs of the stenotic condition of the pylorus, which latter is indicated by the "floury layer" of the aspirated chyme that soon settles on the bottom of the beaker. This "floury layer" is the most significant evidence of strong pyloric contraction, and was so described also by Decker[18] 26 months after I first described it,[19] who calls that finely divided chyme "mussartige speisebrei." In my last article on "Insufficientia pylori," I dwelt especially on proving that the spastic contraction of the pylorus is equivalent to

increased peristaltic action. I believe I then proved that the closing of the pylorus is nothing more nor less than ordinary peristalsis in a narrower lumen, that the same contraction of the muscularis, which in the stomach produces only a diminution in the capacity, produces entire occlusion of the very narrow lumen of the pylorus. Thus my deduction that hunger is a symptom of contraction, finds corroborative proof in the references of Ewald and Schafer, who cite that active peristalsis has been noted during hunger.

If my view is accepted that hunger is but a symptom of contraction, then we can explain all the phenomena without any exception. As the contraction of the muscularis is the result of irritation of the mucosa, consequently the irritation of the mucosa at any time will produce contraction, which if not in too severe a degree, will give the symptom of hunger, irrespective of the condition of the stomach, *i. e.*, irrespective of whether the stomach is empty or not. Whenever there occurs a strong contraction of the muscularis of the organs named, and the contraction is not strong enough to produce cramps, we are conscious of the sensation called hunger, appetite. Contraction of the muscularis of the gastrointestinal tract, as well as of any other mucosa-lined organ, results after irritation, excitation, after the socalled stimulation of the mucous lining of the organ in question. Whatever will cause irritation of the mucosa will cause contraction of the muscularis. Whenever the contraction of the muscularis occurs in the proper degree there will be the manifestation of the sensation of hunger, and as soon as the contraction gives way to relaxation or to distention, the sensation of hunger disappears. Hunger is contraction of the muscularis in a lesser degree than that which produces pain; with the stronger contraction, there is a greater degree of hunger. Consequently the condition of "good and hungry" denotes a stronger contraction and consequently there must be attached to it a pathologic significance. A "good and hearty" appetite is not the appetite we should encourage or should look upon complacently. Such an appetite must be regarded as pathologic and must invariably be suppressed by the physician, as it is caused by a stronger contraction; hence there is a greater irritation of the mucosa than should be. This view will easily explain why patients suffer at the same time they "enjoy" a very good appetite. This "enjoying a good and hearty appetite" attendant with suffering nevertheless, has always been a great puzzle to both physician and laity. Both layman and physician are accepting that the good and hearty appetite is conclusive proof of the perfect efficiency of the digestive power of the individual in question and look upon the concurrent suffering as unexplainable and therefore "nervous." We have always been proud of a "good and hearty" appetite and invariably have overlooked the grave dangers that too often lurk behind that mask. "I can eat an ox" is a phrase uttered by the individual with a marked sense of mistaken superiority. Such an appetite indicates danger and commands immediate attention. Such an appetite signifies abnormal contraction, due to abnormal irritation of the mucous membrane. The sudden appetite which is experienced after taking a cold drink is also due to the contraction of the muscularis elicited by the cold. A cold bath acts in the same way, the chill penetrating deeper.

The immediate cause of the hunger is contraction of the muscularis, due to irritation of the mucosa. What causes this irritation, what is its nature? Usually it is consequent upon the presence of volatile organic acids, either within the stomach or within the upper portion of the small intestine. The pylorus may contract upon the irritation by the gases from either side of it, *i. e.*, the irritating volatile organic acids may act on the pylorus either from the stomach or from the intestine. If we admit that the volatile, acrid, organic acids do produce contraction, and that gases penetrate everything that is not gas tight, we will adopt the proposition that whether the volatile acid gases emanate from the stomach or from the intestines, nothing but constriction will stop the gases from reaching the pylorus and coming in contact with its mucous membrane. Whether normal hunger is the result of the contraction of the pylorus, due to causes from behind it, from the intestinal side or from gases emanating from the stomach itself, at present I cannot tell. That the sensation of hunger is caused by the presence of volatile gases as well in the stomach as in the intestine I have ample proof. When there is "good and hearty" appetite I have almost invariably observed the presence of gastric secretion in the supposed empty stomach; the supposed empty stomach usually holds more or less material, mostly of a greenish color. This greenish content I have already described as owing its color to the presence of fungi, which was corroborated by Kühne and others. It is the presence and growth of mold fungi which are for the most part the cause of the organic acids that produce "good and hearty" appetite. However, the stomach is not the only harbor of mold; the growth of mold in the intestine is often most luxuriant.

Contraction of the muscularis of the pylorus or upper part of the small intestine produces the sensation of hunger (appetite). Absence of contraction, the inability to contract, relaxation, distention—these being the opposite, the reverse of contraction results in the opposite of appetite, anorexia, provided, however, that such distention is not caused by an over-abundance of the irritating acid gases. Anorexia is the sensory symptom of distention of the stomach and upper portion of the intestine by nonirritating gases, as CO_2, hydrogen gas, etc., accompanied by complete or partial relaxation of the sphincter. This is the condition we observe in chronic pyloritis, chronic gastritis, and chronic inflammatory conditions of the first portion of the small intestine. The common accompanying symptoms of anorexia, according to its degree, are those produced by the same agency that produces anorexia, namely, distention by gases, the symptoms being: Anorexia, palpitation, heaviness or load in the stomach (unfortunately physicians still hold the primitive belief that this heaviness really means presence of contents), belching, painful breathing, pain in the left side, a sensation of weight, a sensation of losing everything and therefore of needing support, and, if the distention reaches further down the intestine, then also general weakness, lassitude, a sensation of insufficient, unsatisfactory defecation and finally also constipation. Contraction is peristalsis, distention, the contrary of contraction, is the contrary of peristalsis, constipation. Outside of organic and mechanical causes I believe distention is the most frequent cause of constipation. At this juncture it may not be amiss to call attention to the fact that not always should we accept the patient's statements without a little cross-examination. The patient may claim to have anorexia when as a matter of fact he is afraid to eat, or he may complain of constipation when he considers his bowels do not move sufficiently.

As to treatment little need be said. It is of absolute importance to ascertain the exact cause of the voracious appetite, or of the waning appetite, or of anorexia. To treat a patient with a view to curing, means a test-meal examination and nothing less. To satisfy ones self with the diagnosis of "nervous," that abomination of abominations, in cases of the ravenous appetite, is just as dangerous as to whip a flagging stomach which needs rest into greater exertion by the socalled stomachics.

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BERIBERI.[1]

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In view of the fact that beriberi is decidedly rare in this hemisphere, and that it is mainly seen in seaport towns only, I wish to present a report of four cases treated at the Pennsylvania State Quarantine Station, in the hope of adding a little to the somewhat limited literature of the subject.

Beriberi is an acute infectious disease, presenting groups of symptoms dependent upon a parenchymatous inflammation and subsequent degeneration of the peripheral nerves. The disease is endemic in Japan (where it is known as kakké), China, India, Ceylon, Dutch East Indies, New Zealand, and Africa; in the Western Hemisphere along the coast of Brazil, and in the Sandwich Islands of the Pacific. Isolated cases have been reported from time to time in almost all the coast towns of the tropic and peritropic zones, principally among sailors coming from the countries in which the disease is endemic. The opportunities for the study of this disease by physicians in this latitude have not only been rare, but have also been decidedly unsatisfactory.

Direct Causes.—From a study of the results of numerous investigations carried on independently by men having a wide experience with the disease, the opinion seems to be uniform that the direct cause of the disease is a specific microorganism. Gerrard, in 1899, isolated and cultivated an organism which he believed was the cause of the disease, but subsequently acknowledged his faulty technic. He believes, however, that there is a specific microorganism in the blood which can be isolated with appropriate technic.

Manson, a prominent authority on tropic diseases, claims the disease is caused by the exhalation of saprophytic germs from the soil of certain localities. He supports this view by citing numerous instances of epidemics occurring in certain portions of a settlement and not in others; and emphasizes the fact that the habits, diet, and general characteristics of the people are the same throughout the entire community.

Pekelharing and Winkler believe nothing short of repeated introduction into the blood of a specific microorganism, the character of which remains in doubt, will produce the disease.

Hamilton Wright, agreeing with the other authorities as regards the presence of a specific microorganism, stipulates further that it gains entrance by the mouth, is taken up in the circulation, causes a bilateral symmetric atrophy of the neurons, and is finally passed in the feces.

[1] Read by invitation before the Philadelphia Neurological Society, January 24, 1905.

Predisposing Causes.—As regards the predisposing causes of the disease, the opinions of these investigators are in accord with the generally accepted views upon the subject, viz., poor hygienic surroundings, an exclusive nitrogenous diet, a diet of rice or fish, poor drinking water, and improperly cooked food. While conducting investigations in the Federaled Malay States, Gerrard found that the disease was far less prevalent (other things being equal) among certain tribes where it was customary to eat rice properly cooked and hot, than among others where this care was not exercised. In many instances improperly cooked rice remained exposed for days before it was consumed.

The predisposing causes on the first boat (the "Foohng Suey") from which two of the cases to be reported were taken, seemed to be the ingestion of insufficiently cooked, and in one case, raw meat, (more or less decomposed), plus a mental condition of the men bordering on panic. It was thought that the sick men were stricken with scurvy, and in consequence the crew refused to eat the meat or drink the water given them from the ship's supply. Rain water was collected and drunk in preference to the water taken on at the port of departure. (The water was not analyzed, but the captain assured us that it was taken on at Kahului, where beriberi is not endemic and isolated cases rare, and so far as he was able to say, the source was reliable.) The crew not only refused to eat the meat offered to them, but barely ate enough food to enable them to continue with their work. However, such refusal did not come until after one man had died and three others were stricken down with the disease, so they were all exposed more or less to the same predisposing causes. On the second boat, the "Abby Palmer" the conditions were somewhat better, but the meat was bad and usually undercooked. The food supply was examined, and with the exception of the meat mentioned was found to be good. Naturally we were unable to determine how much of the contents of the well-stocked store-room, consisting of canned goods, dried fruits, wheat flour in metal receptacles, etc. was issued to the men (exclusive of the captains and their officers), and therefore refrain from any comment upon the subject.

Period of Incubation.—From a study of over 5,000 cases of the disease, Wright was able to place the average period of incubation at 10 to 20 days.

Pathologic Anatomy.—There is a parenchymatous inflammation of the nerve fibers, with subsequent extension to the sheath and connective tissue. The muscles are paler and smaller than normal. Autopsies held in cases of the acute and dropsical forms of the disease, in which there had been suppression of urine as low as 4 oz. to 6 oz. a day, revealed no change in the kidney structure, either macroscopic or microscopic.

Varieties.—Sheube and Butler agree in classifying the cases under four distinct groups, viz.: (1) The incomplete, imperfect, chronic relapsing or rudimentary; (2) the atrophic or paralytic; (3) the edematous or dropsic, and (4) the acute cardiac or fulminating.

Gerrard's classification agrees with the last three varieties, but differs in the first. He has given the name of "mixed beriberi" to the first group of cases; and, admitting the rudimentary as a distinct form of the disease, he describes, in addition, a number of cases of the mixed and rudimentary forms, showing symptoms of ataxia, as "spasmodic beriberi." I was able to place all four of my cases under Gerrard's classification, and, while a trifle more complicated than Sheube's, it seems to be more comprehensive.

Symptoms.—In tabulating the symptoms of each form of the disease, an attempt has been made to place them as nearly as possible in the order of their appearance.

The disease is divided into three periods: (1) The incubative period, lasting from 7 to 21 days; (2) the eruptive period or period of the established disease. (This statement is rather misleading. There is no erup-

tion in beriberi. However, there comes a time, usually 10 days from the appearance of the first symptoms, when there can be no question as to the diagnosis of the existence of beriberi, but absolute inability to determine the form which the fully developed disease will assume. After this time has elapsed, it has reached the eruptive period, or the period of established disease); (3) convalescence, lasting from three months to years. In the incubative period, all cases of beriberi present symptoms which would place them in the "mixed" group, and it is not until the vacillating stage has been reached that any knowledge of the ultimate character of the case can be obtained. This statement, however, does not apply to the rudimentary and spasmodic forms which present symptoms peculiar to each, and which may or may not develop into one or more of the four forms of beriberi.

The symptoms of mixed beriberi are indigestion and irregular fever. In a series of 200 cases reported by Gerrard, 76.7% complained of indigestion and irregular fever as the first symptoms. The other symptoms followed rapidly. A weakness in the legs and knees, numbness and tingling in the lower extremities, pretibial edema, loss of the knee-jerk, tenderness over the calf muscles, delayed sensation, areas of absolute anesthesia, hyperesthesia, in some cases very marked palpitation, rapid pulse, anemia, edema over the epigastric region, hurried respiration, irregularity of the bowels, and sleeplessness.

In a typic case of mixed beriberi which remains as such throughout the course of the disease, the word "moderate" may well be placed before each symptom.

Rudimentary Form.—A few cases of beriberi present the following symptoms: Pretibial edema, loss of knee-jerk, numbness in the legs, pain on pressure over the calf muscles, indigestion, and hurried heart action. After remaining in the hospital a week or ten days, these patients leave to return later with the same symptoms. The relapsing tendency of this form is one of its chief characteristics.

Spasmodic Form.—This is comprised of those cases of either mixed or rudimentary beriberi accompanied by incoordination and choreiform movements. These cases are exceedingly rare, and are frequently overlooked unless the ataxia is very marked or other symptoms direct the observer's attention to the true condition. This variety is rarely fatal.

Dry beriberi.—Atrophic or paralytic form: In this class of cases the cardiac symptoms and edema are slight, usually absent altogether. The muscles are markedly atrophic, those of the extremities and sometimes those of the face are exquisitely tender. The patient becomes gradually weaker and weaker, and is finally bedridden. He may subsequently regain the use of his limbs, but more often dies of some intercurrent disease.

Wet beriberi.—This form presents the symptoms of mixed beriberi plus a generalized edema. The serous sacs of the body rapidly fill with fluid. Dyspnea is a common and distressing symptom. Knee-jerks are absent; muscular soreness and weakness are present in varying degrees. It is usually impossible to determine the presence or absence of areas of anesthesia on account of the edema; and the same may be said of atrophy of the muscles, although it is safe to assume that it is present. These cases usually end fatally by merging into the fulminating or acute cardiac form.

Fulminating Beriberi or Acute Cardiac Form.—In this form the heart symptoms predominate, and it is very common to see a patient suffering with wet beriberi suddenly develop dyspnea—in some instances almost apnea-marked cyanosis, venous engorgement, pulmonary edema, and dilation of the right heart with suppression of urine. These cases are almost invariably fatal.

Any form of the disease at any period may develop acute cardiac symptoms and rapidly end in death. It is, however, very unusual in dry, unusual in rudimentary, not uncommon in mixed, and decidedly common in wet beriberi.

Diagnosis.—The principal diseases with which beriberi may be confounded are: 1. Alcoholic and arsenical neuritis: In these diseases, the absence of an epidemic and the history of the case will, in the majority of instances, clear up the diagnosis. 2. Malarial cachexia: The history, the presence in the blood of the hematozoon of Laveran, together with other symptoms of this disease, are usually sufficient to distinguish it. 3. Locomotor ataxia: The history, absence of Argyll-Robertson pupils, of sharp lancinating pains, girdle sensations, crises, and, in the majority of cases, of marked incoordination, distinguish the disease from locomotor ataxia. 4. Diseases of the heart: The absence of motor, sensory, and trophic disturbances, and the history will usually prevent confusion. 5. Diseases of the kidneys: The history, together with the absence of motor, sensory, and trophic phenomena, will eliminate renal disease.

There are other conditions which may be confounded with beriberi, but the history of the individual case and the presence of an epidemic will make the diagnosis clear.

Prognosis.—This depends upon: 1. Amount of cardiac, respiratory, and diaphragmatic involvement consequent upon inflammation of the vagus and phrenic nerves. 2. Amount of the edema. 3. The rapidity with which the edema appears and spreads. The lungs are more often affected when the edema progresses rapidly. 4. Patient's general condition. The pulse, temperature, and respiration, the ability to control the bladder and rectum, and the mental condition of the patient all influence the prognosis. 5. Previous history with especial reference to previous attacks of beriberi, malaria, untreated syphilis, and gastric disturbances.

Finally, when giving a prognosis, it should always be borne in mind that the disease is an extremely fickle one, and a fatal termination is always possible, even though in some forms improbable.

Treatment.—There is no specific. In the cases reported digitalin, strychnin sulfate, infusion of digitalis and elaterium were used when indicated. From a series of cases reported by Wright, a third of which were placed on mercury, a third on strychnin, and the remainder on diet alone, he draws the following conclusions:

1. Both strychnin and mercury are prejudicial in beriberi; of the two, mercury is worse.
2. Patients recover naturally most rapidly without treatment other than such as may be given for the relief of special symptoms.
3. In convalescence nitrogenous and albuminous foods are of great value.

CASE HISTORIES.

The American bark "Foohng Suey," registered tonnage 1,048, Captain John E. Willets, with a crew of 14 men, sailed from Kahului, Sandwich Islands, March 4, 1904, for Philadelphia, with a cargo of sugar in bags, and arrived at the Pennsylvania State Quarantine Station July 28, 1904.

The crew and vessel were examined by Dr. Henry D. Heller, quarantine physician; Dr. Henry Horning, deputy quarantine physician; and myself, and a diagnosis of beriberi was made in two cases, with several others presenting doubtful symptoms.

From Captain Willets we learned the following facts: On or about April 5 (one month after sailing), Abrams, a half-breed negro, refused to take his turn at the wheel, complaining of pains and weakness in the legs and ankles, with an accompanying swelling of these parts. The captain described him as being as poor a specimen of manhood as he had ever seen, filthy in his habits, and decidedly below the remainder of the crew in mental as well as physical characteristics. The captain having had an attack of beriberi 10 years before, suspected this disease. On April 22, Moran showed the

same symptoms and, from the statement of the captain, subsequently developed the symptoms of wet beriberi. On July 10 he died, and was buried at sea the same day. Abrams' condition became worse. On July 1, Fowler developed the same line of symptoms, presenting a clinical picture similar to that of Abrams and Moran. On July 3, Bruce showed some beginning symptoms of the disease. Upon arriving at the Delaware Breakwater, Abrams was taken ashore and sent to a Baltimore hospital. The vessel proceeded to the Pennsylvania State Quarantine Station, at Marcus Hook, where the entire crew was taken ashore to the hospital. The history and notes on the cases follow:

CASE I.—Wm. F., single, white, aged 60 was born in New York City. Admitted to the hospital July 28.

Diagnosis.—Beriberi.

Family History.—Good. All the members of his family, to the best of his recollection, lived to old age without organic disease.

Past History.—Patient claims to have had rheumatism about a year ago with an accompanying swelling of the knees, ankles, and elbows. He was not confined to bed and made a good recovery. At no time was the inflammation severe enough to keep him from his regular work. He has never been treated for any heart lesion, and if any existed he was not aware of it. Absolutely denies any venereal disease. Has never had beriberi.

Present Illness.—On or about July 1, the patient complained of vague pains beginning in the ankle-joints and gradually extending up the legs to the knees and thighs. This pain was accompanied by a feeling of weakness, numbness, and tingling also ascending to the thighs. Upon questioning him as to the character of the pain (with a view of ascertaining any resemblance to the attack of rheumatism which the patient claimed to have had a year ago), it was found that it was slowly progressive in character unlike the attack of rheumatism in which the pain was sharp and sudden. Swelling and sensory disturbances were absent in the wrist, elbow and shoulder-joints, and also in the muscles of the lower extremities. The pain was followed by a slight swelling, also beginning in the ankles and extending to the thighs. About two weeks after the beginning of the paresthesia and muscular weakness, there was shortness of breath upon the slightest exertion, especially at night time. He complained of a feeling of fulness and distress over the epigastric region. Bowels were irregular, and sleeplessness was a pronounced symptom. Appetite was poor. Palpitation and precordial distress were present.

Physical Examination.—The patient's general appearance was anemic and puffy; the skin waxy; its condition very tense, more especially over the legs, thighs, and scrotum, where the edema was most pronounced. The expression was listless. The patient seemed to feel that an unfavorable outcome was all that he could hope for; and nothing but actual evidence of the subsidence of the swelling convinced him that his condition was good, and that his chance for recovery was of the best. It is not so remarkable however, that a man of 60, suffering with marked edema of the lower extremities, and a scrotum the size of a man's head, seeing one of his mates die from the disease and two others stricken like himself, should view his chances with gloom.

The dyspnea and general respiratory distress were quite marked. Gait was unsteady with a suspicion of ataxia. Romberg's symptom was doubtful. A voyage in a sailing vessel of more than one hundred days' duration even to one who follows the sea, would have a tendency to make the station unsteady.

There was some loss of power and atrophy in the extensor muscles of the legs with foot-drop. It was impossible, on account of the tense condition of the skin, to obtain any satisfactory evidence of superficial sensory disturbances. The reflexes were present and normal.

Chest: The patient presented a well-developed and muscular chest, with normal expansion equal on both sides; dyspnea was a prominent and distressing sign. Palpation: Negative, as to pathologic signs. Percussion: Negative. Auscultation: Large moist rales heard both on inspiration and expiration over both lower lobes posteriorly; more pronounced over right than left; no other adventitious sounds. Heart: Apex beat in the fifth interspace half an inch outside the nipple line; there was considerable noticeable palpitation. Palpation: Confirmed inspection. Percussion: The heart was enlarged to the left of the nipple line. Auscultation: A faint systolic murmur was heard over the mitral area, transmitted as far as the midaxillary line; heart sounds were feeble; the other valves were apparently intact. Abdomen: Large and flabby with some fluid in the dependent portions; slight edema in the epigastric, inguinal, and hypogastric regions. Liver and spleen: These organs were not palpable; percussion revealed no enlargement of either the liver or spleen. Scrotum and penis: The edematous condition of the penis was so marked that the foreskin, which in this particular case was long, covered the glans and meatus, and urine was voided with difficulty; it was impossible to retract the foreskin more than enough to locate the meatus; to relieve the acute retention, a filiform bougie was passed to the anterior layer of the triangular ligament and tied there; this proved efficacious; it was impossible to pass a catheter of any size or material; the scrotum was enormously swollen and exceedingly tense; the abdominal walls, especially in the inguinal regions, shared in the edema.

Eyes: Pupils were equal and responded promptly to light and accommodation.

Blood: Microscopic examination revealed nothing abnormal.

Urine: A careful urinary examination was made, since the swelling and puffiness under the eyes, the waxy appearance of the skin and the general edema suggested nephritis. Reaction, acid; specific gravity, 1,018; no albumin; no sugar; no casts. An average quantity of 48 oz. a day was passed.

Upon admission, temperature was 97.6°; pulse, 90; respirations, 32.

Treatment.—Rest in bed, with elevation of legs and scrotum. Elaterium, .02 gm. (⅓ gr.) four times a day; strychnin, 2 mg. (1/30 gr.) three times a day; infusion digitalis, 15 cc. (½ oz.) four times a day. The elaterium was given four times on July 29, 30, and 31; three times on August 1, with good effect, and was then discontinued. As the edema was disappearing so rapidly, we relied upon digitalis and strychnin, with an occasional dose of magnesium sulfate. A soft diet, with the minimum amount of fluid, was prescribed. As the swelling subsided, the diet was gradually increased. The following notes of the case were made by Dr. Henry Horning:

"July 29: Temperature, 100°; pulse, 96; respirations, 30.

There is marked improvement in the edematous condition of the feet, ankles, legs, and scrotum. Dyspnea and palpitation continue. Patient complains of increased soreness over the precordial region, and of pains above each knee. Some improvement in the condition of the abdomen. The rales noted posteriorly at the base of both lungs are still present. The patient was bothered much during the night by a persistent cough. No expectoration.

July 30: Temperature, 98°; pulse, 78; respirations, 30.

Patient showed great improvement this morning. Rested comparatively well during the night. Bowels very active during the previous day and night. Edema rapidly disappearing in the ankles and legs. Scrotum markedly relaxed. Abdomen softer, but still swollen. Heart much improved. Pulse slower, more regular and of good volume.

July 31: Temperature, 97.6°; pulse, 72; respirations, 28. Improvement continues. Rested well during the previous night. Bowels very free, the stools being composed almost entirely of water. Scrotum markedly relaxed. Abdomen softer, but still swollen. Heart much improved. Pulse slower, more regular and of good volume. Diet increased.

August 1: Temperature, 97.4°; pulse, 70; respirations, 24. The improvement from this date was rapid and uniform, and on August 9 the patient was discharged from the hospital."

The patient was ordered tonic doses of digitalin and cautioned against any indiscretion in diet and violent exercise of any kind. It is fair to assume from the nature of his occupation that this advice will most certainly be disregarded, with unfortunate consequences.

CASE II.—B. B., single, white, aged 29, was born in Sweden. Admitted to the hospital July 28.

Diagnosis.—Beriberi.

Family History.—Had the usual diseases of childhood. He claimed he had some "trouble" with his heart about five years ago. He took no treatment, and nothing more definite could be learned. Has never had beriberi.

Present Illness.—Three weeks ago the patient was seized with pain, stiffness, and weakness in the ankles and legs. After several days, the ankles began to swell, soon to be followed by a progressive swelling of the legs, knees, and thighs. At this time (or in other words, about two weeks ago) he experienced a shortness of breath upon the slightest exertion, and was annoyed by severe palpitation. He gradually grew weaker and was obliged to take to his bunk. He complained of loss of appetite, feeling of fulness and distress in epigastric region. Bowels irregular and disturbed sleep.

Physical Examination.—Chest: Normal muscular development; expansion good and equal on both sides; some dyspnea; no peculiar markings. Palpation: No variations from the normal, except the palpitation transmitted from the precordial region. Percussion: Negative. Auscultation: Breathing hurried. No adventitious sounds.

Heart: The apex beat was visible in the fifth interspace in the nipple line. Palpation with the palpitation mentioned confirms inspection. There is a circumscribed presystolic thrill palpable inside of the apex beat. Percussion: No appreciable cardiac enlargement. Auscultation: A presystolic murmur heard best over the mitral area and not transmitted. The other valves were apparently unaffected.

Eyes: The pupils were equal and normal, and responded to accommodation and light.

Patient's gait was ataxic, but Romberg's symptom doubtful. This might possibly have been due to the same cause as mentioned in the previous case. Reflexes present.

Sensation: There was no loss of sensation except over a small area on the outer side of the left thigh and the inner side of the right leg.

Motion: There was apparently no loss of motor power.

Trophic changes: Absent.

Blood: Negative; urine, negative.

Treatment.—Rest in bed; soft diet with milk four times a day; strychnin sulfate, 2 mg. ($\frac{1}{30}$ gr.) three times a day; spirits frumenti, 15 cc. ($\frac{1}{2}$ oz.), four times a day; magnesium sulfate, 15 cc. ($\frac{1}{2}$ oz.), in the morning when necessary.

The following notes by Dr. Horning:

July 29: Temperature, 98.6°; pulse, 78; respirations, 26.

Patient feels somewhat better this morning. The dyspnea and palpitation are not so marked. Edema of the ankles and legs about the same.

July 30: Temperature, 98.4°; pulse, 78; respirations, 18.

Patient feels and looks improved. Edema less marked. He sleeps well and enjoys his food.

July 31.—Temperature 98.4°; pulse 76; respirations 18.

Patient greatly improved. Dyspnea and palpitation, together with the edema of the legs and ankles have entirely disappeared. Heart murmur not nearly so pronounced. Diet increased. From this point until the patient was discharged on August 9, the improvement was rapid and uniform.

It will be remembered that of the 13 men taken ashore, eight were sent to the hospital for treatment. After a more thorough examination it was found that six of the eight presented no symptoms from which a diagnosis of beriberi could, with certainty, be made; they were, therefore, sent to the detention barracks for observation. As they had voluntarily starved themselves, and were very despondent, a few days with good food and good hygienic surroundings greatly improved their general health.

The American bark "Abby Palmer," registered tonnage 1,705, Captain J. A. Johnson and crew of 18 men sailed from Kahului, Sandwich Islands, August 11, 1904, for Philadelphia with a cargo of sugar in bags, and arrived at the Pennsylvania State Quarantine Station, January 8, 1905.

The following two cases of beriberi were taken from this bark to the hospital:

CASE III.—Chas. W., single, white, aged 42, born in Göttenburg, Sweden.

Diagnosis.—Beriberi.

Family History.—Negative.

Past Medical History.—Patient has had what he believed to be rheumatic pains in the muscles and joints for the last eight or ten years. He complained of the pains after periods of exposure to severe weather. He denies absolutely any venereal history or any previous attack of beriberi. He has always had perfect health until four or five weeks ago.

Present Illness.—About the first week in December, the patient complained of pain, numbness, and tingling in the legs and knees. Upon examining his legs he found that they were swollen, and showed considerable pitting on pressure. Rubbing the knees together produced no sensation. Accompanying these symptoms was a distinct shortness of breath upon the slightest exertion; this became so marked and distressing that he was obliged to stop work. There was no cough. He complained of a feeling of fulness and distress in the epigastric region, irrespective of the ingestion of food.

He noticed that he had trouble in walking, but attributed it to his weakened condition. It was this symptom, however, that attracted our attention, and led us to make a careful examination.

The patient is a well-nourished, extremely muscular individual, about 5 ft. 11 in. in height, and weighs approximately 185 pounds. The skin has a healthy appearance and is weather-beaten from exposure. Peculiar choreiform movements, which the patient seems unable to control, affect the face, arms, and legs. The difference in the appearance of the arms and legs is very pronounced; the circumference of the forearm exceeding that of the leg at its thickest part.

Chest: Well developed and muscular; expansion is normal. There are no peculiar markings; the entire anterior chest pulsates coincident with the cardiac impulse. The pulsation of the carotids is very prominent. Palpation: The cardiac impulse is transmitted over the entire anterior chest wall. Tactile fremitus is normal. Percussion: Negative. Auscultation: Breath sounds are hurried. No adventitious sounds. Vocal fremitus is normal.

Heart: The apex beat is visible in the sixth interspace, one and a half inches outside the nipple line. There is considerable epigastric pulsation. Palpation: A weak diffuse apex beat is palpable in the sixth interspace. Percussion: The heart is enlarged to the left one and a half inches outside of the nipple line, downward to the upper border of the seventh rib, and the right to the right parasternal line. Auscultation: The heart sounds are feeble. A mitral murmur, systolic in time, is heard best in the sixth interspace, one and a half inches outside the left nipple line, and is transmitted to the midaxillary line.

Eyes: Pupils equal and normal and respond promptly to light and accommodation; no nystagmus.

Gait: The patient walks with the feet wide apart; raising them well above the floor, he brings them down hard, the heels striking the floor with considerable force; there is total inability to walk a straight line, or to stand or walk on the heels; Romberg's symptom is present to a marked degree.

Sensation: To heat, cold, and touch, sensation is preserved; pain, numbness, and tingling are present in the calf muscles; there is also some tenderness in these muscles on manipulation.

Motor Power: This is considerably impaired; dorsoflexion of the foot and toes is very weak, while plantarflexion is fairly strong; the strength of the flexor and extensor muscles of the leg is very much weaker than normal.

Trophic Symptoms: The muscles of both legs, especially the perineal region, are atrophied and flabby, and the fibulas are almost exposed; there is noticeable foot-drop.

Reflexes: Plantar reflex is present on the left, absent on the right foot; ankle-clonus, achilles'-jerk and knee-jerk are absent on both sides; fibrillary tremors are present on both sides.

Blood: Microscopic examination of the blood demonstrated nothing abnormal.

Urine: Examination was negative.

Upon admission temperature was 98.2°, pulse 100, and respirations 28. Up to date the maximum and minimum have been: Temperature 98° to 99.6°, pulse 65 to 110, respirations 16 to 30.

January 9: The appetite is improving. Dyspnea not so distressing. The edema in the legs and abdomen subsiding. Patient complains of considerable pain in the calf muscles, otherwise is resting comfortably.

January 10: Improvement in the dyspnea. The feeling of fulness and distress over the gastric region improving. He still complains of pain and numbness in the calf muscles, but he is regaining the sense of touch around the knee-joints, which was absent upon the first examination. The twitching and choreiform movements have ceased altogether.

January 15: The heart and respiratory symptoms have gradually improved. It was not, however, until this date that any improvement in the gait could be detected. There seems to be improvement in the station as well. The pains and numbness have almost entirely disappeared. The improvement was uniform but slow, and at the request of the patient he was discharged February 2. His condition was such as to warrant his discharge, although there still remained some ataxia, which, however, was rapidly disappearing.

CASE IV.—E. S., single, white, aged 38; was born in Manchester, England.

Diagnosis.—Beriberi.

Family History.—Negative.

Past History.—Had enteric fever in South Africa four years ago. Has occasional pains in muscles and joints in damp weather. Denies any venereal history whatsoever. No history of previous attack of beriberi.

Present Illness.—About three weeks ago, the patient complained of pain, tingling and numbness in the ankles and legs, followed by swelling in these parts. His shipmates reported that the swelling was so marked that upon pressure a distinct pitting resulted. His appetite was poor and there was considerable palpitation. The dyspnea which followed was so pronounced that he was unable to go aloft without resting to get his breath. There was nothing abnormal in the man's gait.

The general appearance was that of a moderately well-developed man 5 feet 8 inches in height, weighing about 150 pounds. Expression rather dull and listless. In quiescence the dyspnea was not noticeable.

Chest: With the exception of pulsation in the carotids and first portion of the axillary arteries, the examination of the chest was negative.

Heart: Apex beat a finger's breadth inside the nipple line in the sixth interspace. Palpation: Confirms inspection. Percussion: No enlargement. Auscultation: With the exception of the hurried action there is nothing abnormal in the condition of the heart.

Eyes: Pupils equal and normal, and respond readily to accommodation and light. No nystagmus.

Gait: Nothing abnormal in the patient's gait and Romberg's symptom is absent.

Sensation: The pain, numbness, and tingling have been mentioned. Slight muscular tenderness. Sensation to heat and cold present. One or two small areas of anesthesia around the patellas. Motor power: Slight weakness in the muscles of the legs. Trophic symptoms: Absent. Reflexes: Upon admission the knee-jerks were absent, but later returned and became exaggerated, more so in the right than left leg. Exaggerated achilles'-jerk on both sides. A faint disappearing ankle-clonus present on both sides.

Blood: Examination of blood was negative.

Urine: Also negative.

Upon admission, the temperature was 98.4°; pulse, 65; and respirations 19. The maximum and minimum were: Temperature, 97.8° to 99.4°; pulse, 65 to 110; respirations, 16 to 20.

January 9: The general condition of the patient is greatly improved. There is less difficulty in breathing than heretofore. The rate has at no time been rapid, but the patient has had difficulty in drawing a long breath and the slightest exertion caused him great discomfort. The swelling in the ankles and legs has almost entirely disappeared. He still has some pain in the calf muscles.

January 10: The improvement continued to January 15, when upon examination it was found that the reflexes, which had been absent upon admission, were now exaggerated. Usually the knee-jerk is present at first and gradually disappears. On January 17 the patient was discharged, at his request.

Both of these cases presented a condition of hypotonia and it was possible when in the dorsal position completely to extend the leg at right angles to the long axis of the body. This is a symptom of tabes dorsalis, but I believe that it is seldom present in multiple neuritis.

Barring a few minor symptoms, I believe the four cases just described are illustrative of four of the six forms of beriberi.

The second and fourth cases present the cardinal symptoms of the rudimentary form, viz.: Loss of appetite, hurried respiration, numbness in legs, loss of knee-jerk in the fourth and not in the second, pretibial edema, and muscular tenderness and weakness.

The first case illustrates the "wet" form, presenting all of the foregoing symptoms, plus cardiac involvement and a most pronounced general edema, with effusions into all the serous sacs of the body, with possibly one exception—the pericardium. However, in this case I was unable to differentiate between a pericordial effusion and a dilated heart; but it seems fair to assume that there was a little of both.

The third case began as the spasmodic form; the choreiform movements and marked ataxia attaining prominence only in this form of the disease. I think that the case has since developed into the true "mixed" form. It is possible that this patient will develop acute cardiac symptoms and die, but it is highly improbable.

If the report of these cases will add anything to our knowledge of beriberi, I will feel well repaid for presenting it. I beg to acknowledge the courtesy of Dr. Henry D. Heller, State Quarantine Physician, for permission to publish this report.

TO WHAT EXTENT IS CLIMATE A NEGLIGIBLE FACTOR IN THE TREATMENT OF PULMONARY TUBERCULOSIS.[1]

BY

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It is not the purpose of this paper to sing the praises of the climatic conditions prevailing in any particular locality or resort. But as there is today a decided tendency among many whose opinions carry weight, to deny entirely the value of climate in the treatment of tuberculous disease of the lungs, it may be well worth our while to consider the question from an impartial and conservative standpoint, to determine, if possible, if this position is wholly justified. From statistics the contention of either side can be readily proved. One might in reason say that an impartial consideration could not be expected from one whose professional activity is confined to a health resort, and is dependent upon the continued popularity of the climatic treatment of tuberculosis, yet, on the other hand, he who has had an opportunity for a long observation in such a resort is in a better position to weigh both sides of the question than he who has not had an intimate acquaintance with conditions prevailing in such places. Without anticipating the conclusions of this paper, no one knows better than the resort physician to what extent the influence of climate has been exaggerated in the past, no one appreciates better than he how the beneficial effects of influences in no way dependent upon climate have been placed to its credit.

Two things, I believe it is safe to state as well established: 1. That there is no known climate which exerts a specific influence over tuberculosis. 2. That the dietetic-hygienic regimen is the central point of treatment around which all other things or methods must be grouped as adjuncts to it or as influences which may favor its efficient conduct, whether in a resort or elsewhere. This is true not only of climate but also of direct culture products, serums, inhalations, drugs and mechanical methods. If this position is not well taken all that may follow will have little weight and less value.

It may be well to state here that I take a rather broad view of what constitutes the dietetic-hygienic regimen: A strict individualization of cases, from a thorough study not only of local disease areas, symptoms, type of disease and complications, but also of the psychic and social status of the patient, is made a basis for careful regulation of feeding, personal and house hygiene, rest and exercise, out-of-door life, physical and mental diversions, and associations. Since the treatment of this disease has resolved itself into a strict attention to details, it is the physician's duty to weigh carefully everything which may increase the efficiency of this method or which may otherwise favor the recovery of the patient. The various elements which make up the complex known as climate will, therefore, be briefly considered from the standpoint of the influence each may exert for good or for evil upon the efficiency and thoroughness of the conduct of the dietetic-hygienic regimen, upon individual symptoms, upon nutrition, and also upon the psychic condition of the patient.

Soil.—In the selection of a place for carrying out treatment, the dryness of the soil is our first consideration and is determined by its porosity and by the nature and rapidity of the drainage. Efficient drainage of the immediate locality may be either artificial, as in flat and low countries, or natural, as in rolling and mountainous districts. Porosity plays a more important role in flat, artificially drained districts than where the ground is sloping or precipitous. The patient and his mode of life are indirectly affected by the wellknown influences of soil conditions and vegetation upon humidity, rainfall, temperature conditions and air purity. It is but rarely that soil alone furnishes a valid reason for sending a patient very far away, for this requirement can frequently be satisfied in the immediate vicinity of the patient's home.

Sunshine.—No other element of climate in its effects upon the patient and his mode of life and upon the various other meteorologic conditions is so far reaching as sunshine. Sunshine stands in indirect ratio to the hours of rain, the hours of mist and fog, and the dampness of the soil, and in direct ratio to the purity of the air. Other things being equal, the greater the number of hours of sunshine, the more hours can be spent in the open air, the better the spirits and the general psychic aspect of the patient. The effect upon the room where the patient spends a third of his time—his sleeping apartment—is not of minor importance. To what extent the ultraviolet and other actinic rays exert an influence upon general nutrition and upon disease processes might also come into consideration, did we know more about them. Nevertheless, empiricism clearly teaches us that sunlight is either directly or indirectly conducive to good spirits, good physical health and a general feeling of well-being. Had sunlight its effect upon the spirits alone it would be a very important element in the treatment of tuberculosis, as anyone can testify who has frequently observed the great difference in his tuberculous patients on dark, gloomy days and on bright, sunny days. It is scarcely necessary to refer to the deleterious effect of the intense heat of the vertical rays in the tropics, especially when associated with a high degree of humidity.

Rainfall and Snow.—The hours of rainfall are much more important than the inches of precipitation. Quick, hard showers and storms purify the air by freeing it from suspended impurities. Long, drizzling rains not

[1] Read before Buncombe County Medical Society, November 7, 1904.

only cut out the sunshine, but add a depressing effect of their own; they materially curtail the open-air life, and by raising the humidity to the point of saturation, increase loss of heat by conduction, and at the same time reduce skin evaporation. Snow cannot be considered deleterious, as it removes impurities from the air in its descent, and keeps dust and other floating impurities from rising again. It increases sunlight by reflection, modifies low temperatures, is associated with little wind, and favors an open-air life. It is only during the melting that we get harmful effects.

Humidity and Temperature.—We must distinguish carefully between absolute and relative humidity. Any influence of atmospheric moisture upon the mucous membrane of the respiratory tract must be ascribed to absolute humidity alone, for whatever the external temperature, the air in passing into the lungs is raised to the uniform temperature of the body. The association of relative humidity and temperature determines to a large extent the effects of either or both, and for clinical purposes they cannot be dissociated. Low relative humidity with low temperature is very stimulating, but because of the extremely low absolute humidity, is very drying and irritating to the respiratory mucous membrane, provoking cough and lessening expectoration in the tuberculous—especially when the larynx is involved. On the other hand, high relative humidity with high temperature is debilitating. High relative humidity with moderate temperature is soothing to the mucous membranes, hence often desirable in laryngeal tuberculosis. When associated with temperatures near but above freezing-point, high humidity is said to favor catarrhal conditions of respiratory passages; this, however, does not accord with my experience of those who have been for some time leading an out-of-door life. Low relative humidity with moderately low temperature is tonic and stimulating to the nervous system without being irritating to the respiratory mucous membrane. Temperature, humidity, rain, fogs, and mists can hardly be dissociated. When the relative humidity is high there is a greater frequency of rain, fog, and mists, consequently less sunshine, and through this channel alone it has an important bearing upon the efficient conduct of the open-air treatment.

Winds.—High winds, beside filling the air with dust and other floating impurities, are instrumental in the production of rain, and are often responsible for wide and sudden ranges of temperature. On the other hand, in thickly populated districts winds may be conducive to greater air purity, the frequent changes preventing a high degree of pollution. That they may otherwise affect the conduct of the proper regimen is true, but they play their role in climatic resorts as well as at home. It becomes a question of infrequency of high winds or choice of a protected locality.

Air Purity.—The purity of the air is of the highest importance to the tuberculous patient and has been necessarily considered with the other elements of climate, the beneficial influences of which are largely reflected by their effects upon the purity of the atmosphere. Beside the effect of soil, drainage, sunlight, rain, snow, wind, and humidity upon the purity of air, the impurities incident to industries and thickly-populated districts demand our careful consideration. The smoke, dust, and suspended organic matter from industrial concerns, the bacterial and gaseous impurities consequent upon a thick population, from excrement of man and beast, from tanneries, soap, and glue factories, slaughter houses, etc., need only be mentioned that their baleful influence upon the tuberculous patient wherever he comes within the radius of their distribution may be appreciated. It is evident that such impurities are inimical to the proper conduct of the dietetic-hygienic regimen and the welfare of the patient.

Altitude.—It is almost impossible to consider the various elements of climate without giving some attention to the subject of altitude. Although altitude must be considered more in the choice of a locality for the individual case, we may briefly refer to its relations to other climatic features dependent upon it, or at least associated with it. At higher altitudes we find (1) greater insolation; (2) better natural drainage; (3) quick, hard showers the rule; (4) few fogs and mists, except in valleys and on the cloud line; (5) low relative and low absolute humidity; (6) few industries, and (7) a scattered population, all of which conspire to the production of (8) greater purity of air. If we leave out of consideration any particular counterindication in a given case we can readily see that altitude is usually associated with the various climatic influences, which favor a more thorough and a proper conduct of the dietetic-hygienic regimen.

But there are influences exerted by altitude upon the patient himself. The lower density and consequent lower oxygen content of the air necessitate more frequent and fuller respiratory movements, which in turn strengthen the muscles of respiration, increase lung capacity and expansion, favor opening up of collapsed air cells, assist in throwing off secretions and increase the use of little used lung areas. The increased expansion and capacity are readily recognized at our moderate altitude (2,500 ft.) by systematic measurements and tracings. That unused or badly used lung areas again come into use is most strikingly illustrated by the disappearance of slight degrees of dorsal curvature, the result of asymmetric chest flattening. The greater respiratory excursion further favors better blood and lymph circulation in the lungs. That increased demand for heat production in higher altitudes correspondingly increases metabolism, has been nicely demonstrated by several investigators, but more recently by Robin and Binet. This general increase in the vital activities manifests itself in better appetite, better digestion, and better nutrition.

There seems to be no probability that there will be in the near future any unanimity of opinion concerning the apparent improvement in the blood condition, as shown by the Thoma-Zeiss hemocytometer, at higher altitudes. If we look upon a climatic resort as a place where there is a maximum of sunshine, a minimum of fog and mists, relatively few hours of rainfall, a relatively low humidity, great purity of atmosphere, and an opportunity for efficient medical supervision, leaving out entirely the question of altitude, if the dietetic-hygienic regimen is really the foundation of the proper treatment of the disease and if a strict attention to details is highly essential, there remains for us from the foregoing only one conclusion—that the dietetic-hygienic regimen should be always conducted in a place where all these conditions are most nearly satisfied. That where the proper mode of life may be best carried out is where the best results can be obtained, seems to be only a logical conclusion.

To reiterate, if the treatment is so made up of a strict attention to details, the physician cannot afford to neglect any factor which makes possible the more effective conduct of the proper regimen and mode of life, nor may he neglect any other thing that can exert an influence for good, provided its use or attainment is not necessarily associated with the sacrifice of still more important things. Herein lies the meat of the whole question.

With the well-to-do and rich the financial aspect of the question plays no part, but with all others its role is the most important. It is not enough that the patient can rake and scrape together sufficient money for railroad fare and the means to enable him to live for a few weeks or months in some cheap or indifferent boarding house. It is just as necessary that he should live under the proper conditions and supervision in the climatic resort as at home. One would not expect the patient to recover from his disease at home, while living under

unfavorable conditions, no more should it be presumed that he will improve under such conditions away from home. Climate does not make insufficient and bad food nutritious, does not make small, illy-ventilated bedrooms healthful; no matter how bright the sun may be, it will not penetrate to the depths of the airshaft bedroom; nor do climatic conditions teach patients how to care for themselves from day to day. The patient must be able to pay for proper food, properly prepared and properly served, he must be able to pay for a sleeping room of sufficient size, properly ventilated, with the proper exposure, and in a location free from dust, smoke and the odors of the city. But we dare not stop there. We must consider whether by an expenditure of the same amount of money in improving home conditions his chances of improvement would not be greater than those under which his moderate or limited means would necessitate his living in an expensive climatic resort. Then still another point must be carefully weighed, the mental worry and anxiety incident to the sacrifices. I have seen many instances in which the anxiety consequent upon accumulating debts, mortgages placed on homes to obtain money to go to a resort and the necessary sacrifices made by dear ones at home, has more than offset any advantage the patient may have derived from improved climatic conditions and regimen. It is to me most pathetic to see here in our own mountain resort so many who have sacrificed the earnings and savings of years to come here to live in some cheap boarding house or hotel in the center of the city in foul-smelling, illy-ventilated rooms where the sun never reaches, but where noise, dust, smoke, and foul odors find a ready access; if they have any medical advice at all, it is usually that charitably furnished by some kind-hearted doctor, but what can a doctor's advice avail when the patient has not the means of securing proper food and proper quarters? Many times you will find that these very persons have left a nice little cottage home in a large yard in the suburbs of the city or even on a farm. To repeat then, no patient should be sent to a climatic resort who has not the means to live under conditions just as good or better than those that could be obtained in his home climate and under proper professional supervision.

Being a physician in a health resort, I refer with some diffidence to the necessity of professional supervision, yet it cannot be too strongly emphasized that it is the utmost folly to send patients to a climatic resort with the expectation that they will "paddle their own canoes." It is a very common practice among physicians sending patients to resorts to tell them: "Whatever you do, stay away from doctors." It may be that it is intended as a reflection upon the fraternity in such places. If this be true, I am sorry, for it is a lack of confidence which has been responsible for many uselessly sacrificed lives and many more untimely deaths. Nearly all these patients sooner or later learn by sad experience the fallacy of such advice, and then seek professional care when there is frequently nothing left to do but to send them home to die. Unless patients can have competent professional guidance, either as charity or as pay patients, they are much better off at home where they can lead the proper mode of life under supervision, although the climatic conditions be extremely unfavorable.

Before leaving the financial question (because it is this more than anything else that determines the length of sojourn in a resort), let me say that the patient should not be sent away under the impression that he may return home in good condition in six weeks or two months; in order that he may make arrangements accordingly, he should be given distinctly to understand that he will have to remain a long period of time. He should be told as near the truth as it is known.

Then come the moral qualifications of the patient for consideration. When freed from home ties and surroundings and the influence of those who are interested in his recovery, will he have the moral backbone to withstand the many temptations incident to a large idle population? Has he the proper stuff in him to make a business of getting well? In every health resort there are so many sources of amusement—theaters, dances, golf clubs, tennis clubs, bowling clubs, mountain parties and the like, that all the enthusiasm with which the physician may be able to imbue his patient is not sufficient to hold some individuals in line. Many times these same patients when at home surrounded by their friends and families would give the physician that hearty cooperation so absolutely necessary.

Provided the financial and moral qualifications offer no obstruction to sending the patient to a climatic resort there still remains for consideration the physical condition of the individual.

It is at this point that I must come into conflict with the uncompromising advocates of home treatment of the disease. They tell us that in incipient cases the patients should be treated at home. True, these are the most favorable cases for home or any other treatment for that matter. Just as the lack of moral backbone makes the climatic resort unfit for the treatment of certain patients so does the lack of moral backbone to make a business of getting well interfere with the home treatment of another class of first stage cases. These patients do not feel indisposed, certainly not enough to appreciate fully the absolute necessity of leading the proper sort of life; they cannot free their minds from business worries and home cares. They are not content to rest idly in the sunshine when friends and business competitors apparently no healthier than they, are rushing by to business; they cannot endure the solicitation of their many acquaintances who come sometimes to cheer them up, but more frequently to commiserate with them; they feel like impostors. Then going back to my major premise that the essential element of the treatment of this disease is a strict attention to details with a neglect of nothing that might exert an influence for good over the course of the disease, it becomes absolutely incumbent upon the attending physician to give the patient the benefit of everything that may improve his chances of recovery, which even in the earliest stage are not so numerous that a single one may be safely neglected. There can be no possibility of a doubt, other things being equal, that where there is a maximum of sunshine and pure air, there the proper regimen can be most effectually carried out. These patients do better in resorts where they can lead the necessarily idle, out-of-door life without feeling conspicuous and where they have to support them, the force of example of others who are making a business of getting well; where they are free from home cares; where they can make a complete change in their habits of life and in their surroundings without a shock to their sense of the eternal fitness of things.

For the more advanced case, in which there may still be a hope of improvement or arrest of disease, pretty much the same argument must be brought to bear. The patient should have every chance for recovery that may be given him, whether it comes from the better conduct of the proper regimen made possible by improved climatic conditions or whether we find in certain climates something akin to a specific influence over the disease. The pernicious habit of sending hopelessly advanced or moribund patients to climatic resorts to die cannot be too vigorously condemned. Patients with hopelessly involved larynges or with bowel tuberculosis should not be sent away from home unless it is to place them under the care of men more skilled in palliating these conditions.

In selecting the resort for the individual case, altitude, humidity, and season of the year must receive thoughtful consideration.

Before closing, it may not be amiss to say briefly that while I put forward no claim for a specific property in

any climate, it remains to be explained why so many people live here and in other resorts for years enjoying relatively good health, yet dare not return to their old homes for even a few weeks without a renewal of activity of the disease, although all conditions, other than climate, may be just as good as those under which they have lived in the climatic resort. But does it not show that there must be in these places some combination of circumstances which exerts a deterrent effect upon the course of the disease? If only this much, does not such an influence assist materially in obtaining results through other measures?

Though there may be no specific property in any climate, it is going entirely too far to deny absolutely the influence of climatic conditions over the course of the disease; and those who today are so doing, must, I believe, sooner or later recede from that extreme ground. The empiric evidence of a century cannot be laid aside with a simple fiat and the observation of a few hundred cases.

CONCLUSIONS.

Since the dietetic-hygienic regimen may be much more thoroughly and efficiently conducted under certain climatic conditions, climate is a negligible factor only: (1) When the financial status of the patient is such that he cannot live in the health resort under conditions just as good as those obtainable at home, with or without the expenditure of the same amount of money; (2) when the patient has not the moral backbone to make a business of getting well; (3) when the disease has become hopelessly advanced.

THE MEDICAL TREATMENT OF EXCESSIVE URIC ACID IN THE URINE.

BY

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of Chicago.

However insignificant uric acid is physiologically, pathologically it is the most important constituent of the urine on account of its tendency to deposit, forming urinary concretions or calculus. The treatment of excess of uric acid in the urine rests on the fact that there are two forms: 1. The free, sparingly soluble uric acid—the urine is supersaturated with uric acid, held in mechanical suspension. 2. The freely soluble basic combinations of uric acid. The rational treatment consists first in maintaining the supersaturated, free, insoluble uric acid in such attenuated dilution, mechanical suspension, that it will not precipitate and localize itself in the ureter in the form of a concrement or calculus. This is executed by the administration of ample fluids at regular intervals, and by administering foods containing elements to produce basic combinations with the uric acid forming urates which are freely soluble. The object of the treatment is first to dilute the urine. This is done by administering sufficient, ample, quantities of fluids at regular intervals to maintain the supersaturated, free, uric acid, in an attenuated state of dilution in mechanical suspension, in order that no precipitated uric acid concrements may form and lodge in the ureter. The ample fluids administered not only increase ureteral peristalsis, but induce a powerful ureteral stream, a large fluid volume, which flushes the ureter and floats particles distalward, allowing no deposits of concrements or calculus on its wall. The maintaining of free uric acid in suspension, nonprecipitated, not in concrements, is supposed to be due to the colloidal properties of the urine aided by its coloring material—pigments. For example, the darker colored the urine the more uric acid it holds in suspension. The more concentrated the urine, the more liability to precipitate uric acid; however, from these conditions the animal organism delicately regulates itself. The concentrated urine appears to irritate the renal epithelium to secrete an extra amount of colloidal and coloring material which checks uric acid from precipitating and forming calculus.

Unfortunately we have no known remedy which will increase the colloidal or coloring material in the urine—we must dilute the urine to prevent uric acid deposits. Doubtless uric acid calculus is frequently due to the patient not drinking enough. The formation of a uric acid calculus cannot occur when a large and powerful stream of urine is vigorously forced through the ureter. If there is a small, weak stream uric acid calculus forms with facility, and is liable to lodge as a concrement. The maximum concentrated solution of urine, tends to crystallize with vastly more facility and frequency than dilute urine. Single crystals are rapidly floated through the ureter by diuresis, while in small quantities of urine with a weak stream, the crystals tend to lodge and increase in dimension. Oliguria is the best condition for the multiplication of uric acid calculus. Cardiac disease with resulting congestion is frequently the precursor of ureteral colic and hematuria—calculus rapidly forms. Doubtless the ureteral calculus of the first months of infant life rests on the crystalline deposit due to urine concentration during the first days of extrauterine life. Also, no doubt, numerous uric acid calculi passed spontaneously, were formed during acute diseases when urine was scanty, concentration tending to crystallize. The uric acid stone arises from the deficient secretion of urine due to deficient amount of regularly ingested fluids. Large numbers of men, and especially women, drink insufficiently, and oliguria results. Many women oppose free drinking from the idea that it produces fat. Many people drink only at meal time—one or two cups of coffee. This does not furnish more than 2½ pints of daily fluid, whereas for normal functionating of the viscera 5 pints is required. Uric acid calculus is scarcely known during polyuria, diabetes insipidus, or mellitus, *i. e.*, when a powerful ureteral stream exists. The daily quantity of urine voided should be about 45 ounces. If we calculate the loss of fluid by the perspiratory tract, by the respiratory tract, and intestinal tract, it will require about 5 pints of ingested fluid to produce 45 ounces of urine. The best fluid is water. For many years I have diluted the urine, increased its volume (consequently increased ureteral peristalsis) and clarified it by administering 8 ounces of one-half or one-quarter normal salt solution six times daily. I have made sodium chlorid tablets, .78 gm. (12 gr.) each (with flavor). The patient places on the tongue a half tablet (NaCl) and drinks a glassful of water (better hot) before each meal. This is also done in the middle of the forenoon (10 a.m.), middle of the afternoon (3 p.m.), and at bedtime (9 p.m.) The patient thus drinks 3 pints of (¼ to ½) normal salt solution daily. This practically renders the urine normal, and acts as ample prophylaxis against the formation of uric acid calculus. If parenchymatous nephritis exists the NaCl should not be administered, as it excessively stimulates the renal parenchymatous cells. In such cases give the water only.

The rational treatment of excessive uric acid in the urine consists in administering food that contains elements to produce basic combinations with uric acid forming urates (usually sodium) which are freely soluble. This will diminish the free uric acid in the urine. Excessive uric acid in the urine is an error in metabolism. The question of diet to determine is: (*a*) What kind of food causes the calculus producing material in the urine? (*b*) What kind of food influences the solubility of the calculus producing material in the urine? 1. The meat eater is the individual with the maximum quantity of free uric acid in the urine. Flesh is rich in uric acid. Hence, in excess of uric acid in the urine, flesh (meat, fish, and fowl are all about equal in power to produce uric acid) should be practically excluded, because it increases free uric acid in the urine. Flesh eaters have uric acid stone, vegetarians have phosphate, oxalate stone. Generally,

the subject who suffers from uric acid is a generous liver, liberally consuming meats and highly seasoned foods, indolent and sedentary persons, and alcoholic indulgers. Thirty-three percent of uric acid is nitrogen. Uric acid is derived from the nuclei that form a constituent of all cell nuclei and which are taken in the body as food. Beef bouillon may be administered, because the extract matters in it will scarcely increase the uric acid. A general meat diet largely increases the free uric acid in the urine. 2. The food should contain matters rich in sodium, potassium, and ammonium, which will combine as bases with uric acid, producing alkaline urates, which are perfectly soluble in the urine. These typic foods are the vegetables which not only render the necessary alkalies to reduce and transform the free uric acid into resulting soluble urates, but leave an ample residue to cause active intestinal peristalsis, aiding in the evacuation through the digestive tract. Hence, the patient should consume large, ample quantities of cabbage, cauliflower, beans, peas, radishes, turnips, spinach in order that the sodium, potassium and ammonium existing in the vegetables may combine as bases with the free uric acid in the urine producing soluble urates and thus diminishing the free uric acid. A vegetable diet diminishes the free uric acid in the urine 35 % less than a meat diet. Again the administration of eggs and milk (lactoalbumin) limits the production of uric acid. The most rational advice is to order the subject to live on a mixed diet consuming the most of that kind of food which lessens the uric acid in the urine—vegetables. For many years I have treated subjects with excess of uric acid in the urine by administering an alkaline laxative tablet in fluid. The tablet is composed of: Cascara sagrada, 1.6 mg. ($\frac{1}{40}$ gr.); aloes, .022 gm. ($\frac{1}{3}$ gr.); $NaHCO_3$, .065 gm. (1 gr.); $KHCO_3$, .022 gm. ($\frac{1}{3}$ gr.) $MgSO_4$, .13 gm. (2 gr.). The tablet is used as follows: One-sixth to one tablet (or more as required to move the bowels once daily) is placed on the tongue before meals and followed by 236 cc. (8 oz.) of water (better hot). At 10 a.m., 3 p.m., and bedtime one-sixth to one tablet is placed on the tongue and followed by a glassful of fluid. In the combined treatment the sodium chlorid tablet and alkaline tablet are both placed on the tongue together. This method of treatment furnishes alkaline bases (sodium and potassium) to combine with the free uric acid, in the urine, producing perfectly soluble alkaline urates and materially diminishing the free uric acid. Besides, the alkaline laxative tablet increases the peristalsis, absorption and secretion of the intestinal tract—aiding evacuation. I have termed the sodium chlorid and the alkaline tablet method, the visceral drainage treatment. The alkaline and sodium chlorid tablets take the place of all socalled mineral waters. Our internes have discovered that on entering the hospital the patient's urine presents numerous crystals under the microscope. However, after following the visceral drainage treatment for a few days, crystal cannot be again found. The hope of removing a formed localized ureteral calculus lies in securing vigorous ureteral peristalsis with a powerful ureteral stream aided by systematic massage over the psoas muscle and per vaginam. Subjects afflicted with excess of uric acid in the urine need not make extended sojourns to watering places, nor waste their time at mineral springs nor tarry to drink the hissing Sprudel, for they can be treated successfully at home, or in a palace. The treatment of a uric acid calculus consists therefore in the regulation of food and water. It is dietetic. The control, relief and prophylaxis of uric acid diathesis is a lifelong process. When the uric acid calculus has passed spontaneously, the patient does not end his treatment but pursues a constant systematic method of drinking ample fluids at regular intervals and eats food which contains bases to combine with the free uric acid, producing soluble urates. Those desiring further information on this subject may consult the work of Dr. G. Klemperer.

SPECIAL ARTICLES

MODERN THERAPEUTICS.[1]

BY

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of Baltimore, Md.

The attitude of the general public toward the medical profession is not what it should be. One often hears, from widely different sources, that it has not kept abreast with advances in knowledge and civilization. Such is not the case. That such impressions should be entertained is largely attributable to misconceptions that have had their beginnings in earliest times. Even after men emerged from barbarism, their superstitious minds referred the causes and results of disease to supernatural influences; to restore a sufferer to health, a deity was to be propitiated. The healing art, therefore, fell naturally into the hands of the priesthood, and was largely a process of charms, incantation and prayer. It is not my intention to dwell upon the evolution of medicine and therapeutics longer than to point out that to the present day these misconceptions survive in the popular fancy, changed, indeed, by time and experience and culture, but still virile. It envelops the healing art in mysticism, and the processes of disease and its repair are not understood as the effects of natural causes. From its supernatural beginning, medicine, through experience and the lapse of time, gradually developed into an art, and the basis of therapeutics became established. As, however, it could have no scientific foundation, its practice was pure empiricism. In the absence of knowledge of the sciences of anatomy, physiology, pathology, chemistry, physics or of pharmacology, therapeutics had no other source of information, and it is not surprising that numberless theories of the actions of remedies should have arisen. It would not be profitable to give even a passing reference to these. Of one only, as false as the others, will I speak, since its influence upon the progress of our art was very great, and, in a measure, is still felt. The doctrine of "signatures," advocated as late as the earlier half of the sixteenth century by Paracelsus, the arch quack and medical reformer taught that "every natural substance which posseses any medicinal virtues, indicates, by an obvious and well-marked external character, the diseases for which it is a remedy, or the object for which it should be employed." While this absurd theory has long since been neglected, both in the spirit and letter, there can be no doubt that deep down in the popular mind there survives the belief that nature has provided a remedy for every disease, and that it is a discredit to the medical profession that it has failed to discover it. But the search for the specific remedies, provided by nature for the healing of disease, had one most important result. It produced most valuable agents wherewith suffering frequently may be relieved and death averted.

The practice of medicine long remained empirical, and it was not until comparatively recent times that science became sufficiently advanced to make observations in rational therapeutics possible. With the broader and deeper knowledge gained during the last century, however, the pharmacologic laboratory has come into existence and holds out abundant promise of a brilliant future. We may hardly hope that a complete science of rational therapeutics can be achieved. For that, there would be demanded such knowledge of the processes of life in health and disease, such knowledge of life itself as we may not expect to gain; but in following the lines that are now laid down, we may confidently predict such acquaintance with the actions of remedies and the reactions of the body to them as will remove therapeutics, in great part, from the domain of empiricism. While the physiologic therapeutist is busy in his laboratory, the chemist, the clinical observer and experimenter, the pathologist, are no less active. New and important agencies are constantly being provided, their application and value are being tested, the experience of our predecessors is being confirmed or refuted. New applications of old remedies, new methods and the therapeutic influences of newly revealed

[1] An address delivered at the annual session of the Medical and Chirurgical Faculty of Maryland, April 25, 1905.

natural products and forces are undergoing trial. It is most interesting to remark the wonderful advance in therapeutics that has been made possible by synthetic chemistry, in the production of a great number of agents, which in many cases have advantageously supplanted the older remedies and have exerted specific influence over many diseases and morbid conditions. While it would be rash to assert that natural alkaloids and specific principles will ever be superseded in therapeutics by these products, it is safe to predict that we will become much less dependent upon the crude products of nature.

The greatest achievement of modern therapeutics is its recognition of the reparative force of the human body. From early times the ability of the body to resist and overcome many injurious influences has been acknowledged. As the *vis medicatrix naturæ* this power has been known and relied upon by physicians in the practice of their art; but its signification was vague and it came almost to be regarded as a phrase. In the light of recent experience and more profound knowledge this force has acquired a new interpretation, more definite and positive and we now know that this remedial power of nature exerts a potent, the most potent influence in the preservation of health and the healing of disease. We have been forced to admit that in it is a prophylactic and remedial power that is far greater than any that we can command and that our best and most effective efforts consist in guiding and aiding it in its operations. Not only is it constantly guarding our bodies from invasion by its numerous enemies, but when the invasion can no longer be prevented and the citadel of life is attacked, it instantly provides the weapons by which alone the attack can be repulsed. No less is this reparative influence exerted when disturbed metabolism and disordered function arise. We see now that nature organized her own medical department with the very beginnings of life. That any of us is here tonight is an evidence of her ability to protect us from the multitudinous morbific influences that assail us constantly. But as we all differ in physical, mental and moral characteristics, so do we vary in the extent to which this *vis medicatrix* resides within us, both in degree and quality. In some of us it is deficient in many respects, in all of us, in some respects.

It is the glory of the modern physician that he acknowledges this supreme remedial power of nature, and that he has learned to supplement her work and to employ himself in discovering her methods and in strengthening her hands. In those disorders which are due to the invasion of specific morbific principles, he knows that when the strength of the invaders is weak and the antidotal power of the body is strong, restoration to health will follow; when the invasion is in overwhelming extent or the antidotal power of the body is deficient, death will ensue; but he finds his battleground and his hope of victory whenever the contending forces are divided with some approach to equality, and when his skill and intelligence may reinforce the powers of life. To effect this he has at his command the resources of an elaborate and scientific pharmacopeia to which he is harnessing the wonderful forces of nature, a perfected system of hygiene and dietetics, but above all, he has penetrated the living body and drawn from it its own specific remedies and antidotes.

An illustration of the higher plane upon which modern therapeutics rests is afforded in the histories of two of its most important and beneficent discoveries, separated in time by about a century. The discovery of the efficiency of vaccination against smallpox was due to an accident, the observation of certain phenomena by a mind great enough to interpret their significance and bold enough to put the facts thus observed to practical application. Edward Jenner had the genius to realize the importance of the phenomena accidentally observed. How different has been the evolution of the antitoxin of diphtheria and such antitoxins and animal extracts as have been provided for us by the laborious and scientific laborers of our own day. From beginning to end their discoveries were the results of careful, painstaking, intelligent experiment, typifying the marvelous advance made by a century of scientific labor.

The therapeutist now realizes that the true laboratory for antidotes to the ravages of disease is within the bodies of those who are affected, and he is hastening to lend whatever resources he may command to render this remedial force more efficient. By experience he has been compelled to admit that antidotal influence over most diseases, as afforded by the agents of the pharmacopeia, are few, but he justly claims that with wider and deeper acquaintance with physiologic and pathologic processes, with clearer understanding of the seats and causes of disease, with more scientific knowledge of the action and uses of drugs, with an improved and elaborated pharmacopeia, with an improved system of hygiene and dietetics, he has vastly increased his ability to afford vital assistance to our bodies in their struggles with disease, to help and guide that internal therapeutic force. Who can doubt that the therapeutic triumphs of the future will be achieved along these lines?

Great as has been the service of therapeutics in the relief of suffering and pain, and the prolongation of life upon the basis of the pharmacopeia alone, the medical man refuses to be judged simply as a dispenser of drugs, to have his skill and ability gauged by his readiness in administering the specific remedy for the given disease. External nature, unaided, has provided very few specific remedies. While he points to these with justifiable pride, the modern physician stands upon a broader and loftier platform. He knows that in most cases disease is to be led, not driven. He has not lost faith in the value and efficacy of drugs, but he has lost the credulity that finds antidotes to all diseases. The physician is no less the conservator of health than the healer of disease. Whatever progress has been made in the advancement of health and in the physical wellbeing of mankind, has been largely under his inspiration. Great as have been his victories over disease, greater still have been his achievements in devising means for its prevention. In prophylaxis he has discovered and is discovering means for increasing the sum of health and happiness incalculably. In the years to come his activities will be exerted more in the field of prevention than of cure. From earliest times he has taught that it is better to avoid sickness than to be able to cure it. His efforts in this direction have been persistent, intelligent, and devoted, and have been steadily rewarded. The world's heroes, for whom it reserves most of its laurels, are the shedders of blood, as destructive as pestilence. The humble preserver of life, the physician, who has snatched from the destroyer disease, multitudes greater than the armies slain in battle, is forgotten.

What has he done? He has placed within the reach of mankind the annihilation of many diseases; he has enabled man to live longer and happier; he has provided a means whereby smallpox may be driven from civilized life; he has discovered a remedy for diphtheria equally capable of saving the lives of those attacked and of protecting from danger of invasion; he has provided a specific remedy for those attacked by malaria, and, still better, in discovering the cause and chief manner of communication of malarial fevers, he has shown the world how to make some of the fairest portions of the earth habitable and their peoples free from the perils of malarious infection; in discovering the principal medium of transmission of yellow fever, he has indicated the means whereby this modern pestilence may be met and overcome; he has found out the cause of typhoid fever, of Asiatic cholera, of bubonic plague, of tuberculosis, and the most important routes by which these diseases gain admission to the body, and has shown how these devastating scourges can be overcome and banished; he has made the deadly typhus almost a tradition. These and many other victories are his, and he gives the confident promise that the human lives that have been preserved through his efforts already are few as compared with those to be preserved in the years to come.

The physician, then, stands before society as both the preserver of health and the healer of disease, conscious of an immense power for good in an intelligent application of the agents and methods afforded by the pharmacopeia and by other results of science, he knows, that after all, his greatest triumphs are to be won by protecting those over whom he exercises his watchful care from the inroads of the enemies that constantly assail them from without; and then, when his efforts in this direction prove unavailing, by throwing the forces under his command to the assistance of that reparative energy that he discovers in their bodies. His energies thus exerted meet with a success that more than keeps him abreast of

the progress of society. In view of the avenues to health, long life, and happiness that medicine has thrown open to the world, and of the tardiness with which the world avails itself of these, who may venture to assert with truthfulness that the physician loiters along the road of progress? Who may venture to deny that he is a very pioneer of civilization and a benefactor to his race?

MISCELLANY

MEDICAL CHARITIES.

The economic administration of medical charities is receiving more study just now than ever before. Every suggestion which offers to help in the solution of the vexed question should be worthy of consideration. It is not a question of passing importance, but one which involves all generations to come. Should means be discovered of erasing the existing debits of the several hospitals and the present system of their administration be continued, the relief would be but temporary. Few physicians believe it wise for them to state frankly their opinion as to the present status of medical charities. The position of reformer is distasteful and, beside, if they gave publicity to their ideas, it might prove injurious to their standing. These men give largely to charity, both of service and money, but if they advocated radical changes in our hospital system they would be courting disaster to their favor with the managing boards.

It is from conversations upon this subject with these men, as well as from personal work and observation in charitable institutions, that I have come to the conclusions herein set forth.

It is undoubtedly wise to cut down expenses as far as compatible with efficient service. It is undoubtedly wise to obtain as great a list as possible of persons who will give some specified sum yearly. It is undoubtedly wise to increase interest in every hospital, by means of sewing circles, etc. But is all this energy and money expended upon the sick poor for whom it is intended? Do semipublic hospitals increase the number of undeserving charity patients? That is to say: Is there a greater number of applications for medical charity than there would be were charity and private hospitals entirely separate? In other words: Do the pay patients in a semipublic hospital lend a cloak of respectability to those who seek and accept charity and yet could afford to do without alms?

To put the matter plainer: Do people accept charity at the Presbyterian or St. Luke's Hospital, who would not think of going to Bellevue Hospital? If so, what would be the saving to charity if those undeserving patients could be weeded out? I venture to say that the saving would at least equal the present deficiency in hospital finances.

However, opinions are valueless unless supported by facts whenever they are obtainable. Would not a commission, carefully selected, composed, perhaps, of one member of the profession and one Christian and one Jewish philanthropist active in charity work, be able to settle this matter? One day's patients, indoor and outdoor, at each hospital, could be taken as a test. Each patient's financial standing could be looked up, by Dun or Bradstreet if necessary. Furthermore, this commission could make a report as to the urgency of hospital care for each patient. Many, perhaps most of the patients in hospital beds today, could be treated just as well in their own homes.

It is probably true that any of your readers would much prefer that an employe should be treated at his or her "pet" hospital rather than taken to Bellevue. Bellevue is an almshouse; the patients are paupers. At Roosevelt or New York Hospital it does not need to cost a cent (if one can obtain admittance), and yet who would call it alms! Thus the feelings of both employer and employe are saved, for the employer would feel some shame at permitting an employe to be treated at an almshouse; at Bellevue or on "the Island."

"*Charity Patients.*"—Many of these charity patients are as able to pay for a physician's services as they are able to pay for their bread and coal. Not a few of these objects of medical charity own real estate, diamonds, carriages, etc. One of the advantages of living in a city like New York is, to them, the free medical services.

It is pathetic to think of the "auxiliaries" working to help this army of undeserving sick; of the men who are worrying over the finances of institutions which offer charity to undeserving as well as deserving; of the beds endowed in loving memory of some one who has gone before, and which are holding patients who could well afford to pay for all necessary services. It is pathetic, and yet there is a sort of humor about it.

Charity balls, and other entertainments, where the funds are for a semiprivate hospital, are of benefit, in great part, to people who could afford to pay for either themselves or their employes, but are thus enabled to obtain charity without the loss of any self-respect.

To prove what has been said is not at all difficult: Let a poorly-dressed individual, man or woman, one evidently in need of charity, go to any semipublic hospital, suffering from some such disease as rheumatism. If he or she is admitted at all, it will not be much over 24 hours before the patient will be in a city institution. Now, give this patient a letter from some member of the board of directors, or from some minister in sympathy with the hospital, or some capitalist, and, *voila, tout est changé!*

It is inconvenient, and an expense, to have a sick person in the house, and, beside, "the hospital is the best place to be sick." It certainly is! But so is Sherry's the best place to dine. To relieve a pauper of hunger you do not give him the luxuries the market affords, but the necessaries which he craves.

Now as to the cost of an illness at home. Medicines are but a trifle. If much medicine is needed and there is positively no money to buy it, the wholesale drug houses will gladly furnish it free. Nursing, perfectly adequate, can be had for a reasonable charge. In most diseases a trained nurse is a luxury and not a necessity. An intelligent attendant can follow out a physician's orders.

The "doctor"! Ah, there's the rub. The "doctors' bills" are used most frequently as a procurer of sympathy and assistance. Now, just what are these bugbears of "doctors' bills"? In the first place there are a number of dispensaries which have an organized staff of visiting physicians—dispensaries which seldom, if ever, ask you to buy tickets at exorbitant prices for poor shows or worse musicals. These physicians attend worthy charity cases in their homes, entirely free of charge. Similarly, visiting nurses can be obtained when necessary, free of any charge. Some, however, would feel a loss of dignity, of American spirit, if a free doctor or a free nurse came to attend them. It would shame them exactly as much as it would to be taken to Bellevue Hospital or to Blackwell's Island. Their haven for the saving of expense as well as saving of self-respect is found in the hospitals where one name, as one roof, covers those who pay for value received, as well as those who do not. The rabbi's waitress, the bishop's cook and the banker's stenographer are treated at no expense to patient, or to benevolent employer, at Mt. Sinai or St. Luke's or New York.

The Responsibility.—Physicians are more to blame than any other class for the present status of medical charities. It is mostly due to thoughtlessness. The surgeon who, by making use of a charity bed, can perform an operation for $50, nurses and dressings being provided by charity, forgets that many a surgeon would gladly do the same operation at the patient's home for $25—and with equally good results. The physician who has "arrived," because a patient cannot pay his fee of $4 or $5, forgets there are many of his confreres who would gladly take the case at $1 a visit.

Some physicians who are attached to hospital staffs think they are injuring themselves if they encourage any change in the modus operandi of medical charities. On the other hand, there are physicians who are ever ready to lend a hand in upsetting the present system of hospital management, but who would gladly return to the present methods as soon as they themselves were safely established upon the list of the attending. The spirit of reform and revolution is usually, it seems, nurtured by jealousy. Therefore, in order to arrive at the truth in the matter, I would suggest the commission I have

mentioned above. Let the information be carefully obtained and as carefully recorded—not listed under "deserved charity" or "disease needing hospital care," but let the financial standing of each patient in the hospitals on a certain day, be as carefully examined as though for a mercantile firm or a banking house.

A patient is unworthy of charity if he can pay a physician $1 a visit, or 50 cents an office call. Under the list of diseases a full description of the malady should be made. Any case which necessitates confinement to bed for a week or longer is not necessarily a hospital case. If our charity hospitals contained only such patients as absolutely needed hospital care—either because of absolute poverty—with no home, or a much too crowded home, or because of the nature of the illness, which could not be as skilfully treated—not easily, but skilfully treated—outside of a hospital, then I believe the money given today for our medical charities would be more than ample to meet all demands.

If this is shown to be a fact by a commission, then I believe the quickest way to eradicate this preying upon charity will lie in the absolute separation of charity hospitals from pay hospitals.

Whether the city or the State or benevolent societies should manage the charitable institutions is beside the question I am discussing. It is the total separation of medical charities from paid medical service which I wish to advocate.—[John Joseph Nutt, M.D., in *Charities*.]

THE IDEAL MEDICAL ASSOCIATION JOURNAL.

The *Journal of the American Medical Association* seems to have succeeded in drawing upon itself a good deal of unfavorable criticism by its recent policy in the matter of advertising, the raising of the price thereof, putting annoying restrictions on the same, as well as in its methods of obtaining this form of patronage. This was only to be expected from a journal published ostensibly as the organ of a great national association of professional men, yet managed after and run on lines of the strictest commercialism, even to the copyrighting of its every issue.

The fact is that a "journal" of an association like the American Medical—an association of physicians upholding the "Ethics" of the profession in their strictest entirety, should not, and in reason, cannot be fashioned after purely commercial models. The ideal "journal" of this sort should constitute a forum for the full, free, and impartial discussion of all subjects concerning the art and science of medicine in which the members of the association are interested. Its very *raison d'etre*—the cause of its existence, is not, ostensibly, to make money, but to furnish its readers a faithful and unwarped record of the proceedings of the association that founded and maintains, or rather which *should* maintain it, and as such, it should not carry advertisements of any description, and least of all, advertisements of proprietary remedies.

If there be a rational objection that can be urged against the use of proprietary preparations by physicians, it is not that their manufacturers seek the protection afforded by the trademark laws; neither is it that they refuse to disclose in their fullest detail the secret processes by which they are compounded, nor that they can not stand the test of some arbitrary "ethical" standard; but because there is no journal published in which their merits or demerits are freely and impartially discussed; in which physicians who have used them can record their clinical experiences with them, just as they might do with an universally accepted or recognized article of the materia medica.

To fill this hiatus in medical journalism, this want of a true medical forum, should be the role of the journal of a great national medical association. If a physician of repute has used a preparation whether secret or not, and desires to give the members of the profession an account of his experiences therewith, the columns of his association organ should be open to him to do so, of course, under such precautions as are necessary to ascertain the standing of the writer and to make sure that he is neither in the pay of the maker of the preparation on the one hand, nor actuated by malice on the other, accordingly as his report is favorable or unfavorable.

The acceptance and publication of the advertisements of proprietary preparations by the "journal" is a quasiendorsement of them, or at least it is so regarded by the manufacturers, and by such acceptance and publication, the editor or manager places himself in a rather awkward position. After taking the money of the manufacturer with one hand, the "journal" cannot consistently attack him in its editorial pages, or permit others to do so, without, at least, subjecting itself to very severe criticism; since, if the article advertised is without merit, or if its manufacturer is in any way dealing unfairly with the medical profession, the "journal," by giving him the benefit of the publicity which its advertising pages afford, actually aids the manufacturer in the imposition and itself becomes *particeps criminis*.

Moreover, the "journal" of an association, like the American Medical, in soliciting, or even accepting advertisements of proprietary remedies, at once puts itself on a level with the house organ or the minor society organs, which are supported by advertising contributions, obtained more or less by coercive methods. The American Medical Society is a body of physicians associated together for mutual instruction and advancement in the art and science of medicine, and the dues which they pay in entitle them to receive a copy of a journal free from all bias, and beholden to no one except members of the association.

If, as stated, the journal cannot be maintained by the dues thus paid in, it should be discontinued, or published less frequently, or the dues should be increased. The members should not, and as honorable, self-respecting men and physicians, cannot afford to permit others—men outside the medical profession—to bear the expense of keeping them posted on the progress of their profession. Least of all should they or the men whom they employ to publish their "journal" seek to make money by the publication of advertisements of patent or proprietary remedies—things the use of which they condemn as opposed to the "ethics" of the association.

Of all things contrary to the true spirit of medical science that the ideal journal of a medical association should shun is the copywriting of its matter, thus putting a lock or seal upon the information it publishes, so that it cannot be given a wider publicity by other medical journals, except as a privilege, under penalty of the law.—[*National Druggist, St. Louis, Mo.*]

The Term "Professor."—We are glad to see a protest made against the undiscriminating use of the title "professor." Not having any particular application enforceable at law, the term has been appropriated promiscuously by one class after another until hardly a vestage remains of its once honorable significance. It is a bold step, but an entirely proper one, therefore, for those who have long borne the name as a badge of distinction, to abandon it now that it has become common, and seek another. The United Professional Teachers of Dancing in America, meeting in convention at Columbus, O., have led the way. How their individual members are to be addressed in future we are not informed, but it will not be as "professor," which, as their resolution states, is a "much-abused" word. It will be easy for other professions of distincton to follow on. The veterinaries might put in their protest next, the rag-time piano players, the leaders of mandolin orchestras, the conjurers in vaudeville theaters, and finally the proprietors of high grade bootblack stands. Let each of these, then, search out a new title of its own to be jealously guarded from infringement. The chemists, botanists, historians, economists, astronomers, and the like may keep the old prefix if they want to, and there will surely be no danger that any outsider will try to pass himself off as "professor" when it means no more than this.—[*New York Post.*]

Typhoid Fever at Dundaff.—State Health Commissioner Dixon has detailed the chief medical officer of the Department of Health to investigate the cause of the typhoid fever epidemic at Dundaff, Susquehanna county, and to take prompt measures to prevent its spread.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

August 19, 1905. [Vol. XLV, No. 8.]

1. Status of Medical Affairs in the Philippine Islands. JOHN R. MCDILL.
2. The Teaching of Pediatrics. JOHN LOVETT MORSE.
3. The Specialties in Relation to the General Practitioner. ROBERT CUNNINGHAM MYLES.
4. A Common Ground for Medicine and Dentistry. FRANK L. PLATT.
5. The Physician as a Dentist. CALVIN WILLIAM KNOWLES.
6. The Physician's Duty to the Child from a Dental Standpoint. ALICE M. STEEVES.
7. The Medical Relations of Certain Conditions of the Mouth. L. DUNCAN BULKLEY.
8. Early Diagnosis of Surgical Diseases of the Urinary Tract. BENJAMIN TENNEY.
9. Lateral Displacement of Tendon Insertions for the Cure of Strabismus. EDWARD JACKSON.
10. Sympathetic Inflammation Following Panophthalmitis. WILLIAM ZENTMAYER.
11. Anaerobic Cellulitis. J. CLARK STEWART.

1.—Medicine in the Philippines.—J. R. McDill describes the condition of medical affairs in the Philippines. He does not believe that the climate is necessarily fatal or unduly enervating to Americans. As yet there has been no marked affiliation between the native and American physicians, and McDill thinks this will hardly occur till a new generation, educated in English and in modern methods, has arisen. At present, the ratio of physicians to population outside the city of Manila is 1 to 51,786, or one physician to each 430 square miles, and to supply the medical and sanitary needs of the country, 2,000 or 3,000 native physicians and sanitarians should be educated there during the next 20 years. There is a unique opportunity for the establishment of the ideal university and affiliated professional schools in the Philippines, and there will be no lack of earnest, capable students. The medical profession is waiting for some one to contribute for the establishment of a Philippine university and medical school.

2.—See *American Medicine*, Vol. X, No. 4, p. 136.

3.—See *American Medicine*, Vol. X, No. 4, p. 137.

4, 5.—See *American Medicine*, Vol. X, No. 7, p. 263.

6, 7.—See *American Medicine*, Vol. X, No. 8, p. 305.

8.—Urinary Diagnosis.—Benjamin Tenney describes the symptoms and diagnosis of urinary disorders at considerable length. He finds that while occasionally there may be reflex symptoms due to some outside condition, when the three symptoms—localized pain, altered function, and hematuria—are met together, little doubt exists of the presence of some surgical condition in the urinary tract. With only two of these present, surgical disorders of the urinary tract should be excluded before attention is directed to other organs, or the patient left to nature somewhat upset by the various socalled urinary antiseptics and sedatives. Tumor, tenderness and residual urine, he says, do not require complicated apparatus for their recognition, and their presence or absence can be determined by any physician who will take the trouble to examine his patients carefully. These preliminary points are simple, usually sufficient for a correct diagnosis, and always trustworthy in indicating the urinary tract as a source of trouble. A complete and correct diagnosis of the exact local conditions, however, as a preliminary to operation, calls for as much attention and accurate observation as anything else in surgery.

9.—See *American Medicine*, Vol. X, No. 7, p. 261.

10.—See *American Medicine*, Vol. X, No. 9, p. 347.

11.—See *American Medicine*, Vol. X, No. 9, p. 346.

Boston Medical and Surgical Journal.

August 17, 1905. [Vol. CLIII, No. 7.]

1. Some Problems of Intermediary Metabolism. RUSSELL H. CHITTENDEN.
2. A Case of Lymphatic Leukemia in a Child. JOHN LOVETT MORSE and HARRY C. LOW.
3. A Further Contribution to the Study of Bacilluria in Typhoid Fever and Its Treatment with Urotropin. CHAS. D. EASTON.

1.—Problems in Metabolism.—R. H. Chittenden devotes the Shattuck lecture to a consideration of problems in intermediary metabolism which are well under way of partial or complete solution. Even the comparatively simple process of oxidation is brought about by intracellular ferments or oxidases. Cell ferments then are the base of the complex changes known collectively as metabolism. In this way the formation of uric acid is made clear through the action of at least four enzymes which in successive steps form it from nucleoproteids. Recent work shows that in man the ingestion of alcohol with purin-containing foods increases at once the output of uric acid. Intermediary metabolism in regard to carbohydrates is an exceedingly complex subject, which at once leads to the question of diabetes. Again, this is an interference with the action of oxidases. The entire article is an enlightening discussion of these questions, the points of which can not readily be obstructed. [A.G.E.]

2.—See *American Medicine*, Vol. IX, No. 25, p. 1016.

3.—Bacilluria in Typhoid Fever.—C. D. Easton reviews the literature relating to the use of urotropin to disinfect the urine during the course of typhoid fever and also gives the results of the routine use of the drug in the Massachusetts General Hospital. In 46 of these cases, after the drug had been stopped for 6 to 10 days, and before the patients were discharged, the urine was found to be entirely free from typhoid bacilli. Urotropin may in very rare cases cause uncomfortable symptoms, but this does not invalidate its use. It is of less value when active inflammation of the bladder has occurred, but its moderate use throughout the course of typhoid fever tends to prevent cystitis. The routine use of urotropin during the course of the disease is strongly indicated. [A.G.E.]

Medical Record.

August 19, 1905. [Vol. 68, No. 8.]

1. Operations for Procidentia Uteri. W. M. POLK.
2. The Study of the Blood in Relation to Therapeutics. E. CASTELLI.
3. A Few Practical Points in Pediatrics for the General Practitioner. THERON WENDELL KILMER.
4. Deaf-mutism and Ptomain Poisoning. W. SOHIER BRYANT.
5. Some Further Notes on the Toxemia of Pregnancy. WILLIAM S. STONE.
6. Henry G. Davis, M.D.: A Review of Some of His Work. JOHN JOSEPH NUTT.
7. A Method for the Sterilization of Sea Tangle Tents. O. L. MULOT.

1.—Procidentia Uteri.—W. M. Polk proposes two methods of dealing with this condition. The first is applicable to partial prolapse when retention of the uterus is desired, and has as its purpose the reduction in size and weight of the uterus, and its removal from the posterior and lower parts of the pelvic cavity to the more advantageous position in the anterior and upper parts of this region. This is accomplished by high amputation of the cervix, followed by Alexander's operation and perineal repair. The second procedure is applicable to complete prolapse, and consists in removal of the uterus, and attachment of the vaginal stump to the anterior abdominal wall. Perineal repair is essential in this instance also, but the method chosen must not shorten the vagina too much, or there will not be slack enough left to permit the stump to reach the abdominal wall when the laparotomy is done. Vaginal hysterectomy is considered too radical for partial prolapse, and not sufficiently so for complete, and the plan of reefing the uterosacral ligaments is also deprecated. Polk believes that the plan proposed is superior, and that as soon as it is freed from the possibility of hernia it will be found the most satisfactory method of seconding repair work at the pelvic floor.

2.—The Blood in Relation to Therapeutics.—E. Castelli believes that hypodermic and intravenous medication must finally replace internal treatment. The blood and lymph are the bearers and transmitters of any infectious element, and the localization of the infectious element in a special organ or region of the body, is a simple process of metastasis. The microbes, or toxins, are transported by the bloodvessels into such regions of the body as offer conditions most suitable for the accomplishment of their reactive processes, just as in a similar manner cancer cells are transported to those parts of the body wherein may be reproduced the malignant growths from which they themselves originated. If the therapeutic agent should follow the same route as that followed by the infective element, its action, general and local, would take effect at such points as presented a necessity for its action.

4.—Deaf-mutism and Ptomain Poisoning.—W. Sohier

Bryant describes two cases in which difficulty in walking, deafness, and disorders of speech were apparently produced by food poisoning. He cites the literature of the visual disturbances due to this cause, and suggests that an analogy is possible between the effects on the auditory and on the visual motor systems. The condition appears to be an ordinary neuritis of toxic origin, with toxic degeneration of the speech centers. The prognosis is bad. Ptomain poisoning or botulismus is caused by specific *Bacterium botulinus*, which produces a specific poison, botulin. This toxin has a special selective action in the central nervous system, giving a more or less definite group of symptoms. There are other bacteria which cause symptoms of gastroenteritis usually concerned in ptomain poisoning. The diagnosis can be based on the history of the case and the sequence of the symptoms. Botulismus may very possibly be the cause of many of the paralyses and nervous derangements of obscure origin, and perhaps in some cases is the primary cause of arrested central or peripheral nervous development.

5.—Toxemia of Pregnancy.—W. S. Stone expresses the belief that the vomiting of pregnancy is a manifestation of toxemia, the lesions of which are primarily an acute degeneration of the liver, amounting to necrosis and destruction of liver cells in the severe cases, and presenting lesions in many of the fatal cases, especially those of acute yellow atrophy. The metabolism is imperfectly carried out as a result of these lesions, and various unoxidized compounds are formed in place of urea, which in themselves are more or less poisonous. In support of this view he describes in brief seven cases, in which very careful urinary analyses were made. These are divided into two groups, the first including four cases of pernicious vomiting of pregnancy, and the second, three cases of the pre-eclamptic type. In almost every instance leucin, tyrosin, and indican were found in the urine, and the author regards the presence of the latter constituent as a very important danger signal. He cautions against attempts to treat the pernicious vomiting of pregnancy on the assumption that it is of hysteric or reflex origin, and states that the mental symptoms dependent on the derangement of hepatic functions must not be disregarded. While the majority of cases of pernicious vomiting of pregnancy present lesions that are different from those of eclampsia, yet he has clinical and pathologic evidence that they are closely related. Symptoms of either group present themselves practically without urinary changes, as determined by the ordinary clinical tests. The persistent presence at any period of pregnancy, of even a trace of albumin, especially if accompanied by casts, and a persistent increase of indican demand a more complete examination of the urine, which seems to be best accomplished by a determination of the total nitrogen and its partition.

7.—A Sterilization of Sea Tangle Tents.—O. L. Mulot advises soaking sea tangle tents for 72 hours in tincture of iodin, and then immersing them in 95% alcohol, to remove the surplus iodin. Another method is to boil the tents and then dry them in sterile test-tubes for a few days in an oven or hot-air chamber, which will cause them to shrink to their original size; or the two methods may be combined, first boiling and shrinking them, and then soaking in iodin.

New York Medical Journal.

August 12, 1905. [Vol. LXXXII, No. 7.]

1. A Fatal Case of *Bacillus Pyocyaneus* Septicemia after Surgical Operation. JOHN B. ROBERTS.
2. Adenoids. E. M. SILL.
3. The Significance of Sudden, Severe Abdominal Pain. EDMUND A. BABLER.
4. Notes on the Tropic Diseases of the Angola Highlands. F. CREIGHTON WELLMAN.
5. Reflections at the Majority of a Parchment. W. B. KONKLE.
6. An Unusual Sequel to Kraske's Operation. CHARLES B. KELSEY.
7. Six Lectures on the Diseases of the Blood. Lecture IV. JOHN M. SWAN.

1.—A fatal case of Bacillus pyocyaneus septicemia is reported by John B. Roberts. The case is that of a girl of 9, who had undergone an operation to relieve a cicatricial deformity of the arm due to a burn. The patient showed, during convalescence from this operation, which left a large superficial wound of the shoulder, a series of symptoms. At first the child was thought to have amygdalitis and bronchitis, due to epidemic influenza, and that the bad condition of the wound was due to impaired circulation in the flap of skin and to imperfect asepsis permitting ordinary pyogenic infection. Then the possibility of typhoid fever was carefully considered and a blood test made, with the result that such a diagnosis seemed untenable. The patient later showed symptoms of a toxic nephritis, with ascites and intrathoracic inflammation, and finally died. The author then concluded that the patient had been suffering from some form of septicemia. Six weeks later the writer while making a visit to the same ward noticed that the pus-soaked gauze of a case of pyothorax was greenish-blue in color. Inquiry disclosed the fact that for a number of months the resident surgeons had been seeing similar staining of wound dressings. A bacteriologic examination of this pus showed *Bacillus pyocyaneus* in pure culture. In speaking of the child the author says that the greenish tint of the wound secretion, which was noticed twice, the existence, before and after the time of this patient's illness, of cases of blue pus in the wards of the hospital, and the general symptoms exhibited by her has led him to believe that the infection was due to *Bacillus pyocyaneus*. [C.A.O.]

2.—Adenoids.—E. M. Sill takes up the symptoms, diagnosis and surgical treatment of adenoids. His observations are based on 1,000 personal cases operated in. These patients were from 6 weeks to 10 years of age, the majority being over 6 months, although a surprisingly large number were under that age. Sill emphasizes the frequency of adenoids in childhood, and more especially when they are but moderately developed, the commonest with which the condition is overlooked or unrecognized, especially in infants; it very often being the cause of deafness, septal and palate deformities, etc., which give trouble in later life. Adenoids no doubt make the child more susceptible to the acute contagious diseases, and they themselves are often the channels through which tuberculosis and other germs gain entrance into the system. Frequent examinations should be made for adenoids in every child in which there is the least tendency toward such growths, and if they are present, an operation should be performed, with complete removal of the adenoids, which is best done under general anesthesia, except in infants. [C.A.O.]

Medical News.

August 19, 1905. [Vol. 87, No. 8.]

1. Sphygmograms from Two Cases of Bradycardia. GEORGE DOCK.
2. On the Impossibility of Differentiating Socalled "Paratyphoid" from Typhoid Fever Except by a Bacteriologic Examination of the Blood. WARREN COLEMAN.
3. Experiments with Radium Emanations. WENDELL C. PHILLIPS.
4. Suprapubic Prostatectomy. A. I. MCKINNON.
5. Prevention and Treatment of Puerperal Sepsis. L. C. FISCHER.
6. A Plea for Surgical Intervention in Suspected Malignant Disease of the Abdominal Cavity. B. B. DAVIS.

1.—Two Cases of Bradycardia.—George Dock presents the sphygmograms of these cases, which occurred in farmers aged 60 and 63 years. One died suddenly; autopsy showed moderate arteriosclerosis. The pulse was 28 to 30 per minute, and no remedy ever raised it above 32. The tracing shows great regularity in the duration of each pulsation. Dock would class this as a case of Stokes-Adams disease, although not a typic case. The pulse in the second patient was 25 per minute, and often showed irregularity. Though autopsy was not allowed, the peripheral arteriosclerosis was not greater than in many persons who never have bradycardia, Stokes-Adams symptoms, or other unusual circulatory changes. Both were cases of true bradycardia in that the heart beat had the same rate as the infrequent pulse. The cause in the one with regular beats is believed to have been lowered automatic excitability; this also explains the regular periods of the second. The irregular periods resembled the cardiac changes in asphyxia, though this condition was never present. [A.G.E.]

2.—Typhoid and Paratyphoid Fever.—Warren Coleman is becoming more thoroughly convinced of his former assertion that paratyphoid infections do not constitute a clinical entity. The only way in which such infection can be differentiated from typhoid fever is by bacteriologic examination of the blood. Clinically, although the paratyphoid cases are said to be milder and shorter in duration, many cases of undoubted typhoid infection run as short a course. Coleman's personal

experience is limited to one case of paratyphoid, which passed as a typic mild case of typhoid fever until the bacilli isolated from the blood were found to give the paratyphoid reaction. Coleman concludes that the present state of our knowledge makes it advisable to consider typhoid fever clinically as a disease which may be caused by several members of the typhoid-colon group of bacilli. The term "paratyphoid fever" is not only unnecessary, but is also misleading. [A.G.E.]

3.—Experiments with Radium—W. C. Phillips reports seven cases in which radium emanations were employed, all being affections of the ear or nasal passage. In general the results were unfavorable to the further use of radium. In one or two instances pain was relieved and discharge was lessened, at least temporarily. [A.G.E.]

4.—Suprapubic Prostatectomy.—A. J. McKinnon emphasizes these points: 1. The value of suprapubic cystostomy under local anesthesia as an emergency measure in cases of complete retention from enlarged prostate. 2. The simplicity and freedom from complications and sequels of suprapubic prostatectomy. 3. The value of packing the bladder after removal of the prostate, with iodoform gauze inserted after the manner of a Mikulicz drain. This is regarded as one of the most important points in the after-treatment. [A.G.E.]

5.—Puerperal Sepsis.—L. C. Fischer gives in detail directions for conducting labor cases. If during the first days of the puerperium the temperature rises above 99°, a vaginal douche should be given. If reduction of temperature does not follow, use a dull, irrigating curet with at least two gallons of 1 to 10,000 bichlorid or 1% lysol solution. Do not pack the uterus with gauze after cureting. If abscesses form in the pelvis, open and insert a drainage-tube in preference to gauze. Normal salt solution should be given freely. [A.G.E.]

6.—Malignant Disease of Abdomen.—B. B. Davis says there are three classes of intraabdominal malignant disease: 1. Those too far advanced for any operative procedure. 2. Cases with a fairly clear diagnosis of malignancy and apparently offering a fair chance of relief by operation. 3. Cases with only a well-defined suspicion of malignancy, where an exploratory incision is confidently advised. This is the type of case in which a great stride in advance may be predicted, if the profession can see its way clear to adopt the suggestion of advising an operation as soon as a strong suspicion of malignancy is found. Physicians should not lose sight of the fact that when a patient dies of cancer of the abdominal cavity, there was once a time when it was localized and could have been successfully removed and a permanent cure effected. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Sterilized Milk—a Something to be Avoided.—One of the good results which must necessarily follow the alarm recently raised in England regarding the alleged (or suspected) "physical deterioration of the race" will be the illumination of many of the previously obscure nooks and crannies of the nutrition of the human body, especially in its growing stages. We were pleased to see that sterilized milk was placed in the physiologically criminal dock and tried for its legal life, before the Commissioners of the Physical Deterioration Committee. Dr. Vincent, who was the "expert" witness of the accusation, quoted the changes produced in milk by the process of sterilization as follows:

Lecithin and nuclein are decomposed.
Organic phosphorus is diminished.
Inorganic phosphorus is increased.
Phosphates become insoluble.
Precipitation of calcium and magnesium salts occurs.
Normal lactic acid fermentation is inhibited.
Fat emulsion is injured or destroyed.
Lactalbumin is coagulated.
Caseinogen is only partially coagulated by rennin.
Digestion of caseinogen is delayed.
Albuminoid toxins may be produced.

This surely represents a list of physical qualities characteristic of an alimentary mixture which should be avoided with the most diligent care!

Refrigerated Milk.—As a substitute for the sterilized milk whose properties he has found so defective as an item of nutrition, Dr. Vincent offers milk which has been exposed to the process of refrigeration—followed by some et ceteras. He demonstrated that when milk was chilled, immediately after being drawn, to a temperature of 40° F., it remained absolutely unchanged. The inherent bacteria designed to assist in its assimilation were kept in a state of quiescence, and so prevented from further development prior to its consumption—which, if not thus inhibited, would result in the proteids and fat of the milk becoming their food instead of that of the offspring; thus diminishing its nutritive value, and giving it evil potentialities by the formation of toxins. Dr. Vincent maintains that as a "substitute food" for the use of infants, the refrigerated milk is still absolutely hopeless till it has undergone scientific modification. This is in recognition of the wide difference in the composition of human and cow's milk, and their consequent divergent effects in the promotion of structural growth. His (approximate) comparative analysis is as follows:

	Human milk.	Cow's milk.
Fat	4.00%	4.00%
Lactose	7.00%	4.50%
Proteids	1.50%	4.00%
Salts	0.20%	0.70%
Water	87.30%	86.80%

Dr. Vincent further recognizes the system of individual correspondence in the natural nutriment to the needs of the individual offspring, and of the necessity for a graduated change of property to meet the changing requirements of growth and development. To meet this further complex modification, the physician writes his milk prescription, ordering the chemic recombination of the milk elements in accordance with the requirements of the individual infant. So divergent are those needs found in practical application, that a visitor to the Infants' Hospital at a recent date was astonished to find no fewer than 20 milk prescriptions in use among a total of 23 babies!

REVIEW OF LITERATURE

The Effects of Copper upon Man.—H. Kraemer,[1] in a further contribution to the subject of destroying typhoid bacilli by copper, says that while exceedingly minute quantities of copper in solution are toxic to bacteria, it is safe to assume that the higher plants and animals, including man, are unaffected by solutions containing the same or even larger amounts of copper. Many plants contain relatively large quantities of copper, and when these are used as food some of the copper is taken up by the animal organism, but there are no records of any ill-effects from copper so consumed. An instructive part of the paper is a four-page list of substances, many of them common articles of food, with the percentage of copper they contain. Wheat, for instance, contains from 200 mg. to 800 mg. of metallic copper per kilo, and peas 967 mg. in the same quantity. [A.G.E.]

Seven Cases of Fish Poisoning.—A. Stoll[2] reports concerning these cases: Five children and two adults were affected; the condition was traced to a mess of pike, as only those members of the family were affected who partook of this fish. The fish came from a distance, but seemed perfectly fresh at the time of eating. They were of a nice white color, and had neither a bad odor nor taste, although the taste must have been at least peculiar, as one of the men of the family refused to eat them on this account. The symptoms of poisoning in all the cases appeared about eight hours after eating the fish. They were those of nausea, vomiting, colic, serous diarrhea, cramps

[1] American Journal of Pharmacy, June, 1905.
[2] Correspondenzblatt für Schweizer Aerzte, 1905, XXXV, No. 5, 137.

in arms and legs, cold perspiration; the stools were frequent, varying from 20 to 200 in number per day, and all the patients were markedly collapsed. In two of the instances (children) the cases terminated fatally, death being due to respiratory paralysis, the heart acting regularly until within a short time of death. The autopsies revealed acute enteritis (very marked swelling of the solitary and agminated follicles of the entire small intestine, superficial necrosis, and desquamation), enlarged, softened spleen, myocarditis, enlarged mesenteric glands, etc. One of the patients had extensive urticaria and transient albuminuria, another developed acute nephritis; both recovered. The portions of the fish not eaten could not be examined, but no doubt exists in the author's mind that both the lighter and very severe attacks of cholera morbus were traceable to it. The blood and spleen were examined bacteriologically; they contained rods similar to *B. coli communis*; they could not be stained by Gram's method, and were pathogenic for mice and rabbits, etc. They resemble the fish bacillus, and are considered identical to the paratyphoid bacillus B. The treatment consisted of opiates, bismuth, hot tannin solutions by enemas (several quarts of a 1% to 2% solution daily several times), stimulants, hot pack, etc. [E.L.]

A New Instrument for Determining Blood-pressure in Man.—J. Erlanger[1] describes an instrument devised by himself, based on the principle of Marey and Vierordt, as modified by v. Recklinghausen, which permits the graphic determination of both maximum and minimum pressures. Thorough discussion of its principles and practical use leads to the conclusion that its use largely eliminates the errors likely to result when more subjective methods are employed. In a second lengthy article, Erlanger, in conjunction with D. R. Hooker, details a very elaborate experimental study of blood-pressure and pulse-pressure in man. This is the most extensive and careful study of the subject that has recently appeared, and cannot be summarized in a brief extract. [A.G.E.]

Direct Transmission of Enteric Fever.—A. M. Davies[2] finds that transmission from patient to patient is extremely rare in the London general hospitals. In military hospitals in England it accounts for only 1.34% of admissions. Of transmission from patient to nurse, each London general hospital has about one case every year. In military hospitals in England it accounts for 2.62% of admissions. Direct infection has been shown to be the most probable cause of spread in a small outbreak at Portland Barracks. A considerable body of skilled opinion exists to the effect that a notable proportion of cases ($\frac{1}{10}$ to $\frac{1}{3}$ of the whole number) arises in this way. In 1,608 cases among American troops specially investigated, 35% were found to be directly connectable attacks, and 27% in addition to be indirectly connectable. Since Murchison affirmed the absence or extreme rarity of direct transmission, it may be that the disease has become more infective or that the present generation is more receptive or that the infectivity has also become variable in quantity. Nurses are younger than formerly, and therefore more susceptible. Improved sanitary conditions may also have lessened immunity. Textbooks are responsible that the recognition of direct transmission is not general. Increased precautions should be taken against it. [H.M.]

Putrefaction Products in the Feces.—Wry,[3] in a very technical article, considers the methods of determining these bodies and describes some improvements on his former method. For the determination of fatty acids he now proceeds as follows: Thirty grams of feces are rubbed with 300 cc. of water and H_2SO_4 added to make a 5% solution. The mixture is then evaporated by direct heat in a stream of steam until its volume remains constant. This makes about 2,000 cc. of distillate, which is titrated directly with a quarter of nitrate soda. For indol the distillate obtained in the same way is alkalinized with NaOH and shaken with ether. The ether is distilled off and the remainder dissolved in ether, filtered, evaporated, dried, and weighed. This is fairly accurate and shows about .007 gm. daily. Moraczewski's published figures are far too high. Wry found that all these substances were increased by keeping the feces at body temperature for a day. The tests for tryptophan lactic acid and skatol-carbonic acid were always negative. [T.S.G.]

Vaccination against Typhoid Fever.—R. Bassenge and M. Mayer[1] succeeded in producing an effective vaccine against typhoid fever by shaking living typhoid bacilli violently in distilled water; the filtrate was absolutely free of bacteria and this, when injected into the human body, produced a series of protecting substances against the fever in question. The vaccine is a clear, yellowish, somewhat opalescent fluid; for preservation it can, without injury to its qualities, be mixed with a 0.3% to 0.5% solution of carbolic acid. The loss of its protecting property is indicated by the production in it of a precipitate. The local reaction produced by the injection is very slight; a general reaction is not seen at all in many instances; in some people it produces some malaise, depression, and moderate headache. Grave conditions, as are seen after inoculation of the bacteria themselves, were never observed. In only one instance did the temperature reach 101°; in all others it did not rise above 99.7°. The absence of a noticeable general reaction is attributed to its being free of foreign bodies, such as cell membranes, nutritive mediums, etc. The vaccine's dose can be determined accurately. A single injection of from 2 cc. to 5 cc. (depending upon the concentration) produces a sufficient number of antibodies in the patient's serum, so that 1 mg. of it injected into a guineapig of 200 gm. will protect it against a 15 to 30 times fatal dose of living typhoid bacilli. The agglutinating power of the serum increases also, but not proportionately with the bacteriolytic power. The bacteriolytic substances were found to be present six months later in one case. [E.L.]

Malarial Paroxysmal Neuroses.—F. Hare[2] names as neuroses which may depend on malaria, migraine, asthma, angina, major epilepsy, neuralgia, gastralgia, Raynaud's disease, recurrent temporary amblyopia, erythromelalgia, and urticaria, all essentially of vasomotor mechanism. All depend more or less upon the condition of the blood, in general are fundamentally humoral in origin. But the great majority of paroxysmal neuroses are independent of malarial or other specific infection. Among the possible explanations of this fact is that the majority are nonhumoral in origin, each has its own peculiar humoral factors, or there is a common humoral factor which, under the influence of different personal and environing factors, leads to different vasomotor manifestations in different cases. The last of these views is held by Hare, who regards the malarial neuroses as strongly suggesting it. He promises on a future occasion to adduce evidence of such a humoral factor. [A.G.E.]

The Unity of the Trypsin Ferment.—Ehrenreich[3] made a series of tests to prove the contention of Pollak that the substance in trypsin which digested gelatin was different from that which digested albumin. If there are two ferments present, only one of these should be destroyed by digestion of either of the substances named. Ehrenreich, therefore, let trypsin solution act on gelatin, and later tested its power to digest albumin and let trypsin act on albumin and tested its power to digest gelatin. He found that the solutions left after acting on the two substances were the same in their digestive powers, and that solutions would act on gelatin which were too weak to act on albumin. He therefore concludes that Pollak's experiments do not prove the presence of two independent enzymes in trypsin, and that we must look on this substance as uniform. [T.S.G.]

The Blood in Scarlet Fever.—W. Tileston and E. A. Locke[4] find that the blood of scarlatina in children differs from that in adults only in proportion to the differences in normal blood at different ages. A slight secondary anemia is the rule, varying with the severity and duration of the disease. The fall in hemoglobin varies from 5% to 25%, and in erythrocytes, from 100,000 to 700,000 per c.mm. Both return to normal after several weeks. A hyperleukocytosis almost invariably accompanies the disease. Rising abruptly on the second to

[1] Johns Hopkins Hospital Reports, Vol. xii, 1904.
[2] Journal of the Royal Army Medical Corps, June, 1905.
[3] Archiv für Verdauungs-Krankheiten, Bd. xi, Heft 3.

[1] Deutsche medicinische Wochenschrift, 1905, No. 18, xxxii, 697.
[2] The Practitioner, August, 1905.
[3] Archiv für Verdauungs-Krankheiten, Bd. xi, Heft 3.
[4] Journal of Infectious Diseases, June 24, 1905.

eighth day (18,000, to 40,000 per c.mm.), the count falls rapidly for a few days, then more gradually to reach normal in from three to six weeks. During invasion, the polynuclear leukocytes are relatively and absolutely increased, but decrease gradually with the fall in leukocytosis till convalescence, when they may become relatively below normal. The mononuclears take an exactly opposite course. With the onset, the eosinophiles disappear entirely or are greatly reduced, to rise above normal when defervescence begins, this persisting until late convalescence. Myelocytes are often seen in small numbers, as in all infectious diseases. Complications rarely influence the blood. If severe, they may increase the anemia. Nephritis and diphtheria may produce a rise in the leukocytosis. [H.M.]

Epidemic Cerebrospinal Meningitis.—Radmann[1] reports his experience with this disease during the present epidemic. He speaks of this as the largest epidemic of the disease in the medical history of Germany; its mortality (70%) also is the largest of any epidemic of the disease. Its contagiousness has never been so marked before. He has personally treated 30 cases; from 28 the diplococcus of Weichselbaum was isolated. The period of incubation seemed only to be one and a half to two days; badly lighted rooms and overcrowding seemed to favor its development. Many of the patients were covered with flea bites, and suggested a possible connection between the two. The disease kills, chiefly because of the toxemia connected with it. Most of the patients in this epidemic were children. No single drug seemed to benefit any of them, and the most valuable procedure in the treatment was prolonged warm baths and wet packs. Cases associated with an early eruption seemed to have a better prognosis than the others. [E.L.]

The Dietetic Treatment of Gastric Ulcer.—Wirsing[2] made a comparison of the milk-diet treatment of Leube and the overfeeding method described by Lenhartz. He gives statistics of 362 cases, 320 treated by Leube's and 42 treated by Lenhartz's method. The diet in the latter is a liter of milk, 8 eggs, 35 gm. of raw scraped beef, and bread and butter freely. Rest in bed is required. If there was no pain, liquor ferri alb. was given; if pain was present, bismuth subnitrate; for hemorrhage, an ice-bag; and if much anemia, Fowler's solution completed the treatment. The immediate results were better with the Lenhartz diet, but about the same percent of permanent cures was obtained by each method. It was striking, however, that the Leube method gave the better results in those cases in which there was no tendency to hemorrhage and the Lenhartz in those cases with hemorrhage. The percentage tables are too complex for quotation. The symptomatology contains nothing new. [T.S.G.]

Hematochyluria with Observations on the Morphology of the Embryo Nematode, Filaria Nocturna.—W. B. Wherry and J. R. McDill[3] report a case. They have observed the same anatomic features in the embryo described by Manson and in addition three duct-like threads which connect the viscus like organ at the junction of the middle and posterior thirds with the head end of the embryo. These must be looked for as soon as the motions of the parasite become slow enough to permit the use of an oil-immersion lens for the granular degeneration, which sets in soon after motion ceases, obscures all finer details. Physicians in Manila for 10 to 40 years have only rarely encountered chyluria or chylocele. Elephantiasis seems to be absent, and filarial lymphangitis and varicose lymph-glands may have been overlooked in the past. This is surprising since *Culex fatigans* which acts as a favorable intermediate host in many parts of the world is one of the commonest species of mosquito found in Manila. However, the exact manner in which filariasis is transmitted is still an open question. The relative immunity of Europeans and others who are careful in regard to food and drink raise the question whether Manson may not have been right in assuming that the filaria escape from the mosquito to some watery medium and their gain entrance instead of being transmitted by the mosquito bite. [H.M.]

[1] Deutsche medicinishe Wochenschrift, 1905, xxxi, No. 18, 707.
[2] Archiv für Verdauungs-Krankheiten, Bd. xi, Heft 3.
[3] Journal of Infectious Diseases, June 24, 1904.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON LAWRENCE HENDEE
J. COLES BRICK JOHN W. CHURCHMAN

EDITORIAL COMMENT

Stovain, the New Local Anesthetic.—The new anesthetic, stovain, whose reported merits in intraspinal injection we discussed in our editorial columns (in the issue of July 8, 1905) seems by many to be accorded the foremost place for its local adaptability to the requirements of practical surgery. Like many of the scientific discoveries of recent years, it owes its existence to the stimulus of commercial enterprise. France, the land of Lavoisier—and, consequently, the birthplace and early home of modern scientific chemistry, has awakened to the importance of disputing with Germany the monoply of inventing, and producing for cosmopolitan consumption, all important synthetic pharmaceutic compounds. A French chemist, M. Fourneau, has been carrying out a systematic study of the composition and properties of local anesthetics. He has produced a series of no less than 15 bodies, of which each possesses analgesic power to a very marked degree. They all belong to the amino-alcohol group; and the essential difference between them and cocain is that they do not include the dangerous piperidin nucleus to which the toxic action of the latter is attributable. One of those derivatives (of tertiary amyl alcohol) is, in purely chemic nomenclature dimethylamido-β-benzoylpentanol hydrochlorate, or, in the more concise terms of Ladenburg, amylein-A-β hydrochlorate. For purposes of (very obvious) convenience the working appellation of stovain has been conferred on this body. It is prepared in the laboratory by the action of benzoyl chlorid on dimethylamino pentanol-β, which is itself obtained by the action of the ethyl-magnesium bromid on trimethylaminoacetone. Stovain crystallizes in small, bright lamellas, very similar in appearance to those of cocain, and very soluble in water. Its solution allows precipitation of alkaloids of all the reagents. No chemic reaction has yet been discovered which distinguishes it from cocain. Pure alcohol dissolves but one-fifth of its weight; it is readily soluble in methyl alcohol and acetic ether; soluble also in acetone. The solutions are slightly acid to litmus; neutral to turmeric. They are somewhat more stable than solutions of cocain. The properties of stovain—"a synthetic analgesic"—have been discussed by Dr. Luke[1] He claims for it the possession of a goodly series of advantages as a local anesthetic: 1. Its low degree of toxicity. It is, according to Ponchet, less toxic than eucain—α or β; while its toxic power is but a third to a fourth of that of cocain. 2. It acts as a vasodilator, while cocain is a vasoconstrictor. This fact is of great practical importance; as the tendency to sudden syncope, which inclines to occur even with the use of moderate doses of cocain, is absent when stovain is employed. This fact is, of course, specially important in operations during which the sitting posture of the patient is the most desirable. 3. Solutions of stovain can be sterilized by boiling, as they do not undergo any decomposition till after a temperature of 120° C. is reached. 4. It induces no tendency to hyperpyrexia even when injected within the spinal meninges; this feature contrasts very favorably with the noted proneness to development of very high temperature following the intraspinal injection of cocain. 5. Stovain is a great deal cheaper than cocain, an economic factor of some productive effect—especially in hospital work. 6. The actual analgesic power of stovain seems to be practically equal to that of cocain—perhaps at times a little less intense in effect. The solitary disadvantage which has been discovered in contrasting its action with that of cocain, is, that it cannot be used with adrenalin solution—when it is, the skin at the point of injection becomes

[1] Scottish Medical and Surgical Journal, August, 1905.

gangrenous. But, as Dr. Luke remarks: "When we bear in mind that the chief advantage of adrenalin is localizing the action of the cocain and preventing constitutional symptoms (in view of the low toxicity of stovain), we realize that this disadvantage is but a slight one."

REVIEW OF LITERATURE

The Gastric Operations Performed by Gussenbauer between 1899 and 1904.—During these years, according to A. Exner,[1] Gussenbauer performed 126 gastric operations of different kinds, but not counting in this the gastrostomies. There were 73 gastroenterostomies; 30 times this operation was performed for benign conditions, 43 for malignant. He performed the posterior retrocolic anastomosis whenever possible, the anterior method being resorted to only when the patients were very weak, or when, on account of adhesions, the posterior surface could not be reached. The outer sutures of the anastomosis extended over about 4 inches of tissue. Of the 30 benign cases, 3 (10%) terminated fatally, causes being pneumonia and weakness. Of the 45 carcinoma cases, 14 (31.11%) died as the result of the operation, causes being pneumonia in 7, weakness in 4, peritonitis, enteritis and hemorrhage, each 1. One of the patients was alive three and a half years after the operation, even though it was seen at the time of the operation that he had metastases. Of 43 resections, 39 were performed for carcinoma, the others for scars. Of the patients, 22 recovered, 21 died, and 20 of these had carcinoma; 15 of these died of peritonitis. In 12 of these patients it was necessary to excise a part of the pancreas, and only 3 of them recovered. Three operations were performed for gastric ulceration, one recovered. Three patients operated on for perforation died, but two, operated because of foreign bodies in the stomach, recovered. [E.L.]

Value of Statistics in the Study of Cancer.—T. A. McGraw[2] says the medical profession is hampered in its investigation of cancer and other tumors by the absence of trustworthy statistics. The character of the statistics of any period will be determined by the standard of medical efficiency maintained in that period, the number of errors in the records of any community varying in exact proportion to the relative number in it of incompetent physicians. McGraw is unable to find any convincing evidence that the human race is more susceptible to malignant disease than it was 20 or 30 years ago. There may be a small actual increase, because increased hygiene permits more people to live to the cancer-bearing age. The apparent increase which has so disturbed many surgeons is fully accounted for by the changes in professional efficiency and in the professional attitude toward tumors. It is a serious question, whether anything can be done to secure more trustworthy data. Far-reaching and exact investigations can be made only by international agreement and effort. Until then the profession should be guarded in the statement of opinions. [A.G.E.]

Recurring Phlebitis of Obscure Origin.—J. B. Briggs[3] reports seven cases. He suggests that the localizing cause of venous thrombosis is sclerotic changes in the walls of the veins. These sclerotic alterations are often observed to progress by fits and starts at times with great rapidity and then to remain in a stationary condition for many years. If a diathesis is at fault, it is more likely to be concerned with the wall than the contents of the vessel. Some patients may walk about with an actively progressing thrombosis. A thrombus will often stand a great deal of manipulation. Still we would not allow a patient to go about with no restraint but that imposed by pain, considering the fatalities. Rather than keep a busy man recumbent for six months after a second attack, it would appear advisable to cut down under cocain and ligate the vein. This would obviate further danger of embolism and necessitate only short confinement. [H.M.]

Edebohls' Operation.—Stern,[4] in an experimental and clinical study, decided that simple splitting of the capsule and suture of the kidney gave as good results and that operation was rather contraindicated in interstitial nephritis, although it may do good in parenchymatous. The complete stripping off of the capsule is certainly unnecessary. [T.S.G.]

The Spirochæta of Syphilis.—The discovery by Hoffmann and Schaudinn of spirochæte in syphilitic products has precipitated a lively interchange of opinions pro and contra. While some confirm the claims of the discoverers, others deny them with equal assertion. M. A. Tchleuoff[1] publishes a series of original observations, in which *Spirochæta pallida* was found in syphilitic products (chancres, papules, buboes). The microorganism is thin and long, has the characteristic corkscrew form, and is present in small numbers, so that at times an entire specimen contains two or three of them. The author protests against the sceptical utterances of certain distinguished authorities and advises further careful investigation. [L.J.]

Torsion of the Great Omentum.—E. M. Corner and H. I. Pinches[2] collate all the cases of this condition reported up to the close of 1904, 53 in all, 3 of which are personal observations. Of the three clinical groups, 6 cases were abdominal, 6 hernial, and 41 hernial and abdominal. The diagnosis of torsion of omentum was made only once. The previous history in these cases is of great importance, especially of attacks of pain in the hernia or the abdomen. Pain is the most constant symptom; vomiting is not constant. Tumor was present in all but three of the patients. All except eight recovered. Diagnosis must be inferential, but conditions which lead to suspicion may be thus summarized. The patient is most commonly a man of middle age, with an inguinal hernia of some years' standing which has become troublesome, and gives rise to symptoms of subacute intestinal obstruction. Vomiting may be absent, and both feces and flatus may be passed. On examination the hernia will most probably appear to be painful and irreducible, incarcerated or strangulated. Usually a tumor can be felt both in the scrotum and on the right side of the abdomen. [A.G.E.]

Subparietal Injuries of the Abdomen.—C. J. Holman[3] believes that after a severe blow on the abdomen, if there is pain and tenderness on pressure with rigidity or spasm of the belly muscles, exploration should be advised. If the patient should survive traumatic peritonitis there would still be cicatrices and adhesive bands that would require subsequent repair. Pulse and temperature are not diagnostic of intraabdominal injury. The degree of violence of the vulnerating body is not necessarily in proportion to the injury produced, because nature has many means of protecting the abdominal viscera. After waiting for positive symptoms of hemorrhage and infection—exploration will be too late and useless. Since the introduction of modern methods in the treatment of shock, *i. e.*, salt solution, hot water operating tables, etc., speed is not of as great moment as thorough work. [H.M.]

Intussusception.—Hirschsprung[4] considers that the usual cause of this condition is habitual constipation and that it usually occurs in the large intestine. Almost all cases, when seen in the first 12 hours, yield to enemas. After 24 hours, operation is apt to be required, as it is in cases involving the small bowel. [T.S.G.]

Pyloric Stenosis Due to an Echinococcus of the Liver.—Axhausen[5] reports the case of a man of 26, who was found to be suffering from the typic symptoms of pyloric stenosis and secondary gastrectasia. He had been vomiting for five months after almost every meal, complaining of fulness and oppression until able to do so; cramps and constant sensation of hunger were prominent symptoms. Emaciation and progressive weakness increased. An examination revealed a mass in the epigastrium, and as test-meals showed nothing abnormal, a diagnosis of benign obstruction of the pylorus was made. The operation uncovered a cyst the size of a child's head, growing from the left lobe of the liver; it compressed the pylorus and duodenum. During its removal it ruptured and was found to

[1] Zeitschrift für Heilkunde, Vol xxv, 173.
[2] Physician and Surgeon, August, 1905.
[3] Johns Hopkins Hospital Bulletin, June, 1905.
[4] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.

[1] Russki Vratch, June 18, 1905.
[2] American Journal of the Medical Sciences, August, 1905.
[3] St Paul Medical Journal, June, 1905.
[4] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.
[5] Deutsche Zeitschrift für Chirurgie, Vol. lxxv, 77.

be an echinococcus containing about a pint of clear fluid. During its removal, the portal vein, hepatic artery, and common bile duct were exposed for considerable distance. On the fourth day after the operation a small amount of bile escaped through the wound, but otherwise the patient had an uninterrupted recovery. He never vomited after the operation, and increased 24 pounds during the five weeks of his sojourn at the hospital. [E.L.]

A New Sign of Congenital Syphilis.—W. P. Jukowsky[1] describes a peculiar appearance of the skin in congenital syphilis and considers this sign pathognomonic. The phenomenon in question consists in a peculiar dryness and looseness of the epidermis. Some children show this condition only on certain parts of the body (neck, abdomen, breast), others present it all over. In such wellmarked cases the entire epidermis is loose and slightly raised, and covers the underlying skin after the manner of a thin skirt. When the child moves its limbs, the epidermis over them assumes a characteristic wavy motion. So much can be seen right after birth. In a few days the picture slowly changes; the skin cracks in deep fissures and squamous desquamation takes place. The fissures give the body a peculiar striped appearance, which cannot be mistaken for any other disease. [L.J.]

Action of Radium on Living Tissues.—Thies[2] found that this was much like that of the röntgen rays. He made a series of experiments, mainly on rabbits, with the following results. Tissues exposed very close to it or for a long time were always killed, but these exposed at a distance were often stimulated to growth. The most susceptible tissue was adenoid, second skin and other epithelial tissues; third, arteries and veins, and fourth, striped muscle. Elastic tissue and cartilage were much more resistant. The eosinophiles were often found in large numbers in tissues after exposure. [T.S.G.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

The Hematopoietic Organs during Pregnancy and during the Puerperium.—In order to determine the condition of the marrow, the spleen, and the periuterine lymph-nodes, Varaldo[3] examined these structures in 20 rabbits and 6 guinea-pigs in different stages of pregnancy and the puerperium. The most important findings in the bone marrow of rabbits killed during the first week of pregnancy were the presence of many karyokinetic figures, of a large number of mononuclear cells (granular anfophile myelocytes), and of extensive retrogressive changes in the megakaryocytes, in which the protoplasm was partially or completely destroyed, so that they were represented for the most part by rolled-up intensely staining nuclei. From the tenth to the twenty-fifth day of pregnancy the marrow showed the presence of a large number of megakaryocytes, which had regained their phagocytic ability and many leukocytes; the megakaryocytes contained nuclei, which were undergoing mitosis. There were also present a few megakaryocytes similar to those found during the first week. In the last week of pregnancy the activity of the megakaryocytes was lessened, their phagocytic efficiency unaltered, but their size was diminished. There were present a large number of polymorphonuclear leukocytes, many normoblasts, and a few eosinophiles. During labor and during the first day of the puerperium red cell and white cell formation, especially the last, were still to be observed in the bone marrow. Already in the early stages of pregnancy the spleen became enlarged, the follicles showed mitotic figures, and in the peripheral zones of the malpighian bodies were many basophilic cells not at all unlike plasma cells. During the puerperium the spleen diminished in size by a reduction in the size of the malpighian bodies, leukolysis, and erythrolysis. The periuterine lymph-nodes were enlarged, the follicles well developed, the germ centers inconspicuous, and the medullary portion crowded with lymphocytes. In the follicles of these structures taken from rabbits 25 days pregnant he found megakaryocytes. The blood during pregnancy revealed leukocytosis, but little variation in the number of red blood cells. In section of lungs from rabbits killed at the end of pregnancy he found many of the capillaries plugged with large nucleated cells, probably identical with the megakaryocytes. [J.F.]

Metabolism during Pregnancy, Labor, and the Puerperium.—J. Norris Slemons[1] details the study of four cases of normal pregnancy for a period of 18 days before and 25 days after labor. During the last days of pregnancy the urine represents a smaller percentage of the fluid intake than in a non-pregnant individual, and the total nitrogen elimination is also less. The percentage of nitrogen excreted as ammonia is increased. The nitrogen balance during the pregnancy is positive, indicating a strong capacity for storing the nourishing elements of food. The puerperium begins with heavy loss of nitrogen, but storage begins again in about two weeks. The presence of twins accentuates the points which characterize the single pregnancy. Death of the fetus in utero is accompanied by the disappearance of the phenomena exhibited while the child is alive. The results of routine urinalysis are not published because no conclusions of value are to be drawn from them. Albumin was not found, except a faint trace in one case; all patients showed albumin and casts in the urine during labor. [A.G.E.]

Carcinoma of the Ovary with a Chorionepithelioma-like Architecture.—Michel[2] reports a case of tumor of the ovary taken from a girl of 16, who retained many infantile characters. The growth was the size of a man's head and was removed at operation; two years later the patient died of a recurrence. At autopsy he found a large tumor in the left side of the abdomen, which was brittle and grayish-white at some points and blood-red at others. Metastatic nodules were found in the liver and kidneys. Microscopic examination showed that the growth was made up of cells and stroma; the former were arranged in alveoli, were polyhedral in shape, and contained vesiculated nuclei. In the cell masses were many shaped clefts and lumina, into some of which projected papilomas, composed of a delicate fibrous stroma lined by bladder-like cells. [J.F.]

Fecal Tumor Mistaken for a Fibroma.—G. Wiener[3] reports the case of a woman of 39, suffering for years with sacral pain, constipation, and violent pain during defecation. Examination revealed a hard tumor the size of the fist, between uterus and rectum; it was smooth, round, and as hard as a board. Rectal examination was perfectly negative, the intestines seeming to be free from fecal accumulation. A fibroid of the right ovary was supposed to exist and the patient prepared for a laparotomy. The preparation consisted of a bath, violent mechanical cleansing of the abdominal wall, purgatives by mouth and enemas. She was freely purged, this resulting in a change in position, as well as consistency of the tumor; the tumor seemed lower in the pelvis and was considerably softer than before; this discovery was made just before the operation was performed. Further purgation and oil enemas relieved the patient permanently of her tumor. The curious part of the case is that the patient had a bowel movement almost daily, this probably resulting from temporary over-dilation of the rectum; this was probably the cause of the severe pain while having a movement. The mobility of the mass was only an apparent one, the whole rectum moving, but not the mass alone. [E.L.]

Intrarenal Tension as a Cause of Eclampsia.—Stimulated by the work of Ter Braak,[4] Mynlieff[5] conceived the idea that intrarenal tension through retention of urinary secretion incident to pressure on the ureters may be a causative factor in the production of eclampsia. Since the rapid changes in the kidney's function through increased tension can scarcely be attributed to alterations in the secreting kidney parenchyma,

[1] Medizinskoe Obosrenie, lxiii, No. 7.
[2] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.
[3] Zentralblatt für Gynäkologie, No. 14, 1905.

[1] Johns Hopkins Hospital Reports, Vol. xii, 1904.
[2] Zentralblatt für Gynäkologie, No. 14, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 16, 762.
[4] Beiträge z. Pathogenese u. Therapie der eitrigen Nephritis, Inaug. Diss., Amsterdam.
[5] Zentralblatt für Gynäkologie, No. 13, 1905.

the circulatory disturbances must be held responsible, which are brought about in the following manner: Lindemann's experiments have shown that increased pressure in the ureter is followed by reduction of the blood-pressure in the kidney, by slowing of the circulation in the renal vein, and by an increase in the size of the organ, which was neither due to retention of urine nor to an edema, but to a diminution of the outflow of blood through the renal vein. Mynlieff calls attention to the fact that with the capsule of the kidney to act as a firm support so that the kidney cannot enlarge to any great degree, the increase in the tension in the ureter and pelvis finds little difficulty in lessening the outflow of blood from the organ by exerting pressure on the two sets of capillaries existing in the kidney. Such a condition of affairs must necessarily give rise to great changes in the functions of these organs, especially in pregnant women, where the amount of toxins is increased. The pressure, he believes, is exerted principally upon the right ureter, because of the position occupied by the uterus and because the mass of intestines is toward the left of this organ and is constantly forcing the uterus toward the right. The fact that sometimes a large white kidney is found and then a hemorrhagic organ, depends on two factors. If the toxic action is most prominent, fatty degeneration of the epithelium results; if the mechanical action is most prominent, congestion of the glomeruli occurs. [J.F.]

Vaginal Cysts.—T. S. Cullen[1] found, in 53 cases examined, that 26 were from perineal tears or operations, 4 from glands, 11 apparently from remains of Gärtner's duct; 3 were near the urethral orifice, and in 8 it was impossible to determine the mode of origin. All were small and caused no symptoms. Many are probably overlooked. Cysts, 6 cm. to 8 cm. in diameter, may interfere with coitus; if in the posterior wall, they may simulate prolapsus of the vagina. In the latter position, they have prevented delivery until evacuated. In a vaginoparovarian cyst, combined abdominal and vaginal removal may be necessary on account of pressure. Small cysts may be excised and the cavity sutured. When removal of a large cyst is difficult, a half or three-fourths may be cut off, and the edge of the vagina be united with that of the cyst on all sides. The remaining portion gradually unfolds and becomes part of the vagina. A small dilated blind ureter must be borne in mind when removal of cysts in the lateral or anterior wall is contemplated. [H.M.]

Oxygen deficiency or carbonic-acid gas poisoning followed up the experiments from which Schücking[2] deduced that in asphyxia death results from the accumulation of carbonic acid gas, rather than from the lack of oxygen. He injected intravenously into six newly born children suffering from asphyxia a 1% solution of sodium saccharate. All of the children were hopelessly ill before the injection, but only two died. [J.F.]

Modification of Vaginal Hysterectomy, the Cervix Being Enlarged.—In cases where, C. Lauenstein[3] advises, the removal of the uterus by the vaginal route, and this is made difficult because of the large size of the cervix or the small size of the vagina, he amputates the cervix first by Schroeder's supravaginal method and then resects the rest of the uterus as well as the neighboring parts of the ligamenta lata. The slight bleeding produced he checks with the Paquelin cautery. The operation is made easy by this preliminary procedure, the second portion occupying but little time. He considers it a better method than bisection of the uterus or incision into the vaginal walls to make the vagina larger. In most instances, however, he removes the uterus through an abdominal incision, choosing this route even though the mortality is greater; his reason for it is that he is better able to see what he is doing. [E.L.]

Lutein Cell Proliferation in Atresic Follicles—A Physiologic Process during Pregnancy.—Ludwig Seitz[4] cannot agree with Pick that the hyperplasia of the lutein tissue should be regarded as an impulse to cystic degeneration of the ovum. Seitz would have us believe it is a physiologic process which in all probability occurs during each gestation. He had an opportunity of examining a series of ovaries taken from women who were anywhere from 2 to 10 months pregnant. During his examination he found (1) cysts, (2) follicles which he describes in detail. In the cysts lutein cell proliferation was evident. The cell layer was composed of from 5 to 20 rows; the morphology of the cells was identical with the lutein cells of the corpus luteum, although he was unable to demonstrate their genetic identity, yet he is convinced that they were derived from the theca interna of the follicle. In the larger cysts the lining wall never contained more than 10 rows of cells. The follicles were atresic, which condition in all probability was due to the pressure exerted by the neighboring tissue. He notes that if his findings are compared with the findings in the ovaries of cases of hydatidiform moles or of chorionepithelioma, a resemblance arises which shows that in principle they are the same processes, but through certain conditions have suffered modification and involution. In conclusion, he states that if a function is to be ascribed to the lutein cells, in his mind, it is to elaborate an internal secretion during pregnancy. [J.F.]

[1] Johns Hopkins Hospital Bulletin, June, 1905.
[2] Zentralblatt für Gynäkologie, No. 15, 1905.
[3] Centralblatt für Chirurgie, 1905, xxxii, No. 7, 273.
[4] Zentralblatt für Gynäkologie, No. 9, 1905.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Gypsum Dust as a Curative Agent in Pulmonary Tuberculosis.—For some years it has been noticed in Germany that the dust of calcium sulfate, arising from the working of gypsum, differs from other mineral dusts in having a curative rather than a causative relation to pulmonary tuberculosis. P. Hacker[1] believes that this is due to several properties of this mineral. The dust is soft and light, and would have little tendency to injure the walls of the air passages. It is slightly soluble in water, and the small quantities introduced into the lungs are probably dissolved completely, the solution having a more or less antiseptic action. In the tissues of the lungs it is probable that calcium oxid is formed, which is the substance that is just needed to accomplish calcification and healing of tuberculous lesions. The author thinks this subject is worthy of further scientific investigation. [B.K.]

Tracheal Injection in Pulmonary Tuberculosis.—Mendel[2] has simplified the procedure of tracheal injection, so that it can be performed by the general practitioner. He uses a modified Beehag's syringe. The tongue of the patient is held by the operator's left hand, and the nozle of the syringe is introduced over the tongue without touching it. The outside of the curve is firmly pressed against the base of the left faucial column, the nozle resting horizontally in the glossoepiglottic groove, its orifice being directed toward the lateral wall of the pharynx. The patient breathes quietly and refrains from swallowing, while the injection is being made. The contents are discharged with force, so that they turn around the lateral wall to the posterior wall and run down into the larynx. The tongue is held protruded for a few seconds longer, and the patient may then rinse his mouth. Nonirritating solutions must be used, the author preferring eucalyptol or gomenol in olive oil. He claims that his method of tracheal injections avoids gastric medication, produces greater expansion of the lungs by reflex action, diminishes the cough and expectoration, and improves the physical signs. [B.K.]

Intravenous Injections of Therapeutic Serums.—The inconveniences attending subcutaneous injection of serums, prompted J. Courmont[3] to search for another method of introduction. He has tried intravenous injection of various serums, both in animals and in man. He finds the results to be more certain, and unattended by serious accidents, either local or general. The veins at the elbow are usually selected, and the needle of the syringe may be plunged directly into the vessel, or the vein may he exposed, incised, and subsequently ligated. Danger of infection is avoided by proper technic, and the entrance of air is of no importance in the doses possible from a syringe. [B.K.]

[1] Zeitschrift für Tuberkulose, etc., Bd. vii, Heft 4, p. 347.
[2] The Lancet, July 15, 1905.
[3] Lyon Médical, July 9, 1905.

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A Tangle of Good Intent.—Under this title, Secretary Richmond, of the Philadelphia Society for Organizing Charity, describes in *Charities*, "the hopeless confusion of public subsidies to private institutions in Pennsylvania." The ideas of *American Medicine* regarding such practice have been freely expressed, but some points in this paper deserve emphasis as calling attention to existing conditions, while others are equally clear in showing how the system in general is regarded by charitable organizations. The anomalous position occupied by the State Board of Charities is shown by the fact that, in round numbers, appropriations of $15,000,000 were asked last year, and the board recommended $9,000,000. The Legislature voted $14,000,000, $11,000,000 of which was approved by the Governor, who had to consider within a month 228 bills, and cut the amounts sufficiently to keep the appropriations within the finances of the State. The Legislature voted to private hospitals more than $1,000,000 in excess of the recommendations of the board. During the last decade the increase in State charitable appropriations was 138%, the increase being 95% more rapid than during the preceding decade. Of all the bad points that may be named in connection with this system, the worst is that the political wire-pulling for promiscuous charities (?) means neglect of State institutions for the insane and the indigent and other similar charges. We are glad to hear, however, that affairs here, bad as they are, are not so bad as they have been in other States,—New York, for instance, before reforms were instituted in 1899. The gloomiest aspect of the situation in Pennsylvania is that reform is not as yet even tentatively being discussed.

Malpractice and the United States Postoffice.—The recklessness and impunity with which scoundrels have used yellow journalism and the United States mails to fleece their victims have long been wondered at by all decent people, and especially by medical men. For years the postal authorities have had the proofs of this infamous traffic laid before them; at last the brazenness of the abortionists and "fakirs" has become so outrageous that the postal inspectors have been put on their track in Philadelphia, and some of the least wary have been decoyed and nabbed. One of the difficulties has been to obtain legal evidence of crime or fraud in the actual mailing of objectionable, obscene or fraudulent matter. Undoubtedly most of these "unmailable" medicines or articles are inert and powerless, but if the senders make this claim they will be amenable for using the mails in a scheme to defraud. In either case, they are guilty of violating the law. Some of the abortionists who advertise as doctors may have a legal right to practise, but most have no collegiate degree, and the very fact of their advertising as they do should make it easy for the proper authorities to prosecute them. And why should a hundred newspapers in this country be permitted to use the mails when their advertising columns contain plain evidences of their copartnership with fraud? It is said that this in Philadelphia is the first serious attempt of the postoffice to get at this old abuse, and that the results are startling. In answering these questionable advertisements the postal authorities say they have received half a hundred letters, in which the advertisers have openly promised to perform criminal operations for prices ranging all the way from $25 to $100. They also agreed to keep patients during convalescence. The boldness with which some of these socalled "doctors" sent out their letters has startled even the inspectors, who are accustomed to handling all sorts of vicious matter. The profession should do all in its power to aid the government in its work against these execrable wretches.

The small fees of medical examiners should receive a share of the attention which is now being lavished upon life insurance companies. It is an evil which amounts almost to a scandal of itself, and, moreover, it is an evil which would not exist if the physicians would organize to stop it. Every policy holder should know that the cost of his insurance would be materially reduced were it not for an occasional man who is insured, though unfit, and who dies prematurely. Such examinations require considerable ability and experience, neither of which can be bought without money. Poor pay always results in poor service, and is invariably more expensive in the long run. Fees of $1, $2 or $3 are given for services which, if improperly performed, may result in losses of thousands. It is to the financial interests of the policy holder to insist upon placing this work in the hands of men so able that they cannot afford to work for such small pay. It seems to be bad manage-

ment. Indeed, it could be characterized by still harsher terms when we compare the ridiculously small wages for such important work to the $20,000 annual retainers given to men for no known service whatever, and when we think of the $100,000 salaries, words fail. The proper fee for the medical examination is half of 1% of the face value of the policy, or even 1%. Such graduation of fees is in accordance with the legal customs of ages, and public policy really demands it in this case. It would attract to this specialty the ablest men instead of those who use it to eke out a precarious income. Indeed, it would become a true specialty instead of the dilettante one it now is, omitting, of course, the salaried medical officers, who, by the way, are also ridiculously underpaid in comparison to the value of their services. We earnestly commend this matter to the various legislative committees now hot on the trail of life insurance abuses. Perhaps part of the enormous commissions given to agents might be diverted to the medical examiners.

Medical Features of Polar Expeditions.—The difficulty met by Lieutenant Peary in obtaining a physician for his present journey to the Arctic regions recalls the medical aspects of such expeditions and the work likely to be encountered by the medical attendant. As a rule the health of men on these expeditions is good, the ailments most apt to occur being scurvy, intestinal disturbances, and frost-bites. Injuries are remarkably infrequent. Regarding this subject, two instructive papers by Drs. Ekelöf[1] and Wilson[2] have recently appeared. Both deal with voyages to the Antarctic region, the first with the Swedish expedition, the second with the voyage of the Discovery. In both are brought out points regarding an affection not confined to polar regions, and which for this reason merit general attention. In both expeditions, notwithstanding the use of the best tinned meats, scurvy appeared. It was soon recognized that the cure of this affection lay in dispensing with the tinned product and giving instead only fresh meats, as seal and gulls or other birds. This experience was in a sense disappointing, as it had been supposed that tinned meat and vegetables were an efficient safeguard against the disease. Dr. Ekelöf believes scurvy in such cases is due to substances formed in the meat by autolytic processes and he would also apply this conclusion to certain salted meats and fish, which at times lead to the affection. He suggests that all tinned or salted animal food taken on polar or similar expeditions should be regarded principally as provisions in reserve. Further, the tinning and salting should be done as late as possible before the starting of the expedition, in order to allow the least time for untoward processes to develop. An argument in favor of the views held by Dr. Ekelöf is the fact that scurvy disappeared without the use of lime juice or fresh vegetables as soon as fresh meat, instead of the tinned product, was supplied the patients. These findings indicate there is yet much to learn regarding this, in a sense, wellknown nutritional affection.

[1] Journal of Hygiene. October, 1904.
[2] British Medical Journal, July 8, 1905.

Age Statistics in the United States.—The census bureau has issued an elaborate study,[1] by Professor Allyn A. Young, of age statistics derived from the census of 1900. Though it is stated the ages were obtained more accurately than at any previous census, the margin of error in this respect is still appreciable, being nowhere better shown than by the returns of centenarians, in which the relation between illiteracy and the number of such people is very evident. Overstatement of the ages of children is attributed to a tendency to denote a child's age by the year of life rather than by completed years, and leads to a large apparent deficiency of children in the first few years of life. Young discusses this question at considerable length in the attempt to show that this deficiency is not real, as maintained by some writers during recent years, and that the census is steadily becoming more accurate. If this be true, the number of children is gradually decreasing, as the percentage under 1 year in 1880 was 2.9, in 1890, 2.6, and in 1900, 2.5. For the three periods the percentages under 5 years were respectively 13.8, 12.2, and 12.1. In only four of 16 foreign countries is the proportion under 1 year less than in the United States. On the other hand, the group from 15 to 60, called the "productive" ages, was larger in 1900 than in either 1880 or 1890. The median age, or age which exactly divides in halves the aggregate population, is 22.85 years. A century ago this was only 15.97; since 1820 the gain has been approximately two-thirds of a year each decade. The median age of people living in cities of more than 25,000 inhabitants is three and a half years greater than that of the population of smaller cities and rural districts; this is due largely to the relatively greater proportion of those in early middle life in cities, the rural population possessing more of both extremes. The bulletin contains numerous tables setting forth statistics regarding 10-year age periods, ages of the sexes, of foreign and of native born, and of those in various parts of the country, making it a very instructive addition to the literature of this always perplexing question.

Cerebrospinal meningitis, on account of the rapidity of its invasion, its short duration in some cases, its high mortality and dreadful sequels, naturally occasions much comment in the lay press, as such diseases always do. In comparison with slower and less fatal infections which really destroy far more victims, its relative importance has, no doubt, been unduly magnified during the past winter. The infection is with us always, for cases are reported in every season of every year. Only occasionally does it cause many deaths, and even then, it can scarcely be said to rise to the dignity of an epidemic, except, possibly, among small communities, such as soldiers in camp. The fact that there is no specfic remedy, such as quinin is for malaria, has, unfortunately, also been magnified into a statement of complete helplessness, whereas there is considerable evidence that, except in the fulminant cases, before which we are as helpless as in the pernicious forms of all other diseases, we need not stand idly by and watch the patient survive or perish according to his powers of resistance.

[1] Bureau of the Census, Bulletin 13, 1904.

Though there are many features of the disease still to be investigated, such as the portals of entry of the infective agent and the period of incubation, there is too much known already to warrant the statement that the disease is a complete mystery.

The contagiousness of cerebrospinal meningitis also requires clearing up, for, though in a few cases the disease has been presumably contracted directly from another patient, there is a possibility that it came not from the patient, but from the same source which infected him. There may be a good basis for the widespread belief in the noncontagious nature of the disease, and no ground for the panicky state of the public derived from the exaggerated press accounts of a dreadful mysterious contagion. The diplococcus is so feeble and so easily destroyed by drying and by light that it can almost be considered a pure parasite, and this, of course, makes it difficult to account for place infections, if such occur, unless it be true that the organism can live saprophytically in cool, dark places. There seems but little ground for the dread of infection in proper houses. There is also a growing belief that the germ, to a certain extent at least, is a harmless inhabitant of many healthy people and that it is able to do harm only when resistance is destroyed by some unknown cause. If this suspicion is correct we, of course, will be as unable to prevent its appearance as we are to ward off the terminal pneumonia of the senile. But if we will live natural, normal lives, and avoid all those things which we know are injurious to vital resistance against any invading parasite, we need not worry over the constant presence of this particular enemy. It is only one among thousands ever ready to destroy us if we do not live clean lives.

Eye Inspection of Children Recommended in Great Britain.—The British public has waked up to recognition of the importance of strict attention to the eyesight of its children. Open admission has even been made of its backwardness in duly estimating the vast economic value of attention to this asset in the development of the growing human unit. At the meeting of the Congress of the Royal Institute of Public Health which was held in London on July 24, it formed one of the most prominent subjects of discussion. One speaker mentioned that a German friend, to whom he had formerly made some wondering comment on the enormous use of spectacles in Germany, solemnly retorted: "Yes, and when you use our methods you will be the same. We find out defects and rectify them; you let them go on in your haphazard way." Dr. Kenwood explained in detail to the meeting the system of inspection at present prevailing in America, and its details—especially emphasizing the fact that it aimed at detection, not at cure in the school. Any school teacher could tell when a child seemed unwell. Dr. Kenwood expressed the opinion that it was desirable in the interests of the coming generation, and of the land in which it was called upon to dwell, that every child should be submitted to medical inspection on commencing school life, and at least twice a year afterward. Medical inspection of school children, he went on to point out, was no latter-day novelty. It was done 30 years ago in Brussels, and 120 years ago in Poland. (Strangely interesting landmark of social progress, this latter, when scrutinized in the light of intervening history, and from the standpoint of twentieth-century experience!) Nearly every country in Europe had adopted this necessary measure, and "of course" every school in Japan, and they realized its great benefit. Eyes and ears are the two great gateways of education, and permanent harm is being continuously inflicted upon thousands of pupils by the endeavor to educate those who were physically unfit. When either eyes or ears were defective there was a tremendous waste of the energy applied in the attempt to impart knowledge. Mental deficiency, nervous conditions, overpressure, commencing deformities of the spine, etc., were also conditions which should always be detected by medical inspection. We are very pleased to observe that Professor Kenwood's views agree so closely with those which we have throughout so strenuously advocated in the pages of *American Medicine*. One of the members, in discussing Dr. Kenwood's paper, expressed the belief that since the introduction of the electric light for general house illumination, the eyesight of both children and adults had suffered very materially, and this ridiculous non sequitur was not exposed by any subsequent speaker.

Myopia and Its Prevention.—A subsequent paper on the preservation of eyesight in children was read by Dr. E. Clarke (surgeon to the Central London Ophthalmic Hospital), who dealt more especially with the subject of myopia. He emphasized the importance of preventing a young child from unduly looking at near objects too much. What near work had necessarily to be done should be placed as far from the eyes as possible, and should be engaged for the minimum time only. He would absolutely prevent any children under the age of seven years from learning to write on paper. He considered that in the teaching of children there was not nearly enough demonstration; there was scarcely a subject that a child has to learn that could not be taught by the teacher on the blackboard, or by means of large maps, plans, or sketches, the regular and continuous employment of which would save the child's movements of conveyance and accommodation immensely. An important part of the treatment of lessening convergence consisted in getting the child to lead an open-air life as much as possible. Parents should always remember that myopia is a defect produced by the conditions of civilization, and that the savage rarely, if ever, suffered from it. It is pitiable that all of this sort of nonsense will probably be repeated a thousand times until England and Europe, generally, learn something as to the true cause of myopia and of the systemic diseases dependent upon eyestrain. The idea of a European advising English physicians to adopt German methods of treating ametropia would make an American horse laugh outright. With the exception of two or three English ophthalmologists, the accurate correction of astigmatism (the heart of the matter) is unknown.

The crime of lynching in the United States has been scientificly studied by Dr. James Elbert Cutler. The number of recorded lynchings in 22 years, from

1882 to 1903, is 3,337, or an average of 150 a year, the largest number being 235 in 1892 and the smallest, 97 in 1902. Dr. Cutler has taken great pains to analyze the reasons for the lynchings, and is able to show that the total number of lynchings for rape (about 700) is only a third of the total number of lynchings of negroes; that about 70 white men were lynched for the same offense in the South; that not till about 1890 did the number of negroes lynched exceed the number of whites lynched; that 40 colored and 23 white women were lynched; that among the minor offenses for which human beings were deprived of their lives by a raging mob were swindling, elopement, jilting a girl, colonizing negroes, throwing stones, making threats, slapping a child, refusing to give evidence, giving evidence, and bad reputation. From 1830 to 1860, during slavery times, there were fewer lynchings than later; and reconstruction times were not those in which lynching was born, on account of the lawlessness of the negro. In fact, the statistics demonstrate that lynching did not arise nor has it been practised because of the crimes of negroes, nor because of rape. Even a few weeks ago, seven arrested men were lynched at once, four accused of murder and three of minor crimes. The sad history reveals the murderous and savage instincts still slumbering in civilized peoples and times, and illustrates the duty upon us of abiding by legal procedures; crime breeds crime, and general education and social uplifting are the needs of both the depraved black and the depraved white. One aspect unnoticed has been emphasized by a southern white preacher, who says that the southern churches have spent a hundred times as much money "to evangelize the people of China, Japan, India, South America, Africa, Mexico and Cuba as they have spent to give the gospel to the negroes at our doors."

The Place of Norway in Medical History.—Attention just now is directed to Norway, and that picturesque territory well rewards intelligent inquiry and research. All recognize the rare attractions of its scenery, while antiquarians pore over the curiously enlightening lore which a study of that land and its people never fails to reveal. A people of comparatively "simple life" are not likely to display the multitudinous ills to which human flesh is heir, as are those of advanced civilizations. And the diseases of Norway—tourist and seaport intercourse apart—have, accordingly, been phenomenally few, so far as history and tradition have reported. Still, there are a few Norwegian items which loom largely over the horizon of the history of medicine. Of these, three are necessarily prominent, and they illustrate, respectively, most important domains of our professional theory and practice. These are leprosy, in its clinical and topographic history; syphilis, in connection with its prophylaxis by inoculation; and cod-liver oil, with the therapeutic applications for which it has been so extensively used, and, whether rightly or wongly, recommended and celebrated.

Norwegian Diseases; Epidemic and Endemic.—A very elaborate "Natural History of Norway" was composed toward the middle of the eighteenth century by the Right Rev. Erich Pontopiddan, Bishop of Bergen (English version; London, 1755), in which the then attainable knowledge of nature's wonders and secrets is displayed with respect to matters Norwegian. The writer fully discusses those matters and refers to the prevalence—or absence—of some of their best-known maladies. Epidemics of smallpox raged annually in Denmark, but visited Bergen only once in seven years, and traveled northward as far as Tronheim, but at intervals of 10 or 12 years. The manors of Nordland seldom knew smallpox more frequently than at intervals of 16 years, and it then made "great havock among young and old." Rickets was known as "the English sickness" and never originated in Norway. And the author adds: "We can say the same of agues or tertian and quartan fevers, which we know only by report from other countries." The eastern belt of the country was comparatively free from the characteristic endemics of the West and South (leprosy and its congeners). Yet it was twice swept by an epidemic plague, "especially in 1630, when the new city of Christiania lost 3,000" of its inhabitants. On a subsequent visit, in 1684, they brought its ravages to a close by burning several forests, which had the effect of purifying the air. It was noticed that the plague did not visit the vicinity of any of the great copper-smelting works, as their "effluvia were corrected by the strong sulphureous smoak and vapours . . . for 12 or 15 miles around." This good was, however, balanced to some extent by the evil of the much greater prevalence of lung diseases in those highly flavored districts. Begavning was the native name of an epileptiform malady, oftenest visiting women after sudden suppression of the menses. Some attributed the disorder to the eider-down beds on which they lay, a view which had already been exploded by Thomas Bartholin.

"Scurvy" in Norway in the Eighteenth Century: Norwegian Therapeutics at that Date.—The learned bishop believed strongly in the consingermanship—and crossrelationship—of *scurvy* and *leprosy*. He tells the reader that: "The ordinary scurvy would prevail in this country a great deal more if it was not for hard work, which is the best preservative against it, and keeps the juices in constant circulation." He fortifies this opinion by the testimony that "those that use but little exercise, and have a good appetite, seldom or never escape this distemper." But nature had provided Norway with "berries and roots" which were "excellent antiscorbutics especially cochlearia, or scurvy-grass. Some eat this herb raw, others make a decoction of it with milk; and in Nordland, where it grows very strong, and is called erichs-græs, they use it as pickle in the winter." And a note culled from the *London Magazine*, of June, 1752, offers corroborative evidence: "On Hitland, a God's providence has provided them with the same remedy against this disease which is contracted there, for they eat so much salt fish that they are very subject to the scurvy. Nature has furnished them with plenty of scurvy-grass; they have no physicians or surgeons, neither have they any occasion for them." (!) He also quotes Dr. Russell's statement "that common sea-water, applied both internally and externally, will

cure not only the scurvy, but the above-mentioned leprosy, if it has not taken too deep root, and the glands are still preserved," and "that there is a kind of sea-weed, called Quercus-Manna (of which there is enough here) which is good for the scurvy in the gums if rubbed with it," and adds the very appropriate comment: "If it be so, then God's providence shows itself remarkably by distributing such universal remedies, according to the wants of each nation."

The "Scabies-Scorbutica" of Norway and Fish Diet.—When Bishop Pontopiddan comes to deal directly with the subject of the prevailing cutaneous disorder of his country, he goes on to inform us that: "This is chiefly found among those that live along the coast, occasioned probably by eating great quantities of fat fish, and especially the liver of the cod. This is probably a scabies-scorbutica, which may be called a leprosy, but not so infectious as the oriental lepra; for married people live together many years, and the healthy is not infected, though the other party has it. But if they have children, they sometimes take the infection, though not always." These sentences would form the subject-matter of an inspiring text for Mr. Jonathan Hutchinson, although their use of names seems to offer special facility for the employment of the "fallacy of equivocation." The writer further states that the poison of this disease generally lies in the blood for a long time before any cutaneous eruption appears. At the close of this prolonged period of incubation, "it breaks out in ugly boils on the face," when the affected individuals were generally sent into the special hospital. There was one of these at Bergen, and a second at Malde in Romsdalen. We are told that the physicians professed the opinion that the disease was curable when the patient was young; but the writer appends the depressing comment: "Though they have often attempted it, I do not find that any one has been thoroughly cured, without some remains of the distemper." But the blame cannot be wholly laid at the door of the physician and his physic, for: "This may be said, however, that when they get tolerably well, they do not confine themselves to the regimen that is prescribed them so punctually as is required." The writer adds in a foot-note that: "In the north of Holland the damp air, and their daily nourishment, which is chiefly fish, have the same effect, and I am informed that the same sort of scabies-scorbutica likewise appears among the common people there." The testimony of James Howell[1] is aptly quoted in this connection: "We are now in North Holland, and I have never seen among so few people, so many infected with the leprosy as here. They say the reason is because they eat so much fish."

The Leprosy of the Faroe Isles: Its Varieties.—The testimony of Luke Debes, in his account of the leprosy in the neighboring island of Faroe, is quoted at length by Bishop Pontopiddan, and is of interest, even at the present day, when contradictory opinions exist.

The northern leprosy, which, in the diocese of Bergen, is found to be of the same kind and quality as that on the opposite coast of Faroe. The physicians say there are three sorts of leprosies, namely, Tyria, socalled from the serpent Tyro. The skin of the person infected with this kind of leprosy is soft and full of spots, like warts, and sometimes peels off in scales. The second sort is called Alopecia, from the hair turning foxy, and then falling off. Persons afflicted with this are red-faced, and shed their beards and eye-brows. The third sort is called Elephantia; the skin of a person infected with this sort, resembles that of an elephant, and the face, with every part of the body, is full of tubercles. The leprosy that this country is most subject to is the elephantia; for the leprous persons here are full of livid tubercles, which sometimes break out into boils, and disfigure their faces extremely. They are hoarse, or speak through the nose; but the distemper is more virulent at spring and fall, and carries off a great many. What chiefly occasions this disease is the quality of the air and the diet of the inhabitants; for, as I have intimated before, the cold is not immoderate here, but we have a very damp air. This, in general, produces the scurvy, which is a species of leprosy, especially in those who do not use much exercise. Beside the air, their food, especially of the poorer sort, which consists of meat and fish, half rotten, in the winter, and fresh fish without any salt, and milk in the summer, contributes, in a great measure, to this distemper. This distemper may be communicated to others, for it is infectious; and as it lies a long while in the blood before it breaks out, several persons marry, and think they are both free from it, but at last one of the parties appears to be leprous. It is somewhat surprising, and shows the care of providence, that children do not always inherit this distemper from their parents. I have known three instances where women have been infected with these leprosies, and have had several children, most of whom are now married and have not yet discovered any symptoms of it. For this reason, the inhabitants, when they choose a wife, give themselves no concern whether her parents are leprous or not. I have likewise known instances where the father has been leprous and the children quite free fom that distemper. It often happens that when a married couple have lived together for some time, and the parties find that one of them is infected, they will still cohabit together, so long as it does not appear externally, until they are separated by orders from the government. However, the party that was healthy remains uninfected; and yet sometimes a person may be infected by a very slight contact of a leprous person. On the other hand, there are instances of poor, miserable wretches who are quite free from the leprosy, but being destitute, are therefore put into these hospitals among the leprous patients, where they eat, drink, and daily converse with them, and still remain uninfected all their lives.

Both the advocates and the opponents of the fish diet theory of the origin of leprosy may consider this with profit. The facts of Luke Debes, stated as they are with impartiality, and apart from hypothesis, are like those which are advocated today. Even the discovery of *Bacillus leprœ* does not seem to have afforded any firmer logical fixation for the line of transmission of this interesting and enigmatic disease.

[1] Familiar Letters, Part 1, Book II, Vol. 13.

To Study Needs of Prisons.—A commission of five to inquire into the most practical method of providing modern prison building in New York State has been appointed by Governor Higgins. It consists of Cornelius V. Collins, of Troy, John G. Wickser, of Buffalo, Edwin O. Holter, of New York, William E. Wheeler, of Portville, and Samuel J. Barrows, of New York. Mr. Collins is superintendent of State prisons, and he and Messrs. Wickser and Holter constitute the State Commission of Prisons. The duty of this commission is to inquire (1) as to the structural and sanitary conditions of the buildings at Auburn and Sing Sing prisons; (2) as to the advisability and cost of reconstructing and modernizing such buildings; (3) as to the advisability and cost of providing two new prison plants on new sites, the most advantageous locations of such sites, and the required capacity of each plant; (4) as to the advisability and cost of providing a new prison for 2,400 prisoners on a new site, and the most advantageous location of such site; (5) the estimated sums that can be realized from the sale of Auburn and Sing Sing prisons; (6) the most practicable disposition that may be made of the Eastern New York Reformatory.

BOOK REVIEWS

The Thyroid and Parathyroid Glands.—By HUBERT RICHARDSON, M.D. Philadelphia: P. Blakiston's Son & Co., 1905.

This book of 257 pages contains considerable information regarding glands, which are at present mentioned frequently in medical literature, hence the appearance of a brief summary of our knowledge concerning them is timely. To such a summary, the author has added materially from his personal experience gained as pathologist to Mount Hope Retreat, where he also made extensive clinical studies of the insane who were being treated by thyroid preparations. In the 14 chapters of the book are considered systematically the glands from their embryology and physiology to the various changes they present in diseases due to or involving them. A chapter is devoted to the surgery of the thyroid gland and one to thyroid feeding, as applied to general therapeutics. The book, as a whole, is well written and, so far as we have been able to determine, is accurate. For these reasons it should be well received by physicians who desire a succinct treatise on this subject. Reading the book is made difficult by certain things which the author and publishers should by all means correct in future editions. We refer to the placing of illustrations, the lack of reference to them in the text, and the heading of chapters.

A Textbook of Obstetrics.—By BARTON COOKE HIRST, M.D. Fourth edition, revised and enlarged. Philadelphia, New York, London: W. B. Saunders & Co., 1903.

The well-deserved popularity of Dr. Hirst's textbook on obstetrics will be still further enhanced by the changes and additions which have been made in the fourth edition. More attention has been paid to the diseases of the genital organs associated with or following childbirth. The author emphasizes the relationship which must necessarily exist between obstetrics and gynecic surgery. There is probably no textbook of obstetrics in the English language which so clearly presents, without prolificity, a concise review of obstetric knowledge as this work. The manner of arrangement and paragraphing, with the complete index, make it a convenient book of reference, while a medical student would find it advantageous to read every word of the 900 pages. Space prevents commenting upon many individual points, but the chapter on the pathology of labor will prove of much aid and interest to the practitioner who is constantly confronted by complicated parturitions.

The Urine and Feces in Diagnosis.—By OTTO HENSEL, Ph.G., M.D., and RICHARD WEIL, A.M., M.D., in collaboration with SMITH ELY JELLIFFE, M.D., Ph.D. Philadelphia and New York: Lea Brothers & Co. 1905.

Of this book of 323 pages, 156 are devoted to the consideration of the urine by Dr. Hensel, the remainder to the feces by Dr. Weil. Both are presented in an excellent manner. The diagnostic features of these excretions are kept in mind throughout, and as a result the book is of special value to practising physicians. Laboratory workers, however, will find many of the more elaborate methods outlined and to them the work will be of value as a reference. The chapters devoted to the feces are possibly the more important, as there are fewer brief guides to the examination of these than of the urine. Dr. Weil discusses the macroscopic, microscopic, bacteriologic, parasitic, and chemic examination of the feces and adds a chapter on the characteristic pictures in disease. As a whole the book may be recommended to the profession as one of the most valuable briefer works on these subjects. It is well printed and bound and the illustrations are satisfactory.

The Follies of Science at the Court of Rudolph II.—By HENRY CARRINGTON BOLTON. Milwaukee: Pharmaceutical Review Publishing Company, 1904.

This book of 217 pages gives, in a very entertaining manner, an insight into the follies of science, as shown forth by astrology and alchemy, fostered by King Rudolph, 1576–1612. It contains 18 illustrations, and forms an interesting narrative for the physician's leisure moments. The typography is excellent.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Manual of Psychiatry.—By J. ROGUES DE FURSAC, M.D., formerly Chief of Clinic at the Medical Faculty of Paris. Authorized Translation from the French by A. J. ROSANOFF, M.D., Junior Assistant Physician L. I. State Hospital, Kings Park, N. Y. Edited by JOSEPH COLLINS, M.D., Professor of Diseases of the Mind and Nervous System in the New York Postgraduate Medical School; Physician to the New York City Hospital, etc. Cloth, $2.50. John Wiley and Sons, New York, 1905.

Lea's Series of Medical Epitomes.—Edited by VICTOR C. PEDERSEN, M.D.

Studies in General Physiology.—By JACQUES LOEB, formerly of the Department of Physiology, now Professor of Physiology in the University of California. The Decennial Publications, Second series, Volume xv. Parts I and II. Chicago. The University of Chicago Press, 1905. Price, $7.50 net.

A Textbook of the Practice of Medicine.—By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; Laureate of the Royal Academy of Medicine in Belgium and of the Medical Society of London. In one very handsome octavo volume of 1,120 pages, with 129 engravings and 10 full-page plates in colors and monochrome. Cloth, $5.00 net; leather, $6.00 net; half morocco, $6.50 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Lectures on Clinical Psychiatry.—By EMIL KRAEPELIN, Professor of Psychiatry in the University of Munich. Authorized translation from the German. Revised and edited by THOMAS JOHNSTONE, M.D., Edin., M.R.C.P., London. Member of the Medico-Psychological Association of Great Britain and Ireland. William Wood & Co., New York, 1904.

Outlines of Inorganic Chemistry.—By FRANK AUSTIN GOOCH, Professor of Chemistry in Yale University, and CLAUDE FREDERIC WALKER, Teacher of Chemistry in High School of Commerce, New York. The Macmillan Company, New York, 1905.

Progressive Medicine.—Vol. VII., No. 2. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by H. R. M. LANDIS, M D., Assistant Physician to the Outpatient Medical Department of Jefferson Medical College Hospital. Lea Brothers & Co., Philadelphia and New York. Price, $6.00 per annum.

Eighteenth Annual Report of the Ohio State Board of Health for the year ended December 31, 1903. The Springfield Publishing Company, 1904.

A Treatise on Plague.—The historic, epidemiologic, clinical, therapeutic and preventive aspects of the disease. By W. J. SIMPSON, M.D., Aberd., F.R.C.P., Lond., D P.H., Camb., Professor of Hygiene, King's College, London, etc. The Macmillan Company, New York, 1905. Price, $5.00.

The Historical Relations of Medicine and Surgery.—An address delivered at the St. Louis Congress in 1904, by T. CLIFFORD ALLBUTT, M.A., M.D., Hon. M.D. (Dubl.), Hon. LL.D. (Glasgow), Hon. D.Sc. (Oxford and Victoria), F.R.C.P., F.R.S., F.L.T., F.S.A. Regius Professor of Physics in University of Cambridge, etc. The Macmillan Company, London, 1905. Price, $1.00 net.

A Nurse's Guide for the Operating-room.—By NICHOLAS SENN, M.D., Ph.D., LL.D., C.M., Professor of Surgery, Rush Medical College, in affiliation with the University of Chicago, etc. Second edition, enlarged and revised. W. T. Keener & Co., Chicago, Ill.

Tumors of the Cerebellum.—By DRS. CHARLES K. MILLS, CHARLES H. FRAZIER, GEORGE E. DESCHWEINITZ, T. H. WEISENBERG and EDWARD LODHOLZ. A. R. Elliott, New York, 1905.

Diseases of Metabolism and Nutrition: Part VI, Drink Restriction (Thirst-Cures), Particularly in Obesity.—By Professor Dr. CARL VON NOORDEN and DR. HUGO SALOMON. Authorized American edition translated under the direction of BOARDMAN REED, M.D., Philadelphia. E. B. Treat & Co., New York, 1905.

Enlargement of the Prostate.—Its history, anatomy, etiology, pathology, clinical causes, symptoms, diagnosis, prognosis, treatment, technic of operations and after-treatment. By JOHN B. DEAVER, M.D., Surgeon-in chief to German Hospital, Philadelphia. Assisted by ASTLEY P. C. ASHHURST, M.D., Surgeon to Outpatient Department of the Episcopal Hospital, etc. Illustrated with 108 full-page plates and a colored frontispiece. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $7.00 net.

Addresses and Other Papers.—By W. W. KEEN, M.D., LL.D., F.R.C.S. (Hon.), Professor of Surgery, Jefferson Medical College, etc. Illustrated. W. B. Saunders & Co., Philadelphia and London, 1905. Price, $3.75 net.

American Edition of Nothnagel's Practice: Malaria, Influenza, and Dengue.—By DR. J. MANNABERG, of Vienna, and DR. O. LEICHTENSTERN, of Cologne. Entire volume edited, with additions, by RONALD ROSS, F.R.C.S., F.R.S., Professor of Tropic Medicine, University of Liverpool; J. W. W. STEPHENS, M.D., D.P.H., WALTER MYERS, Lecturer in Tropic Medicine, University of Liverpool; and ALBERT S. GRÜNBAUM, F.R.C.P., Professor of Experimental Medicine, University of Liverpool. Octavo volume of 769 pages, fully illustrated, including eight full-page plates W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $5.00 net; half morocco, $6.00 net.

Practical Hygiene.—By CHARLES HARRINGTON, M.D., Assistant Professor of Hygiene in Harvard University Medical School, Boston. Third edition, thoroughly revised. In one octavo volume of 793 pages, with 118 engravings and twelve plates. Cloth, $4.25 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Fractures and Dislocations.—By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals, etc. Fourth edition, thoroughly revised. Octavo, 844 pages, 331 engravings and 46 full-page plates. Cloth, $5.00 net; leather, $6.00 net; half morocco, $6.50 net. Lea Brothers & Co., Philadelphia and New York, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

Find Yellow Fever Germ.—It is reported that Drs. P. E. Archinard and John J. Archinard, of New Orleans, bacteriologists, believe that they have found the long sought yellow fever germ. Their investigations are not complete.

Gives Birth to Seven.—A despatch from Hilo, Hawaii, says that Hana, the Hawaiian wife of Kailua, a Chinese, gave birth to one child on last Thursday, two on Sunday, one on Monday, two on Tuesday morning, and one on Tuesday night. All are dead.

Meningitis in Nova Scotia.—An epidemic of cerebrospinal meningitis prevails in Lunenburg, N. S. Sixty cases have developed, and of the number 20 have been fatal. All the summer residents and many of the townspeople have gone away and business is seriously affected. Lunenburg is the headquarters of the Nova Scotia bank fisheries.

Inspection of Cattle Trains.—Secretary Wilson has been in Chicago watching the incoming stock trains, the manner in which they had been loaded and the condition in which the cattle were delivered. He will, as soon as he returns to Washington, materially modify the existing orders. He expects to extend his inspection trip of live stock shipments to the Missouri river country.

New Röntgen Terminology.—At the recent Röntgen Congress in Berlin a special committee adopted the following terminology for the new science: Röntgenology is the study of röntgen rays; röntgenography is photography by the rays; röntgenoscopy is observation by röntgen rays; orthoröntgenography in place of orthodiagraphy; röntgenotherapy and the verb to röntgenize in their various meanings.

Charitable Gifts.—The executor for Mrs. Mary Elliott, of Minneapolis, Minn., has conveyed from the estate the property at the corner of Nicollet avenue and Fifth street, Minneapolis, valued at $175,000, in trust for the founding of a university hospital near the university. The hospital will furnish clinical facilities to the students in the department of medicine, and will care for university students who are in need of assistance. It will be a memorial to Mrs. Elliott's husband, Dr. A. F. Elliott.—The will of the widow of Charles H. Hackley, a millionaire philanthropist, leaves $300,000 to Muskegon, Mich., as an endowment fund for the poor; and to the Hackley Hospital, Muskegon, $300,000.

New Tax on Immigrants.—The increasing number of immigrants is exciting the interest of the public authorities. It is estimated that at least 1,000,000 immigrants will come into the United States during the fiscal year. This number will break all former records. Government agents who are stationed at the ports of embarkation say that foreign governments encourage in various ways the emigration of the criminal classes and those who are likely to be a public charge. This opinion is confirmed by observations made at the great immigration depots in this country. The President, it is reported, will recommend to the next Congress that the per capita tax on all immigrants be raised to $25, with a view to reduce the number of undesirable immigrants.

The Mountain and the Mole Hill.—Nothing has been received at the office of the Surgeon-General of the Army in regard to the alleged thefts to the extent of $100,000 under the Medical Department in Manila. The cable dispatches and local Manila papers have quoted Lieutenant-Colonel Daniel M. Appel of the Medical Department, on duty at Manila, as saying that the thefts have been going on for a long time and that the government had lost $100,000 worth of medical and surgical supplies. The only information possessed by the Surgeon-General's office here is that the thefts were committed by two civilian employes and are represented by two platinum crucibles which the thief sold for $68, and a quantity of surgical instruments. The extent of the depredations was within $125. Any other statement is purely sensational so far as is indicated by the advices received in Washington.

Personal.—**M. U. O'Sullivan**, senior surgeon in St. Vincent's and the Woman's College, and fellow of the Royal College of Surgeons, Ireland, is making a tour of this country, studying hospitals, and from here will go to Melbourne, Australia.—**M. C. Cawley**, of Allentown, has been appointed Medical Inspector for Lehigh county by State Commissioner of Health Dixon.—**T. D. Crothers**, of Hartford, Conn., will deliver the first oration in the Norman Kerr memorial lectureship, at London, Eng., October 10, 1905. Dr. Kerr, who made a special study of inebriety, alcoholism, and other drug disorders, writing several books on the subject, and who was instrumental in securing the enactment of laws for the control of inebriates and the promotion of hospitals for their care throughout Great Britian, founded the British Society for the Study of Inebriety, in 1884, and this society and his friends have organized a memorial lectureship for yearly orations on his life and work.

Alleged Cure for Leprosy.—An announcement recently made that a cure for leprosy by the röntgen-ray treatment had been discovered by American physicians connected with the Manila Health Department has apparently been substantiated by the examination of the body of a patient treated for the disease. The patient, a man, died of liver trouble. Every portion of the body was subjected to a searching microscopic examination by bacteriologists, but not the slightest trace of leprosy could be found. H. B. A. Wilkinson, the physician who treated the patient for leprosy, is a graduate of the University of Virginia, class of 1894.

NEW YORK AND VICINITY.

Excluded from Mails.—A fraud order has been issued by the Postmaster-General against the New York Institute of Physicians and Surgeons and "Prof." Thomas E. Adkins, of Rochester, N. Y., its president. Newspaper advertisements published as news told of the wonderful "vitaopathic" treatment.

Decline in Typhoid Fever Cases.—Dr. J. S. Billings, chief of the Division of Communicable Diseases of the New York Health Department, states that deaths from typhoid now average about 14 to 15 to the 100 cases. At present, the number of deaths is keeping below 10 to the 100 cases. The decrease shown by the figures presented day by day last week is continuing, and a steady decline is expected from the number of cases reported for last week (259), until toward the end of September.

Case of Prolonged Coma.—The extraordinary case of Charles Canepi, the 8-year-old son of Joseph Canepi, of Yonkers, N. Y., who has now been in a state of coma for 146 days, is arousing increased interest. The trance followed severe pains in the head, and the malady was at first diagnosed as cerebrospinal meningitis. But the boy has experienced none of the convulsions and muscular contractions that usually characterize meningitis. He is able to take liquid nourishment, looks well, and the disease seems to have had no other effect than complete paralysis of the motor functions.

Grateful for Visiting Nurse.—The Visiting Nurse Association of Newark, N. J., has made an agreement with the Mutual Aid Associations of the large department stores to visit their sick employes and to receive a fee of 25 cents a visit from the Mutual Aid. The nurse visits the stores twice a week and meets the doctor; in the meantime calls are reported by telephone to the head nurse. In the factories, posters offering the nurse's services are being placed in the cloakrooms, and the plan is approved by both employers and employes. The nurse's services are specially welcome to the employes in boarding houses, who, when ill, are dependent upon a busy and overworked landlady.

New Jersey's Control of Its Waters.—Vice-Chancellor Bergen sustains the constitutionality of the Bacheller act, passed last winter by the Legislature, prohibiting the diversion of potable waters of New Jersey to other States. The proceedings were instituted by Attorney-General McCarter against the Hudson County Water Company. The purpose of the suit was to restrain the East Jersey Water Company, of which the Hudson County Company is a constituent corporation, from diverting the waters of the Passaic river to furnish water to Staten Island. The Vice-Chancellor holds that the constitutional question is without weight, and that the State may protect its potable waters upon the broader principles of public policy and the protection of its citizens.

PHILADELPHIA, PENNSYLVANIA, ETC.

Disinfecting the Schools.—The work of disinfecting by fumigation every schoolhouse in the city of Philadelphia is being rapidly pushed forward by the Department of Health. It will be completed by September 11, when the schools reopen. In all there are 239 buildings to be disinfected, of which 161 are owned by the city and 68 are rented.

No Bakeries in Basements.—The first enforcement of the new law of New Jersey prohibiting the construction of bake ovens in basements came in Camden, N. J., last week. Charles Foulon had gone to several hundred dollars' expense to put an oven in the cellar of his new bakery, but an inspector of the State Labor Department called a halt, and Foulon will now build the oven in his back yard.

Pennsylvania's New Sanitary Engineer.—State Health Commissioner Dixon has announced the appointment of F. Herbert Snow, of Boston, to be the head of the sanitary engineering division of the Pennsylvania Department of Health. Mr. Snow is regarded as one of the leading sanitary engineers in the United States and has served more than 50 municipalities in this country as consulting sanitary engineer.

State to Attack Diphtheria.—State Health Commissioner Samuel G. Dixon has formulated plans for the free distribution throughout Pennsylvania of antitoxin for use in diphtheria cases in which patients cannot afford to pay for this preventive medicine. Two or more distributing stations will be established in every county, and the antitoxin will be distributed on the order of the physician in charge of such cases.

Smallpox from Campmeeting.—At the Elizabeth, Pa., campmeeting last week one of the campers became ill, and the disease was diagnosed as smallpox after the meetings broke up. There is hardly a person in Tower City or Orwin who has not been exposed to the danger of contracting the disease, and State Medical Inspector Dechert has ordered a strict quarantine at Orwin, where a number of prominent citizens have already been stricken. Isaac Brown has been appointed sanitary agent of the district to enforce the quarantine.

Bacilli in Paupers' Bread.—The presence of bacilli of the subtilis group in the flour was the cause of the unwholesome bread recently supplied inmates of the Philadelphia Hospital. The bacilli were discovered by the department bacteriologists. The spores of the germs are impervious to heat, and begin to spread within a few hours after bread so affected is removed from the ovens, with the result that the loaves soften and become soggy. The entire bakery has been renovated, and other precautions taken to prevent a recurrence.

Deceived Health Board.—The resignation of Assistant Medical Inspector H. L. Sidebotham has been requested by the Department of Health. He has been under suspension for more than three months as a result of irregularities in the performance of his duty. For several months prior to his suspension, he did not make any inspection of the schools, but daily filled out and sent in the usual paper to show the attendance, number of pupils inspected, maladies found, etc. When his deception was discovered, he admitted his guilt, offering as an excuse for the deception that during the time he was making false returns he was ill.

Increase in Suicide in New Jersey.—The annual report for 1903 of the State Board of Health shows a material increase in the number of suicides in New Jersey. During the year there were 314 cases, as against 265 the previous year. The 1903 showing is at the rate of 15.70 per 100,000. The favorite method, according to the report, was by poison, by which means 153 ended their lives. Asphyxiation was the next in popularity, with 112 devotees. Life seems to be most burdensome between the ages of 35 and 45. Of the suicides recorded 112 were born in this country, 64 in Germany, and 24 in Ireland. France did not have one representative.

Typhoid Falling Off.—There was a decrease of 35% in the number of typhoid fever cases in the week ended August 26, as compared with the previous seven days, the total number of cases reported to the Health Bureau in those periods being 82 and 125, respectively. Germantown reported seven cases, all of which, in the opinion of the health authorities, must have been contracted outside of the Twenty-second ward, as that district is said to be supplied only with filtered water from the Roxborough filtration plant. An investigation of cases previously reported in that district conclusively demonstrated that in each instance the disease was contracted at summer resorts or other places outside the district.

Survived Wound in Heart.—Alonzo Currington, who was stabbed in the heart about six weeks ago in a fight, was discharged from the Bryn Mawr Hospital, cured, last week. The knife went through the pericardium, or outer covering of the heart, and made a small puncture of the wall of the heart itself. That Currington was not killed instantly was regarded as marvelous, and his remarkable vitality when taken to the hospital suggested to the physicians the possibility of operation. The wounds were stitched and he rallied from the operation, and, although on several occasions his death was momentarily expected, great vitality sustained him in each crisis, and about a week ago he was considered out of danger.

SOUTHERN STATES.

Typhoid Frightens Baltimore.—Typhoid fever is becoming serious in Baltimore. Not only are there over 140 cases in the hospitals, but reports have been made to the Health Department of numerous cases in families. The malady has gained a foothold in the counties. The health officials defend the drinking water-supply, and claim that the fever is not due to this cause, but are inclined to believe that the disease has been contracted by persons spending vacations out of town and who have developed the fever after returning home.

Yellow Fever under Control.—So thorough is the control of yellow fever in New Orleans believed to be now that it is expected that within the next 10 days Dr. White will be able to reorganize his forces, dividing the city into districts instead of wards, and reducing the forces of workers now employed. Interest attaches to the developments in connection with the discovery of yellow fever at Gulfport, Miss. Governor Vardaman some time ago announced that there would be proceedings against doctors in Mississippi who suppressed the existence of yellow fever. Indications are that yellow fever was present at Gulfport several weeks ago. Four cases of yellow fever are reported at Escatawpa, Miss., 40 miles southwest of Mobile. On account of this information and the development of yellow fever at Natchez, Miss., Mobile, Ala., has authorized quarantine against the counties of Jackson, Harrison, Hancock and Adams, in Mississippi. The report from New Orleans stood on August 31 as follows: New cases, 46; total to date, 1,878; deaths, 4; total, 271; new foci, 13.

Tri-State Medical Society of Alabama, Georgia, and Tennessee.—The seventeenth annual meeting will be held in Chattanooga, Tuesday, Wednesday, and Thursday, September 26, 27, and 28, 1905. A rate of one fare for the round trip has been secured, on account of the fall meeting of the Chattanooga Fair Association. This organization will have a horse show and other attractions. A program of unusual merit is assured. Those who have not yet sent the subject of their papers should do so at once to the secretary, Dr. Raymond Wallace, Chattanooga, Tenn.

WESTERN STATES.

Mississippi Valley Medical Association.—At the next meeting to be held at Indianapolis, Ind., October, 10, 11, 12, the annual addresses will be delivered by Dr. Arthur R. Edwards, of Chicago, on "Certain Phases of Uremia, Their Diagnosis and Treatment," and Dr. W. D. Haggard, of Nashville, Tenn., on "The Present Status of Surgery of the Stomach."

Advertising the Hospital.—The superintendent of a leading Chicago hospital recently found himself with a number of vacant private rooms on his hands. He sent out letters to a number of physicians, announcing that he had desirable rooms at the various prices quoted in his letter. The result was that he secured 35 new patients during the month, thus converting a dull month into one of the very best the hospital ever had.

Mortality of Michigan during July.—The total number of deaths returned to the Department of State for the month of July was 2,482, an increase of 88 over June. The deathrate was 11.5 per 1,000 population, as compared with 11.4 for the preceding month. By ages, there were 506 deaths of infants under 1 year, 166 deaths of children aged 1 to 4, and 678 deaths of elderly persons aged 65 and over. Important causes of death were as follows: Tuberculosis of lungs, 161; other forms of tuberculosis, 35; typhoid fever, 45; diphtheria and croup, 32; measles, 10; whoopingcough, 15; pneumonia, 65; diarrheal diseases, under 2 years, 204; cancer, 143; accidents and violence, 214; of which number 62 were deaths from drowning. There were 4 deaths from smallpox, 2 in the city of Grand Rapids, 1 in the city of Negaunee, and 1 in the city of Muskegon. There were 8 deaths reported from tetanus, 7 of which gave the primary cause as the deadly toy pistol. This number exceeds by 3 the number reported from the same cause for the corresponding month of 1904. There were 2 deaths reported from rabies, 1 in Calumet township, and 1 in the city of Hancock, Houghton county.

FOREIGN NEWS AND NOTES

GENERAL.

Pure Water for Manila.—Manila, P. I., will draw its water-supply from the mountains 15 miles away in order to be sure to have its drinking fluid free of cholera or other germs.

Russian Women Physicians Want an Eye Clinic.—The Women's Medical Institute has requested a subsidy from the St. Petersburg town council for the founding of an eye clinic. A similar request previously made had been refused but the need is so urgent that this time it is expected that the council will consent on the condition that the clinic is opened for the St. Petersburg population in accordance with the requirements of the town medical adviser.

Ran Train for Drunkards, but None Appeared.—The railway companies in Liverpool have found a certain cure for inebriety. They had arranged to run outward trains for drunkards the night of the bank holiday, but to their great surprise there were no drunkards, consequently no special trains were required. "The premature publication of our intentions," explained a railway official, "ruined our plans. The regular topers, who before could be relied upon to travel home drunk, have been shamed into sobriety. The idea of being placed in a compartment with the other drunkards disgusted them, consequently they resolved to keep sober." By a strange oversight, the companies failed to provide a special drunkard train inward, and the consequence was that many men of Liverpool returned home after the day's holiday in a more or less helpless condition.

Prussian Medical Statistics.—The memorial of the Prussian statistic bureau, issued in connection with its one hundredth anniversary, contains a detailed statement of the mortality on account of tuberculosis and cancer since 1876. It appears that the tuberculosis mortality in Prussia reached its highest in 1886, with 88,283 deaths, and since then has constantly decreased. In 1902 and 1903 the number of deaths from tuberculosis was 67,445 and 66,726, respectively. A very gratifying feature is found in the fact that in the larger cities, where

statistics are most reliable, the decrease is especially great. In 1886 in all cities over 100,000 inhabitants the deathrate on account of tuberculosis was 37.36, and 1902 only 22, per 10,000 inhabitants. Unfortunately, the mortality from cancer indicates a notable increase of that disease. In 1901 and 1902, 21,488 and 21,876 persons died of cancer in Prussia, against 10,919 in 1886. Cancer attacks persons of ages between 30 and 70 and above, chiefly. City communities suffered most from the increase. In 1886 the mortality from cancer in all Prussian cities was 5.71 against 8.75 in 1902, and in rural communities 2.75 in 1886, against 4.35 in 1902, per 10,000 inhabitants.

OBITUARIES.

James H. Salisbury, aged 82, of New York City, August 28, at his summer residence in Dobbs Ferry, N. Y. He was graduated from the Albany (N. Y.) Medical College in 1850. He devoted his time to chemistry, in conducting experiments and microscopic examinations, and lately to the study of the causes and treatment of chronic diseases. He assisted in establishing the Charity Hospital Medical College, Cleveland, Ohio, where he lectured on physiology and histology for two years. He was a member of the Albany Institute, the American Antiquarian Society, the Natural History Society of Montreal, and president of the Institute of Micrology.

William Rininger, August 23, was killed by an explosion of benzine in the laboratory of his home in St. Louis. He was graduated from the Marion-Sims College of Medicine in 1899. Dr. Rininger was a noted microscopist and for the last six months has devoted his leisure to the study of tuberculosis and his death was indirectly due to his zeal in prosecuting the systematic study of the symptoms and cure of this disease. He was cleansing the lens of his microscope by the light of a gas jet when the fumes of the benzine he was using became ignited.

Marcellus H. Felt, aged 60, August 21, at his home in Hillsboro Bridge, N. H. He was graduated from the Dartmouth Medical School in 1877. He served on the school board of Hillsboro for twenty years, represented his town in the Legislature for several years, and was elected to the Senate in 1902. He was a member of the New Hampshire Medical Society and a prominent member of the Masonic fraternity.

E. W. Holmes, aged 50, of Philadelphia, August 26, suddenly, on a trolley car while returning from a visit to a patient. Heart disease is supposed to have been the cause. He was graduated from the University of Pennsylvania in 1877. He was instructor of anatomy at the University of Pennsylvania for many years, visiting surgeon to the Methodist Hospital, and a member of the County Medical Society.

Robert M. Stone, aged 58, August 14, from nephritis, at his home in Omaha, Neb. He was graduated from the New York Homeopathic Medical College and Hospital in 1874 and the St. Louis College of Physicians and Surgeons in 1884. He was a prominent physician of Omaha and had devoted many years to the special study of anesthesia. He was a member of the American Medical Association.

John H. Stringfellow, aged 86, July 29, from pneumonia, at his home in St. Joseph, Mo. He was graduated from the University of Pennsylvania in 1845. He was known as the father of Atchison, Kan., was speaker of the first Kansas House of Representatives, and founder of the Squatter Sovereign, the first newspaper published in the State of Kansas.

Samuel Wilson Trimmer, aged 71, July 31, from angina pectoris, at his home in White Haven, Pa. He was graduated from the Philadelphia College of Medicine and Surgery in 1854. He was a member of the National Association of Railway Surgeons, Luzerne County Medical Society and Lehigh Valley Medical Society.

Edward W. Shead, aged 32, formerly of Boston, was killed by falling from the roof of a hotel in Seattle, Wash., August 20. He was graduated from Harvard Medical School in 1903. At one time he served on the force of the Boston City Hospital, and later was house officer in the Cambridge City Hospital.

W. S. Duncan, aged 80, August 2, at his home in Greenup, Ill. He was granted license to practise by the Illinois Army Board in 1864 and Years of Practice, Illinois, in 1884. He served as assistant surgeon of the Tenth Illinois Volunteer Cavalry during the Civil war.

Henry D. Stauf, aged 42, of St. Louis, Mo., wandered from home while ill on July 28. His body was taken from the Mississippi river at Barrow, Tenn., August 12. He was a graduate of the Missouri Medical College, St. Louis, in 1885.

Andrew Carr Kemper, aged 73, August 15, at his home in Cincinnati. He was graduated from the University of Louisville, medical department, in 1866. He served as surgeon on the staff of General Halleck throughout the Civil war.

Samuel D. Tracy, aged 29, of Odin, Ill., August 11, from typhoid fever, at the Olney Hospital. He was graduated from the Barnes Medical College, St. Louis, in 1899. He was president of the Southern Illinois Medical Association.

Milton H. Hardy, late superintendent of the Utah State Mental Hospital at Provo City, August 24, suddenly at Ogden, Utah. He was graduated from the medical department of the New York University in 1887.

J. L. Thigpen, aged 68, August 4, from cerebral hemorrhage, at his home near Pineview, Ga. He was graduated from the medical department of the University of Georgia, Augusta, in 1881.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended August 26, 1905:

MOSELEY, Lieutenant-Colonel EDWARD B., deputy surgeon-general, is granted leave for one month.

BOYER, First Lieutenant PERRY L., assistant surgeon, is granted leave for one month and eight days, with permission to apply for an extension of two months, to take effect upon the return to Fort Sam Houston from leave of Major Henry D. Snyder, surgeon.

SHELLENBERGER, JAS. E., contract surgeon, is granted leave for one month, to take effect when in the opinion of his department commander his services can be spared.

DUNCAN, First Lieutenant WILLIAM A., assistant surgeon, is relieved from duty at Fort Leavenworth and will proceed to San Francisco, Cal., and take transport to sail from that place about September 5 for Manila, P. I., where he will report for assignment to duty.

ARENDT, MAX, sergeant first class, Army General Hospital, Presidio of San Francisco, Cal., will be sent to Manila, P. I., for assignment to duty.

HARRIS, First Lieutenant JESSE R., assistant surgeon, extension of leave granted August 4 is further extended one month.

CRABTREE, First Lieutenant GEO. H., assistant surgeon, is relieved from further operation of orders assigning him to duty as attending surgeon, New York City, and will turn over to his successor all public property, etc., for which he is responsible in that capacity.

GREENE, EARL P., sergeant first class, now at Fort Jay, will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him to Manila, P. I., on the transport leaving San Francisco, Cal., about September 5, for assignment to duty.

O'BRIEN, PATRICK, sergeant first class, now at the depot of recruits and casuals, Fort McDowell, having relinquished the unexpired portion of furlough granted him, is relieved from further duty in the Philippines Division, and will be sent to Fort Jay for duty.

CARROLL, First Lieutenant JAMES, assistant surgeon, is detailed to represent the medical department of the army at the thirty-third annual meeting of the American Public Health Association, to be held at Boston, Mass., September 25-29.

HANSELL, First Lieutenant HAYWOOD S., assistant surgeon, upon the departure of Company B, ninth infantry, from Pekin, China, will proceed to Manila, P. I., and report for assignment to duty.

EDGER, Captain BENJAMIN J., JR., assistant surgeon, is granted leave for four months, to take effect when in the opinion of his department commander his services can be spared.

DAVIS, First Lieutenant WILLIAM R., is relieved from duty at Fort Sheridan, to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and report about September 23 for duty as surgeon of the transport Thomas during the next voyage of that transport to the Philippine Islands. Upon arrival at Manila, P. I., Lieutenant Davis will report to the commanding general, Philippines Division, for assignment to duty.

COLE, First Lieutenant CLARENCE L., is relieved from temporary duty in the bacteriologic laboratory at the Army Medical Museum Building, to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, for Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

Changes in the Medical Corps of the U. S. Navy for the week ended August 26, 1905:

PECK, A. E., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from March 27, 1904—August 18.

RUSSELL, A. C. H., surgeon, detached from the Newark and ordered to the Bureau of Medicine and Surgery, Navy Department—August 23.

STEPP, J., passed assistant surgeon, detached from the Topeka and ordered home to wait orders—August 23.

WOOD, F., pharmacist, retired, detached from the Naval Medical School, Washington, D. C., and ordered home—August 24.

Changes in the Public Health and Marine-Hospital Service for the week ended August 23, 1905:

STONER, J. B., surgeon, granted seven days' leave of absence from August 9—August 19, 1905.

STANSFIELD, H. A., passed assistant surgeon, directed to report at Bureau—August 21, 1905.

STANSFIELD, H. A., passed assistant surgeon, granted leave of absence for one month, or so much thereof as may be necessary, on account of sickness—August 23, 1905.

GUSTETTER, A. L., acting assistant surgeon, granted leave of absence for ten days from August 16, 1905—August 17.

STEVENSON, J. W., acting assistant surgeon, directed to report at Bureau for consultation—August 21, 1905.

TROXLER, R. F., pharmacist, granted seven days' leave of absence from August 16, 1905, under paragraph 191 of the regulations.

HALL, L. P., pharmacist, leave of absence granted Pharmacist Hall for thirty days from August 4, 1905, amended to read twelve days from August 4, 1905—August 22, 1905.

Board Convened.

Board convened to meet at San Francisco, Cal., August 24, 1905, for physical examination of Engineer Maxwell, Revenue Cutter Service, August 22, 1905. Detail for the Board: Passed Assistant Surgeon, J. M. Holt, chairman; Acting Assistant Surgeon A. Weeks, recorder.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

FIFTH SESSION.

The meeting was called to order by President MCMURTRY, and the minutes of the previous meeting were read and approved with some minor corrections. PHILLIP MILLS JONES (California) then obtained the floor and moved to suspend the rules for a few moments for a definite purpose; the motion was seconded and carried, whereupon he presented a resolution urging J. N. McCormack, of Kentucky, to continue his work of organizer, which he was expecting to resign. The resolution was seconded, and MCCORMACK complied with the request, embodied in the resolution in a strong speech pleading for the abolition of all misunderstanding regarding his work. He said that there was no clique in the Association, and that he was not working for the advancement or aggrandizement of any set of men, but for the improvement of the whole profession. He referred in eloquent terms to the self-sacrificing and painstaking work of the trustees and of Simmons, showing that all were laboring for the good of medicine. The resolution was then passed by a unanimous, rising vote. The regular order of business was then taken up and the election of officers followed.

Officers of the American Medical Association for 1906.—President, William J. Mayo, of Rochester, Minn.; vice-presidents, Brigadier-General Walter Wyman, surgeon-general United States Public Health and Marine-Hospital Service; Kenneth A. J. Mackenzie, Portland, Ore.; Eugene S. Talbot, Chicago; Edward D. Martin, New Orleans, La.; secretary, H. Simmons; treasurer, Frank Billings, Chicago; trustees, E. E. Montgomery, Philadelphia; A. L. Wright, Carroll, Ia.; H. L. E. Johnson, Washington, D. C.; orator in medicine, F. P. Shattuck, Boston, Mass.; orators in surgery and in State medicine, J. D. Bryant, New York, and W. H. Sanders, Alabama. Place of meeting for 1906, Boston, Mass.

The president, according to rule, nominated members for committees, to fill vacancies caused by resignation or expiration of term of office. The nominees were all elected as suggested, and were as follows: Judicial Council, P. Maxwell Foshay, Chicago, and W. S. Foster, Pittsburg. Committee on Medical Legislation and Political Action, Chas. A. L. Reed, Cincinnati. Council on Medical Education, W. T. Councilman, Boston. Committee on Transportation and Place of Session, J. C. Monroe, Boston, chairman; E. Eliot Harris, New York; W. A. Jayne, Colorado; W. D. Haggard, Tennessee; W. H. Wathan. Committee on Scientific Exhibit, F. B. Wynn, Indiana. Committee on Organization, J. N. McCormack, Kentucky, chairman; P. Maxwell Foshay, Chicago; Geo. H. Simmons, Chicago. This committee is made up as before, as is also the Committee on Reciprocity, Wm. L. Rodman, Pennsylvania, chairman; S. D. Van Meter, Colorado; Joseph M. Mathews, Kentucky; T. J. Murray, Montana; Beverly D. Harrison, Michigan.

A communication from Henry O. Marcy, Boston, Mass., was next read. This embodied a resolution to have a committee appointed to raise money for a monument to Nathan Smith Davis, the founder of the American Medical Association, and contained Marcy's subscription, $100. The resolution was adopted and Marcy was appointed chairman of the committee, the rest of the committee to be made up of one member from each State and Territory. It was decided to leave the time of meeting to the discretion of the general officers of the Association.

[*To be continued.*]

Practice of Medicine.

THIRD SESSION (CONTINUED).

Mode of Infection in Uncinariasis.—CLAUDE A. SMITH (Atlanta, Ga.) gave a lantern slide exhibition demonstrating the mode of infection, and showing the natural and artificial conditions under which the larvas develop. He dwelt particularly on the chances of the larvas gaining access to the body, the seasons and conditions favoring, and detailed a case of artificial infection through an irritated spot on the back of the wrist. The eggs of the parasites were found in the stools six weeks later. The patient asked for treatment, as he was losing weight, and then some 1,300 larvas were isolated from his stools. Uncinariasis occurs as the result of infection through the skin, and possibly this is the only method of infection. Children in country districts who go barefoot become infected, and then by scratching spread the infection. Secondary infection with bacteria occurs, and this seems to favor the progress of the previous parasite. Later there is disturbance of digestion, and the clinical picture, due to the presence of the parasite, develops.

FOURTH SESSION.

Advances in the Physiology of Human Nutrition.—FRANK BILLINGS (Chicago) is of the opinion that human nutrition is a subject of greatest physiologic importance and of greatest moment for the welfare of the race. The best manner of maintaining the body in a condition of health and strength, of establishing the highest degree of efficiency, both physical and mental, with the least expenditure of energy, were questions in nutrition which every enlightened person should be familiar with; yet even the expert physiologist was uncertain as to what constituted a proper dietary for different conditions of life and varying degrees of activity. Divergent views regarding the needs of the body as to the extent and character of the food requirements, contradictory statements as to the relative merits of animal and vegetable foods are rife. Agreement does not exist concerning many fundamental questions constantly arising in any consideration of the nutrition of the body. This is especially true regarding the socalled dietary standards, or the food requirements of the healthy adult. Certain general standards had been adopted, but we are forced to the conclusion that these standards had an uncertain value when we see instances of individuals living in apparent health under a dietary absolutely out of harmony with the recognized standards. Definite knowledge is needed of the physiologic necessities of the body for proteid or albuminous foods, those foods which we are accustomed to speak of as essential, or absolutely requisite for life. Probably we have, through years and generations, established the habit of taking undue quantities of proteid food which may be largely in excess of the physiologic requirements of the body. This excess of daily food may be more or less responsible for many diseased conditions, which might be obviated by a more careful observance of the nutritional needs of the body. The definite information as to what were the real necessities of the body for proteid foods had recently been carefully studied by Chittenden in a series of experiments, which, with the experiments and conclusions of Pawlow upon the work of the digestive glands, and the theory of protein metabolism by Folin, gives a clearer view of the physiology of nutrition than we hitherto possessed, particularly with relation to gout and rheumatism. When less proteid material is consumed there is much less complaint of these pains, and a sense of wellbeing not previously possessed. The limitation of diet leaves an absolutely free choice, especially as regards the fats and carbohydrates, and only affects the amount of proteids, reducing it by a third.

[*To be continued.*]

Surgery.

FOURTH SESSION.

Officers Elected.—Chairman, Robert F. Weir, of New York; secretary, A. C. MacLaren, of St. Paul; delegate to the House of Delegates, A. F. Jonas.

Exstrophy of the Bladder Successfully Treated by Peter's Method.—HARRY M. SHERMAN (San Francisco) made a careful comparison of Peter's extraperitoneal method with the intraperitoneal method of Maydl, particularly as regards technic and results. There is urgent need for a specially constructed ureteral catheter during the operation. He pointed out a number of the dangers resulting from its use following the operation. He claimed that primary closure was preferable, although secondary closure might prove satisfactory. He also reported at length the history of a patient upon whom he had operated by this method.

Tuberculosis of the Kidney.—J. GARLAND SHERRILL (Louisville, Ky.) was of opinion that insufficient attention has been given this subject. He followed Kronlein's classfication of solitary and combined tuberculosis. The majority of cases show a descending infection. Interference with urinary outflow predisposes to ascending and also descending infection and conditions favoring the development of the disease anywhere are active here. If a diagnosis can be established early while only one kidney is affected, much can be done for these patients. The most valuable diagnostic symptoms are: Painful, frequent urination, polyuria, hematuria, pyuria in acid urine, detection of bacilli. The speaker then dwelt on the methods of determining which kidney is affected and the efficiency of the other. These points should be determined before operation, except when other conditions demand interference. The operation of choice is complete nephrectomy or nephroureterectomy if the ureter is diseased.

Treatment of Congenital Dislocation of Hip.—PARK WEED WILLIS (Seattle, Wash.) resorts to open incision only when manipulation fails, and described in detail his method of reduction by gentle repeated manipulation. He changed the casts on the affected limb with comparative frequency. The result in one patient with double dislocation was anatomicly perfect. In another he was unable to maintain the reduction. In this case on making an open incision the capsule was found to be adherent across a very shallow acetabulum; reduction was performed, but the limb again getting out of position, reduction became necessary. In this patient an anatomicly perfect result was secured, although there was some stiffness and a slight degree of abduction. He also reported a case of double dislocation with poorly developed acetabular cavities with an anatomicly perfect result, while in another similar one he was

able to secure anterior transposition. In conclusion, he gave detailed histories of two adult patients with single and double dislocation, in which he secured a good result with comparatively slight disability.

[To be continued.]

Obstetrics and Diseases of Women.

THIRD SESSION (CONTINUED).

The Conservation or Restoration of Normal Anatomy in Gynecologic Surgery.—DANIEL H. CRAIG (Boston) concludes: (1) That the greater number of ways devised for utilizing the normal uterine ligament for its restoration and retention in its normal position is the better so long as they be rational and safe, and are considered as supplements instead of as the substitution of each other; (2) that every surgeon, whether specialist or general practitioner, intending to operate upon such patients, owes it to his profession and his clientele to familiarize himself with all known methods and be prepared to use any and all, or modify any or all of them to meet the demand of each individual case; (3) that the skill and time required to utilize the natural ligaments are not excessive; (4) that the formation and utilization of adventitious ligaments within the abdomen should be reserved for cases manifesting special indications; (5) that ventral suspension or fixation should not be performed because of their ease by pseudosurgeons who could not competently operate by using the natural ligaments; (6) that the individual case should determine the method for each tracheloplasty or cervical amputation for the relief of laceration; (7) that only principles, not details, can be described for the plastic repair of the lacerated perineum; (8) that plastic surgery is minor only in its danger to the patient's life; (9) that the conservation or restoration of normal pelvic anatomy is the highest function of the gynecologist.

Discussion (papers of Goldspohn and Craig).—THIENHANS (Milwaukee) advocates the vaginal route, because we could obtain earlier consent to operate and the same results were accomplished. In the abdominal route there is a band formed and also an abnormal position of the uterus. He advocates the abdominal route when there are complications, as adhesions and appendicitis. He has had 10 pregnancies following his vaginal method. He thought we should select every case and stitch higher or lower, according to the length of the cervix. HENRY (Omaha) stated he liked to extend the vesicouterine ligament upon the anterior surface of the bladder in these cases, and scarify the peritoneum in the culdesac. Should extend this upon the vesicouterine wall up to the ligaments if necessary, thus producing small adhesions not in accord with ventrosuspension and fixation, because of the unnatural supports resulting. Simply deepened the culdesac on the anterior abdominal wall. Thought Alexander's and Goldspohn's operations all right in proper cases. GALLANT (New York City) supported Craig's views. He thought any operation which produces adhesions of the pelvic organs to any other portion of the abdomen produced a painful point. Minute adhesions take place and any dragging on these adhesions produces pain. He avoids shortening the uterosacral ligaments because of the production of painful results in at least 50% of cases. If we place the uterus in such a position that it will move without any effort, we will have no pain. He stated that the experience of others has taught him to refrain from using Alexander's operation as it is a form of operation producing adhesions. He prefers the operation in which a needle threaded with catgut is placed around the middle of the round ligament and then stitched to the peritoneal surface on either side. Thought we lost sight of the mechanics of uterine movements. FRISBIE (San Francisco) mentioned the operation of Webster of Chicago as giving good results. TUCKER (Portland) said that no ligaments pull the uterus forward and that retroversion depended entirely upon the position of the woman. The uterus being really suspended from above by the broad ligaments, the broad ligaments running upward, not outward, like a fan. The trouble is not a disease in itself, we must remedy the cause. He said the round ligaments ran backward, outward, then forward, through the inguinal canal. He thinks none of the operations used today is of much use, but said he used the suspension method. MARCY (Boston) and GOLDSPOHN considered Craig's procedure all right. Goldspohn said vaginal fixation and ventrosuspension have given poor clinical results. "Any old operation" could be used for women who cannot conceive but his operation was for child-bearing women. He challenged the supporters to follow their cases and report results. CRAIG thought that in another century ventrofixation and suspension would be considered as venesection is today, except in certain cases. He protested against the idea of "any old operation" for a woman who cannot bear children.

[To be continued.]

Diseases of Children.

THIRD SESSION (CONTINUED).

Pleural Effusions in Children.—C. F. WAHRER (Fort Madison, Ia.) said the object of his paper is to provoke discussion rather than to throw more light on the diagnosis of this condition and the causes that precede it. Pleural effusions are often overlooked by the careless and routine physician, and when not overlooked they are not treated with sufficient rigor. Expectant treatment is often employed when more radical measures are called for. Many patients die each year from lack of surgical attention. Many erroneous ideas prevail as to the etiology of pleural effusions in children. Nine-tenths of all cases in childhood come from pneumonia, bronchopneumonia, or pleuropneumonia. There is a tendency at present to overemphasize tuberculosis as a causative factor. It is not as often present in children as in adults. Pleural effusion may follow Bright's disease, scarlet fever, rheumatism, trauma, typhoid fever, syphilis, pertussis, or affections of the spleen and liver, as well as tuberculosis. A pleural cavity, properly speaking, only exists when the layers of the pleura are distended with fluid. Fluid first makes its appearance in the costophrenic sinus and extends laterally. Various kinds of microorganisms are found in these exudates, often determining the nature of the disease causing the effusion, but a mixed infection is sometimes found. A diagnosis of these effusions is sometimes more difficult than is ordinarily supposed. Auscultation, palpation, and percussion are usually sufficient. In case of doubt, use aspiration carefully. Remember the anatomy of the parts in aspiration. The accidents that may happen in aspiration are in inverse proportion to the technic displayed by the operator. Prognosis depends upon early diagnosis, faithful treatment, and the progress of the disease causing the effusion. In general it is better in children than in adults. When the disease is purulent, surgical treatment is indicated. Medical treatment usually fails, but operation is simple and results are usually good.

Discussion.—COTTON said it is of the highest importance always to locate the apex beat. Any effusion must force the apex out of place. He thought doctors should become skilled in listening with the naked ear, as well as in using the stethoscope, saying he had read the following advice: He that hath ears to hear, let him hear—with his ears. If not, let him use a stethoscope. WILLIAM BUTLER (Chicago) said the diagnosis of effusion is not necessarily sure, even with the needle. Bronchial breathing may be heard over areas without any effusion. If effusion is caused by rheumatism, a doctor may wait and it will disappear. H. S. HANSON (Cleveland) advocated diagnosis without use of the needle, saying, if he were a child, he should like that doctor best who did not use a needle. A thorough examination of the child's back is usually sufficient. In closing, WAHRER said many cases go unrecognized to early graves. Different breath sounds vary with different authors. The stethoscope furnishes the very best means available for auscultation, and the doctor who refuses to use it deliberately shuts himself out from a great source of information and help. Regarding the use of the needle, he thought it better to cause a little pain when no real harm was done than to permit so many cases to die unrecognized.

[To be continued.]

Ophthalmology.

SECOND SESSION (CONTINUED).

The Prevention and Cure of Progressive Axial Myopia by Appropriate Treatment of the Internal and External Recti Muscles, with Report of Cases.—F. S. CROCKER (Chicago) spoke of the percentage of myopia found in European countries and its constant increase in this country. There had been no specific treatment used in the past for its prevention or cure. He related his experience with prism exercise and pointed out the reasons for the poor results formerly obtained. Detailed description of the author's present method of using prism exercise and galvanism in t .e treatment of progressive myopia was given. The conclusions were that (1) the most important etiologic factor in a very large number of cases of progressive myopia is an insufficient power of convergence; (2) that it is immaterial insofar as the question of treatment is concerned whether this inadequate converging power is the result of some anatomic defect in the shape or position of the orbit, or whether it is due to a fault in the insertion or innervation of the extrinsic ocular muscles; (3) that in all cases in which destructive fundus changes have not already resulted in too great a loss of vision, it is possible to check the progress of the myopia, or in the proper sense of the word, effect a cure; (4) that in addition to the correction of the refraction errors, the eye muscles should receive due attention, and when found defective, proper prophylactic treatment instituted or advised; (5) that for obvious reasons none but specially qualified legal practitioners of medicine should be allowed to prescribe glasses for, or in any way treat myopia.

Experimental and Clinical Evidence of Dynamic (Spastic) Astigmatism: Practical Conclusions.—F. B. EATON (San Francisco). Difference of opinion on the subject, the writer thought due to ignorance or doubt concerning essential facts. He referred to Geo. Martin's careful and exhaustive study of subjective symptomatology and the difficulty of studying his evidence owing to his method of marking his trial frame and astigmatic dial. In his clinical findings he referred to tonic (renitentes), clonic (elastiques), and resistant (resist-

antes) contractions. Martin disavowed intention to assume that these contractions are portions of ciliary muscle, but that its contractions sometimes rendered the lens more convex in some directions. The opposition of Geo. Bull and Tschering to Martin's views was commented upon and the support of Martin's views by Landolt, Javal, Dobrowolsky and Eaton. Experiments, objective and subjective on the author's own eyes. (1) Evidence implicating the accommodative apparatus; (2) implicating the extraocular muscles. Necessity of the most complete cycloplegia possible was insisted upon.

Discussion.—W. C. POSEY (Philadelphia) thought the paper offered a satisfactory explanation of failure to relieve several cases he had had during the past year.

Nontoxic Amblyopia.—T.W. MOORE (Huntington, W.Va.) deemed it of advantage to consider the cases under three heads —amblyopia exanopsia, hysteric amblyopia, and anesthesia of the retina. The latter was subdivided into two classes--those of unknown cause, and those due to traumatism. Their differential diagnosis was considered. In the treatment of amblyopia exanopsia the advantages of the convex glass cure according to Frommuller was spoken of. In the treatment of the anesthesia the use of electricity and the values of the galvanic, faradic and high-frequency currents were considered.

[*To be continued.*]

Laryngology and Otology.

FOURTH SESSION.

A Report of Two Cases of Sinus Thrombosis with Masked Symptoms.—HILL HASTINGS (Los Angeles). The thrombosis in each case, although of otitic origin, was masked by the symptoms of another disease; in the first case, by coexisting typhoid, and in the second case by a history of malaria. The socalled "classic" symptoms of sinus thrombosis, namely chills, fever and sweats, were not present in either case. The thrombosis in each case was suspected, because of certain irregularities in the history, which led to uncovering and carefully examining the sinus after the mastoid ablation. The thrombosis was demonstrated in the first case by purposely opening an apparently normal sinus. The report was discussed by Richards, Cott, Welty, W. H. Roberts, Stilson, Leland, Barnhill, Myles, and by Foster in closing.

New Tonsillotome.—E. E. STRAW (Marshfield, Ore.) presented the instrument, which was illustrated in the *Journal of the American Medical Association*, October 22, 1904.

At the executive session, the section elected the following officers: Chairman, Otto T. Freer, Chicago; secretary, W. S. Bryant, New York; executive committee, Geo. L. Richards, Fall River, Mass.; John F. Barnhill, Indianapolis; Robert C. Myles, New York City.

Pharmacology.

SECOND SESSION (CONTINUED).

Therapeutic Measures in the Treatment of Weak Feet.—DEXTER D. ASHLEY (New York City) acknowledges that to Royal Whitman, more than to anyone else, we are indebted for the general awakening of interest, the denominating of the condition, and the treatment of weak feet, as well as dissemination of much knowledge regarding the normal foot. Of weak feet patients, 75% come with this remark: "My doctor said that you should make me a plate," when most of them would find it impossible to wear a plate with comfort, or did not require one at this stage. Weak feet produce nervousness, referred pains and aches, irritability, and despondency, and he criticises the high, small heel, which produces so frequently in women the sprained ankle, Pott's fracture, the hallux valgus, the metatarsalgia, and the generally pronated foot. The weakness is acquired by standing or slow, inelastic walking, when the weight is thrown upon the foot structure with relaxed muscles. The patient should be taught how to stand, walk and sit properly. In standing the weight should be thrown well upon the outer border of the foot, the toes straight to the front, slightly turned in. Walking should be a distinct heel and toe progression, the toe brought straight to the front, each step made with an elastic tread, taking off on the ball of the foot. When sitting, the foot may be strengthened and rested by placing the foot on its outer edge in the position of clubfoot. He recommends several exercises which should be taken when the foot is untrammeled by shoe or stocking. The toe exercises may consist of picking up marbles, spools, standing with the toes pointed inward and rising several times on the ball and outer edge of the foot to the toe standing position. While sitting, extend the foot upon the leg, until the muscles become tense; next, adduct strongly; third, flex beyond the right angle, in position of rest, being careful not to pronate the foot. Walking exercises upon the sand or in the country are very beneficial. Hill or mountain climbing will be exceedingly helpful. Wheeling, when the toe motion is used, is beneficial, while skating, especially roller skating, should be condemned. He suggests the ordinary orthopedic shoe, and if the shoes are not especially made for the patient, they may be modified by making the inner edge of the sole and heel from an eighth to a fourth of an inch higher than the outer edge, and inserting a strong counter under the anterior and inner side of the os calcis. In metatarsalgia, a cross bar is effectual. A rubber heel relieves much of the shock of walking on stone pavements. Massage is recommended when static influences predominate, and galvanic electricity when the feet are exceedingly painful and the muscles flabby. Strapping the feet is of great service, when well done. The placing of the foot in plaster-of-paris, in the position of talipes equinus varus, either with or without narcosis, when we have an exceedingly sensitive foot, is a remedy of great but overestimated utility.

Discussion.—REILLY (New York) commended the appliances used by Ashley as a great improvement over soda salicylate, which a number of persons get before going to a competent physician. In one clinic, 65% of the cases coming in of socalled rheumatism, were cases of flat-foot, and in another institution upward of 45% were diagnosed rheumatism by the family physician. In these cases relief was almost instantaneous after being fitted with proper braces. BROWER (Chicago) gave his experience with locomotor ataxia patients, showing that much relief is obtained by being scientifically fitted with proper shoes, improving their gait and producing mental exhilaration. LEWIS spoke of the necessity of teaching the young how to walk and stand properly, suggesting that this is a function that the school teacher might very well perform. COTTEL (Portland) thought that if people would go barefoot they would not suffer from flat-footedness, stating that much of the trouble is due largely to the artificial covering of the foot, and to the fact that the foot has been misshapen and thrown out of contour, the principal difficulty being with too short shoes, and high heels. ABBOTT said that he had suffered considerably from flat-foot, and found that by turning his hose on his grass plot and walking up and down on the wet grass in the bare feet for 15 minutes three times a day, he could get considerable ease and comfort. He thought that the trouble was with the hard city pavements; and remarked that when tramping in the country he suffered no ill-effects. ASHLEY said braces were but for temporary correction of the difficulty, and that the feet should be trained so as to strengthen the muscles. In replying to a question regarding the ability of the foot to support the 180 pounds weight of a man whose foot would ordinarily be expected to carry 125 pounds weight, Ashley said that as the man's weight increased, he thought the ligaments and muscles would grow stronger proportionately, while the bones might not increase in size. He recommended massage and exercise to get the blood circulating in the foot, and held that you could not, in cases of flat-foot, abide by the rule to stop exercising at the point of fatigue, for here you have fatigue in the first place.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 348.*]

Symposium: Intracranial Complications of Middle-ear Suppuration.

Meningitis: Its Symptomatology, Diagnosis and Treatment, with Report of a Case.—S. MACCUEN SMITH (Philadelphia) said that clinically we distinguished between epidemic, suppurative, tuberculous, and serous meningitis. Meningitis from aural disease differed from that due to other causes, chiefly in that the symptoms were more severe and might be relieved by operation. Pachymeningitis externa purulenta was the most common variety. It occurred twice as frequently with chronic disease of the tympanum as it did with the acute form. In this variety of meningitis a large proportion of the cases were insidious and without symptoms, aside from those of the ear, and were not discovered until after operation. On the other hand, the disease might begin with a chill and fever. Localizing symptoms were rare. Extension to the meninges might take place in one of three ways: (1) Through carious openings into the skull; (2) through the natural communications, namely, the cochlea and semicircular canals; and (3) the infection might travel along the bloodvessels and connective tissue. The cerebrum was affected when extension occurred through the roof of the tympanum; the cerebellum when it traveled through the inner wall of the labyrinth. The most common mode of extension was either through the inner wall of the mastoid or through the roof of the antrum or tympanum. Meningitis manifested itself in a protean manner. Occasionally the symptoms were so typical that it was impossible to mistake the affection; at other times they developed in such a latent form that only with the greatest difficulty could a tentative diagnosis be made. The general symptoms which might precede or accompany the focal symptoms were headache, fever, vomiting, slow pulse, respiratory disturbances, jactitation, epileptiform convulsions, general hyperesthesia,

delirium, involuntary discharge of urine and feces, and phenomena, which were almost focal, such as tetany, grinding of the teeth, rigidity of the extremities, and retraction of the muscles of the neck. Headache was the most constant symptom. The focal symptoms related to paralysis of the cerebral nerves, and naturally varied, according to the principal situation of the meningitic inflammation. The convex portion of the brain was generally affected by suppurative disease, while basilar meningitis was more likely to be of a tuberculous nature. As to the treatment, apart from employing general methods, such as the use of rest and the application of cold, very little could be accomplished. If there was reason to suspect disease of the ear, surgical interference was naturally indicated. A recent addition to our therapeutic resources was the operation of lumbar puncture.

Symptomatology, Diagnosis and Treatment of Encephalitis and Brain Abscess.—FREDERICK L. JACK (Boston) said the term encephalitis seemed to have several distinct meanings: (1) There was the socalled polioencephalitis; (2) there was the acute exudative encephalitis; (3) and of special interest to otologists, came the acute suppurative encephalitis, a term synonymous with cerebral abscess. This form of encephalitis was the result of extension from the ear cavities of pyogenic microorganisms, either directly or along the bloodvessels, and together with meningitis, which was the diffuse result of a similar infection, it furnished the principal cause of a fatal outcome in the cases with which the otologist had to deal. According to Dana, brain abscess occurred oftenest between the ages of 10 and 30, and this, Jack said, corresponded with his experience. He had tabulated, according to the age of onset, 43 cases occurring at the Massachusetts Charitable Eye and Ear Infirmary, the Boston City Hospital, and the Massachusetts General Hospital, and had found that 32 cases occurred between the ages of 10 and 30, and 11 between 30 and 60. The abscess caused by ear suppuration was almost invariably situated in the temporosphenoidal lobe, from a quarter to an inch within the substance of the brain, and directly over the roof of the middle-ear. Sometimes it was located in the cerebellum, from perisinusitis, and rarely there was one in both regions. Of the 43 cases tabulated by the writer, all were operated on, and there were seven complete recoveries.

Symptomatology, Diagnosis, and Treatment of Sigmoid Sinus Thrombosis.—JAMES F. MCKERNON (New York) presented this paper. He said that most of the typic cases of sigmoid sinus thrombosis coming under observation occurred secondary to mastoid involvement, or after a mastoid operation had been done, and presented certain definite symptoms which were fairly constant. These were: 1. Temperature; this he considered by far the most important symptom. 2. Chills were present in only a certain proportion of the cases seen. 3. The pulse corresponded to the temperature. 4. The respirations were but little affected during the earlier stages of the thrombosis, becoming only slightly increased during the high temperature ranges. 5. In most of the cases that came under his observation, the degree of pain was greater than that present with an ordinary mastoiditis, or that following the average postoperative case. The pain was usually referred to the side of the head and to the occipital region, and was very frequently localized in the region of the torcular. When pain was present in the neck, he thought it was usually due to the infected chain of lymphatic glands in that region, rather than to any obstruction in the vein. 6. Nausea and vomiting were usually present at some stage of the disease, to a greater or less degree. 7. In about a third of the cases, eye symptoms had been present; in the remaining two-thirds, the eyes were negative. 8. Vertigo was observed only when the meninges were involved. 9. Cerebration had been normal, excepting in advanced cases. Among the local symptoms, edema in the mastoid region and over and around the exit of the emissary and occipital veins was occasionally observed. In a fair proportion of the adult cases there was a marked stiffness of the muscles of the neck on the affected side, and in several instances a marked rigidity. Constipation was present in all of his cases, but only in the earlier stages of the disease. Among the general symptoms at the outset, might be mentioned malaise, loss of appetite, a dry and heavily furred tongue, and a foul breath. The face usually wore an anxious and pallid look, the skin was dry, and later presented the yellowish tinge indicative of sepsis. The hard, cord-like swelling in the neck, along the course of the internal jugular vein, was a very infrequent sign, and the speaker said he had never been able to demonstrate it. Bacteriologic examination of the discharge was of value only in that it gave the character of the infection. Another valuable aid in the diagnosis was the blood count, not so much for determining whether a leukocytosis was present, but to ascertain the polynuclear percentage.

Pathologic Findings of Intracranial Complications of Middle-ear Diseases.—THOMAS J. HARRIS (New York) read this paper. He called attention to the lack of material relating to this phase of the subject upon which to base reliable conclusions, and emphasized the importance of greater attention on the part of the surgeon in charge to the taking and preservation of the histories of his mastoid cases. Greater zeal and earnestness should be exercised toward securing autopsies. In this way alone could the valuable material of the various institutions where otology was practised be brought together for study and scientific research.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE DECADENCE OF LACTATION.

BY

J. P. REYNOLDS, M.D.,
of Philadelphia.

To the Editor of American Medicine:—I would like to enter a remonstrance against your acceptance as a fact—editorially—in your issue of July 22, of "The Decadence of Lactation," and also against your remarks upon the possibilities of "intelligent," "scientific" artificial feeding. I think this socalled "decadence of lactation" is too limited in its distribution to become a serious racial potentiality. Maternal reluctance to submit to the restrictions and inconveniences of lactation is a familiar condition, and a too ready acquiescence by medical attendants and advisors is a common factor in the situation. Just here I believe our medical teachers and writers have a grave responsibility. Let them turn from the chemic and biologic laboratories and take an occasional inspiration from the facts of animal physiology and there will be less pessimism upon the subject of lactation, and less readiness to despair of its capabilities. We are taught too willingly to distrust nature, and rely upon art. The time seems hardly ripe to give ourselves serious thought concerning the racial consequences of the survival of feebler types under the fostering wing of our science and intelligence. Depend upon it, natural selection is still a working force, feebler types may be preserved as individual existences. They will disappear as ephemeral variations. Returning to the main point—some years ago I attended a woman in her nineteenth, twentieth, and twenty-first labors, and was informed that she could never nurse her young, having no milk. This seemed a shining example of the "decadence of lactation." No artificial food whatever was given the infant, and its ravenous importunities developed an abundant and most satisfactory lactation—but not before the *seventh day*. No galactagog was employed except repeated small doses of castor-oil. Nothing but the courage of conviction enabled me to so long persist in this case. Confidence in nature's unfailing laws was justified in the end. In the two succeeding labors lactation was established on the fifth day. These children were nursed until about a year old, and all survive. Of the previous 18, five only lived to the third year.

Reluctant or retarded establishment of lactation, premature resort to artificial feeding, and the loss of the stimulus of the hungry offspring, and a readiness to recognize another example of the "decadence of lactation," are the usual sequence of events. After the first time, a repetition easily follows. It seems that like the abortion habit and many other forms of physiologic perversion of function, lactation once neglected, more and more tends to remain in abeyance.

So far as concerns "the conflicting rights of mother and child" in this matter of interference with natural methods, allow me to remark that more attention to the subject of the feeding of a nursing mother, by our writers and teachers, will help to simplify the solution of that problem. If a fraction of the enthusiasm bestowed upon the feeding and care of the tuberculous were diverted into this channel, many more individual lives would be preserved and racial considerations more favorably influenced. More attention should be given to assisting nature to overcome the obstacles to normal lactation created by artificial life, trusting with confidence to the final victory. Commercial enterprise may suffer, and less startling effects in imitation of nature be destroyed, but our work will be with, not against, nature, and the sum of human welfare cannot fail to be augmented.

[There seems to be a misunderstanding as to what is meant by decadence of lactation. It does not mean cessation, and the above cited case is an example of the type which is eliminated unless lactation is established for at least a reasonable time. It also illustrates the in-

variable law that intelligence to overcome physical defects permits survival in spite of the defects. If the patient had not been bright enough to learn the proper course her last three children would probably have perished. It was desired to call attention to the fact that lactation is an undoubted drain upon the mother and that the types which can lessen this vital expense without injury to the child will survive in the long run. Nursing must be encouraged as we are far from producing a perfect artificial food. Hence the course of evolution is merely in the direction of lessening the period of lactation but the time at which it can be entirely omitted, if it ever can be, is so far in the future as to be of only speculative interest. There is no doubt that through intelligent feeding of infants, this evolution has made considerable progress in the highest races, for there seem to be but few women who are able to nurse their offspring the year or two which apparently was the necessity in past ages. If all that is now known of infant feeding were forgotten, infant mortality would again jump to what it is in savage life, and the race would perish unless all women produce 20 or 25 children and few are able to do that. Hence advances in knowledge of means of inducing lactation for as long as possible and then of feeding the child later, are the present necessities.—ED.]

JAPANESE MANNERS.

BY

ALBERT S. ASHMEAD, M.D.,
of New York.

Dr. Spivak, in an interesting paper on "Esophagia and Flatulence,"[1] speaks of curious facts about the gaseous changes in the intestine. Speaking of voluntary eructations of gas from the stomach, he quotes the following quaint custom as illustrating the amount of control that may be gained over the movements that produce the expulsion of gases. (He neglects to say, however, that the same habit prevails in Japan as in China.) In China it is the habit of a host to deprecate any worth in the hospitality he offers his guests, a form of self-negation that is considered the highest politeness. After a banquet, speeches are not made, but the host rises to say that he fears his guests have fared but poorly, that it is a shame to have asked them to so meager a repast, and that he feels sure their hunger is not appeased, nor their thirst abated. Loud protests rise from the guests, who vie with each other in lauding the quality of the viands and the excellence of the liquor. When the complimentary epithets of their vocabulary are exhausted, they rise and approach their host in turn, each as he reaches him placing his hand on his belly and bringing up wind in his face, to testify to the richness of his hospitality. This is after dinner gas with a vengeance, says the *Medical Press and Circular*, which I quote. The same practice pertains to the better class of Japanese. No greater compliment can be shown the host than to belch after partaking of his dinner. As rice forms a major part of all repasts in Japan, it signifies that the guests have overfilled their stomachs, and fermentation of the starchy food is already in operation. At a banquet which I gave in my own home, with my family sitting at the table, we were astonished at its finish, to hear all the gentlemen present vying with one another in belching the loudest. I learned afterward that this was not an offense of good manners from the select Japanese standpoint, but was "complimentary" to me. It is on a par with the Japanese custom, not learned from the Chinese, as the belching stunt is, but from the Malays, of speaking in a falsetto tone of voice, and drawing the air noisily through the nostrils at the end of each sentence, or after every few words. It is their idea of polite speaking. A Malay plays his flute with his nose, just like a Japanese does, and can wag his big toe just as adroitly, too, as the Japanese do. Their use thus of the esophagus, throat, and nostrils for the forced drawing in or expulsion of air, is in reality the effect of peculiar muscular training of those people, and is a natural safety valve, for otherwise their stomachs might become excessively dilated from the starch fermentation.

[1] New York Medical Record, April 29.

SEA-WATER AS AN ANESTHETIC.

BY

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To the Editor of American Medicine:—I desire to call the attention of your readers to the anesthetic qualities of sea-water, and which is so cheap that the poorest as well as the richest can always have a supply. It cannot be made from the chemic constituents comprising sea-water with the same happy results as the natural water found in our oceans and the "Dead Sea.' This peculiarity first attracted my attention, when as a lad wading along the beach, I often cut gashes two or three inches long in my feet and remained perfectly unconscious of the fact until upon leaving the water, sand and air got into the wounds. Many can recall like experiences, which at the time made little or no impression. This phenomena has always interested me greatly and I have studied the effects of sea-water in various instances. I discovered that it can be injected under the skin and relieve pain quicker than morphin. Injected at the root of a tooth, it is superior to cocain. A person lying in a pool of water from the Mediterranean can be cut and slashed without feeling the sensation of pain so long as he is under the water. In one instance a man had his leg bitten off by a shark while in the ocean and he never realized it until he attempted to crawl on board his fishing smack. Much will be accomplished in medicine when this subject has been thoroughly tested. I am not in a position to test further the marvels of this great healer and pain obtunder provided by Nature, and therefore simply offer these few suggestions, with the hope that some practitioner will further make experiments. I have found that warm injections of sea-water up the bowel, retained for a half hour, while the patient lies on his side, is a most effective remedy in cirrhosis of the liver, jaundice, and other hepatic diseases. Patients whose lives have been despaired of, have been cured and the skin become as clear and fresh as that of an infant. A month ago I used this remedy in an attack of asthma. My child was the sufferer, and within ten minutes she was sound asleep. The fact that in spite of the "best" treatment for asthma and bronchorrhea she continued to have attacks necessitating the keeping of her indoors most of the time, induced me to try the experiment, which proved so successful. I also tried it in the treatment of an aged lady, who suffered from a chronic cough, and the result was equally successful. When I have collected more data from clinical work I will be pleased to report it.

Smallpox in Calvert County, Maryland.—The Calvert county health officer made a thorough investigation last week of the reported smallpox outbreak on Fishing creek. He found three persons confined in one house suffering with the disease, and all receiving medical attention. Prohibition of intercourse with persons outside of the house has been enforced by the health officer, and there is no likelihood of the disease spreading.

Steady Decline in Birthrate.—A bulletin issued by the Census Bureau states that there has been a steady decline in the birthrate of the United States since 1860. At the beginning of the last century children under 10 constituted a third and at the end less than a fourth of the total population. The decrease in this proportion began as early as the decade 1810 to 1820 and continued uninterruptedly, though at varying rates, each successive decade. Between 1850 and 1860 the proportion of children to women between 15 and 49, the child-bearing age, increased, but since 1860 it has constantly decreased. It is stated that the decrease has been very unequal from decade to decade, but that if the computation is made upon the basis of 20-year periods it has been regular. In 1860 the number of children under 5 to 1,000 women, 15 to 49, was 634; in 1900 it was only 474. The proportion of children to potential mothers in 1900 was only three-fourths as large as in 1880. No attempt is made to determine the probable causes of this decline. In the North and West there has been a more or less regular decline, while in the South the decline has been less marked. There has been uniformly a larger proportion of negro children than of white children, but it has been noticed that whites of the South have a larger proportion than whites in other sections.

ORIGINAL ARTICLES

CRYOSCOPY.[1]

BY

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of Chicago.

Cryoscopy, being based upon purely physical laws, has, until quite recently been employed solely in the field of physics and physicochemic research, for the purpose of determining the molecular saturation, or osmotic pressure, of fluids holding soluble substances in solution.

DeCoppet was first to suggest its use for this purpose and employed it as far back as 1871. Raoult published the results of his investigations in 1882, and gives us the first systematic treatise on the subject. He formulated certain laws which have been extensively quoted, but recent investigations show that all of his laws do not hold good.

Arrhenius found that fluids containing molecules of several different salts in solution, do not show a reduction in the freezing-point strictly in accordance with Raoult's last law, because there is a dissociation of some of the molecules into their respective ions. He says that the freezing-point of a solution depends, not upon the number of molecules, but upon the number of ions held in solution.

Van't Hoff employed cryoscopy in his work on "ionization" and established the fact that "equal volumes of isotonic solutions contain the same number of molecules, or parts of molecules, and have the same freezing-point."

Pfeiffer and De Vries employed it early in their work on osmosis and plasmolysis.

Beckman employed cryoscopy in his work and devised a special apparatus, which is used almost exclusively today.

We have long been taught in physiology that the rapidity with which solutions pass through animal membranes depends upon the number of molecules contained in the solutions on either side of the membranes; that is, upon the osmotic pressure of the two solutions. Since the freezing-point of a solution also depends upon the number of molecules it contains, cryoscopy offers an accurate method of determining the osmotic pressure of fluids. Equimolecular solutions, having the same osmotic pressure, must have the same freezing-point.

Dreser first employed cryoscopy in determining the osmotic pressure of urine and in this way estimated the amount of work done by the kidneys in the formation of urine. He determined the freezing-point of normal urines and found it to be between —1.20° C. and —2.30° C. Dreser also determined the freezing-point of blood in normal individuals and found it practically constant at —0.56° C. He believes there are two factors at work in the kidneys, which tend to equalize each other. The one, filtration of the serum through the glomeruli, furnishing a dilute solution in great quantities; the other, a concentration of this solution in its passage through the uriniferous tubules, by virtue of a molecular interchange between the blood and urine. Certain molecules are secreted by the renal epithelium and pass into the urinous fluid; other molecules are absorbed by the blood in the capillaries surrounding the tubules, thus keeping up the equilibrium.

He also studied the effect of various diuretics on the freezing-point of urine and finds it influenced greatly by the use of these drugs. Besides the blood and urine, Dreser studied the freezing-point of other animal fluids, as bile, milk, and fluid from the anterior chamber, and finds that in the same individual it corresponds closely to the freezing-point of the blood-serum (—0.56° C.):

Bile from a certain patient froze at...—0.545° C.; blood, —0.55° C.
Milk from a certain patient froze at...-0.57° C.; blood, —0.55° C.
Anterior chamber fluid froze at.....—0.60° C.; blood, —0.58° C.

According to Dreser, there is no constant relationship between the freezing-point of the blood and urine.

Koranyi was the first to apply cryoscopy clinically, in order to ascertain the significance of the difference in the osmotic pressure of the blood and urine. His publication aroused widespread interest and it is due to his work that cryoscopy has secured a place in clinical diagnosis. Briefly stated, his theory is as follows:

1. The glomeruli furnish a solution of NaCl, the osmotic pressure of which equals that of the blood (.91% NaCl) and has a freezing-point of —0.56° C.

2. Water is absorbed from the glomerular secretion in the renal tubules.

3. Urea is excreted into the glomerular secretion by the renal epithelium.

4. For every molecule of urea excreted into the tubule, one molecule of NaCl is absorbed by the blood plasma, *i. e.*, an interchange of molecules occurs in the renal tubules.

This theory he bases upon the following observations:

(*a*) The glomerular activity is largely dependent upon the circulatory activity, hence cardiac incompetency and slowed circulation lessen the amount of glomerular secretion and increase the interchange of NaCl and urea molecules in the tubules, resulting in a lowering of the freezing-point.

(*b*) Ligation of both ureters causes a disappearance of the chlorids from the urine, while the urea is greatly increased.

(*c*) In anemia, with degeneration of the epithelium of the convoluted tubules, there is a decreased absorption and a corresponding elevation of the freezing-point.

(*d*) The chlorids in the urine are diminished in comparison with those of the blood, and this decrease in NaCl from the urine is equal to the amount of urea of the urine.

Koranyi determined the amount of chlorids by Volhardts' method and the sodium chlorid equivalent of the total solids. The freezing-point of normal urine varies from —1.3° C. to —2.2° C.; the daily variation in a given individual, *under like conditions*, being less than 0.1° C. The relation of $\frac{\text{freezing-point}}{\text{sodium chlorid}}\left(\frac{\triangle}{\text{NaCl}}\right)$ upon which the greatest stress is laid, varies from 1.23 to 1.69, in health.

By comparative examination of urine and blood, he shows that variations of the $\frac{\triangle}{\text{NaCl}}$ in the urine are dependent upon variations of the same factors in the blood.

The relative NaCl content of the urine rises and falls with a similar change in the relative content of NaCl in the blood. Diet causes great changes in the freezing-point of the urine, while it causes but little change in the NaCl factor in the blood. A small increase in the NaCl factor of the blood causes a great increase of NaCl in the urine. By comparing the chlorin-free and chlorin-containing molecules of the blood with those of the urine, he finds that the ratio is the same as the chlorin-free molecules in the urine is to the total number of molecules in the urine. In other words, in comparison with the blood, there are wanting in the urine, as many chlorin molecules as the urine contains chlorin-free molecules. There is also a certain parallelism between the $\frac{\triangle}{\text{NaCl}}$ and the $\frac{\text{N}}{\text{NaCl}}$, N equaling the nitrogen content of the urine. In general $\frac{\text{N}}{\text{NaCl}}$ rises with the freezing-point, although not proportionately. Should

[1] This work was done under the Dane-Billings fellowship in medicine, Rush Medical College, Chicago, Ill.

the renal function be disturbed and fewer molecules excreted, there would be a molecular concentration of the blood, an increased osmotic pressure and a changed metabolism is the result. Nature makes an attempt at compensation by bringing about a diminution in the amount of albumin broken down, hence the nitrogen factor in the urine decreases. The same result would obtain by a less complete disintegration of the normal number of albumin molecules. The nitrogen content of the urine remains the same and the molecules will be larger. The increased osmotic pressure may lead to a diminished excretion of water, to increased thirst, to the absorption of the body fluids, to plethora, hydremia, and finally to a dropsical condition.

Blood freezes constantly at —0.56° C. (limitations —0.55° C. to —0.57° C.). With a freezing-point of the blood less than normal, an anemia, or a febrile condition without influence on respiration exists, such as chlorosis, tuberculosis or cachexia. When the freezing-point is greater than —0.56° C., there exists a respiratory or renal insufficiency, or both. If oxygen causes the freezing-point to rise, the respiratory function alone is at fault. If unchanged by oxygen, the renal function is disturbed. If slightly changed by oxygen, but not to normal, both functions are disturbed. If pus and blood appear in the urine which cannot be accounted for clinically, and the freezing-point of the blood is greater than normal, probably the kidneys are at fault. When the blood freezes above normal in anemia or chlorosis, the renal epithelium is at fault. Koranyi is a firm believer in the value of cryoscopic examination of the blood and urine when properly carried out.

Winter determined the molecular concentration of blood-serum obtained from various animals and tabulates his results as follows: Horse serum, —0.55° C. to —0.565° C.; bovine, —0.55° C; dog, —0.565° C.; cat, —0.57° C.; sheep, —0.55° C.; hog, —0.55° C.; goat, —0.55° C. to —0.57° C.; antidiphtheric serum, —0.55° C.; antistreptococcic, —0.55° C. We see from the foregoing that the serums from different animals correspond very closely to the human, and the freezing-point is within the normal limits in every case. Winter also determined the freezing-point of milk from various sources and his results agree with those of other observers.

St. Bugarszky and Tangl determined the molecular concentration of blood-serum by cryoscopic examination, and compared their results with those obtained by a careful chemic analysis of the ash. They find that blood-serum contains 75% of inorganic and 25% of organic molecules. The inorganic are more constant than the organic. Their experiments were carried out with animal serums only, but human serum, no doubt, would yield similar results.

Kossler, in his work on the composition of the blood, determined the freezing-point of the blood as a whole, the plasma and the serum separately, and found it to be practically the same. He found that blood-serum corresponds to a .925% sodium chlorid solution in its freezing-point. In mixing blood with salt solution of the same molecular concentration, he found that there was a change in the freezing-point; when a similar mixture was made with the plasma or serum, no such change occurred. From this, he concludes, that there is something in the blood, as a whole, which does not exist in the serum, to cause this variation in the freezing-point.

Albarran and Bernard employed cryoscopy in their work on renal permeability. They injected methylene-blue and recovered the urine separately by ureteral catheterization. The elimination of methylene-blue by the kidneys corresponds to the concentration as determined by cryoscopy. Methylene-blue is eliminated more rapidly by the sound kidney than the diseased organ. The freezing-point of the urine from the well kidney is lower than that from the diseased; thus, we see that the results coincide quite closely.

Illyès repeated these experiments, and in addition, determined the freezing-point of the blood. He catheterized the ureters separately after injecting the methylene-blue, and tested the functional activity of the two kidneys in this way. Cryoscopy proved valuable as a test for renal sufficiency and in combination with the blood-examination, cryoscopically, it is a good guide for the surgeon as to the competency of each kidney.

Claude and Balthazard and Bernard worked along similar lines and corroborate the results of the preceding writers.

Waldvogel used cryoscopy in determining the molecular concentration of the blood in typhoid and other conditions. He believes cryoscopy may aid us in prognosis in this disease, since he finds that there is a greater concentration in the favorable cases than in those terminating fatally. This increased concentration he attributes to the formation of antitoxins. If the blood freezes near the normal, he says the prognosis is grave. If it shows a concentration greater than normal, prognosis is good. Some of his favorable cases showed a freezing-point of —0.70° C. More recent observations have not borne out these results, and such eminent workers as Rümpel and Koranyi deny any such conditions. These two writers found the blood practically normal in all stages of this disease.

Moritz considers cryoscopic examination of the catheterized urine obtained from each kidney of great value in diagnosis. He had the good fortune to verify his conclusions by examination of the kidneys after death in 12 cases, in which cryoscopic examination of the urine had been made regularly for a long time. In every case, when the catheterized specimen from each kidney indicated renal insufficiency, a diseased condition was demonstrated microscopically. The greater the disturbance in the freezing-point, the more advanced the disease of the kidney. He considers cryoscopy of the blood impractical, on account of the large amount of blood-serum necessary for the test. Since the improved technic, these objections no longer hold good, because it is a simple and safe procedure to withdraw 10 cc. or 15 cc. of blood from the veins.

Wiebrecht reports a case in which a large kidney tumor was removed successfully, the urine freezing at —1.35° C. and the blood at —0.60° C. He cites another case from Landau's clinic, with similar findings which proved to be a pyonephrosis from renal stone. The fact that the blood showed a freezing-point far below the normal would ordinarily be considered a contraindication for operative interference, but since both of these patients made an uneventful recovery after operation, he thinks the usual limits —0.58° C. to —0.60° C. may be disregarded in some cases. The blood returned to normal shortly after the operation in both cases, and the urine showed nothing pathologic after 10 days.

Lindemann carefully reviews the work of Koranyi and his predecessors and gives us the results of his own extensive labors. He takes for granted Ludwig's theory of urinary secretion, but opposes the simple interchange theory of Koranyi. Lindemann determined the amount of urine excreted in 24 hours, the specific gravity, the nitrogenous and the sodium chlorid content. He gives as normal values from —.90° C. to —2.71° C. for urine and —.56° C. for blood; physiologic limits, —.55° C. to —.57° C. He tabulates his work in a very systematic manner and states that in all forms of nephritis the concentration of the urine is below normal and the freezing-point correspondingly high. He concludes that in all cases in which the quantity of urine is about normal (1,200 cc. to 1,500 cc.) and the freezing-point constantly above —.90° C., nephritis of some type is to be suspected. In all cases of acute and chronic parenchymatous nephritis, the freezing-point is higher than in the interstitial forms. Lindemann sums up his results as follows:

1. The molecular concentration of the urine may be accurately determined by cryoscopy and furnishes an

estimate of the total functional activity of the kidneys.

2. The determination of the freezing-point with the total daily amount of urine allows us to differentiate between a simple albuminuria and albuminuria due to true kidney diseases.

3. Normal urine freezes between —1.2° C. and —2.3° C. In exceptional cases it may be as high as —.90° C. and as low as —2.7° C.

4. The freezing-point of urine in nephritis is always higher than normal (—0.90° or higher).

5. By cryoscopic examination of the total amount of urine we are able to differentiate between a parenchymatous and an interstitial nephritis.

6. The urine in nephritis often freezes at a higher point than the blood (that is, above —0.56° C.).

7. We are unable to differentiate between chronic and acute forms of nephritis by this method.

8. As a nephritic kidney returns to the normal, the urine also returns to its normal concentration (freezing-point).

9. We may follow the progress of a chronic parenchymatous nephritis as it passes into the interstitial variety by watching the freezing-point closely from day to day.

10. Other albuminurias are not characterized by an elevation of the freezing-point of the urine.

11. If, in a cystitis or pyelitis, there is a change in the freezing-point of the urine, showing a diminished concentration, it may be regarded as evidence of involvment of the parenchyma of the kidneys.

12. The determination of the total solids in nephritic urines often permits us to assume a retention in the blood of substances which should have been excreted by the kidneys, thus causing an increased molecular concentration of the blood. The normal freezing-point of the blood is not disturbed until symptoms of uremia arise, then there is a fall in the freezing-point below normal (as low as —0.70° C.).

Just what relation concentration of the blood bears to uremic conditions is not well understood. According to Askanazy, Biernacki, and Brunner there is a state of hydremia in uremic conditions, as determined by careful chemic analysis of the blood-serum and its ash.

From his experience with cryoscopic examination of the blood, Lindemann draws the following conclusions:

1. In nephritis the freezing-point of the blood remains normal, so long as no uremic symptoms arise (—0.56° C.).

2. When such symptoms arise, cryoscopy always shows a molecular concentration, causing the blood to freeze below normal (as low as —0.70° C.).

3. The lowering of the freezing-point of the blood, previously normal, is strong evidence of the onset of uremic conditions.

4. The symptom-complex characteristic of uremia may be brought on by the injection of a concentrated salt solution into the veins.

5. As soon as the concentration of the blood and body tissues is so great as to allow of no further abstraction from the blood, uremia develops.

Lindemann worked chiefly with cardiac and renal diseases, but his work covers the field so thoroughly that much weight has been given his opinions.

M. Senator reviews the chemic and physical laws bearing on osmotic pressure, and confirms the results of Koranyi and others. He thinks the amount and rapidity of the urinary secretion depend largely upon the rapidity of the circulation and the condition of the renal tissues. By slowing the circulation the chlorids are less abundant in the urine, but the molecular concentration is increased. As a rule the freezing-point of the urine is higher, and that of the blood lower than normal in nephritis. He does not think it possible to differentiate the various forms of nephritis by cryoscopic examination as claimed by Lindemann. He gives the following figures obtained in determining the freezing-point of blood in various diseases:

Blood in various forms of nephritis...	—0.545° C. to —.665° C.
When uremic conditions arise	—0.59° C. to —0.805° C.
Urine in diabetes mellitus froze from..	—1.270° C. to 1.369° C.
Urine in diabetes insipidus froze from..	—0.38° C. to 0.68° C.

Richter and Roth discuss the importance of determining the efficiency of renal function, and state that it is not so much the exact amounts of urea, chlorids, etc., excreted, that we wish to know, but whether or not the kidneys are capable of excreting these substances in sufficient amount to insure a continuation of good health after operation. They point out the fact that microscopic and chemic examination of the urine does not tell us whether the kidneys are competent or not; therefore, we must resort to other methods to help us out, if possible. Cryoscopic examination of the urine and blood seems to be of value in determining renal sufficiency or insufficiency. By using cantharidin and other drugs in sufficient quantities to cause a nephritis, they were able to produce a supersaturation of the blood, as shown by the reduction of the freezing-point. This increase in molecular saturation was always found in direct proportion to the anatomic changes in the renal epithelium and glomeruli. The molecular saturation of the blood is not due to the retention of NaCl molecules, but to autochthonous processes. Aloin, chromic acid, and oxalic acid, all caused increased molecular saturation of the blood and a consequent reduction in the freezing-point. In cases of retention of molecules in the blood, NaCl was often found less than normal. They state under what conditions the concentration of the blood may be increased, and think the surgeon will gain more from the cryoscopic examination of the urine and blood than the internist.

Casper and Richter state that the functional activity of the kidneys cannot be determined by any examination of the urine alone. They employed both the blood and urine in their work. In addition, they catheterized the ureters and determined the molecular concentration of the urine obtained from each kidney separately. After this had been done, they applied both the methylene-blue and phloridzin tests to ascertain the permeability of Bowman's capsule and functional activity of the tubular epithelium. Their results coincide with those of Senator, Albarran, and others.

In their series of over 90 cases, cryoscopy always showed the presence of renal inactivity. The greater the renal disease, the higher the freezing-point of the urine. So long as one kidney is normal there is no concentration of the blood from retention products. Their results may be summed up as follows:

1. In normal adults the two kidneys secrete the same amount of urine in a given time and the molecular concentration is the same.

2. In unilateral disease, the affected kidney always secretes less urine, and this urine is less concentrated than normal.

3. In bilateral disease, as nephritis, this difference is less marked.

4. In this way we were able to determine the relative amount of work done by each kidney.

5. Phloridzin injected into the circulation is excreted as sugar and in this way we were able to ascertain the functional activity of each organ separately.

6. In all but exceptional cases, after phloridzin injection, the excretion of urea, chlorids, and sugar goes hand in hand. Phloridzin is the most delicate test of renal activity, sugar being excreted as long as any normal renal epithelium remains. (These authors take up the entire field of renal diagnosis and every one interested in this subject should read their book.)

Thumin reports a case in which there was a unilateral pyelonephritis. The blood froze at —.60° C. Phloridzin was excreted as sugar by the left kidney; no sugar

from right side, but urine from this kidney was of a purulent character. Operation confirmed the diagnosis of pyelonephritis due to stone. The patient recovered.

Lesnè and Merklen first studied the freezing-point of urine in the newborn and found it very high —0.25° C. to —.41° C., showing a low molecular concentration, which they attribute to a diminished katabolism as compared to the adult.

Rumpel considers chiefly the surgical side of the question and considers the steps necessary for renal diagnosis as follows:

1. Cystoscopic examination of bladder and ureteral openings.
2. Ureteral catheterization (bilateral).
3. Cryoscopic examination of the separately obtained urines.
4. Cryoscopic examination of blood.
5. Phloridzin injection and estimation of the excreted sugar.
6. Methylene-blue elimination after intramuscular injection.

Conclusions.—The lower the concentration of the urine, the higher the freezing-point, the less the excretion of urea, the greater is the pathologic destruction of renal parenchyma.

A long-continued freezing-point above —.90° C. speaks for a renal insufficiency, if the amount of urine remains normal. When the two ureters were catheterized simultaneously, the kidney showing the less concentrated urine and a smaller amount of urea, was always the most affected pathologically. Rumpel also determined the freezing-point of the blood and urine in typhoid and found them both normal during all stages of the disease. His further conclusions agree with those of Kümmel, and will be given later.

Bickel discusses the changes in concentration of the blood in relation to nervous disturbances, especially those of uremia. He is inclined to disagree with Lindemann in respect to the cause of uremia. He does not believe it is caused by the mere molecular concentration of the blood, as by injection of large amounts of salines. Bickel and Schreiber injected large amounts of grape sugar into the circulation and caused the concentration of the blood to be greatly increased, without any uremic symptoms.

Schreiber and Hagenberg experimented on dogs by first bleeding and then giving intravenous injections of salt solution in order to determine the effect on the freezing-point of the blood. They find neither bleeding nor the saline injections have any marked influence upon the freezing-point of the blood. After a second venesection, in one case, there was a reduction in the freezing-point as well as an increase in the viscosity of the blood. Their results do not agree with those of Lindemann, but rather confirm the results of Bickel and others.

Krönig and Füth's work deals with the freezing-point of the blood, the plasma, and serum. They find no appreciable difference in the freezing-point. Long standing, unless actual decomposition sets in, has no influence upon it. Repeated freezings do not materially alter the results. Their work was very carefully done and, apparently, every source of error was eliminated. Their conclusions prove that the whole blood is entirely satisfactory for all practical purposes in cryoscopic work.

Kossler's results agree with those of Koeppe, already given.

Veit states that the fetal blood is more concentrated than that obtained from the placenta or from the mother. The freezing-point showed a difference of only —.01° C., but was constant.

In a later work, Krönig and Füth prove that the fetal and maternal blood has the same concentration.

Mathes, in 10 observations, finds that the results vary. In four cases the maternal blood was more concentrated; in six cases the fetal, and in no case was there difference of more than .03° C. in the freezing-point.

Zangenmeister compared the freezing-point of the amniotic fluid with the blood of the mother and gives the following as his results:

Average of liquor amnii	—0.522° C.
Average of maternal blood	—0.550° C.

In a case of hydramnios, the amniotic fluid was less concentrated than the maternal blood.

Richter, in an elaborate article, concludes: 1. Anemia decreases the freezing-point of the blood (—.54° C. to —.56° C.). 2. Edema diminishes this reduction and the blood may freeze at the normal, even in the presence of renal insufficiency, thus decreasing the value of cryoscopy under these conditions.

In surgical diseases of the kidney, it is of more value, because it reveals an insufficiency by causing an increase in the molecular concentration of the blood. Before an operation, we must ask ourselves: 1. Are the kidneys competent? 2. In case of a nephrectomy, will the remaining kidney be able to do sufficient work to prevent the development of uremic symptoms?

The surgeon must supplement his clinical diagnosis: (*a*) By a complete chemic and microscopic examination of the urine; (*b*) by ureteral catheterization of each kidney separately; (*c*) by a cryoscopic examination of the blood and urine; (*d*) by injection of phloridzin and methylene-blue, and estimate the amount of sugar excreted and the coloring matter eliminated.

If all these tests are favorable, then he may proceed to operate with a greater feeling of safety.

F. Strauss confirms Casper's and Richter's results, and his experiments show that the two kidneys secrete equal amounts of urine in a given time, containing equal amounts of urea and chlorid. After injection of phloridzin, they excrete the same amount of sugar, and the freezing-point of the urine is the same.

In pathologic conditions of the kidneys no such results obtain, but the amount of urine, the NaCl content and urea differ, as well as the freezing-point. When one kidney is diseased and the other normal, the diseased organ is always deficient in functional activity as compared with the normal. Strauss catheterized the ureters in two patients suffering from floating kidney, and much to his surprise, found the movable kidney more active than the normal or fixed kidney. He cites four cases of unilateral kidney disease in which ureteral catheterization, phloridzin injection, and cryoscopic examination of the urine and blood were done. In all of these the diseased organ was either deficient in function or secreted no urine at all. After operation the blood and urine returned to normal, showing the efficiency of the remaining organ.

H. Strauss discusses cryoscopy of the urine in bilateral diseases, as nephritis, and concludes it is of but little value, as usually practised. Without definite amounts and kinds of food and drinks being taken by the patients the results are not of value. The concentration of the urine bears a definite relationship to the character and amount of the foods taken. It is also influenced by the time after food is ingested, concentration being greatest at a certain time after meals. He gave his patients a definite amount of certain foods and then collected the urine every hour for five or six hours, after a certain period. His results varied both with the diet and the time after the meals, at which the urine was collected. His experiments have not been completed, but from what he has done so far, he places but little value on the urinary examination alone. He concludes that the polyuria in chronic interstitial nephritis is a compensatory process—an effort on the part of the kidneys to keep up the proper elimination.

Hamburger worked with the urine and blood, and also determined the chemic composition of the blood, blood-serum, and the ash. He concludes that cryoscopy is an accurate method of determining the osmotic pres-

sure of the body fluids and compares closely with the electric conductivity of these, especially in the urine.

Zikel devised a new apparatus which he considers an improvement over the Beckman, which is usually employed. He points out all the usual sources of error and tells how to avoid them. Otherwise his work shows nothing new.

Ferrannini discusses the sources of error and thinks these regarded too lightly by the majority of clinical workers.

Boukinitsch and Melkikh have repeated the experiments of H. Strauss, and their conclusions agree in every detail.

Oussoff thinks it possible to apply cryoscopy without conceding Koranyi's theory of renal interchange, which he considers still unproved. He has a formula of his own, which is entirely too complicated to be free from error and objections.

Ogston studied the effects of hepatic insufficiency on the molecular concentration of the blood. He thinks the hepatic function is quite as much a factor as renal function in causing an increase in the retention products of the blood.

Farkos and Scipiodes determined the freezing-point of the blood during pregnancy, postpartum and during the puerperium. They studied the composition and freezing-point of the amniotic fluid also. These observers find the blood less concentrated during the latter stages of pregnancy than after delivery or during the puerperium.

Results.—1. During the latter months of pregnancy, blood, —0.541° C.

2. Immediately after delivery, blood, —0.540° C.

3. During puerperium, blood, —0.563° C.

4. Amniotic fluid, less concentrated, freezes at —.45° C. to —.507° C.

Summary.—(*a*) During the latter months of pregnancy the concentration of the blood is diminished, the serum is hypotonic, freezes at 0.535° C. to —.54° C.

(*b*) During the puerperium the concentration is greater than during pregnancy; freezing-point varies from —0.57° C. to —0.58° C.

(*c*) The amniotic fluid is less concentrated than the blood-serum and freezes at a higher temperature, average, —0.47° C.

F. Burthe merely quotes what has been done by his teachers.

Koeppe shows that the freezing-point of the urine is too variable to be of much diagnostic value to the clinician, and is not a safe guide for the estimation of renal activity. His work includes the urine of infants as well as that of adults. In the infant, his results were the same whether nursing at the breast or artificially fed. Normal variations in the adult were from —.90° C. to —2.50° C., infants —.25° C. to —.45° C., according to state of nutrition and age. He attributes the low concentration of the urine in infants to a diminished katabolism.

Tinker reviews the literature, discusses the principles involved, and gives the results of his own work. His results show that there is a concentration of the blood in uremia and the freezing-point of the blood in this condition may be lower than that of the urine. He concludes that cryoscopic examination of the urine is of but little value unless obtained by catheterization of the ureters. The freezing-point of the blood is of more value as a test for renal sufficiency or insufficiency.

Grim discusses the theories of cryoscopy, quotes extensively from the literature, and gives the results of over 400 estimations of the freezing-point of the urine. He concludes that cryoscopy cannot replace, but supplement the older and wellknown methods of urinary examination. He thinks the method of value in determining the efficiency of therapeutic agencies in the treatment of cardiac and renal disease. He has had but little experience with the estimation of the freezing-point of the blood and does not consider this part of the subject.

Patoir employed cryoscopy of the urine in his work on syphilitic nephritis in connection with the methylene-blue tests. He thinks it a valuable addition to diagnosis.

Stockmann cites an interesting case in which there was a normal freezing-point of the blood in a patient suffering from renal disease. The patient died before operation, and autopsy showed the presence of only one kidney, and that diseased. Although extensively involved with a tuberculous process, the organ was sufficiently hypertrophied to functionate normally. Here the urethral catheter and phloridzin injection would have been of great assistance and rendered a positive diagnosis possible.

Kapsammer criticizes the work of F. Strauss, Fjodorow, and others, who hold that normally the two kidneys secrete the same amount of urine in a given time. In 118 observations, he was not only able to prove that such is not the case, but the urine obtained has not the same molecular concentration or the same freezing-point. In his experience, there is frequent leakage of urine along the ureteral catheter, and in order to ascertain just how much this was, he measured the bladder content after each catheterization. The leakage varied from 15% to 50% in some cases.

H. Dreser determined the effect of water, theocin, and caffein on the concentration of the urine. His experiments show that certain diuretics, as theocin, increase the molecular concentration of the urine. The electrolytes were especially increased in amount, as determined by the electric conductivity of the urine. The urea was also increased in some cases, but not to the same degree as the chlorids.

Roeder used the dilution test of Illyès and Kövesi, and finds that normally the urine is influenced to a much greater degree than in the diseased kidney.

Kümmel and Rümpel used cryoscopy very extensively in their work on surgical diseases of the kidneys. They employed both the blood and urine. The urine was obtained by ureteral catheterization in most cases, and the phloridzin and methylene-blue tests were also made. These workers have done much in the development of cryoscopy, placing it upon a sound basis by eliminating much of the speculative theory and applying it practically in the diagnosis of renal diseases. In over 500 estimations it has proved a valuable test in their hands. Kümmel is especially enthusiastic, and says that he has never been disappointed in his results with cryoscopy. He makes it a rule not to operate if the blood freezes below —.60° C., which he considers the limit, unless it be an exceptional case. He uses only the fresh defibrinated blood, and says standing may influence the results. In all stages of development, from early childhood to old age, normal blood freezes constantly at —0.56° C. (physiologic limits —0.55° C. to —0.57° C.) and is not influenced by diet, drink, or saline injections, as is the urine. The urine obtained from each kidney by ureteral catheterization should be used, as the single or mixed 24-hour specimen is not suitable for our purpose. Having considered cryoscopy and the other methods of diagnosis, Kümmel draws the following conclusions:

1. Normally the freezing-point of the blood is constant (thanks to the regulating function of the kidneys).

2. Bilateral kidney lesions are usually associated with some concentration of the blood and a corresponding decrease of concentration of the urine. If no concentration of the blood obtains, one or the other kidney is sufficiently normal to compensate for the deficiency of the other.

3. One-sided kidney lesions do not cause concentration of the blood.

4. Practically, cryoscopic examination of the blood and urine is of the greatest value to the surgeon, who is considering an operation on the kidney, as it assures

him of the competency or incompetency of the other organ.

5. It has been our experience to find a concentration of the blood in bilateral renal disease, but it is possible to have such a condition without concentration, when one kidney still has sufficient normal tissue to carry on excretion properly.

6. In tuberculosis of the kidneys, we have usually found a bilateral involvement, but one organ may be more affected than the other, so that the better kidney was able to carry on the function of elimination properly, after the more affected organ had been removed by operation.

7. A small focus of disease, as a tumor, stone, pyelitis or abscess, is sufficient to cause a disturbance of function in the affected kidney. This has been proved by ureteral catheterization repeatedly.

8. Reflex disturbance, as by stone, is rare. Unilateral nephritis has never been found in our experience.

9. Stone, pyonephrosis, perinephric abscess and malignant tumors may be operated even if the freezing-point of the blood is greater than the usual limits, —0.59° C. to —0.60° C.

10. Decapsulation may be safely performed if the blood is as low as —0.58° C. or —0.59° C.

This covers the subject fairly well up to date and I have tried to state briefly the most important points brought out by the different writers.

In a later paper I shall give the results of my personal experience with cryoscopy extending over a period of nearly three years.

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A STUDY OF THE GASTRIC CONTENTS IN URTICARIA.

BY

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The peculiar raised patch of flattened skin, firm to the touch, red at first, white and ischemic in the center, finally with an erythematous margin around it, usually is the common picture of the wheal or hive of urticaria. This is varied at times by the patch remaining red throughout, or again becoming red as the wheal subsides. The patch may vary in size from a collar button to a watch crystal; many of them become confluent. The wheal receives its name from *urtica*, a nettle, hence nettle rash.

The sudden appearance of the rash accompanies the violent burning and itching. It may be localized to a part of the body, or be general with systemic symptoms. As a rule any group of individual wheals disappears in a few hours, but new crops constantly arise. Successive crops may last days, weeks, months, or years; one of my cases is now in its tenth month. The term chronic is a misnomer in these cases. Malcolm Morris calls them urticaria perstans. Chronic urticaria is reserved for cases in which the crops of wheals remain out for three or more months.

Wheals are never symmetrically distributed and the grouping is rarely determinate. Individuals subject to urticaria may be susceptible to the slightest contact of clothing or touch. Factitious urticaria, however, upon certain neurotic subjects does not necessarily accompany the short lived variety or urticaria fugax.

Urticaria papulosa or the kind of patches which leave tiny papules after their disappearance, are similar to the old socalled lichen urbicatus and lichen strophulus. It is also frequently mistaken for a papular eczema. A not infrequent form of itching edema of the lower or upper eyelids is a form of urticaria edematosa, due to the wheal spreading through the loose, poorly resistant connective tissue. Gigantic urticaria differs in size and resistance, from the ordinary urticaria. It is very hard and rarely red or itchy. Urticaria pigmentosa, urticaria purpura, and urticaria bullosa explain themselves.

Females and infants are more subject to hives than others. Highly neurotic individuals, digestive disorders, uterine disturbances, and dilated stomachs are often associated conditions. I have never seen or read of a case of urticaria that could be authentically traced to malaria as a cause.

Mussels, crabs, lobsters, strawberries, mushrooms, and rarely parsley, oatmeal, and pork are definitely connected with attacks of urticaria.

Hydatid cysts and trichinæ are claimed to accompany some attacks. Local irritants, such as certain drugs, nettles, wasps, mosquitos, and caterpillars cause wheals.

The wheal is simply an acute exudation of lymph, forming a circumscribed edema of the skin, or a vasomotor paralytic (?) dilation of the arterioles, followed by exudation of serum and migration of lymphocytes.

In an effort to throw some additional light on this curious eruption which seems to lie in a realm situated between gastric conditions and vasomotor disturbances, or between autointoxications and skin diseases, I have made gastric analyses in seven cases of urticaria.

Sometimes the stomach contents were withdrawn by expression, at times by aspiration. Before giving the test-breakfast (Ewald-Boas) of a roll and a glass of water the stomach was washed out. An hour after the test-meal the gastric contents were obtained. The total acidity was measured by taking 5 cc. of the filtered gastric juice to which three drops of a 1% alcoholic solution of phenolthalein was added as an indicator, and titrating with $\frac{1}{10}$ normal NaOH solution until the first persistent pink shows. Free acid was tested with Congo red. The quantitative estimation of free HCl was made by Topfer's method, with dimethylamidoazobenzol. Phloroglucinvanillin, Congo red, and the resorcin test of Boas were used quantitatively.

The Friedenwald-Knapp modification of Strauss' method for finding lactic acid was used. According to Professor Julius Friedenwald this consists in extracting 2 cc. of gastric juice with 10 cc. of ether. Ten drops of a 10% aqueous solution of ferric chlorid and 2 cc. of distilled water are placed in a test-tube. The ethereal extract is carefully floated (with a pipet) on the surface of the aqueous solution of iron. A canary yellow ring indicates lactic acid. If the acidity of the gastric juice is reduced to 20, a reaction by other organic acids does not take place. This has proved a much more reliable test in my hands than Uffelmann's method. A control of a very dilute lactic acid solution was always employed. The nitric acid test for bile was used in all cases. Microscopic examination was made in each case. The much abbreviated histories follow:

CASE I.—I. G., male, aged 28, merchant, American. The patient complained of hives, duration of three months intermittently.

Family History.—Unimportant.

Past History.—Luetic.

Present Illness.—Hives began suddenly about three months ago. He has been treated by seven different physicians, dieted, etc. Eruption is most aggravating because of the burning which is worse than the itching; leads an indoor, but active life. He was married eight months previously. He is nervous and sleeps badly; bowels are regular; appetite excellent, etc.

Physical Examination.—He has a good color, is healthy looking; wiry, thin, but muscular; restless, quick of speech. Pupils react to light and accommodation actively; no apparent anemia; chest, heart and lungs clear, no adventitious sounds; abdomen, nothing pathologic; skin, crops of wheals occurring irregularly, mostly with a central areolæ red. Many fresh patches show absence of the central ischemic paleness, the anomalous red wheals predominating (diagnosis made by all the other seven physicians agreed as to the condition being urticaria); blood count and hemoglobin estimation 5,100,000 reds and 88% respectively; whites were 6,500. Factitious urticaria absent.

STOMACH CONTENTS.

	Examination. First.	Second.
Free HCl	.22%	.28%
Total acidity	80	74
Lactic acid	negative	negative
Bile	positive	positive

Still under treatment.

CASE II.—E. N., female, aged 22, American, housework, married; complains of itching; began the day before the visit; very nervous and animated; ate several dishes of strawberries; never had a previous attack; slightly constipated; appetite good, etc.

Physical examination showed a very few widely scattered patches; marked impression of collar, corsets, etc., on skin; factitious urticaria well marked by dermatographia.

STOMACH CONTENTS.

	Examination.
Free HCl	.15%
Total acidity	58
Bile	negative
Lactic acidity	negative

Improved in three days.

CASE III.—H. S., aged 27, female, married, housework, complains of hives; not nervous temperament. Trouble began a week previously; eruption over chest, back, and flexor surfaces of forearms and legs; constipated; regurgitates food with very acid taste; appetite fair; sleeps fairly well, etc.; factitious urticaria.

STOMACH CONTENTS.

	Examination. First.	Second.
Free HCl	.26%	.18%
Total acidity	64	78
Bile	negative	negative
Lactic acid	negative	negative

CASE IV.—B. N., aged 17, single, female, school girl. Patient complains of scarlet fever; eruption confluent over both arms and immense groups of wheals almost confluent over chest, back, and abdomen; itching intense; constipation present. Highly excitable, nervous child of nervous parents; had a very mild attack of hives previous summer. Present attack began five days previously during an attack of acute tonsillitis; patient confined to bed for 10 days. Three gastric analyses were permitted in this case. Attack was connected with eating three "deviled" crabs; marked factitious urticaria.

STOMACH CONTENTS.

	Examination. First.	Second.	Third.
Free HCl	.22%	.20%	.19%
Total acidity	84	68	72
Bile	positive	negative	negative
Lactic acid	negative	negative	negative

CASE V.—L. S., aged 36; male, American manufacturer; married; complains of hives; has always had attacks after eating strawberries. This is the third or fourth; not a heavy drinker or smoker, but very indiscreet in diet; appetite excellent; often has gas in stomach and bowels; constipated; not of a nervous temperament. Present attack followed a late dinner three nights previously during which he ate considerable strawberry ice cream. Wheals are typical, itchy, and scattered over body; large crops are present on the flexor surface of the forearms; slightly jaundiced; factitious urticaria absent.

STOMACH CONTENTS.

	Examination.
Free HCl	.16%
Total acidity	48
Bile	positive
Lactic acid	absent

CASE VI.—F. R., aged 27; female; single; society woman; complains of jaundice and nettle rash. Attack of jaundice began two weeks previously. Nettle rash appeared two days ago; itching intolerable. Wheals are very small and do not remain out long. New ones appear rapidly; suffers with a full feeling in the pit of the stomach and chronic constipation; takes midnight suppers nightly; not nervous to any marked degree; factitious urticaria absent, etc.

STOMACH CONTENTS.

	Examination. First.	Second.	Third
Free HCl	.28%	.31%	.29%
Total acidity	79	84	73
Bile	negative	negative	negative
Lactic acid	negative	negative	negative

CASE VII.—J. H., aged 28; male, American merchant, married; complains of itching; began a week ago with intolerable itching, which stopped awhile, but returned in greater force; is now so violent that patient cannot sleep at night; very neurotic temperament; constipated; appetite good; dermatographia very distinct; chest, back, and abdomen almost one gigantic wheal; itching unusually severe; edema very slight, compared to the immense distribution; rather a mass of confluent, red, slightly raised patches. Patient was confined to bed for four weeks, the crops continued to appear from time to time for four weeks following.

STOMACH CONTENTS.

	Examination. First.	Second.
Free HCl	.14%	.19%
Total acidity	41	54
Bile	negative	positive
Lactic acid	negative	positive

My opportunities for seeing cases of urticaria are relatively limited, therefore I call attention to this small series. Few conclusive results should be drawn from such a small number of analyses, but in most of the cases the apparent hyperacidity seems to be more than a coincidence. In the "chronic" or persistent form, the hyperacidity is very striking. It is also pro-

nounced in the subacute cases. The presence or absence of bile is of little real significance, for bile is often present in the normal gastric juice. There were never large quantities. Lactic acid was apparently absent in every case.

Although I have searched the files of the *Index Medicus*, the *Surgeon-General's Index*, the archives for skin diseases, diseases of the digestive organs, systems of medicine, journals and textbooks, I have failed to meet any reference to work of a nature similar to this in the German, French, English, or American literature.

RESULTS OF 14 ANALYSES.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Free HCl	26	18	22	20	19	22	28	15	16	28	31	29	14	19
Total acidity	64	73	84	68	72	80	74	58	48	79	84	73	41	54
Bile	—	—	+	—	—	+	+	—	+	—	—	—	—	+
Lactic acid	—	—	—	—	—	—	—	—	—	—	—	—	—	—

As a result of 14 analyses in 7 cases of urticaria, 3 of which might be classed as urticaria perstans and 4 as urticaria fugax, it may be concluded that there are many cases of hyperacidity, most of which predominate among the chronic or persistent variety. More than this cannot be claimed and a much larger series of cases is necessary to verify the foregoing analyses.

Acting upon the hypothesis that hyperacidity plays some role in these cases, but without generalization from so few, I have been treating my patients with urticaria with milk of magnesia and a capsule composed of sodium bicarbonate 1 gm. and sodium salicylate .3 gm.

In addition to the foregoing I should like to describe the following most interesting case of angioneurotic edema following a prophylactic dose of 10 cc. tetanus antitoxin:

B. D., age 26. Female, school teacher. White. American. Was inoculated with 10 cc. of tetanus antitoxin July 31, 72 hours after a puncture wound of the foot with a rusty nail. Four days after this, I was called to see her.

She had had a sudden attack of edema of the lips, face, arms, back, legs, etc.; nearly the entire body was covered with one gigantic, irregularly, confluent wheal, which burned and itched intolerably. The eyes were almost closed by the edema. The hands were so enlarged that they could not be clenched or made into a fist. Nausea, dizziness, and vomiting accompanied the attack. Temperature reached 99.6°. The pulse was small, feeble, and scarcely felt at the wrist, 130 to the minute. No hemoglobinuria occurred. Patient has had no similar attack, nor has anyone in the family.

STOMACH EXAMINATION

Free HCl	.31%
Total acidity	.84
Lactic acid	present
Bile	absent

Recovery in three days. Treatment was calomel, and soda and nitroglycerin.

THE BACTERIAL FLORA OF THE INTESTINAL MUCOSA AND CONJUNCTIVA OF THE NORMAL CHICKEN.

BY

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Introduction.—An attempt has been made in this work to determine, as far as possible, the bacterial flora of the intestinal mucosa and eye of the common fowl. To establish such a flora, however, with complete definiteness in regard to distribution, number, and classification, involves considerable time and a thorough study of many cases. Therefore, in the present investigation no claim is made that the results obtained represent the complete flora of these mucosas.

The first definite work on the bacteria of the avian intestine was conducted by Kern,[1] who in 1897 published a monograph dealing with the organisms found in the stomach and intestine of birds.

In summarizing his work, Kern states that in the several species utilized as material he finds about 21 species of bacteria, 10 species of which are always present in the intestine and about 12 species almost always found in the stomach. He found the colon bacillus to be the predominating organism. In the elaborate monograph prepared by Kern descriptions are given of a large number of organisms isolated from the intestinal contents of several species of birds.

Recognizing the scientific and practical importance of a thorough study of the bacteria of the intestinal and conjunctival membranes of the common fowl, this investigation was begun in the summer of 1903. The specific objects in view were: (1) The isolation and identification of the organisms commonly found on the intestinal mucosa, with data especially in reference to their number in the various regions; (2) their distribution and possible relations to the general external conditions under which the fowls lived; and (3) to acquire facts to aid in the solution of the problem of the localization of bacteria on these membranes. To study the environmental influences upon the flora of the intestinal mucosa and to understand the variability of this flora of the fowl or of any other animal, it is, of course, obvious that the constancy of the bacterial content of the normal mucosa must first be determined.

The practical importance of this work is found in the study of the etiology of the obscure intestinal diseases of poultry in which many bacteria appear, and in which it is of much value to be able to eliminate the normal intestinal organisms. Likewise diseases such as diphtheria or "roup" which may affect the eye, could be studied with less difficulty if the organisms which are normally present in the conjunctiva and membrana nictitans are known. With these purposes in view this preliminary work has been conducted. It is hoped that it may be continued with special reference to localization of intestinal bacteria and the effect of environmental influences.

Technic.—In making cultures from the intestine, a small section was cut out, and after being slit lengthwise, was placed in a sterile Petri dish. Here it was spread out, the contents carefully removed with a scalpel, and the surface thoroughly washed with sterile water. The mucous surface was then scraped with a knife, and cultures made from the scrapings. Sterile instruments were used, and every possible precaution against external contamination was taken. In all cases the contents of the intestine were entirely eliminated. From 30 to 40 plate cultures were made from each case. Both gelatin and agar were used in all cases, thus increasing the possibility of isolating all of the organisms. One loopful of the mucous material or scrapings was inoculated into the first gelatin or agar tube, as the case might be, and after thoroughly shaking, two loopfuls from tube one, were transferred to tube two and the inoculated mediums transferred to plates.

Relative number of Organisms Isolated from the Different Portions of the Intestine.—From Chart I it will be observed that in the cecum we find the largest number of organisms. All plates made from the cecum showed an abundant growth. No apparent difference in the number of colonies was noticed on the plates made from the colon from different fowls. However, the count showed a smaller number of colonies than those made from the cecum, and also the number of species isolated from the colon were fewer than those isolated from the cecum.

Of particular interest is the observation of colony counts from the small intestine and duodenum. A study of Chart II shows the gradation in the number of colonies as we pass from the colon to the small intestine and finally to the duodenum. The results of these counts are of considerable significance in that they tend

[1] Kern, Heinrich: Beiträge zur Kenntniss der im Magen der Vögel vorkommenden Bakterien. Arbeiten aus dem Bacteriologischen Institut zur Karlsruhe, 1897.

to show the relative number of organisms commonly found in the mucosa of the different portions of the intestine. These results coincide with the natural supposition that the flora of the intestinal tract would be represented by a greater abundance of organisms and a larger number of species in the cecum and colon than in the ileum, jejunum, and duodenum. The physiologic processes of digestion, the activity of the ferments and their reactions, and the movements of the intestinal contents of the duodenum, jejunum, and the higher portions of the ileum as compared with the same physiologic properties of the cecum and colon, would lead us to believe that the results observed are consistent.

CHART I.—ORGANISMS ISOLATED FROM INTESTINE.

	Total number of cultures.	Distribution. Cecums.	Colon.	Small intestine.	Duodenum.
1. Bacillus coli communis. Variety I	43	23	11	8	1
2. " " " " II	64	37	14	9	4
3. " " " Variation III	11	8	...	2	1
4. " " " " IV	12	7	4	1	.....
5. " " " " V	1	.....	.....	.....	1
6. " " " " VI	2	.....	2	.....	.....
7. " " " " VII	3	3	.....	.....	.....
8. " mycoides	1	1	.....	1	.....
9. " enteritidis	9	2	6	5	.....
10. " subtilis	12	2	2	.....	3
11. " leporis	5	2	2	.....	1
12. " dubius	3	1	1	1	1
13. " entericus	3	2	...	1	.....
14. " cloacas	5	1	3	2	.....
15. " subcloacas (Ford)	3	1	.....	2	.....
16. " A	9	4	1	.....	2
17. " B	2	2	.....	.....	.....
18. " C	1	.....	1	.....	.....
19. " D	4	1	.....	2	1
20. " E	3	2	.....	1	.....
21. " F	2	.....	.....	2	.....
22. " G	2	.....	.....	1	1
23. " H	2	.....	.....	2	.....
24. " I	4	3	1	.....	.....
25. " J	6	4	2	.....	.....
26. " K	2	.....	.....	.....	2
27. " L	3	1	.....	.....	2
28. " M	5	2	.....	1	2
	222	109	51	40	22
29. Bacterium liquefaciens	5	2	2	1	.....
30. " lactis artogenes	1	.....	.....	1	.....
31. " duodenale	6	6	.....	.....	.....
32. " A	6	1	....	3	2
33. " B	5	1	1	3	.....
34. " C	3	1	.....	2	.....
35. " D	1	1	.....	.....	.....
36. " E	6	.....	1	4	1
37. " F	2	1	1	.....	.....
38. " G	1	1	.....	.....	.....
	36	14	5	14	3
39. Micrococcus A	9	5	1	1	2
40. " B	8	4	2	1	1
41. " C	4	.....	1	1	2
42. " D	1	.....	.....	.....	1
43. " E	3	.....	....	2	1
44. " F	3	1	.....	1	1
45. " G	1	.....	.....	.....	1
46. " H	2	1	.....	.....	1
	31	11	4	6	10
47. Streptococcus A	7	2	.....	1	4
48. " B	3	2	1	.....	.....
	10	4	1	1	4
49. Pseudomonas ovalis	1	1	.....	.....	.....
50. Sarcina lutea	1	.....	.....	.....	1
51. Yeast	5	.....	2	3	.....
Total	306	139	63	64	40

Chart I.—Gives in condensed form, the number and distribution of the organisms isolated from the intestine. In the first column are the total number of cultures of each organism which were carried through differential mediums, while the distribution is shown by the other four columns. The following differential characters distinguish the seven varieties of *B. coli communis: Variety I.* Three sugars fermented with gas and acid, milk coagulated 12 to 48 hours. *Variety II.* Two sugars fermented with gas and acid, saccharose unchanged, milk coagulated 12 to 48 hours. *Variation III.* Three sugars gas and acid, milk coagulates on heating. *Variation IV.* Two sugars gas and acid, milk coagulates on heating. *Variation V* Three sugars gas and acid, milk coagulates 10 days. *Variation VI.*[1] Three sugars gas and acid, milk coagulates 12 to 48 hours. *Variation VII.* Two sugars gas and acid, milk coagulates 12 days. Organisms indicated as A, B, C, etc., are unidentified. Descriptions of these will appear in a future paper.

[1] Small amount of gas (1 cm.) in lactose and saccharose.

Occurrence of B. Coli Communis and Its Relation to Environment.—The results of this investigation show that *B. coli communis* is the predominating organism in the flora of the intestinal mucosa of the normal chicken. If the organisms constituting the intestinal flora were divided into two distinct classes according to whether they are "true intestinal bacteria," or "transitory inhabitants," *B. coli communis* should, without question, be placed in the former category. It may be stated that a study of the identification and distribution of the organisms common to the intestine of the chicken resolves itself to a great extent into a study of the colon organism peculiar to the intestine of that species.

CHART II.—AVERAGE NUMBER OF COLONIES. CASES V TO XXI INCLUSIVE.

Portion of intestine.	Number of plates examined.	Series.	Average number of colonies.
Right cecum	41	I.	293+, 6 plates too numerous to count
	41	II.	59+, 4 plates too numerous to count
Left cecum	30	I.	310+, 4 plates too numerous to count
	30	II.	38+, 1 plate too numerous to count
Colon	37	I.	131+, 3 plates too numerous to count
	37	II.	57+, 1 plate too numerous to count
Small intestine	50	I.	65, 6 plates too numerous to count
	50	II.	20, 3 plates too numerous to count
Duodenum	46	I.	45
	46	II.	6
Total	408		

Chart II.—Series I indicates the plate culture made from tube I which was inoculated with one loopful of scrapings from the mucosa. Series II, plate made from tube II containing two loopfuls from tube I.

Reference to Chart III will show that this organism exists in each of the different regions studied. Out of 306 colonies from which cultures were made and carried through differential mediums 136 were representatives of the colon group. As the relative number of the organisms making up the flora of the intestinal mucosa was found to vary according to the region of the intestine, so do we find a somewhat similar variation in regard to the organism in question.

CHART III.—B. COLI COMMUNIS, OCCURRENCE AND DISTRIBUTION.

	Total number of cultures.	Distribution. Right cecum.	Left cecum.	Colon.	Small intestine.	Duodenum
Case 1	1	1	.....	.....	.....	.....
" 2	1	.....	1	.....	.....	.....
" 3	7	3	2	1	1	.....
" 4	5	2	1	2	.....	.....
" 5	14	6	3	4	.....	1
" 6	2	.....	.....	1	1	.....
" 7	19	5	4	3	5	2
" 8	12	5	5	2	.....	.....
" 9	3	2	1	.....	.....	.....
" 10	4	2	1	.....	1	.....
" 11	4	2	1	1	.....	.....
" 12	5	.....	2	2	.....	1
" 13	6	3	.....	2	1	.....
" 14	9	4	.....	4	1	.....
" 15	8	4	2	1	1	.....
" 16	2	1	1	.....	.....	.....
" 17	8	2	1	2	2	1
" 18	8	.....	1	2	3	2
" 19	5	2	2	1	.....	.....
" 20	10	6	.....	1	3	.....
" 21	3	1	2	.....	.....	.....
Total	136	49	29	29	19	7

Chart III.—This table gives the distribution and total number of cultures of *B. coli communis* carried through differential mediums.

In all except one of the 21 cases examined, *B. coli communis* was found to exist in the cecum. It was found in the region of the colon in 15 cases, in the small intestine in 10 cases, and in 5 cases it was isolated from the duodenum. These results tend to show, therefore, that

although this organism may exist in the mucosa of the duodenum it is rarely found in that region, while its presence in the cecum, colon, and lower portions of the ileum is constant.

Out of about 400 plate cultures made from the mucosa, 38 were apparently pure cultures of *B. coli communis*. Of these 38 plates, 21 were made from the cecum, 12 from the colon, and 5 from the small intestine. On a considerable number of plates, especially those from the cecum and colon, this organism was evidently the predominating form.

Although a study of the cultural characters of this organism, as it is obtained from the intestinal mucosa of the chicken, reveals the fact that many of the cultures present marked deviation from the properties usually described as peculiar to *B. coli communis*, yet it does not seem necessary to distinguish more varieties than have already been described. Most of these deviations are found in the cultural characters of milk, glucose, lactose and saccharose bouillon, and in the presence or absence of indol.

A glance at Chart IV will show that the variety producing acid and gas in glucose and lactose only, was

CHART IV.—TABLE SHOWING VARIETIES OF B. COLI COMMUNIS ISOLATED FROM THE INTESTINE.

Case.	Variety I	Variety II.	Variation III.	Variation IV.	Variation V.	Variation VI.	Variation VII.	Indol protection.
1	1	.....	.....	.....	.....	.....	.....	.....
2	1	.....	.....	.....	.....	.....	.....	.....
3	3	4	.....	.....	.....	.....	.....	.....
4	2	2	.....	2	.....	.....	.....	.....
5	5	6	.....	.....	.....	.....	.....	.....
6	1	1	.....	2	.....	.....	.....	.....
7	6	2	4	5	1	.....	.....	.....
8	.....	3	4	2	.....	2	.....	.....
9	.....	1	.....	.....	.....	.....	.....	.....
10	.....	3	.....	.....	.....	.....	1	.....
11	1	3	.....	.....	.....	.....	.....	.....
12	.....	5	.....	.....	.....	.....	.....	.....
13	2	3	.....	.....	.....	.....	.....	.....
14	4	5	.....	.....	.....	.....	.....	.....
15	4	4	.....	.....	.....	.....	.....	.....
16	.....	1	3	.....	.....	.....	2	.....
17	3	5	.....	.....	.....	.....	.....	.....
18	4	4	.....	.....	.....	.....	.....	.....
19	2	3	.....	.....	.....	.....	.....	.....
20	2	7	.....	1	.....	.....	.....	.....
21	2	.....	.....	2	.....	.....	.....	.....
Total *	43	64	11	12	1	2	3	

* Total number of cultures.

Chart IV.—The purpose of this table is to show the relative number of cultures of each variety of *B. coli communis* isolated from each case and carried through differential mediums. Differential characters of each variety are given under description of Chart I.

found in as many cases as the variety producing acid and gas in glucose, lactose, and saccharose. This agrees with results obtained by Moore and Wright[2] in their study of the colon bacillus in the intestinal mucosa of various species of animals. In one case, it will be observed, cultures were obtained which fermented saccharose to acid, but not with gas. In working over the first few cases, the gas formula for each sugar was carefully taken, but although the formulas appeared to be constant within certain limitations, yet, because of their variations, not much stress was laid on this cultural character in identifying the organism. Many of the cultures fermented the saccharose to acid, but not with gas, in 12 to 48 hours; however, further incubation of from 3 to 10 days caused a production of gas. After working over a considerable number of cultures, a production of acid in saccharose was found to be almost a sure indication that gas would appear later, other cultural characters being constant.

[2] Moore and Wright: Observations on *Bacillus coli communis* from certain species of domesticated animals. *American Medicine*, Vol. iii, No. 13, pp. 504-507, 1902.

After conducting this work it seems evident that the chances are against the isolation from the intestinal mucosa of the chicken of any variety of *B. coli communis* which does not coagulate milk. Such a statement should not be taken to mean that we would never expect to encounter in the intestine of the chicken a type of *B. coli communis* having this variation. However, after working with 133 cultures of this organism and finding none which does not coagulate milk either with or without boiling, we are naturally inclined to believe that the flora is comparatively free from a representative of the organism having this deviating character.

Moreover, we are led to believe that in the identification of this organism close discrimination should be exercised when the milk cultures do not coagulate on boiling. Whether this should apply to the identification of cultures isolated from the intestinal mucosa of other animals we do not pretend to say.

In regard to the relation of the occurrence of *B. coli communis* in the flora of the intestinal mucosa and the environmental influences, very little can be interpreted from this work. However, the results obtained from Case VI should be mentioned. It will be noticed that only two colonies of *B. coli communis* developed on the

CHART V.—ORGANISMS ISOLATED FROM EYE.

	Total number of cultures.	Distribution.	
		Conjunctiva.	Membrana nictitans.
1. Bacillus A	3	2	1
2. " B	7	2	5
3. " C	2	2	.....
4. " D	1	.....	1
	13	6	7
5. Bacterium I	3	.....	3
6. " II	1	.....	1
7. " III	2	.....	2
8. " (septicemia hæmorrhagica group)	1	.....	1
9. " IV	1	1	.....
	8	1	7
10. Micrococcus I	4	1	3
11. " II	2	1	1
12. " III	7	4	3
13. " IV	5	2	3
14. " V	2	.....	2
15. " VI	2	.....	2
	22	8	14
16. Streptococcus I	1	1	.....
Total	44	16	28

Chart V.—This chart is made after the same plan as Chart I.

plates from Case VI, and these were from the duodenum and small intestine. This was the only instance in which this organism was not found in the mucosa of the cecum. It is important to note that this was a young fowl which was taken from a small private flock, and had been excluded from access to the intestinal discharges from other animals, and also from foods which might contain the colon bacillus.

The Flora of the Eye.—The study of the flora of the membranes of the eye was carried on in connection with the work on the intestinal mucosa. From two to six gelatin plates were made from the conjunctiva and membrana nictitans from Cases V to XXI. Although the results of this study are not extensive, yet it may be noted that few new organisms were obtained from the last five cases, thus showing that the flora is to some degree constant. The genera bacterium and micrococcus appeared to predominate upon the flora of these membranes. Reference to Chart V will show that only one organism was identified. It is interesting to note that this organism, which belongs to the septicemia hæmorrhagica group, is thought by some European investigators to be the cause of diphtheria in chickens.

Relation of Flora to Environment.—A discussion of *B. coli communis* as it is found in the intestinal mucosa, leads us to a brief consideration of the parasitic properties of the various organisms making up the flora as found in the common fowl. From the results of this work not a great deal can be said in regard to the relation of the flora to environment; although as complete a description as possible of the environment of each fowl was obtained.

Cases XI and XII were taken from the experimental flock of chickens of the New York State Veterinary Col-

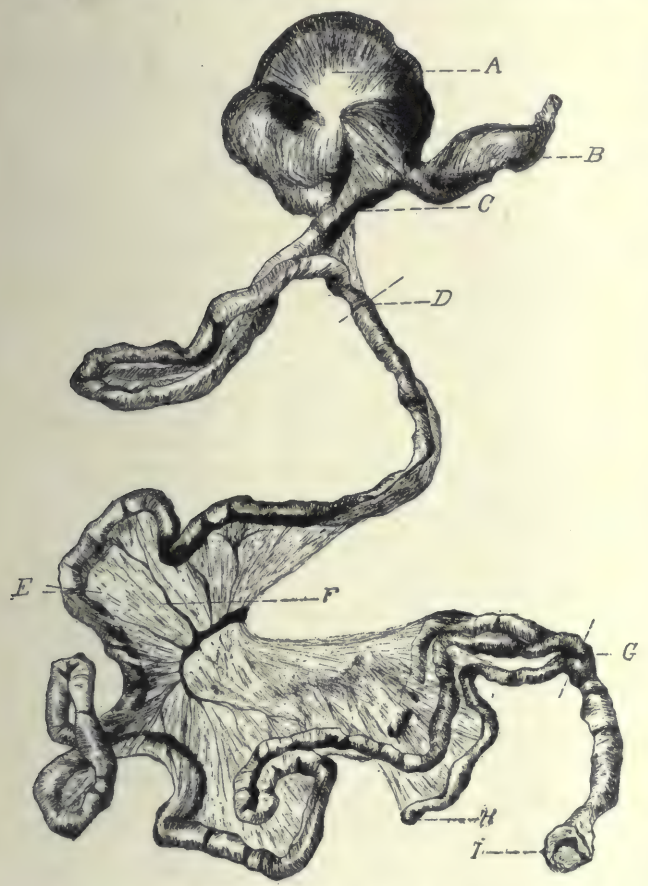


Fig. 1.—A, stomach. B, esophagus. C to D, duodenum. D to E, jejunum (approximately). F, mesentery. E to G, ileum. G to H, cecum. G to I, colon. I, cloaca.

lege. These fowls had been fed *Bacterium tuberculosis* for eight months previous to examination and during that time had been kept confined in the infectious ward. When the gelatin plates from these two cases were examined it was noted that all the plates were completely liquefied after a few days by apparently the same species, which was thought to be a water organism. From the fact that the gelatin plates from both of these cases behaved in the same manner, thus affording a check on each other, and also because of the fact that these two fowls had been confined for the same length of time and under exactly similar conditions, the results might be interpreted to signify that this water organism being present in the water which was placed in the ward for these fowls, had become localized in the intestinal mucosa, and crowding out some of the other inhabitants of the mucosa, had become the predominating form.

Cases XX and XXI were fowls which had been fed sputum at Willard State Hospital for a period of nine months. The conditions under which they were kept would naturally cause a suspicion to be entertained that the bacterial findings might consist of many organisms ordinarily found in sputum. Nevertheless an examination of these two cases revealed a flora of the mucosa, which did not differ essentially from that in other cases.

In June, 1904, was begun a series of experiments, consisting of the feeding of cultures. These experiments were conducted for the purpose of determining whether or not bacteria, if introduced in large numbers into the digestive tract with the food, would become localized on the mucosa. Two chickens were confined in separate compartments, and each day 2 cc. of a pure, 24-hour bouillon culture was placed in the feed and water. Fowl No. 1 was fed cultures of *B. pyocyaneus* and *Proteus vulgaris*, fowl No. 2 was fed *B. prodigiosus* and *B. fluorescens liquefaciens*. These particular organisms were used because they had not been isolated from the mucosa, and because they would not be difficult to identify. During the period in which these cultures were fed, attempts were made without success to detect the organisms in the feces. At the end of six weeks the fowls were killed and cultures made from the mucosa. The presence of the organisms that had been fed could not be detected. From these results it may be suggested that the experiments were not conducted for a sufficient period for these saprophytic organisms to become adjusted to the environment of the intestinal mucosa.

SUMMARY.

The results of this work make possible the following suggestions:

1. The flora of the intestinal mucosa is to a certain extent constant, being made up of about 50 different species of bacteria.

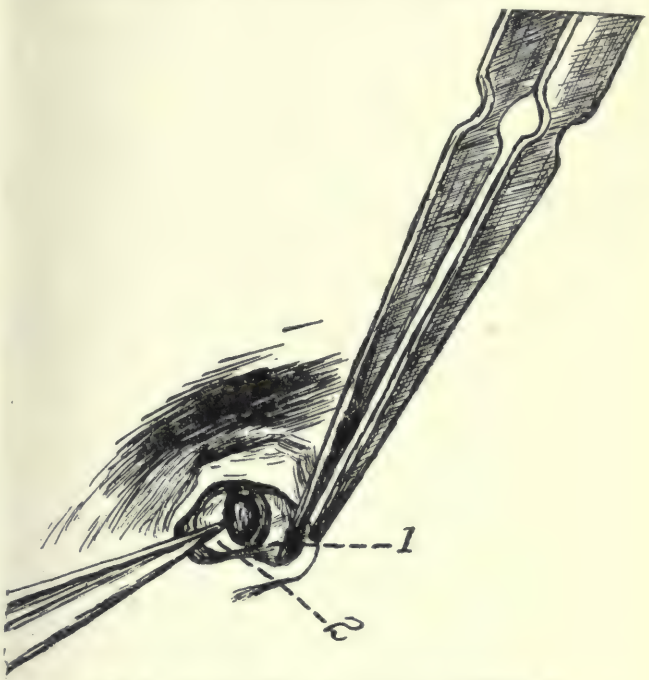


Fig. 2.—1, conjunctiva. 2, membrana nictitans.

2. This flora appears to depend somewhat upon environment, and varies within certain limits, according to external conditions.

3. In the mucosa of the cecum and colon we find a greater abundance of organisms and a larger number of species than in other portions of the intestine.

4. The average number of colonies on plate cultures made from different portions of the intestine shows a gradual decrease in number as we pass from the cecum and colon to the ileum, jejunum, and duodenum.

5. *Bacillus coli communis* is the predominating organism in the flora of the intestinal mucosa of the common fowl.

6. *Bacillus coli communis* is almost always found in

the cecum and colon, frequently found in the lower portions of the small intestine and rarely found in the duodenum.

7. The variety of *B. coli communis* fermenting glucose and lactose with gas and acid is found to be present as frequently as the variety fermenting glucose, lactose, and saccharose with gas and acid. In addition to these two varieties, other varying types of the colon bacillus are present.

8. Certain results tend to show that the presence of *B. coli communis* in the intestinal mucosa depends upon environmental influences.

9. The flora of the conjunctiva appears to be confined to certain organisms which are represented chiefly by the genera bacterium and micrococcus.

10. Among the many problems which confront workers in bacteriology there are few, which, it seems to us, are more promising than a study of the bacteria of the intestinal mucosa with special reference to the relation of the environment to the individual and the evolution of parasitism and perhaps pathogenesis of the organisms that had become localized on these membranes.

This entire work was carried on under the direct supervision of Dr. V. A. Moore for whose constant help and advice I would hereby express my gratitude. I would also express my thanks to Dr. G. F. White for valuable suggestions.

ARTERIOSCLEROSIS AFFECTING THE NERVOUS SYSTEM.*

BY

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My attention was first called to this subject some 12 or 14 years ago by Dr. M. Allen Starr, who said that many of the ordinary neurasthenic symptoms found in people in or past middle life, should suggest the possibility of arterial disease, and prompt careful investigation.

Up to that time very little had been done to determine the influence of this condition on the nervous system, save in its role as a cause in cerebral hemorrhage. In the light of our present knowledge, a large variety of symptoms, cerebral, spinal, peripheral, and even sympathetic, may be due to arteriosclerosis affecting one part or another of the nervous system; while we might complete a vicious circle by adding that, as Dr. W. Gilman Thompson recently said, before the Buffalo Academy of Medicine, mental and physical overstrain is in a large measure responsible for the faulty metabolism which makes arteriosclerosis common in comparatively young subjects.

The process is identical wherever it occurs, and its effect on all nerve tissue is the same, except as influenced by anatomic considerations. Although the object of this paper is to consider its effect on the nervous system, a few words as to the causes and other general considerations about arteriosclerosis will not be out of place.

Some authors, notably Church and Peterson,[1] draw a distinction between the various forms of arteritis, periarteritis, atheroma, or endarteritis deformans and arteriosclerosis, and regard the latter as always a generalized systemic condition which may be accentuated in certain bodily organs, and there give rise to local symptom groups.

Grassmann[2] describes arteriosclerosis as "in one sense a diffuse neoformation in the walls of the bloodvessels." Its frequent progressive course stamps it as malignant, and he quotes Hazenfeld as having established the fact that certain large tracts of bloodvessels may be slightly, or even moderately affected, while all other vessels are intact. For the purposes of this paper, however, the finer distinctions as to varieties will not be considered, especially as they may all occur in the same person at the same time.

The toxic etiology of arteriosclerosis is practically admitted by all, age and heredity being contributing causes. The most frequent toxic causes are syphilis, lead-poisoning, the abuse of alcohol, and the lithemic state. Excessive exercise, either mental or physical, especially when associated with excessive use of alcohol, is ascribed as the principal cause by von Noorden. Overingestion of food and the toxemia resulting from imperfect elimination are the causes ascribed by Sansom. Tobacco, coffee, and tea are said to predispose to the condition.

Pepper[3] mentions the influence of infectious diseases as causes, while Tyson[4] emphasizes the part played by increased arterial tension from prolonged muscular exertion. Increased arterial tension may be also the result of toxemia. Arteriosclerosis has been found by Seitz[5] in young children with hereditary syphilis, and two or three other cases in children have been reported as sequels to infectious diseases, though it is, of course, considered a disease of middle and later life.

The pathology and symptomatology of arteriosclerosis will be omitted except as related to the varieties of the disorder under consideration.

Arteriosclerosis affecting the nervous system would naturally be divided for study into three, or possibly four classes, following the different parts of the nervous system; cerebral, spinal, peripheral, and sympathetic.

Cerebral arteriosclerosis may be subdivided into a major and a minor type, the former rapidly progessing with few symptoms pointing to cerebral disturbance and terminating in apoplexy.

It may be marked with few symptoms directly referable to the head, a slight vertigo, or perhaps a tendency to fall asleep while sitting up trying to do mental work, but if diagnosed at all before the apoplexy occurs, it must be done by considering the general signs, such as the increased arterial tension, the hard feel to the arteries, radial or temporal, the peculiar character of the pulse, hard and not easily compressible, and the characteristic heart beat with its snappy second sound.

Huchard has called attention to the stability of the pulse, *i. e.*, the lack of a normal decline of from six to eight beats when the patient reclines or sits after standing. Grassmann[6] points to insomnia of an obstinate character in persons of advanced age as significant. This is the class studied by Jacobsohn,[7] in which the principal symptoms are caused by the accidents of rupture or plugging of bloodvessels, or small aneurysms, and the results of such accidents in atrophy of cerebral tissue, if the patient lives long enough after the accident. I cannot fully agree with Browning,[8] when he says that "Such cases are little responsive to treatment even if instituted before definite injury."

Very much may be done, when the condition is recognized early, to postpone the fatal termination, hence, the importance of making the diagnosis as early as possible.

The minor type of cerebral arteriosclerosis is described by Windscheid.[9] It comprises a complex of symptoms which are the direct expression of the vascular change, exclusive of the accidents referred to in the major class.

This type shows a set of symptoms including fatigue, or exhaustion of the brain; the inability to take up and do new work, while the mental operations, which have become routine, can still be accomplished; headache, usually frontal and persistent, increased by stooping and abdominal pressure; slight vertigo and loss of memory —in fact, the symptom-complex so frequently associated with neurasthenia. In this, he is in accord with the statement of Dr. Starr, before referred to. This variety of arteriosclerosis may occur without the evidences of general vascular disease, save the increased tension, but

*Read at Albany, before the Medical Society of the State of New York, January 31, 1905.

when the general disease of the bloodvessels is apparent, it may be taken for granted that the symptoms described are due to arteriosclerosis.

In this class, also, belongs that long list of degenerative mental diseases which mark the starvation or atrophy of brain tissue, even when none of the accidents of arterial diseases have occurred; and we may also find an epilepsy from arteriosclerotic origin, as described by F. Malmert.[10]

The philosophy of this set of symptoms is founded on the local ischemia, due to the narrowed lumen and imperfect elasticity of the bloodvessels of the brain, and it will readily be seen that imperfect nutrition or even atrophy and degeneration of brain tissue may result if the condition progresses.

That such is frequently the case is shown by the work of Adolf Meyer,[11] J. E. Courtney,[12] and others. Meyer finds in 192 autopsies in 1893–1895 that "in a number of senile dements the fundamental cause consisted in atheromatous degeneration of cerebral bloodvessels and the resulting atrophy of brain tissue." Courtney says: "It is rare to do an autopsy in the senile insane or in melancholia with hypochondria after 40, and not find arteriosclerosis."

The *Journal of Nervous and Mental Disease* quotes F. del Greco[13] as finding 38 out of 100 chronic insane to have arteriosclerosis of the cerebral vessels, and E. D. Bouderrant as finding evidence of arterial disease in 65% in 200 autopsies in the same class of cases.

The next division of the subject to consider is the spinal cord. At the meeting of the American Neurological Association in 1902 Dr. Wm. Hirsch[14] said he considered arteriosclerosis of the spinal cord as a condition rarely diagnosed. He reported nine cases in which the diagnosis had been made during life. Hirsch also thought the anterior half of the cord was more frequently affected than the posterior half. Dr. Spiller[15] said he had found arteriosclerosis associated with Parkinson's disease. He saw no anatomic reason for the anterior half of the cord to be more often affected than the posterior. Dr. Leszynsky[16] said it would explain loss of knee-reflexes and some other symptoms in old people, and could be safely diagnosed in the presence of general arteriosclerosis. Dr. Satterthwaite[17] speaks of the spinal type as "well exemplified by the locomotor ataxia of syphilis," which he says "presumably originates in the bloodvessels of the cord, as does also the general paralysis."

Dr. Joseph Collins and Dr. E. C. Zabrinski[18] report two cases of cord arteriosclerosis, one fatal one showing small hemorrhages, myelitis, and degeneration. The symptoms before death were mainly referable to the hemorrhages and their immediate consequences. The other case presents the symptoms of an irregular ataxia, knee-jerk is present, and the patient is improving on nitroglycerin and iodids. Dr. Sachs[19] reports a case of acute myelitis terminating fatally in which the autopsy revealed general arteriosclerosis.

It will be seen from what has been said, and the references to spinal effects of arteriosclerosis, that a certain number of symptoms is due to the local ischemia produced by the arterial disease directly, and a considerable number of more pronounced symptoms is due (as in the brain type) to the accidents of the condition, hemorrhages, aneurysms of small vessels, etc., and the degeneration or myelitis resulting. Here, as in the cerebral cases, an early diagnosis would be of great value.

I have one patient now under observation who has a far-advanced case of general arteriosclerosis with the process most prominent in the cerebral vessels, who nearly eight years ago came under my care with a diagnosis of cirrhosis of the liver made by a very prominent diagnostician of Philadelphia, and about three years later when I came to Syracuse, one of our best physicians told me the patient had tabes. I know that as a matter of fact he had no knee-reflexes, and the Romberg sign was present for three or four years. For the past three years he has had knee-reflexes, and his station is normal. He has, however, had two slight apoplectic attacks, and has transient albuminuria, but at present is feeling in fair health.

So it not infrequently happens that the active process of hardening or endarteritis may be suspended for a time or indefinitely in one part while under rigid treatment, and when, through the resuming of old habits, the process takes a fresh start, it may expend itself in another direction.

To the peripheral type belong intermittent claudication;[20] erythromelalgia, Starr[21] regards as from gouty neuritis; Raynaud's disease. Oppenheim[22] assumes that various processes located at definite places in the cord may cause this symptom-complex, but Dehio has observed endarteritis and an endophlebitis in the small vessels.

Acroparesthesia is due, according to Starr,[23] to impairment of nutrition of the nerves, hence may be an accompaniment of arteriosclerosis. Beside acroparesthesia, and more surely due to arteriosclerosis of peripheral bloodvessels, is quite a variety of sensory disturbances in the extremities, such as persistent coldness, sometimes a painful coldness, formication, itching or burning sensations in the feet especially, but sometimes in the hands, and I am not sure but the neuritis so common in the senile diabetic is not more due to the arteriosclerosis than the toxemia.

The effects of arteriosclerosis on the sympathetic nerves are less easily demonstrated than those already described, and literature furnishes little in regard to them.

Satterthwaite, before the New York State Medical Society last year, reported two cases, one "gastric ulcer with arteriosclerosis as a cause," the other, "hemorrhage probably due to duodenal ulcers from syphilitic arteriosclerosis," which would bear classifying, at least so far as their earlier symptomatology is concerned, as affecting the sympathetic nerves, though this last patient has no history save for his final illness, which was short.

It may be assumed, however, that in certain cases a chronic or persistent flushing or redness of the entire body accompanying albuminuria and general signs of arteriosclerosis, sudden variations in the pulse in the senile, the characteristic heart beat; the nervous dyspeptic symptoms, occasionally, though rarely, pain in the abdominal viscera, and possibly dyspnea in persons who show signs of increased arterial tension, and the other characteristic signs are due to the effect of arteriosclerosis on the sympathetic nerves. Of course, without the general signs of the condition, it might be difficult, or perhaps impossible, to diagnose arteriosclerosis affecting the sympathetic nerves, but as Dr. Lezynsky observed in regard to the spinal type, if we have the general signs and the symptoms pointing to this particular region or set of nerves, the cause may be taken for granted.

It might be argued that after all, tracing the effect of arteriosclerosis through the various divisions of the nervous system is unnecessary, as it is to be treated in the main after the same principles wherever it is found, and that the general treatment must take precedence over any division of the subject. But even so, it is of the utmost importance that an early diagnosis should be made if any benefit is to accrue from treatment, and we should so study its effects on the body's various organs and functions, that its first effect should be recognized in disordered function of brain or any part of the nervous system, or disordered function of liver, heart or kidneys, so that the enemy could not take advantage of ambush and the time gained by our failure to observe, to do irreparable damage.

A few words as to treatment: First, readjust the dietary, cutting free from all old habits and appetites and prescribing the food in such variety and

quantity as to give the system the needed nourishment and at the same time give the minimum of waste material to burden the circulation.

Next so regulate the habits of work or recreation as to avoid strain, either mental or physical, especially such strain as requires stimulants to keep up on, while at the same time regular systematic exercise should be advised. Insist on reasonable and sufficient hours for sleep.

If arterial tension is high, it may be necessary to limit the amount of fluids ingested to 3 pints or 2 quarts in 24 hours, as it has been in one or two cases I have seen, while on general principles the free use of water should be encouraged.

In the use of remedies, iodin perhaps has the lead, and I would place first yellow iodid of mercury, .01 gm. to .02 gm. (⅙ gr. to ¼ gr.) three times daily, as a result of experience, for it never disturbs the stomach and gains the results desired from iodids.

Other remedies are needed as circumstances indicate. For reducing high arterial tension, aconite and nitroglycerin take the lead and may be used if necessary over a considerable period. Dr. Wm. H. Thompson has advised the use of aconite in full doses and continued over several months, and I have a patient who has been taking aconite and nitroglycerin, at regular periods daily for about six months with much improvement in the arterial tension which was habitually high. Strychnin may be used when indicated without changing the arterial tension, and so may other remedies which any special symptoms might make necessary. Mechanical and electric treatments, each have their place and the use of Trunecek's[24 27] serum should be mentioned.

This method of treatment has been tried both in Europe and America with considerable divergence in the results reported, some being strongly in its favor, others reporting no benefit from its use. This serum is an artificial serum containing 10 times the percentage of sodium chlorid of the blood.

The most important item in treatment, if rational at all, is persistence over a long period.

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Chicago's Vital Records Defective.—According to Hugo Groser, Chicago's municipal statistician, the records kept by the health department are incomplete. Only about 60% of the total of births in Chicago are reported officially. There is an ordinance fixing a penalty of from $10 to $100 for failure to report births. On the other hand, the State has offered a bounty of 25 cents for every baby reported. The ordinance is constantly disobeyed, and only a little over half of the births are reported. In 1874, according to the best statistics available, there were 9,794 children born to Chicagoans. The rate would be one to 40.37. In the year following, 1875, the rate decreased to one to 43.03. From 1875 until 1897 no statistics of any kind bearing upon the birthrate are obtainable. In 1897 there were 28,162 births. Last year, with the population increased over 600,000, there were only 27,802 births, according to the figures obtainable.

THE ETIOLOGY AND DIAGNOSIS OF EARLY TUBAL PREGNANCY.[1]

BY

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I cannot hope to enlighten this society upon the subject I have chosen, but the condition has interested me so much that I ventured to introduce it here. During the last few years I have operated upon 28 patients. Of these, 21 were operated upon after rupture had occurred and 7 received operative treatment prior to the liberation of the fecundated ovum from the tube. All of the primary operations were abdominal sections. Of the rupture cases, 16 were suprapubic and 5 by the vagina. All the patients recovered. The circumstances surrounding the operations ranged all the way from operating in the middle of the night by the light of a lamp in a poorly furnished tenement to that of a well-equipped operating-room in a modern hospital.

The frequency with which extrauterine pregnancy occurs is variously estimated from 1 in 500 to 1 in 10,000 normal pregnancies. There are reasons for this discrepancy. In the first place, our means of investigation and our diagnostic acumen are much improved, and our knowledge of pelvic pathology is such that a clearer insight into the origin of pelvic hematocele leads us to believe that this condition almost always arises, either from a tubal abortion or from the rupture of a pregnant tube. Localities where gonorrheal infection is more prevalent probably account for a large number of cases. Suffice it to say that ectopic pregnancy is of sufficiently frequent occurrence as to demand an attitude of alertness that will save many lives that are now lost, and the attending physician the humiliation of a distressing experience.

Quite a careful perusal of the literature of this subject gives me the impression that tardy diagnoses and delayed remedial measures are the rule, and that a just appreciation of the exact condition is rarely made prior to rupture of the tube. The textbook traditions are too frequently adhered to and the impression given that there are no symptoms sufficiently distinctive to enable us to make a diagnosis until pronounced indications of internal hemorrhage occur. True, now and then a man, in discussing this subject, has laid special stress upon early recognition, but the vast mass of literature deals not with the pregnant tube, but with the complications. The time was when we were discussing pus formation, limiting adhesions, peritonitis, and septicemia in connection with the appendix, but now the man who allows his appendicitis cases to become complicated before recognizing the condition and instituting operative measures would, by this society, be considered an unsafe medical adviser, to say the least. I believe the time is coming when it will be just as culpable to stand by and allow a pregnant tube to rupture before offering assistance. Now we study the initial lesion in the appendix, gallbladder, stomach, etc.; the same should be done with the fecundated tube. While pregnant tubes may not be quite as common as infected appendices, clinically their termination is scarcely less disastrous. By early diagnosis is not necessarily meant so many weeks or months; but before the yielding of the tube, the escape of the ovum, before, as Sir Frederick Treves says, peritonism occurs; after that all cases are late cases. I do not mean to say that early operation in every case of ectopic gestation is necessary to save life. In many cases it would be a life-saving measure; in all, a saving of morbidity.

It seems to be conceded that the human ovum is usually fertilized in the fallopian tube. During its early stages of development the ovum produces upon its exterior a thick layer of cells, the trophoblasts. These

[1] Read before the Western Surgical and Gynecological Association, Milwaukee, December 29, 1904.

trophoblastic cells corrode away, so to speak, a portion of the uterine mucosa to make a cavity in which to lodge. The trophoblast then undergoes hypertrophic degeneration, so as to produce a series of irregular spaces, which become the intervillous spaces of the placenta. Thus is inaugurated the formation of the true chorionic placenta. By the time the fertilized ovum reaches the uterus its trophoblast becomes functionally active and at once burrows by phagocytic action into the mucous membrane of the fundal portion of the uterus. But should the functional activity of the trophoblast be delayed until the ovum reaches the lower uterine segment, owing to late fertilization, it is not unlikely that the ovum would attach itself in that zone with the formation of a serotinal placenta prævia.

An ovum devoid of trophoblast cannot attach itself and will be carried away by the ciliary current in the absence of any intrinsic motile power of its own. Other things being equal, the arrest and implantation of the ovum depend on the functional activity of the trophoblast and may occur in any part of the genital tract, from the ovary down to the cervix. Should the attachment take place in the fallopian tubes, a tubal pregnancy is the result; in the upper or middle uterine zone we have normal pregnancy; while should it be arrested in the cervical zone, placenta prævia will be the consequence. (Sinnetamby.)

Etiology.—Relative to the etiology of ectopic gestation, opinions are conflicting. Henry Russell Andrews,[1] in a masterly article, attempts to classify the evidence concerning the conditions which have been considered the cause of tubal pregnancy. He divides them under eight headings: 1. Salpingitis and perimetritis. 2. Persistence of infantile conditions in the tube. 3. Polypi, diverticulums, etc., in the tube. 4. Puerperal atrophy of the tube. 5. Atavism, reversion to a lower developmental type. 6. External wandering of the ovum. 7. Internal wandering of the ovum. 8. Abnormalities of the ovum itself. Beside these, mental shock or excitement during coitus has been considered a cause of tubal pregnancy.

It is highly probable, as seems apparent from a careful perusal of his paper, that any one of these factors may favor the detention of the fertilized ovum in the tube, and possibly in the ovary, until the outer layer of the ovum, the trophoblast, makes a place for itself in the tubal wall.

Opitz examined the pregnant tube in 23 cases of early tubal pregnancy, and found marked changes in the peritoneal and muscular coats in the form of old membranous adhesions, kinks, narrowed ostium, subserous cysts. The most conspicuous change in the mucous membrane consisted in firm union between the neighboring folds or between the branches of the same fold.

These unions were not simple, loose adhesions, such as are frequently found in a recent salpingitis, but broad fusions of the stroma. There were no signs of inflammation in the neighborhood, and no dividing line between these folds could be seen. The epithelium was normal in appearance. The condition, therefore, appeared to be the result of an inflammation long gone by. These observations were made from sections of the tube between the ovum and the uterus. The serial sections showed that as a result of these adhesions between the folds, branches of the tubal lumen were formed, which often ended blindly in a culdesac, into which an impregnated ovum might easily wander, become arrested and continue to grow.

Although the deductions I have drawn from my cases have been based on the histories and gross appearance of the uterus and appendages at the time of operation, I am firmly convinced that ample pathology was present to cause the arrest of the fecundated ovum in the tube. Three of my cases were in primiparas, who gave histories of painful menstruation or leukorrhea, and 13 patients gave a history of a prolonged period of sterility—by this, I mean, three years or longer. The remaining 12 cases occurred in parous women who had borne children or had been pregnant in less than three years. Many of these women gave unmistakable evidence of preexisting pelvic disease. One of the primiparas had been married 3 years and one 11 years before conception occurred. Two cases occurred in unmarried women, one of whom had a criminal abortion produced, followed by curetment. Complications arose, and she was sent to me for section, when an unruptured tube containing a fetus at two months was found. A widow came to me with a history of recurrent appendicitis. I diagnosticated what I thought was an acute attack, and recommended operation. On opening the abdomen, we found free blood clots and a ruptured right tube in addition to chronic appendicitis. Two patients had small fibroids and one an ovarian cyst as large as an orange on the opposite side.

In determining the existence of extrauterine pregnancy, we will rarely find indications of aggravated pelvic disease. Severe and pronounced pelvic lesions preclude, as a rule, tubal gestation. So marked has this been that many good authorities have been unable to demonstrate what they considered anything abnormal about a pregnant tube distinct from its fetation. The fact is, only lesser lesions or a normal state of the generative organs allow impregnation to occur at all. Much disease or deformity in or about the uterus, tubes or ovaries, prevents conception. Witness the sterility in subjects of fibroids, salpingitis and organic ovarian disease. Of course there are many exceptions, having been called upon myself, to operate upon women who had neoplasms of the uterus and ovaries complicating pregnancy, but these are so rare as to demand a separate report. The widespread prevalence of gonococcal infection is to my mind a most prolific cause of tubal pregnancy. Wertheim first showed that gonococci could penetrate all the layers of the wall of the tube, and that the inflammatory changes in the tube wall and peritoneum were evidence of gonococcal invasion. We are all familiar with the tendency of the gonococcus to chronic and deepseated lesions where the tissue alteration is so slight as in many cases to preclude observation unless by the closest scrutiny. The confirmed prostitute is sterile because of her continuous gonorrheal infection. She has too much pathology to allow impregnation to occur. Parturition predisposes to tubal pregnancy by traumatism and mild infections, leaving the woman with cervicitis, endometritis and salpingitis, subinvolution and relaxation of the pelvic floor, endowing her with partial invalidism and sterility. Perhaps after a few years the tendency to sterility is partially overcome and she becomes pregnant in the tube. That many women, to all appearances, even after a normal delivery and puerperium, are left sterile for a greater or lesser length of time—one child sterility—is a matter of common observation. Pregnancy rarely takes place at all in active infective inflammations, so that it is inflammatory reactions of minor degrees, chronic and end-results, that we expect to find influencing the generative tract, not enough to prevent fertilization, but just enough to prevent passage of the ovum into the uterine cavity.

Consequently we must be prepared to develop a case of ectopic pregnancy out of an inconspicuous or brief history. As usually considered these women do not as a rule suffer enough inconvenience to send them to a physician prior to rupture, but according to my experience most subjects have consulted a physician one or more times, before the disastrous result had forged recognition.

Diagnosis.—Tubal pregnancy partakes of the nature of uterine pregnancy, with special pathologic conditions—pathologic only in the sense of being misplaced. The great difficulty in making a positive diagnosis of early

[1] Journal of Obstetrics and Gynecology, of the British Empire, September, 1903.

uterine gestation is well known, while the signs of early tubal gestation being even less marked, the difficulty is immeasurably increased. But as a framework upon which to spread our diagnostic map perhaps none is so well fitted as is a normal pregnancy. Tubal pregnancy has more of the earmarks of intrauterine pregnancy than any other condition. While all of the signs of a normal pregnancy may not exist, they are sufficiently prominent in the vast majority of cases to be strongly presumptive.

In normal pregnancy the cessation of or the interference with the normal menstrual function is the most common as well as one of the earliest of the units of the symptom-complex that warrants the diagnosis of a fecundated ovum in the uterine cavity. Every woman does not conform to the same menstrual standard, although her menstrual function may be normal so far as she is concerned; but every woman does have her menstrual habit, a deviation from which should lead us to look very carefully for a cause. In doing so we must remember that the causes of menstrual disturbance are many and varied. In tubal gestation I have observed a large variety of deviations, the most common being the skipping of a period completely, either for a few days, a week, or perhaps a month, and then its occurrence, as a rule, with profuse and irregular bleeding. I have had two cases in which there was no noticeable loss of blood by the vagina. These were cases in which rupture occurred at or near the regular menstrual period, following impregnation. I have observed several cases in which menstruation was deferred for a day or two or perhaps a week and then a slight flow or a spotting at intervals of a few days, or there would be a continuous discharge producing a dark maroon stain on the napkin.

Another symptom scarcely of less importance than menstrual irregularities is pain. Pain is what sends most women to the physician in this as in other diseases, and if properly interpreted, is a most important factor in diagnosis. The peritoneum contains an abundance of pacinian bodies, and when irritated or inflamed elicits pain. Pain excited by a pregnant tube may be caused by uterine or tubal contraction or by peritonitic irritation. This may be made manifest by widespread reflected pain or local pain and tenderness on pressure at the site of lesion. Especially characteristic is the reflected pain over the lower abdomen and particularly over the areas supplied by the nerves coming from the tenth dorsal, and from the first to the fourth sacral segments. Although there exists no active inflammatory action in the tube, still marked local tenderness and a pronounced rigidity of the abdominal muscles are frequently found even before rupture. Abdominal pain and tenderness over the lower abdomen with auxiliary symptoms is especially indicative of rupture, but if the hemorrhage is profuse and accompanied by profound shock the rigidity may rapidly subside. Periodic colicky pains due to uterine and tubal contraction generally begin at the end of the first month. These pains may be excited by the irritating effect of the growing ovum in the tube acting as a foreign body and by the corroding effects of the trophoblast on the tubal wall. They are of a sharp lancinating character, emanating from the lower abdomen. As a rule the abdomen is very sensitive during these attacks, often more so in fact than when the condition is inflammatory and the muscular rigidity is just as pronounced. These pains seem to have a tendency to recur at what would be the normal menstrual period, and are often described as labor-like. The pain and tenderness are usually present on the side of the affected tube, but I have seen two cases in which the tenderness and rigidity were present only on the opposite side. This fact has been noticed by other observers.

According to Webster, "the fertilized ovum coming in contact with any portion of the müllerian tract, is capable of establishing with it that relationship that is necessary to its growth," and the rest of the tract shares in the changes and either establishes sympathetic relation with near and remote organs, or affects them by internal secretions of the ovaries, or through the influence of toxic substances.

Accompanying the pregnant tube then, we would expect and do find enlargement of the uterus, although perhaps not to the same degree as in uterine gestation, to purplish discoloration of the vaginal mucosa and to softening of the cervix. In the early weeks when the gestation sac is in front of the womb, it may give rise to irritability of the bladder, or the same symptom may be produced when it falls behind the uterus, pushing it forward. When retrouterine it may interfere with the function of the rectum. Although the fecundated ovum is not in the uterus, that organ proceeds to prepare for its reception and growth by the formation of a decidua. As Bandl points out, the enlargement is greater, the nearer the implantation is to the uterus. Softening of the cervix can frequently be detected as early as the third week in normal pregnancy, but in tubal pregnancy it is never so marked nor does it occur as early. The same is true of Hegar's sign.

Macroscopic and microscopic examination of the expelled membranes, does not assist us greatly, although finding hypertrophied connective tissue or decidual cells would, with other physical signs, be excellent contributary evidence. Chorionic villi being strictly a fetal product, we would, of course, not find them in the uterus in cases of pure tubal pregnancy.

Cazeaux points out that the changes occurring in the uterine mucosa coincident with an ectopic gestation, are of a mixed nature, but adds that possibly the site of implantation and the duration of its development explain these differences. The intense congestion of the hypertrophied mucosa and the interstitial hemorrhages noted, easily account for the bleeding of uterine origin. He agrees with Pozzi, that these changes are due to trophic phenomena of a reflex or sympathetic nature, analogous to those occurring in the breasts.

A woman, who has been pregnant before, often says she feels as though she were pregnant. Nausea and vomiting usually appear early, and are very pronounced as a rule. The changes in the mammary glands occur later, and are not as pronounced as in uterine fetation. The nervous phenomena are fully as well marked as in normal pregnancy.

Beside an enlarged uterus, we will find upon bimanual examination tumor formations that are reasonably characteristic, and will, in many instances, enable us to make a diagnosis before rupture. At one side of, or behind the uterus, will be found an elastic, sensitive, and often pulsating tumor, usually rather fixed. Further investigation generally distinguishes the ovary external to but not a part of the tumor, and the finger can usually be inserted in an angle between the uterus and the tumor. This latter condition may not prevail if the implantation is cornual or in the isthmus. Fortunately, from a diagnostic standpoint, the fecundated ovum is arrested in the tube proper, ampulla, or at the infundibulum in the vast majority of cases. Unless hemorrhage has taken place within the fetal membranes—in which case the ovum dies—the entire tumor consists of the enlarged tube, produced by the fetus and such placental tissue as can be developed from tubal mucosa.

It is clear that many other conditions may closely resemble an unruptured tube, so that it will be necessary to associate intimately, a well-taken history of the case. The conditions that come up for differentiation most frequently are ovarian cysts, salpingitis and pyosalpinx and hydrosalpinx and uterine fibromas.

An ovarian tumor complicating uterine pregnancy may be very confusing for a time. An ovarian cyst gives a sensation of tense elasticity, is usually more movable, and is not tender, as a rule. As Doran says: "An inflamed ovary is tender to the touch, while an

ovarian tumor, complications apart, does not as a rule, give rise to pain, nor is a dermoid usually sensitive. Ovarian tumors, if infected, or if the pedicle becomes twisted, are very painful and tender to the touch. Fibroids may produce disturbances of menstruation and a tumor, the locality of which closely resembles a tubal pregnancy, but its consistency and feel make a differential diagnosis comparatively easy.

In four of my cases the question of the part played by the appendix was conspicuous.

We are all familiar with the clinical picture produced by a profuse hemorrhage into the abdominal cavity as the result of a ruptured tube or tubal abortion. This accident, as a rule, takes place between the seventh and the twelfth weeks. It may be delayed, but it has been known to occur as early as the second week. I had a case in which the tube gave way in the third week:

Last August I was hurriedly sent for to see Mrs. S., a young woman who had been taken suddenly ill with a severe pain in her right shoulder, while standing at the table ironing clothes. I arrived about two hours after the onset. Pain in the right shoulder was the first as well as the most distressing symptom complained of as I approached the bed. She was in considerable shock and a little inquiry elicited abdominal pain and an examination revealed exquisite local pain and tenderness and muscular rigidity in the lower right quadrant. Temperature, 98°; pulse, 100. She had not missed a menstrual period; physical findings were negative; diagnosis, internal hemorrhage, of probable ectopic origin. She was sent at once to St. Mary's Hospital, Superior, and operated upon, August 28. On opening the abdomen it was found filled with liquid and clotted blood. The right tube was torn clear across about an inch from the uterine cornua. A very young embryo was found adherent to the proximal stump. The uterus was slightly enlarged and retroverted, but no adhesions.

A further history of this case may be of interest:

This woman was aged 25 and had been married four years. She became pregnant and was delivered of a healthy child in a normal labor within 18 months. She nursed the child 10 months and began menstruating at once and was regular up to the time just mentioned. She suffered the trauma usually inflicted at every average labor, and the usual postpartum repairs were made. Her puerperium was without incident, save perhaps she was a little slow in regaining her strength. Referring to my notes, taken two months after delivery, I find recorded: On examination table with thigh flexed at right angles to the abdomen, I found moderately gaping vulva; straining brought the anterior and posterior vaginal wall into view without touching the patient; skin perineum intact. Digital and bimanual examination disclosed a noticeable relaxation of the pelvic floor, an unhealed laceration of the cervix on the right side, uterus with a tendency to retroversion and rather heavy for this period after delivery, showing that involution had not progressed normally, left ovary prolapsed. With recommendations, she left the office and I never saw her professionally again until called to see her as stated.

I relate this case rather in detail, because here was a woman who, to all appearances, was well, and considered herself so, but who, upon investigation, was discovered to be tubally pregnant. The relaxed pelvic floor, the retroposed uterus, the mild infection that must have been present from the cervical laceration, and probably carried by the lymphatics through the broad ligament to the tube of that side, might easily affect its mechanism sufficiently to detain the fecundated ovum. Other interesting features were the early period at which rupture took place, certainly not more than three weeks after impregnation, from the appearance of the ovum and data with regard to time of coitus, the extreme amount of hemorrhage. Hemorrhage is more profuse the nearer the point of rupture is to the uterus; the nearer the implantation is to the fimbriated end, the more likely the case will terminate in a tubal abortion and slow hemorrhage, giving rise to hematocele and often recovery, without operation, after a prolonged illness.

I should like to present the histories of more of my cases, but time and space forbid. My object has been to present a study of those conditions and symptoms which precede rupture. The most familiar clinical picture of tubal pregnancy is that produced by profuse intraabdominal bleeding, and it is at this stage that we usually see these cases. The patient is generally perfectly conscious. The pallor of her face, gums and conjunctiva is extreme, the ears and cheeks have lost their blush, the nails are white, and present no color when pressed and relaxed, and the hands are cold and clammy. An examination of the pulse shows the tension to be low, the artery expanding with a little quick jump, and as quickly subsiding, rapidly becoming smaller, then running in character before it finally ceases to be felt at the wrist. Counting the pulse every 10 minutes, and observing whether it becomes weaker and more rapid, will enable us to judge as to the progress of the hemorrhage.

It is surprising what an amount of internal bleeding these patients will stand, probably owing to the rapid absorption of the serum by the comparatively empty vessels of the peritoneum. The history that this condition of collapse is preceded by sharp abdominal pain, can generally be elicited. Extreme degrees of intraabdominal hemorrhage cannot readily be confounded with any other condition, but lesser degrees might be readily mistaken for a number of other lesions, provided the history is not clear or the observation inaccurately made. For instance, perforating gastric and duodenal ulcer, with hemorrhage, could readily be mistaken for a ruptured pregnant tube, intestinal strangulation, tumors with twisted pedicles, and appendicitis.

SOME GYNECOLOGIC SUPERSTITIONS.[1]

BY

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In reviewing the history of the gradual rise and establishment of the specialty of diseases of women, one cannot fail to be forcibly impressed with the fact that it has been encumbered with numerous dogmatic theories, which have been stated and restated so many times that they have been finally accepted by the profession without question and have become veritable superstitions. This may be in part responsible for the rocky road which this branch of medicine and surgery has traveled. Occasionally some venturesome spirit has arisen and overthrown a deep-rooted superstition, but unfortunately, many remain to bar the way to progress and to the establishment of this department of medicine as one of the legitimate specialties.

We have heard much in these latter days of the "passing of gynecology," but our critics have mistaken the healthful struggles of this young giant for the death agony. Gynecology has come to stay, but gynecologists have a task before them. So long as they are content to accept without question the superstitions handed down by their predecessors and make no effort to prove or disprove them, just so long will we hear of the passing of gynecology. It is for them to blaze the way for others to follow, and not be contented to accept meekly the dictum of those who make gynecology the least important part of their studies. In no other branch of medicine or surgery is there so great need for careful, conscientious, and special study and research as in the diseases which afflict womankind. Too long she has been the victim of false theories and irrational methods, and who is to rescue her from this bondage but those who have devoted their time and energies to her service.

Perhaps no dogmatic statement ever uttered in our profession has taken such a firm hold on the medical mind and has been so difficult to dislodge as that establishing the socalled normal position of the uterus. Once accepted that the normally placed uterus must be in anteversion, all gynecology has been attuned to this idea, and innumerable textbooks by schematic representations of the "normal" and "abnormal" position of the uterus, have engraved this superstition on the eye as well as

[1] Read before the Pan-American Medical Congress at Panama, January 5, 1905.

upon the mind. So firmly has this idea become rooted that, in spite of the fact that German scientists have proved by actual demonstration and numerous clinical observations that the normal sized nonmetritis movable uterus may lie in any position in the pelvis without producing symptoms, women are still being tormented with pessaries, and abdomens are being opened by thousands, to force this inoffensive organ to assume a position which shall correspond to the one photographed in the gynecologic brain.

As a result of this arbitrary establishment of the position of the uterus, a second dogmatic assertion has taken almost an equal stronghold on the profession, and is very closely allied to the first, namely, that retrodeviations of the uterus are a cause of constipation. No effort has ever been made to prove this proposition and still it has been most generally accepted. Indeed, it seems almost a pity to be obliged to give up this particular superstition because it appears so plausible and is always so satisfactory to the patient. My attention was first called to this matter in dissections on the abdomen and pelvis. In over 20 bodies, I experimented by packing the rectum and sigmoid with cotton, and found that these organs could be enormously distended without crowding the uterus and that it rode upward and forward obedient to the increasing size of the rectum without making the slightest anatomic protest. Practically the same result followed the distention of the bladder with air. The uterus assumed a retroposition and became gradually more elevated as the size of the bladder increased without any anatomic hindrance, the roomy pelvis accommodating, without any apparent inconvenience, the full rectum and distended bladder with the elevated and retroplaced uterus between them. I therefore concluded that if the uterus was in any way responsible for constipation in women, it was not on account of direct pressure due to any particular position which it might happen to assume.

Since my dissections, I have had the opportunity to confirm this by observations on hundreds of clinical cases. I found, to be sure, constipation a very common complication in pelvic diseases, but relatively not much more frequent in retropositions than in antepositions, and very often absent in the former and present in the latter condition.

The following 500 cases were taken from over 3,000 tabulated clinical cases. They are, of course, consecutive cases, as the patients presented themselves in the clinic. The uterus was found in anteposition in 290 cases (60%), in retroposition in 210 (40%). Of the antepositions, 152 (52%) of the patients gave a history of constipation, and 138 (48%) were without this complication. Of the 210 retropositions, 139 (66%) patients complained of chronic constipation and 71 (34%) gave a history of normal bowel movements. These statistics, of course, show a larger percentage of constipation in retropositions than in antepositions, but the difference is by no means great enough to warrant the conclusion that the position is a factor in producing the constipation. The fact also that in antepositions in over 50% of the cases, the patients gave a history of constipation, most effectually disproves the proposition that constipation is a symptom which can be accounted for by the retrodeviation. I claim, therefore, that the conclusion can be legitimately drawn that the position of the uterus is not a factor in producing constipation. It is interesting to note that in 500 cases of pelvic disease, 291 were complicated with constipation without regard to the position of the uterus.

As a result of this theory of pressure from the displaced uterine body, backache has from time immemorial been given as one of the classic symptoms of retrodeviations. The following statistics taken from the clinical records were gathered without any reference whatever to the question in hand. In 1,000 cases, the uterus was found in anteposition in 59%, in retroposition, 41%. Without reference to the position, 49% of the patients complained of a chronic backache, 51% answering "no" to the direct question of a chronic backache. Of the antepositions, 44% of the patients gave a history of chronic backache. In the retropositions, backache was given as one of the principal symptoms in 59%—41% stating definitely that they did not suffer with backache. These statistics show again a larger percentage of backache in retrodisplacements, but this can easily be accounted for, by the fact that retropositions are accompanied by such complications as pyosalpinx, ovarian prolapse, and pelvic adhesions in a much larger percentage of cases than antepositions, and the small increase, 15%, certainly does not warrant the conclusion that backache is a legitimate symptom of retrodeviations. With a percentage of 44 patients complaining of chronic backache in antepositions of the uterus, we may safely draw the conclusion that the cause of backache must be sought in conditions other than those affecting simply the relative position which the uterine body occupies in the pelvis.

The theory so long accepted that flexions and the pinhole os were a cause of dysmenorrhea has given rise to a most harmful superstition. The ancient gynecologist considered marriage and childbearing as practically the only remedy for the dysmenorrhea of young girls and many a one has been condemned to lifelong menstrual pain because she has not been able to follow out the only advice given her by her physician. This advice was based partly on the accepted etiology of dysmenorrhea, that it was in the majority of cases mechanical, due either to a flexion or to a stenosis of the os, both of which conditions were supposed to be corrected by pregnancy, and partly on account of the prejudice which has always existed against putting a young girl under local treatment. She has been made to feel that uterine or ovarian disease was somehow a disgrace and especially when it was a penalty of her unmarried state. While it may be assumed that the majority of the profession is too enlightened today to hold these views, I hear not infrequently of physicians giving out these opinions and the laity, even the more intelligent, is still under the impression that a young girl's menstrual pains will disappear after her first pregnancy and do not realize that they are doing her a great injustice in leaving her to suffer until that time arrives.

With a view to getting some accurate statistics on the subject, the following question was added to the history sheet used in my clinic in the Mary Thompson Hospital: "Have you had more or less pain since the birth of your children?" In the 300 consecutive cases the records show more pain in 45%, less in 30%, 25% reporting no difference. Some of the 25% said they never had pain at menstruation before or since childbirth, and some reported severe pain previous to childbirth which has been unchanged. Of the 45% many had never suffered from dysmenorrhea until after childbirth, but the majority had experienced some pain always at the menstrual period which had become more severe since childbirth. It is of course admitted that these statistics were gathered from a gynecologic clinic and cases taken from a general medical clinic would no doubt have given different percentages, but they prove at least that childbearing is not a panacea for dysmenorrhea and I give them to the profession for what they may be worth. I have not aimed to cover, in this article, the field of gynecologic superstitions, but simply to call attention to some of the most pronounced and the most harmful and to protest against the acceptation of dogmatic theories without proof, no matter how ancient they may be or by whom they are offered to us.

The practical application of these statistics bears directly on the enormous amount of unnecessary operating which is being done under the false impression that the symptoms of which the patient complains are due to the position of the uterus and the complications, which are in reality responsible for the symptoms, are overlooked.

MISCELLANY

YELLOW FEVER—THE INFECTIBLE TERRITORY.

The interstate quarantine regulations of the Treasury Department require that no person leaving a locality infected with yellow fever shall go to any place in infectible territory until said person has been away from the infected locality for a period of six full days. To permit this, travel detention camps are established in which, under careful observation, travelers may live out this period of six days, when certificates are given them and they are allowed to go where they will. Persons not desiring to avail themselves of the detention camps are allowed to leave infected localities under medical surveillance and proceed continuously to noninfectible territory. Persons from infected territory passing through to points in the North will not be allowed under the regulations to return into infectible territory until after the expiration of six days from date of their departure from infected localities.

Generally speaking, the infectible territory is the territory which is the habitat of the yellow-fever-bearing mosquito, *Stegomyia fasciata*, and, broadly stated, is that part of the United States south of a line drawn from the Atlantic coast through Washington to St. Louis, Mo., and thence to El Paso, Tex., the excepted portions being given in the subjoined text. This infectible territory is described in Supplement to Public Health Reports of November 13, 1903, in an article by Dr. L. O. Howard, consulting entomologist of the Public Health and Marine-Hospital Service, with a map showing the same. For the sake of ready reference, the infectible territory is herewith described, being given by States in alphabetic order:

Alabama.—The entire State, with the exception of a small part of the northeastern portion lying east and north of a line passing in a curve through Huntsville and Anniston, Ala.

Arkansas.—The entire State, with the exception of the northwestern half of Benton county.

Florida.—The entire State.

Georgia.—The southern portion of the State, the noninfectible portion being that part of the State lying north of a line passing in a curve through Anniston, Ala., Atlanta, Ga., and Greenville, S. C.

Illinois.—That portion of the State south of a line drawn from East St. Louis, Ill., to Vincennes, Ind.

Indian Territory.—The entire Territory.

Kentucky.—That portion of the State lying west of the Cumberland river.

Louisiana.—The entire State.

Mississippi.—The entire State.

North Carolina.—That portion of the State lying east and south of a line passing in a curve through Atlanta, Ga., Greenville, S. C., Charlotte, N. C., and continued through Lynchburg, Va.

Oklahoma.—The eastern half of the Territory.

South Carolina.—That portion of the State lying east and south of a curved line passing through Atlanta, Ga., Greenville, S. C., and Charlotte, N. C.

Tennessee.—That portion of the State lying west of the Tennessee river.

Texas.—That portion of the State lying east of the prolongation southward of the eastern boundary of the Indian Territory and an undetermined area of the western portion of the State along the Rio Grande.

Virginia.—That portion of the State lying east and south of a line passing through Charlotte, N. C., Lynchburg, Va., and continued in a northeasterly direction through Charlottesville and Alexandria, Va.—[*Public Health Reports.*]

New York's Cosmopolitan Birthrate.—According to the statistics of birth for a year, just published, the number of babies born in Manhattan was about 75,000. Of the 60,000 recorded births, less than 12,000 were of American parentage. The Jews came first, with 16,000, and the Italians came next with more than 11,000. The most striking and melancholy commentary upon the conditions among the poor, in what may be termed the foreign quarters of the city, is the fact that a fifth of all the children born do not live a year, and more than 14,000 of them do not pass their fifth birthday.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

August 26, 1905. [Vol. XLV, No. 9.]

1. A Consideration of the Etiology and Dietetic Treatment of Infantile Atrophy. A. H. WENTWORTH.
2. The Elimination of the Mosquito. ALVAH H. DOTY
3. Ankylostomiasis or Uncinariasis. T. M. RUSSELL LEONARD.
4. The Prevention of Summer Diarrhea. MAURICE OSTHEIMER.
5. Fifteen Cases of Summer Diarrhea. JOHN C. COOK.
6. The Antimicrobic Action of Iodin. GUY C. KINNAMAN.
7. Unilateral Transitory Paralysis of the Abducens. With Report of Cases. MEYER WIENER.
8. Progressive Axial Myopia. Its Prevention and Cure by Appropriate Treatment of the Internal and External Recti Muscles. With a Report of Cases. F. S. CROCKER.
9. The Nontoxic Amblyopias. T. W. MOORE.
10. Experimental and Clinical Evidence of Dynamic (Spastic) Astigmatism. F. B. EATON.
11. The Incidence of Heart Disease in San Francisco. WILLIAM FITCH CHENEY.
12. Acute Diffuse Suppurative Peritonitis. SIMON J. YOUNG.
13. Treatment of Congenital Dislocation of the Hip. With Report and Exhibition of Cases. PARK WEED WILLIS.
14. The Cure of Hernia. HENRY O. MARCY.

1.—Infantile Atrophy.—A. H. Wentworth notes the frequency of this condition and the theories of its causation, reviewing at some length the leading literature on the subject. He concludes that there are no gross or histologic changes in the intestines or liver in infantile atrophy, except the possible presence of Paneth's granules. From the total of the evidence he thinks it safe to assume that this condition is a functional digestive impairment, without definitely stating what particular functions are involved. In his experience the best treatment is the return to the natural food of the infant—breast milk. These infants are just as able to gain in weight as any normal infant when they receive a suitable food. In such cases, therefore, he states his views to the parents, and advises a wet nurse. Even a few weeks of this diet will, in many cases, so improve conditions that the child can be returned to modified cow's milk diet, if this should be considered desirable.

2.—The Elimination of the Mosquitos.—A. H. Doty, describes the habits of the mosquito, so far as they are known, with special reference to the extermination of the insect. The first important fact is that mosquitos propagate only in water, and the commonest form, the culex, has a special preference for contaminated or foul waters. The common impression that the mosquito is a short-lived insect is not altogether correct, and Doty thinks that a large proportion of the earlier mosquitos of the season are the eggs and insects that have hibernated during the winter. They can live for many weeks during the warm weather, and have been kept for weeks in captivity. The anopheles or malaria-bearing mosquito differs from culex in not preferring contaminated waters, but breeds rather in surface water with green scum. It may be found together with the culex in offensive water, but this is rare. As a rule, mosquitos do not go far from home, though they may be carried by the winds or public conveyances. In localities where they abound their breeding place is generally at no great distance. These breeding places are sometimes in the most unexpected locations, and he gives an instance of malaria traced to an old cake-pan, nearly buried in long grass, which abounded in anopheles.

3.—Uncinariasis.—T. M. Russell Leonard is inclined to credit uncinariasis largely to infection through the skin. In every case he has treated it was preceded by the ground itch. He calls particular attention to a peculiar pigmentation observed in patients of the colored races, but not in whites, which, he thinks, is almost pathognomonic. It consists of minute black, blue-black or brown spots, mostly on the lips and sides of the tongue, but sometimes over larger areas. He suggests that this pigmentation may be due to imperfect carbon elimination or may possibly indicate the points of entrance of a parasite.

4.—See *American Medicine*, Vol. X, No. 6, p. 231.

5.—See *American Medicine*, Vol. X, No. 7, p. 260.

6.—Iodin as a Germicide.—Guy C. Kinnaman made his tests with solutions of different strength, tested as to their asepticity, and applied to growths on solid mediums, so as to approach as nearly as possible to the actual relations of bacteria to the body in disease. Thus, by the thickness of the growth, the penetration and germicide action of the liquid could be ascer-

tained. The microorganisms tested were: (1) *B. prodigiosus;* (2) *B. anthracis* and spores; (3) *B. tuberculosis;* (4) *Staphylococcus pyogenes aureus;* (5) *Streptococcus pyogenes;* (6) *Blastomyces dermatidis;* and (7) *Actinomyces bovis.* The conclusions are, in substance: In a solution of iodin, varying from 0.2% to 1%, we have a very potent germicidal agent, far superior to mercuric chlorid, the acknowledged leader of all other antiseptics. It approaches nearly to the ideal antiseptic in that: (1) It is easily prepared and is stable; (2) it is nontoxic and nonirritating in strength, effective, being only a fourth as toxic as bichlorid of mercury; (3) it does not coagulate albumin or form inert compounds with tissues; (4) it is effective in a very brief time; (5) the stain it produces soon disappears; (6) last and most important, it possesses a remarkable penetrating power. A 0.5% solution is amply strong for all practical purposes.

7.—See *American Medicine*, Vol. X, No. 7, p. 261.

8.—See *American Medicine*, Vol. X, No. 10, p. 389.

9.—See *American Medicine*, Vol. X, No. 10, p. 390.

10.—See *American Medicine*, Vol. X, No. 10, p. 389.

11.—See *American Medicine*, Vol. X, No. 6, p. 219.

12.—Acute Diffuse Suppurative Peritonitis.—S. J. Young has asked a number of prominent surgeons as to their opinions as to the propriety of operation in acute diffuse suppurative peritonitis, its contraindications, their methods and experience, and from their answers and his study of the subject, formulates the following general conclusions as to the surgical treatment of the condition: 1. Early operation, and it must be remembered that this implies an early diagnosis. Do not wait for shock, which is a symptom of overwhelming infection. Learn to recognize the early symptoms: Pain, nausea and vomiting, localized tenderness, circumscribed flatness on piano percussion, elevation of temperature and hyperleukocytosis in the order named. 2. Method—simple incision with simple drainage, placed in the pelvis and in such other fossas as seem to require drainage. Perforations should be closed, and the appendix removed, if it be the offender, provided these things can be done without too much handling of the viscera. 3. Fowler position to retard lymphatic absorption. 4. Physiologic salt solution by rectum, one and a half pints every two to four hours for 24 to 48 hours. 5. Antistreptococcic serum in suitable cases, in hope to combat the effects of toxins absorbed.

13.—See *American Medicine*, Vol. X, No. 10, p. 388.

14.—See *American Medicine*, Vol. X, No. 6, p. 220.

Boston Medical and Surgical Journal.

August 24, 1905. [Vol. CLIII, No. 8.]

1. Empyema of the Frontal Sinus. FREDERICK C. COBB.
2. The Localization of Chronic Suppurations of the Urinary Tract. ARTHUR L. CHUTE.
3. The Efficacy of Serum Treatment in Streptococcus Puerperal Septicemia. ERNEST BOYEN YOUNG.
4. What the Suburban Surgeon is Doing in the Abdomen, and How he Does it. CHARLES E. DURANT.

1.—See *American Medicine*, Vol. X, No. 4, p. 138.

2.—Chronic Suppuration of the Urinary Tract.—A. L. Chute is convinced that the only precise method of localizing suppurations that concern any but the lower part of the urinary tract is cystoscopy. Without such examination it is at times almost impossible to differentiate chronic suppurations of the bladder from those of the kidney. [A.G.E.]

3.—Serum Treatment of Streptococcic Puerperal Septicemia.—E. B. Young's paper is almost entirely devoted to a review of the literature on this subject. The dosage of serum has constantly increased, some giving as high as 100 cc. at a dose. Young considers the paper of Bumm the most judicial upon the subject, and agrees essentially with his conclusions. These are that the serum is of value in infections confined to the uterus, or with but few bacteria in the blood stream. Prophylactic use is advised after severe operations and in case of foul discharge. Large doses must be given. [A.G.E.]

Medical Record.

August 26, 1905. [Vol. 68, No. 9.]

1. Asthma. SAMUEL KOHN.
2. Freedom from Uric Acid, and How to Obtain it. ALEXANDER HAIG.
3. Long Island Appendicitis. A. ERNEST GALLANT.
4. Lacerations of the Cervix Uteri. ARTHUR H. GARDNER.
5. Case of Delayed Menstruation; Flow Established at First Spontaneously, Subsequently by Treatment; Conception. B. P. HIRST and HERBERT FOX.
6. Serum Therapy in Erysipelas; Results in Thirty-three Additional Cases. JAMES C. AYER.

1.—Asthma.—S. Kohn says the affection has no distinctive pathology, and the lesions that actually cause it have not as yet been discovered, but the essential cause of the disease is probably some organic lesion of the nerve centers of the medulla, though this has not yet been demonstrated. Although the views of causation, especially as regards the nose, are very divergent, the fact which stands out distinctly, in all that has been written, is that peripheral or central irritations in certain individuals of a neurotic temperament produce a characteristic, distressing, periodic dyspnea which is *sui generis;* it is unlike the dyspnea of destructive lung disease; it is entirely different from cardiac or uremic dyspnea; it is well defined and unmistakable in the suddenness of onset of the paroxysm, the seeming gravity of respiratory insufficiency that makes those about the patient fear that death is imminent, and in the more or less rapid return to a normal condition. It is the consensus of opinion that this uniformity entitles asthma to be considered as a disease and not as a symptom. The writer has been able to find the record of only three autopsies on asthmatics, and in none of these was anything characteristic discovered. Thus far no change in the nerve centers has been discovered to which the disease can be positively attributed; we are consequently driven to the hypothesis that there must be a molecular change in the nervous centers or a periodic disturbance in their vascular supply, and that, as stated, the asthmatic attack, like that of urticaria, migraine, or epilepsy, is the culmination of a series of irritations transmitted to the nerve centers, which finally result in the explosion which, in this case, is the asthmatic paroxysm. Of the list of drugs recommended, he has had the most success with potassium iodid. He doubts the universal utility of operative work in the nose, and says that there must be internal treatment directed to the underlying cause in the brain, respiratory and vasomotor centers. Every asthmatic should have his nose examined and treated, if necessary, but it must be borne in mind that the asthmatic is such not because of some abnormality in his nose, bronchi, or in some other organ, but because, at bottom, there is a derangement of his entire nervous system and an irritable condition of his nerve centers with explosions in the domain of the vagus nerve.

2.—Freedom from Uric Acid and How to Obtain It.—Alexander Haig attributes a great deal of importance to the maintenance of the alkalinity of the blood as a means of preventing the accumulation of uric acid in the body. Although high nutrition is one of the causes of diminished alkalinity of the blood, he does not believe that much is to be gained by great reduction of the amount of food ingested, as is recommended by some authorities. His rule for determining the amount of food for an adult is that the body weight in pounds is to be multiplied by nine to get the number of grains of albumin that should be consumed daily. People who underfeed themselves usually have a subnormal temperature, defective circulation, and deficient blood color, and are very susceptible to bacterial infections. The greatest freedom from uric acid is obtained by introducing none, and by passing out each day regularly and punctually all that is formed in the body, and this regularity of excretion may be attained by clothing warmly, by avoiding exposure to cold in every form, by eating freely of potatoes (especially in cold weather), by avoiding fruits that are out of season, and, indeed, by never taking fruit to any large extent, except in very warm weather.

3.—Long Island Appendicitis.—A. E. Gallant, after discussing the general symptomatology of the disease, its operative treatment, and the complications following appendectomy, formulates the following rules for guidance in deciding when to operate for appendicitis: 1. With a history of sudden, sharp, abdominal pain, soon followed by nausea and vomiting and fever, appendicitis may be surmised, and if a little later the pain becomes localized or more intense in the right iliac region with right-sided rigidity, the diagnosis stands confirmed. 2. The "safe" treatment of acute or recurrent appendicitis during the attack is operation within the first 48 hours following the

primary pain. 3. If, toward the close of the second day, in spite of an ice-bag continuously applied over the appendicular region and free castor-oil evacuation of the bowels, the pain and rigidity, with or without nausea and vomiting, temperature and pulse elevation, continue or return, to delay operation under such conditions can only subject the patient to the danger of rupture, extensive gangrene, general peritonitis, intestinal obstruction and a fatal issue. 4. In the presence of a mass or of tumefaction, delay is dangerous—operate at once. 5. Interval operation is free from danger, requires but seven days in bed, two weeks from business, and gives freedom for life.

4.—Lacerations of the Cervix Uteri.—A. H. Gardner concludes: 1. Many ills are the result of unrepaired lacerations of the cervix. 2. The frequency and extent of these tears may, to a certain extent, be lessened by allowing more time for dilation in the first stage of labor; by a more judicious use of the forceps in time and force, and by the proper use of podalic version. 3. The most frequent cause of subinvolution of the uterus and prolonged convalescence is unrepaired lacerations. 4. In all probability many of the frequently quoted morbid conditions ascribed to lacerations are the result of infection of the lacerated surface rather than the laceration itself. 5. Many cases of severe hemorrhage are due to unrecognized cervical lacerations. 6. Immediate repair in the hands of an able surgeon-obstetrician is the best means of controlling such hemorrhage, and also of preventing infection of the torn surfaces. 7. Primary tracheloplasty is easily and quickly done, but a secondary repair is a difficult and tedious procedure. 8. In case of failure in obtaining union in the primary operation, the condition of the woman is none the worse, while if successful, which is usually the case with skilful surgeons, the patient is spared many of the ills which lacerations of the cervix sooner or later entail.

5.—A Case of Delayed Menstruation; Flow Established at First Spontaneously, Subsequently by Treatment; Conception.—B. P. Hirst and H. Fox report this case. The patient had no menstrual flow until the thirty-fourth year, when she menstruated three times at intervals of four months and six weeks. Five months elapsed without another period, and then in response to general and local treatment several menstruations were brought on. Pelvic examination some months later revealed the existence of pregnancy, and the date of the subsequent delivery indicated that conception had taken place about a month after the first menstruation.

6.—Serum Therapy in Erysipelas; Results in 33 Additional Cases.—James C. Ayer reports the results obtained in 33 additional cases. Three of the patients died in this last series, the average duration of the disease was 6.8 days, as against 7.5 days in the previous series. In the first series of 79 cases treated by the older methods, the average duration was 9.4 days. The author says that this shortening of the average duration of the disease by 2.6 days about expresses the value of this form of treatment. The general amelioration of all the subjective symptoms following its employment is also in its favor, as is the apparent beneficial effect on the febrile form of albuminuria, which is present in such a considerable percentage of the cases.

New York Medical Journal.

August 19, 1905. [Vol. LXXXII, No. 8.]

1. Some Remarks on the Epiphyses of the Long Bones, and Their Bearings on the Operation of Resection. JOHN KNOTT.
2. On the Use and Abuse of the Stomach-tube. E. PALIER.
3. The Employment of Dry Cups in the Treatment of Herpes Zoster. MEDWIN LEALE.
4. Notes on the Tropic Diseases of the Angola Highlands. F. CREIGHTON WELLMAN.
5. The Element of Truth in Mental Healing. LUCY WAITE.
6. Lectures on the Diseases of the Blood. JOHN M. SWAN.
7. A New Method of Extirpating the Internal Saphenous and Similar Veins in Varicose Conditions: a Preliminary Report. W. L. KELLER.

2.—The Use and Abuse of the Stomach-tube.—E. Palier believes that in this country the stomach is often washed out when there is not only no indication, but sometimes when there is contraindication, and is not used often enough as a means for diagnosis. He says that chronic gastric trouble cannot be scientifically treated unless the gastric contents are examined by an appropriate method. The symptoms are absolutely unreliable, and the physical signs are in themselves never sufficient to corroborate a diagnosis. Cases of hyperchlorhydria and subacid gastritis with atony of the stomach are reported to show that a test is necessary for diagnosis in these cases. The classic contraindications to the use of the tube are hematemesis, aneurysm of the aorta, and advanced pregnancy, but the individual case should be considered. The indications for it are, briefly speaking, when the stomach cannot empty itself, when there is alimentary stasis, when, so to say, drainage is necessary, and also when there is much mucus in the stomach. [C.A.O.]

3.—Herpes Zoster.—Medwin Leale advocates the use of dry cups over the ganglia of the posterior roots and over the points of emergence of the nerves involved. In locating the nerves and roots involved, the sensory symptoms and the site of the eruption are the guides. By this means he believes we can lessen the congestion about the nerve roots and trunks of the nerves, and also hasten absorption of the inflammatory exudate, going directly to the seat of the trouble and thereby favorably affecting all the symptoms. [C.A.O.]

7.—Varicose Conditions.—W. L. Keller reports a new method of extirpating the internal saphenous and similar veins in varicose conditions. The vessel to be removed is exposed by a short incision near the femoral opening of the fascia lata (if the internal saphenous), and is dissected free from its sheath for about an inch, and is then ligated as high up as possible. The lower end of the vein is exposed and treated in a similar manner. The vein is now cut below the proximal end and above the distal end, thus leaving the section to be removed free. The upper end of this section is now split for about three-quarters of inch on its anterior wall. A strong ligature is then tied to the upper end of the vein, and a wire loop or probe is passed through the lumen of the vessel from the lower opening and the ligature is threaded through the eye of the loop or probe; the probe is then withdrawn and the ligature brought out where the probe entered. Traction is now made upon the ligature until the vein is completely extirpated by being turned inside out and withdrawn from its sheath. In this way several inches of vein may be removed with slight scarring. [C.A.O]

Medical News.

August 26, 1905. [Vol. 87, No. 9.]

1. Appendicostomy and Cecostomy in the Treatment of Chronic Colitis. WILLY MEYER.
2. A Contribution to the Study of Chronic Nicotine Intoxication of the Nervous System. F. ROBBINS.
3. A Summary of Twenty-five Radical Operations upon the Rectum under Local (Sterile-Water) Anesthesia. A. B. COOKE.
4. Presidential Address: The Insane in Canada. T. J. W. BURGESS.
5. The Natural and Artificial Protection of Man against Tuberculosis. F. FIGARI.
6. Dermoid Cysts of the Mediastinum. ROGER S. MORRIS.

1.—Appendicostomy and Cecostomy for Chronic Colitis.—Willy Meyer has employed appendicostomy for obstinate chronic colitis, amebic as well as other forms, in four patients, and cecostomy in one in which the appendix seemed too small to permit thorough flushing. The five cases, which are described in full, demonstrate the value of colon flushing in chronic catarrhal, tuberculous, specific, or amebic colitis. They also show the value of Weir's idea of utilizing the appendix for this purpose, irrigation through this small tube being satisfactory. In one case a small fistulous opening persisted for two years and a half without noticeable leakage. A return of the colitis rendered irrigation again desirable and careful dilation of the tract made its use possible; had closure occurred, cecostomy would have been necessary. This case teaches the wisdom of not enforcing definite closure of the appendicular opening at too early a date. Meyer would give appendicostomy the choice over cecostomy in all instances in which the appendix is passable. From a surgical standpoint, it is probably wise in all cases to pull up the base of the appendix to the wound in the parietal peritoneum. The whole organ will then rest obliquely within the abdominal wall, where it can do no serious harm if appendicitis occurs. If the appendix is very large it may be advisable to make the organ emerge at the upper angle of the wound, in order to insure against leakage, but ordinarily the downward direction is best. [A.G.E.]

2.—Chronic Nicotin Intoxication.—F. Robbins furnishes notes of two cases, illustrating the adjustment of the nervous system to nicotin during the maintenance of fair general health. The phenomenon of failing nervous vitality came to the front as soon as additional noxious influence turned the balance, the absorption of nicotin then manifesting itself. The persons had used tobacco for 31 and 39 years respectively, without untoward effect. [A.G.E.]

3.—See *American Medicine*, Vol. X, No. 1, p. 12.

5.—Protection of Man against Tuberculosis.—F. Figari details experiments of himself and others regarding different methods of immunizing against tuberculosis. The serum and even the blood and milk of animals inoculated with tubercle bacilli are found capable of favorably influencing tuberculous infection in man. A natural protection of persons not infected can also be induced. Attempts to immunize animals by injecting attenuated bacilli were not productive of satisfactory results; this method, however, should not be entirely rejected, as further experience may demonstrate its utility. In conclusion, Figari says if they have not succeeded in immunizing animals against tuberculosis with living cultures, it is experimentally ascertained that we can produce this immunity by injecting subcutaneously, or administering by the mouth, specific substances taken from animals treated for that purpose. As serum, blood, and milk have this property, certainly the flesh of these animals will likewise possess it. These are for the present the sole means on which we can depend for the cure of tuberculosis, by rendering immune the children of tuberculous parents and also other individuals who are predisposed to the disease. It is only by widely practised preventive immunizing that we can hope to stop the spread of tuberculosis. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN — A. O. J. KELLY
NORMAN B. GWYN — BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Hypodermatic Injection of Air for the Relief of Neuralgia.—From the neurotic land of France hails the record of a still new development of the relief of pain in muscle and in nerve by way of hypodermatic medication. MM. Mongour and Carlos have published in the *Revue des Sciences* the results of their treatment of muscular neuralgia and sciatica by the injection of atmospheric air. They do not claim the procedure as their own invention; it was suggested some years ago, but does not seem to have been subjected before to regularly systematic experiment. A Pravaz syringe is equipped with a valve readily suggestive of that of a bicycle pump, and with this instrument the air is literally pumped beneath the skin. Sterilization is, of course, a very necessary precaution in an operation which presents so primitive a type in some of its most characteristic features. The quantity of air injected varies with the intensity of the pain, and collateral conditions, *e.g.*, such as the susceptibility of the patient. The general rule, however, is to cease injecting as soon as the pain is relieved. Excellent results are reported, and no deleterious sequels have followed in any of the cases. The rationale of the treatment is, confessedly, not yet clear. MM. Mongour and Carlos suggest, as the most plausible explanation, that the injected air relieves the neuralgic pains by causing mechanically, an elongation of the slender filaments of the sensory nerves in the neighborhood of their terminal distribution.

REVIEW OF LITERATURE

Death after the Use of Boric Ointment for a Burn.—Dopfer[1] reports the case of a girl of 2 years, for whom he prescribed boric ointment because of an extensive burn of the forearm. The wound extended no deeper than the rete malpighii; it was about 6 in. long by 1 in. wide. Within a few hours after applying the ointment the girl broke out all over her body with a scarlatinoid eruption. She had been perfectly well until now. She rapidly became very sick; vomiting and diarrhea made their appearance; coma developed very rapidly, and she died on the fourth day after the ointment was first used. About 3 oz. of the salve was used. The autopsy revealed a perfectly negative condition of all the organs. The child was never feverish, the oral and nasal mucosas were perfectly free of any exanthem, thus excluding scarlet fever. The author believes the fatal termination to have been due to the absorption of the boric ointment, and quotes several other cases in which boric acid produced the same result. [E.L.]

A Peculiar Gastric Infection.—E. Suess[1] reports the case of a man who was suddenly seized with epigastric pains, which persisted until his death, two months later. These pains were accompanied by an enlargement of the liver and spleen. Fever set in about the fifth week of the disease, followed a week later by icterus and rapid loss of strength. Large quantities of urobilin were found in the urine from the start, and the diazo reaction was positive. The blood picture was that of marked anemia with leukopenia. There was slight tuberculous infiltration at the left apex. A positive diagnosis could not be made during life, and the autopsy revealed an entirely new pathologic picture. Three small, ulcerated infiltrations were found on the lesser curvature of the stomach, with hemorrhages and necroses in the liver, and subacute inflammatory splenic tumor. Cultures taken from the spleen, liver, and other organs gave pure growths of a hitherto undescribed bacillus. The latter was motile, without spores, stained by Gram's stain, did not liquefy gelatin or ferment sugar, produced no coagulation of milk or indol reaction. Its colonies on agar and gelatin resembled those of the streptococci. The bacillus was highly pathogenic for mice and guineapigs. It undoubtedly entered the body through the gastric ulcerations, and its systemic distribution caused the symptoms described above. [B.K.]

Leukocytes in Malaria.—W. F. Petrow[2] studied the behavior of leukocytes in the various malarial fevers. He says in conclusion: 1. In the beginning of malaria the leukocytic reaction shows slight hyperleukocytosis. Later the total number of white cells is diminished, owing to their increased solubility in the blood. 2. During convalescence the number of leukocytes returns to the normal, the number of eosinophiles becoming larger than before. 3. Malarial anemia shows a steady and marked leukopenia. 4. Digestive leukocytosis during malarial attacks is absent, but is very marked during convalescence. 5. Some forms of leukocytes (eosinophiles and perhaps polynuclears and mononuclears) show a positive chemiotaxis toward the mature malarial parasites, and appear to paralyze or destroy them. This property, together with the increased destruction of leukocytes in protracted malaria, probably represents the self-defensive efforts of the body. [L.J.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Relation of Gonorrheal Rheumatism to Seminal Vesiculitis and Its Cure by Seminal Vesiculotomy.—E. Fuller[3] believes that gonorrheal rheumatism can exist independently of the gonococcus, another agency playing the role assigned to this organism (that of allowing other germs to enter the system from a genitourinary source) and after a complete elimination of the gonococcus has occurred. He believes that the systemic infection enters from a special focus, usually a seminal vesiculitis. He has traced this in 12 out of 15 cases. Four of these consented to vesiculotomy, with almost immediate disappearance of the rheumatism. In 24 to 48 hours, manipulation or

[1] Münchener medicinische Wochenschrift, 1905, lii, No. 16, 763.

[1] Zeitschrift für Heilkunde, Bd. xxvi, Abth. für Path. Anat., Heft 3, p. 247.
[2] Russki Vratch, July 25, 1905.
[3] Annals of Surgery, June, 1905.

active movement has caused no pain. After the two weeks' rest demanded by the operation, all have been able to leave the hospital, though bedridden previously for three and four months. After healing of the wound, a urethral discharge is apt to appear, which should be left absolutely alone. It will disappear spontaneously. In operating, the writer depends on touch rather than sight. Retractors are apt to injure the rectal wall. [H.M.]

A fatal case of perforation of the pulmonary artery, left bronchus, and esophagus, in consequence of necrosis of an intertracheobronchial lymph-node is recorded by Nanu[1] (Muscel), who saw the patient two days before the accident occurred, at which time she was suffering with fever, headache, vertigo, and vomiting, and later with epistaxis. The disease apparently began with a chill. In the supraspinatus fossa dulness was found on percussion, and a few crackling rales on auscultation. The patient died as result of a violent hemorrhage. After considering various lesions that might have accounted for the death, Nanu came to the conclusion that he had to deal with an aortic aneurysm which perforated into the bronchus, and that the patient was suffering with a coincidental influenza. At autopsy the lymph-node was found tuberculous, upon which lesion was engrafted a mixed infection which was responsible for the rapid necrosis. [J.F.]

Intestinal Occlusion Following Appendicitis.—Lövinsohn[2] especially emphasizes the importance of paralysis of the intestinal wall, due to local peritonitis, as the cause of acute obstruction during the course of the attack. Cases due to organic stricture are much more rare. Even when adhesions are present it is evident that some peritonitis must have occurred and that implies local paralysis of the bowel. Cases occurring long after the attack are usually due to bending of the intestine by adhesions between loops. [T.S.G.]

Hernia in the Italian Army.—P. Imbriaco[3] gives a table showing the increase in operations from 1898 to 1903 in the army. The small percentage of deaths shows that the conditions are more favorable than in the civil population. Recurrences do not exceed 2% or 3%. The number of cases discharged for hernia has lessensd from 710 in 1895 to 389 in 1900, but if to these are added exempted recruits, the army loses yearly over 5,000 soldiers from hernia. Italian surgeons, as a rule, operate by Bassini's method, using generally cocain locally, according to the method of Rechis-Ceci. If the law did not permit discharge from the army on account of hernia, a large number of soldiers would seek radical operation. Medicolegal provisions should favor wider extension of the operation. In determining the question of whether an acquired hernia has been incurred in the line of duty or not, the same criterion should be applied as with civil surgeons in the case of a workman. [H.M.]

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

An Advance in the Pathology and Treatment of Infantile Diarrhea.—Within the past few years much has been learned regarding the nature of infantile diarrhea but no great advance in treatment, based thereon, has been made. The persistent high mortality in this class of cases is proof of this statement. It is known that several, or many, forms of bacteria are abnormally, or in increased numbers, present in the intestines of most of such patients but they have been combated almost exclusively by general rather than specific methods. Recent observations by M. H. Teissier[4] embody a principle that promises effective work in the control of at least some of the diarrheas of childhood. In the cases studied, occurring in infants a few months old, *B. perfringens*, exercising a strong proteolytic and fermentative action, was the principal organism found; *B. bifidus*, normally present, had disappeared. The object sought by Teissier was to transform the bacterial flora of the intestine instead of pursuing the usual ineffectual efforts to render the tract aseptic. From a study of the attributes of *perfringens*, the growth of which is stopped by strongly acid mediums, he concluded the indications were two: (1) To limit the ingestion of proteids to the smallest possible quantity and (2) to administer cultures of an organism furnishing mixed peptolytic ferments and capable of producing more acid than the bacillus it was to displace. Such organism, to be harmless and effective, must be nonpathogenic and nonproductive of gas or irritative substances of any kind. Preferably it should grow in the absence of oxygen. Several answer these requirements; *B. acidiparalactici* was chosen. Based on these postulates the treatment instituted by Teissier is: 1. The modification of diet. If the infant is bottle fed, stop cow's milk and give starches, sugar, glucose or other carbohydrates. After a few days a small quantity of maternal or peptonized milk may be added. When the child is on mixed diet, suppress cow's milk and give carbohydrates. If the infant be nursing, the mother should eat largely of vegetables and increase the sugars and fats. 2. Before each feeding give 16 cc. (4 dr.) of sterilized 10% lactose solution. 3. Give daily 4 cc. to 8 cc. (1 dr. to 2 dr.) pure culture of *B. acidiparalactici* which has been kept 5 or 6 days at a temperature of 37° C. In the 6 cases reported in detail this treatment was soon followed by the amelioration of clinical symptoms and from the stools the abnormal bacillus diminished and finally disappeared as *B. bifidus* again made its appearance. Other physicians have obtained similar gratifying results from the use of the method in cases showing the same type of infection. The reported results are very encouraging and furnish another instance of successful therapeusis based on precise chemic and bacteriologic findings and deductions therefrom. It is to be hoped the principle may be extended to similar affections in adults as well as to other types of infection in infants. The properties of bacteria are utilized extensively in the arts; their therapeutic capabilities, if any, should be carefully determined. A point of interest in this connection is that in one case, seen by Teissier in consultation, the patient was improving under treatment when the parents insisted on giving calomel. Very soon thereafter *B. perfringens* increased rapidly and *B. bifidus*, which daily examination of the stools had shown to be increasing, correspondingly diminished.

Orthostatic Albuminuria.—A number of cases of this condition, characterized by slight or pronounced albuminuria when the person is in the erect posture, particularly when standing still, have been reported. In itself of relatively little importance, the possibilities of misleading the physician who is examining for life insurance or for other purposes are sufficient to render it of more than passing interest. The pathology of the condition is not clear although circulatory disturbances in the kidney appear to be of prime importance. Sutherland found movable kidney in 15 of 40 children who showed orthostatic albuminuria but is inclined to regard the movability of that organ as the effect of the same condition that causes the albuminuria, namely, venous stasis. Erlanger and Hooker[1] ascribe the symptom in a case studied by them to the low arterial pressure when the patient assumed the erect position, this change being more pronounced than usual because the pressure was at all times lower than in the average person. The most important of recent contributions to this subject is that of Teissier[2] who makes of the cases 3 groups —mixed, associated, and true orthostatic albuminuria. The first type occurs in persons presenting the history of

[1] Wiener klinische-therap. Wochenschrift, No. 30, Jhrg. xii, 1905.
[2] Mittheilungen aus den Grenzgebiete der Medizin und Chirurgie, Bd. xiv, Heft 5.
[3] Journal of the Association of Military Surgeons, June, 1905.
[4] Annals de l'Institut Pasteur, May 25, 1905.

[1] Johns Hopkins Hospital Reports, Vol. xii, 1904.
[2] Revue de Med., April 10, 1905.

acute infection and the kidney is probably damaged. The second is accompanied by movable kidney, dilated stomach or prolapse of abdominal viscera. In both groups the urine may show serum globulin in addition to serum albumin. In true orthostatic albuminuria there is no definite organic lesion. The subjects, however, exhibit a tendency to infantilism in that they are often under weight and the heart and vessels are hypoplastic; the arterial pressure commonly is low. These persons are also usually neurotic in type. The urine is of high specific gravity, contains serum albumin and abundant mucus. Phosphates are sometimes in excess; urea is not sensibly increased. Phloridzic glycosuria is generally present. Casts are not observed, this being contrary to the finding of Beck who reports hyaline casts in the urine of what appears to have been a typic case. Teissier believes the pathogenesis of orthostatic albuminuria is purely nervous and likens the condition in the kidney to that occurring elsewhere in Raynaud's disease. Three stages may be assigned: (1) Anemia of the renal glomeruli due to vascular spasm when the erect posture is assumed; (2) afflux of blood into the relaxed vessels succeeding the contraction; (3) excessive filtration of blood-serum from the tufts. The subjects of this affection thus appear to differ from the normal only, or at least chiefly in the vasomotor system. This explanation seems reasonable as the condition has never been known to develop into organic renal disease.

Contributions to the Cancer Problem. — The fourth report of the cancer research laboratory of the Middlesex hospital[1] contains a number of valuable papers on the various aspects of cancer. Statistics based on the cases admitted from 1746 to 1904, a total of 2,073 males and 4,659 females, shows the mean age of the former to be 55, of the latter, 50. Cancer of the alimentary tract is 7 times more frequent in males; in both sexes the generative system tends to be affected earliest and the cutaneous system latest. Statistics from 1814 to 1900 show there has been an increase in the mortality from cancer of the stomach, colon, rectum and anus in both sexes; lip, tongue, floor of mouth, cheek and esophagus in males; and the uterus and breast in females. Coincidently there has been a diminution in mortality from rodent ulcer and cancer of the skin in both sexes and from cancer of the lip, tongue, floor of mouth and vulva in females. Analysis of 1,976 breast tumors shows 45 sarcomas, 43 of which were primary, and 32 endotheliomas, only one of which arose from bloodvessels. The records show one point contrary to general teaching, namely, that expectation of life is longer in the case of cellular than in relatively noncellular mammary neoplasms. M. Mayet[2] details the results of experiments in the Lyon laboratory since 1903. He regards the cancerous process as a disorderly proliferation which may manifest itself in diverse anatomic elements. It is a mode of behavior of tissues and not a specific structure that can be characterized by the histologic nature of its elements. Cancer of man contains principles which pass through filters of porcelain and in rare instances, when injected into connective tissue or serous cavities, cause in animals a proliferation absolutely similar to that constituting human cancer. Farmer, Moore and Walker, in a communication to the Royal Society, deal with "Plimmer's bodies," comparing them with structures found in cells of vertebrates during the production of male sexual elements. Three figures of cells from a carcinoma, each containing one or more Plimmer bodies, are placed side by side with 3 cells from the testis of a guineapig, mouse, and man, respectively, and the extranuclear structures in the latter series appear exactly like those in the former. This constitutes a second similarity between reproductive cells and those of tumors, the first, pointed out two years ago, relating to nuclear division. The writers draw no definite conclusion from their observations, merely intimating the possibility of phylogenetic reversion of cells.

[1] British Medical Journal, June 10, 1905.
[2] Arch. der Med. Exper. et D'Anat. Path., May, 1905.

REVIEW OF LITERATURE

Bacteriology of Appendicitis.—Perrone[1] found in 14 appendices, 10 different organisms, *B. coli* being most frequent; 1 appendix was sterile, 1 contained 1 organism, 3 contained 2 species, 5 contained 3 species, 3 contained 4 species, and 1 contained 5 species. Perrone found no difference in the bacterial content of appendices removed when acutely inflamed and those removed between attacks; consequently one cannot give a clinical prognosis from the bacteria found in the appendix. He is convinced of the important pathogenic role of anaerobic organisms, and considers the studies in which they have not been sought of little scientific value.

Action of Yeast Cells.—W. Malden,[2] in consideration of the therapeutic claims made for yeast, carried out experiments with the following conclusions: 1. Living yeast possesses no direct bactericidal or phagocytic properties; when injected subcutaneously it is quickly disintegrated and absorbed. 2. When injected intravenously it causes clotting of the blood, hence is unsafely used in this manner. 3. Subcutaneous injection causes no ill-effects except slight swelling, which quickly disappears. 4. Killed yeast produces exactly the same effect as does living. 5. The immediate effect is to produce a leukopenia, rapidly followed by leukocytosis. 6. The effect on animals infected with streptococcus, staphylococcus, or tubercle bacilli, is in some cases to cause recovery of the animal, in others to prolong life. 7. The effects are probably due to the liberation of the nucleoalbumin in the yeast cell, this acting as a powerful stimulant to the body cells generally, and causing an increase in the antibodies normally present in the blood-serum.

Experiments Concerning Congenital Tuberculosis.—F. F. Friedmann[3] details a series of investigations with rabbits and guineapigs. Tubercle bacilli were injected into the vas, testicle, lung, peritoneum, or veins of males and later sought in the embryos which resulted from union of the inoculated animals with sound females. Infected females were also mated with sound males. The results confirm those of other observers that tubercle bacilli pass into fecundated ovums without stopping the development of the latter. Early in life such rabbits cannot be distinguished from control animals. The findings may safely be predicated of human beings as in them circumstances are more favorable than were those under which the animal experiments were conducted. Friedmann concludes that heredity, in the sense of germinal infection, plays the most important part in the spread of human and mammalian tuberculosis.

Skin Infection with Uncinaria.—A. E. Boycott,[4] after a previous failure, records a successful case of skin infection. The subject was a physician, upon whose arm was bandaged for two hours a small quantity of water containing artificially hatched larvas, 13 days old. In 27 days definite eosinophilia was shown, but eggs in the feces were not found until the fiftieth day. Eosinophilia, which at one time reached 45%, persisted until after the ninety-fifth day. The total leukocyte count only once exceeded 10,000.

Glycogen and Cell Metabolism.—E. Gierke[5] reports a most exhaustive study of the relation of glycogen to cell metabolism. He has studied the material in embryos, in extrauterine life, in various degenerative and inflammatory conditions, in tumors, and in the blood. In extrauterine life it is less abundant than in the embryo. Any investigation of glycogen must also include a study of fat, because the two are closely associated. In general, what is known regarding fat metabolism applies also to glycogen. Gierke does not believe

[1] Annales de l'Institut Pasteur, June 25, 1905.
[2] British Medical Journal, Supplement, July 1, 1905.
[3] Virchow's Archiv, Band clxxxi, Heft 1, 1905.
[4] Journal of Hygiene, July, 1905.
[5] Zeigler's Beiträge zur Pathologisches Anatomie, Band xxxvii, Heft 3, 1905.

that either fat or glycogen causes degeneration of the cell; if either or both be present, it is due to the cause which produced the cell degeneration or death. This view places the normal glycogen content of cells and its pathologic increase largely upon the same basis, so far as its real effect upon the cell is concerned.

Bodies in the Skin and Blister Fluid from Scarlet Fever and Measles.—C. W. Field[1] believes these bodies, described by Mallory and Duval, are part of the protoplasm of epithelial cells which has been changed in its chemic nature until its stain reaction differs from that of the surrounding protoplasm. He has studied sections from the skin of many patients having scarlet fever or measles, and has not found the bodies; in postmortem specimens they are present, thus supporting the view that they are degeneration products. The bodies in blister fluid are believed to be, for the most part if not wholly, the products of degenerating tissue cells and leukocytes, within certain limits specific to the diseases mentioned.

Detection of Tubercle Bacilli in the Urine.—George Walker[2] employs a method which has demonstrated tubercle bacilli in the urine in every case in which renal tuberculosis was afterward found. Six slides are made absolutely free from fat by boiling them for 30 minutes in a strong solution of caustic soda, which is washed off with running water for 30 minutes; the slides are then wiped dry with a clean linen cloth. Two drops of sediment from the urine which has been allowed to stand in a conical glass for 12 hours, are placed on each slide, and the slides kept some 25 cm. above a Bunsen burner until all the fluid has evaporated. They are then passed through the flame thoroughly to fix the specimen. The urinary salts are dissolved by five minutes' immersion in 5% hydrochloric acid alcohol. The slides are washed in running water, stained for 10 minutes with carbol fuchsin, and decolorized with Gabbett's blue. The whole field is carefully gone over. When pus is present in small amount only, centrifugalization of the urine may be necessary.

Method to Determine the Value of Vaccine.—M. C. Guerin[3] describes this method for determining the value of vaccine, based on his previous findings that such value depends solely upon the number of virulent elements the material contains. The backs of healthy rabbits are shaved and inoculated with 1 cc. of glycerinated vaccine pulp in dilutions varying from 1 to 10 to 1 to 1,000. If the vaccine is of good quality the eruption produced by all dilutions up to 1 to 500 is perfectly confluent. That caused by the 1 to 1,000 is formed of isolated pustules, three or four to the square centimeter. A vaccine of which a dilution of 1 to 100 produces only this number is medium in quality, and all below this should be rejected.

Lymphatic Drainage of Faucial Tonsils.—G. B. Wood[4] advances the theory that the production of lymphoid cells in the follicles of the tonsil causes what may be called a lymphoid current. This current, except when there is an accidental rupture of the cryptal epithelium, is toward the connective-tissue trabecula of the tonsil and thence through the lymph radicles to the periphery. A foreign body having gained access to the tonsil must be influenced by this current which is a probable explanation of the mechanism of tonsillar absorption. It also aids to substantiate the assertion that the faucial tonsil is more important as a source of infection than is the lymphoid tissue on the lateral and posterior pharyngeal wall. The article is devoted mainly to the report of a study of the lymphatic anatomy and drainage of the throat. Wood designates the lymph-node which receives the efferents of the tonsil, the tonsillar lymph-node. Contrary to general belief this node is situated external and slightly anterior to the internal jugular vein.

Hyperplasia of the Chromophile Cells of the Hypophysis as the Cause of Akromegaly.—D. D. Lewis[5] reports a case of akromegaly in which the histologic changes found in the hypophysis were confirmatory of the view of Benda that increase in chromophile cells is the distinctive anatomic lesion of the disease. The patient was a German laborer of 46, who died from cerebral embolism and hemorrhage. The hypophysis appeared normal macroscopically. Sections showed a great excess of chromophile elements, irregularly disposed, and a lessened amount of stroma; all these are indicative of excessive function of this body.

Relation of the Mesenteric Lymph-nodes to Tuberculosis.—R. C. Rosenberger,[1] from a study of the mesenteric lymph-nodes in 49 tuberculous and 21 nontuberculous persons, concludes that in all cases of active and almost all cases of inactive tuberculosis, these nodes are capable of producing tuberculous infection; they may or may not show gross evidence of tuberculosis or tubercle bacilli microscopically. The mesenteric lymph-nodes, in a certain percentage of persons showing no tuberculous lesion in any part of the body are capable of inducing tuberculosis; in the cases reported this percentage was 40. It is probable that other lymph-nodes, throughout the body, possess such infectivity.

A Delicate Test for Albumin in Urine.—A. N. Ravold[2] obtained satisfactory results with the Spiegler-Jolles reagent, which, though little known, is claimed to be ten times as delicate as nitric acid. The difficulty in floating upon it urine of high specific gravity led to experiments to increase the density of the reagent without interfering with the reaction. For this purpose magnesium sulfate was finally adopted. The solution is prepared as follows:

Corrosive sublimate	2 gm.
Succinic acid	4 gm.
Sodium chlorid	4 gm.
Water	50 cc.

Heat and filter, and add 50 cc. of a filtered saturated solution of magnesium sulfate. The mixture has a specific gravity of 1,150, and possesses all the reliability of the old solution. The test is made by adding 1 part acetic acid to 5 parts of urine, filtering, and then overlaying the solution with the urine as in the nitric acid test.

A Permanent Nocht's Stain.—T. W. Hastings[3] employs this formula, the solutions being mixed in the order given:

Distilled water	1,000 cc.
1% aqueous sol. of eosin (water soluble, yellow)	100 cc.
Polychrome blue sol. (freshly prepared)	200 cc.
1% aqueous sol. methylene-blue (Ehrlich's rectified)	70 cc.

The mixture is filtered at once or after 20 to 30 minutes and the residue allowed to dry in the air or in a hot air oven not above 60° C. The dried residue is dissolved in methyl alcohol, 0.25 gm. saturating 100 cc. They must be mixed in a mortar, considerable pressure being employed to break up the powder.

Concerning the Bacteria in the Normal Male Urethra.—H. Pfeiffer[4] examined the urethral secretion of 24 young males without venereal infection, to determine the varieties and number of bacteria within the normal urethra. His method of obtaining the secretion is thus described: The patient does not void urine for several hours; the glans penis is cleansed, a medium sized ear speculum introduced into the urethral orifice, a platinum oese introduced and the mucous membrane rubbed to carry away the epithelium, which is the carrier of the bacteria. Inoculations were made on bovine serum agar and for control on ordinary agar; some of the bacteria growing rather slowly, the plates were kept in the oven from two to three days. In general, he found no difference between the bacteria of the anterior and posterior urethra, excepting in their number; 13 varieties were isolated, which he separates into constant and occasionally found varieties. The former included two bacteria of the diphtheria group; one a quickly growing one, the other of slow growth; they did not decolorize with Gram, were neither acid nor alcohol fast and had distinct metachromatic granules; they were not agglutinated by serums, which agglutinated diphtheria and pseudodiphtheria bacilli. He found *Streptobacillus urethræ*, arranged in short double chains or groups; it grew especially well on sugar bouillon with blood; neither of these types was

[1] Journal of Experimental Medicine, Vol. vii, No. 4, 1905.
[2] Johns Hopkins Hospital Reports, Vol. xii, 1904.
[3] Annales de l'Institut Pasteur, May 25, 1905.
[4] American Journal of the Medical Sciences, August, 1905.
[5] Johns Hopkins Hospital Bulletin, May, 1905.

[1] American Journal of the Medical Sciences, July, 1905.
[2] St. Louis Courier of Medicine, July, 1905.
[3] Journal of Experimental Medicine, Vol. vii, No. 3, June 10, 1905.
[4] Archiv für Dermatologie und Syphilis, 1904, lxix, 379.

pathogenic for animals. Of constant cocci there were *Staphylococcus albus*, *aureus* and *citreus*, *Micrococcus candicans*, *Sarcina alba* and *flava*. A few other bacteria occurred occasionally: A vibrio, one resembling the influenza bacillus, and a coccus; all three were not decolorized by Gram. He says the streptobacillus may be of importance in postgonorrheal cystitis and urethritis. [E.L.]

Diminution of Hydrochloric Acid in the Stomach in Cancer of other Organs.—B. Moore[1] does not believe it possible for a cancer affecting part of the stomach to cause suppression of hydrochloric acid secretion in the unaffected part, and thinks that this phenomenon is due to some general condition of the body. In order to prove this, he examined the gastric contents in 17 cases of cancer affecting organs other than the stomach. In two-thirds of these cases free HCl was entirely absent, and was much diminished in the remaining third. After removal of the growth there is no reappearance of the acid, showing that there is probably a persistence of those conditions in the body, tending to favor the formation of new-growths. The explanation of this phenomenon is still theoretical. The author supposes that the reduction in quantity of the acid secreted by the oxyntic cells is due to a diminution in the concentration of the hydrogen ions in the blood of carcinomatous patients and an increase in the concentration of the hydroxyl ions. Loeb has shown that the addition of minute quantities of caustic potash to sea-water will enormously increase the development and growth of sea-urchin eggs. By analogy, given a potential tendency to a typic cell growth and mitosis, to reversion to the sexual type cell reproduction, it is possible that an increase in hydroxyl ions and a diminution in hydrogen ions would form just the necessary chemic stimulus to start a newgrowth and determine its continuance. [B.K.]

Active Immunization of Experimental Animals with Typhoid Cell Juices.—A. B. Smallman[2] obtained his material by the cold grinding method of Macfadyen and Rowland. Following injection there occurred a distinct production of agglutinins and bacteriolysins in the blood. The serum, $\frac{1}{200}$ cc., protected guineapigs against 8 to 10 lethal doses of *B. typhosus*. About $\frac{1}{100}$ mg. produced an effect equivalent to that following the injection of 1 mg. of the soluble material, appearing to indicate that the immunizing substances, when extracted from the typhoid bacillus in a soluble form, are demonstrably effective in very small amount. That the smallest effective dose had possibly not been reached was suggested by an experiment in which the intravenous injection of $\frac{1}{1000}$ cc. of a filtered juice resulted in a positive agglutinative reaction with the rabbit's serum in a dilution of $\frac{1}{1000}$. This bacteria free and fluid vaccine then can be standardized in terms of the soluble immunizing substances it contains. [H.M.]

Pathogenesis of Banti's Disease.—F. Umber[3] reports a case of this disease in a boy, who had been known to have a splenic tumor and anemia for eight years. During the last year he had nose-bleed and beginning jaundice. At the time of observation he had an enormous spleen, enlarged liver, mild icterus, occult intestinal hemorrhages, anemia, and normal leukocyte count. Splenectomy was performed with brilliant success as to the course of the disease. Examination of the spleen showed marked congestion, enlargement of the follicles, and a remarkable richness in cells. Investigation of the metabolism, before and after the operation, showed an abnormally increased proteid disintegration before the spleen was removed. All the evidence, therefore, shows that the diseased spleen contained elements which destroyed the blood and pathologically increased the proteid metabolism. Removal of the spleen removed also the influence of these toxic factors, and recovery ensued. The author reports another case with very similar symptoms, except there was no increase in the proteid disintegration. The case recovered spontaneously without splenectomy, showing it was not one of Banti's disease. Cases similar to this probably account for those cases of supposed Banti's disease, in which splenectomy does not produce a cure. [B.K.]

Spirochætas in Syphilis.—The specific microorganism of syphilis has so far eluded all search. Recently, owing to Metchnikoff's experiments with inoculating syphilis on apes, this hunt for the specific germ of the disease has been resumed. Hoffmann and Schaudinn described a spirochæta of two varieties, which they found in the secretion of syphilitic papules. D. K. Fabolotmy[1] reports 20 observations, confirming the claims of these two authorities. In 19 human patients and in 1 ape he found spirochætas in papules and affected glands. There seems to be no doubt that these germs have a direct bearing on the disease, but whether they are the immediate cause or not must as yet be kept an open question. [L.J.]

Spirochætas in Syphilis.—E. J. McWeeney[2] was able to verify in nine cases of syphilis Schaudinn's observations as to the presence of spirochætas in this disease. He examined the secretions from mucous patches and other sores, fixing dried films in alcohol and staining for several hours in very strong Giemsa stain (azur I, azur II, eosin in methyl alcohol and glycerin). The spirochætas were found to be extracellular. Previous efforts to cultivate them have failed, owing to the ignoring of the probable protozoal nature of these organisms. A species of spirochæta has lately been shown to be a stage in the life history of a trypanosome. At the same time a trypanosome has been shown to be the cause of a sexual disease of horses (dourine) not unlike syphilis in its manifestations. Kala-azar, another trypanosome disease, is also communicable by sexual intercourse. All these considerations, together with the fact that Metchnikoff has found spirochætas in the syphilitic lesions produced in apes, lead to the conclusion that spirochætas may be etiologically connected with syphilis. [B.K.]

A Possible Mode of Action of the Röntgen Ray upon Cancer.—W. C. Lyle[3] believes, though an electrolytic action is present, a purely chemic one exerts the curative effect. After röntgen-ray exposures, even with intact integument, the writer has observed a more or less profuse exudate of a clear, lemon-yellow fluid, specific gravity about 1,060, and distinctly alkaline and caustic, crystallizing in the air and producing death in 48 hours when injected into mice. It occurs in all cases of carcinoma, and as soon as the tumor breaks down its caustic action is shown in a furrow at the most dependent part of the ulcer, often involving the subjacent healthy skin and always the mucous membrane, if present. In very superficial tumors of small area one may detect a gradual diminution in quantity consequent upon the healing process, and as soon as the exudate ceases, the operator may leave off further treatment, even though the mass has not entirely disappeared. When ulceration has occurred the fluid is masked by pus, etc. The writer believes the mild toxemia present during treatment is from absorption of this product of decomposition. In several cases with malignant internal growths without external drainage, death has resulted. In using the röntgen rays, drainage should always be established in some way. A possible exception is inoperable cancer, with intense pain. [H.M.]

Inflammatory Tumors of the Salivary Glands.—J. Steinhaus[4] reports three cases of tumor of the salivary glands, in which the clinical history was that of a neoplasm. Histologic examination, however, showed that the growths were of the nature of a chronic inflammation, consisting of connective-tissue overgrowth and cellular infiltration. In all cases the development of the tumor was very slow. The author agrees with Küttner that the cause of these growths is a primary infection of the secretory ducts, leading to closure of the ducts and propagation of inflammatory processes to the connective tissue of the glands. [B.K.]

Experimental Sleeping-sickness in a Monkey (Macacus rhesus).—D. Harvey[5] reports the first successful inoculation. The cardinal symptom is probably due to cerebral anemia from pressure of the perivascular infiltration of lymphocytes. The chronic irritant is the trypanosome and its products. These cause migration of the lymphocytes into the spaces normally filled with cerebrospinal fluid, which in health is destitute of cellular elements. The earlier stages of the dis-

[1] The Lancet, April 29, 1905.
[2] Journal of the Royal Army Medical Corps, April, 1905.
[3] Zeitschrift für klinische Medicin, Bd. lv, p. 289.

[1] Russki Vratch, June 11, 1905.
[2] British Medical Journal, June 10, 1905.
[3] Georgia Practician, May 15, 1905.
[4] Zeit. f. Heilkunde, Bd. xxvi, Abth. f. Path. Anat., Heft 2, p. 194.
[5] Journal of the Royal Army Medical Corps, May, 1905.

ease are due to chemic changes in the cerebrospinal fluid from the presence of trypanosoma, and the lethargic stage is due to the perivascular infiltration. The lymph-nodes and bone marrow show the same changes. The lymphocytes from the brain show vacuolation. In the case reported the parasite was found in fluid from the lateral ventricles, and sections showed the typic and specific lesions of chronic sleeping-sickness. There was entire absence of bacterial infection. [H.M.]

Histology of Aortic Aneurysms.—K. Asahi[1] has investigated the microscopic differences between the socalled spontaneous aortic aneurysms and those arising from healed aortic ruptures. He examined the aortas in four cases of the latter class and found the distinguishing feature was entire absence of inflammatory changes in the aorta. The aneurysms arose by dilation of the aortic wall at the site of the cicatrix left by previous trauma. In six cases of "spontaneous" aneurysm there was invariably found a marked degree of proliferative mesaortitis. Half of these cases gave a previous history of syphilis as the probable cause of these inflammatory changes. A number of other cases of mesaortitis were also examined, and established a close relationship between this condition and syphilis. [B.K.]

Pathology and Etiology of Obstructive Hypertrophy and Atrophy of the Prostate.—P. M. Pilcher[2] classifies the prostates causing urinary obstruction into the large, soft type, the small, hard type, and the mixed type. Infection does not influence the variety of the pathologic change. The contracted form is not the secondary stage of the large, soft type. In many cases of hypertrophy of the prostate there is true muscle hypertrophy. In some atrophic cases the glandular elements are relatively diminished and the muscular elements relatively increased. Gonorrhea is not an important factor in the production of this disease. The theory of obstruction to the ducts causing passive dilation of the glandular elements, as advanced by Ciechanowski and Crandon, does not satisfactorily explain the pathologic findings. Hypertrophy results from glandular overgrowth influenced by the degenerative changes of old age and other agents which tend to produce fibrous tissue in an actively functionating gland. [H.M.]

Experimental Studies Concerning the Pulmonary Circulation.—D. Gerhardt[3] supports Lichtheim's view that even a pronounced limitation in the extent of the pulmonary circulation has no effect on the blood-pressure in the systemic circulation. The increased pressure in the pulmonary arteries caused by such limitation, is compensated by an increase in the work of the right ventricle. On the other hand, even a slight increase in the pressure within the air passages causes a material limitation of the general circulation. This is brought about by interference with the flow of blood from the systemic veins into the thoracic parts of the vena cava, also by obstruction of the pulmonary circulation and by reflex depressor excitation. The blood-pressure, however, is increased in the systemic arteries. This is caused partly by the assistance given to the outflow of blood from the heart and aorta by the increased intrathoracic pressure, and partly by an increase in the abdominal pressure. The presence of fluid in the pleural cavity causes high systemic blood-pressure, until the amount of fluid becomes very large, when the pressure falls. The increased pressure in the veins, however, works an injury to the circulation, which can be partly compensated by a deepening of the respiration. The work of the heart does not seem to be materially increased by pleural effusions. [B.K.]

Two Cases of Influenza Bacillus Meningitis.—J. Jaundell[4] adds two to the 12 recorded cases of cerebrospinal meningitis clearly proved due to the influenza bacillus. The first, a girl of 8 months, became comatose on the sixth day after the appearance of the first symptom; previously she was thought to be suffering from an ordinary cold in the head. On the seventeenth day a lumbar puncture served to procure several cubic centimeters of thin purulent fluid, in which the influenza bacillus was recognized by simple staining as well as by cultivation on blood agar. She died three days later; autopsy was refused. The author believes this to have been a primary infection of the meninges with the influenza bacillus. The second patient, a child of 18 months, developed a purulent meningitis in the course of a bilateral pneumonia and otitis media. She died on the eighteenth day of the disease. The cerebrospinal pus obtained after death contained many colonies recognized as consisting of Pfeiffer's organism; the cultures, however, were absolutely negative. In this case it is supposed that the meningeal state was secondary to the influenza pneumonia. Of the 14 patients in whom the influenza bacillus was isolated from meningeal lesions, 11 were children. [E.L.]

Condition of the Bone-marrow Cells in Various Diseases.—B. Wolownik[1] found a bone marrow of predominating myelocytic type in tuberculosis, sepsis and pyemia, cardiac diseases, nephritis, and carcinoma. A lymphocytic type was found in pneumonia, hepatic cirrhosis, and diseased lymph-nodes. The polynuclear neutrophiles were most numerous in cases of suppuration and ulceration. The eosinophiles were most numerous in pneumonia and nephritis; if they were increased in other diseases, a complicating nephritis often existed. In tuberculosis and carcinoma the giant cells and normoblasts were markedly increased. It is thus evident that in various classes of disease the bone marrow has a definite composition, which must be more accurately established by further study. [B.K]

Blood Cultures Taken during Life and after Death.—N. B. Gwyn and N. MacL. Harris[2] find that within certain time limits postmortem bacteriologic methods are trustworthy in determining the presence of many infections. The oftener a marked antemortem infection is present, the greater the probability of finding an uncomplicated postmortem bacteriologic result, provided the investigation is carried on within a reasonable time after death, say 12 hours. A bacteremia due to the common organisms of the intestinal tract and the socalled agonal invasions of the blood do occur, but not frequently. The role of the bacteriolytic complements is probably considerable, although not entirely explaining in some cases the negative results during life with positive results after death, or vice versa. In view of the number of unrecognized infections and the future possibilities of serum treatment, bacteriologic investigation of the blood, both before and after death, should be more generally practised. [H.M.]

The Nature of Hemophilia.—H. Sahli[3] has investigated four cases of hemophilia, occurring in three families. Morphologic examination of the blood showed a relative and absolute diminution in the neutrophile leukocytes, and a relative increase of the lymphocytes; the blood platelets were not numerous, but did not fall below the number often found in normal persons. The coagulation time of the blood was very long during periods when the patients had no hemorrhages. At the time of hemorrhage the blood flowing from the wound showed a much greater rapidity of coagulation, even surpassing the normal. This is partly due to a saturation of the blood with fibrin ferment from the fibrin coagulum that forms in the wound, but is also due to a reaction of the organism against the hemorrhage. The continuance of hemorrhage, in spite of this fact, is due to the absence of those substances supplied by the vessel walls in the process of thrombus formation. These substances are probably thrombokinase and zymoplastic substance. The low coagulative power of the blood during the intervals between hemorrhages is probably due to this failure of chemic participation of the vessel walls, and also to an inherited quality of the cells in the hemophilic organism. The chemic change in the walls of the vessels will also account for the occurrence of spontaneous hemorrhages and of local hemophilia of the kidneys and other organs. In view of these facts, the therapeutic indication in hemophilia is to improve the general condition of the patient, especially by rich and abundant nourishment. Locally the author recommends the use of compresses saturated in a sterile 2% solution of gelatin, the gelatin being forced into the open vessels by pressure. At the same time the fibrin ferment, thrombokinase, and zymoplastic sub-

[1] Zeitschrift für Heilkunde, Bd. xxvi, Abth. für path. Anat., Heft 2, p. 163.
[2] Annals of Surgery, April, 1905.
[3] Zeitschrift für klinische Medicin, Bd. lv, p. 195.
[4] Jahrbuch für Kinderheilkunde, 1904, lix, 777.

[1] Zeitschrift für klinische Medicin, Bd. lvi, p. 529.
[2] Journal of Infectious Diseases, June 24, 1905.
[3] Zeitschrift für klinische Medicin, Bd. lvi, p. 264.

stances formed in the fibrin coagulum of the blood, may be forced into the vessels also, the combination of all these elements probably producing a thrombosis that will stop the bleeding. The subcutaneous or internal use of ergot and adrenalin are absolutely contraindicated. [B.K.]

Perithelial Sarcoma of the Testicle.—C. Sternberg[1] describes a tumor of the testicle, appearing on section as if made up of yellowish or brownish foci of varying size, with occasional cystic formations. Numerous metastases occurred in the retroperitoneal glands, liver and lungs. Histologically, the tumor cells were seen to take origin from the bloodvessels, the latter being surrounded by series of cells that showed evident connection with the vessel walls. Beside this structure, typical of perithelial sarcoma, large masses of protoplasm were seen here and there in relation with the capillary walls. At times these protoplasmic masses were intimately associated with the endothelial cells in forming the walls of the bloodvessels, and at other times they seemed to be altogether independent structures, resembling giant cells. They were evidently abnormal developments of the capillaries in the form of vascular sprouts. They occurred especially in the metastases, when the tumor growth was more rapid. Similar growths have been described by other writers, and have often been supposed to partake of a chorioepithelomatous nature. The author says, however, that syncytial formations are not necessarily confined to the chorion epithelium. They may occur in the normal organism or in various tumors, especially those of vascular nature. The tumor under consideration may therefore rightly be described as a perithelial sarcoma, in which a proliferation of the vascular endothelium has given rise to structures resembling those of the syncytium. [B.K.]

An Immune Body Capable of Inhibiting the Development of Cancer in Mice (Adenocarcinoma, Jensen).—G. H. A. Clowes[2] has experimented with the serum of mice which have recovered from cancer on other mice containing rapidly developing tumors. In every case two mice from the same source, inoculated at the same time and having tumors of about the same size, were used for comparison, one receiving a dose of the serum and the other normal mouse blood. In the former small tumors disappeared in four or five days, larger tumors diminished, and then remained stationary; those weighing more than 3 gm. or 4 gm. were not appreciably affected, but the cachexia was notably alleviated. The tumors in the control animals were fatal. The serum of the cured mice had a certain degree of activity, but it was not so great as that from mice spontaneously recovered. The latter serum varies, however, within wide limits. Serum from mice cured by röntgen rays had no effect on other tumors. Minute masses of connective tissue are frequently all that is to be found a few days after treatment of a small tumor. [H.M.]

Experimental Contribution to the Tuberculosis Question.—F. Klemperer's[3] investigations concern the question of immunization of cattle with human tubercle bacilli, and vice versa. His first experiments established the fact that healthy cattle may be immunized not only by intravenous injection (as Behring discovered), but also by subcutaneous inoculation of the human bacillus. He then took cattle that already had tuberculosis, and found that repeated injections of human bacilli produced practically no reaction. Further experiments were made with animals artificially inoculated with bovine tuberculosis, and it was found that supplementary inoculations with human bacilli had an inhibitory effect on the course of the disease. From experiments made on himself, Klemperer came to the further conclusion that when bovine bacilli are introduced subcutaneously into a healthy human being, they soon disappear without producing any tuberculous lesions. Their inoculation into tuberculous patients was likewise followed by no bad results; not even a febrile reaction ensued. It therefore becomes possible to attempt the immunization of incipient tuberculous cases by the subcutaneous injection of bovine bacilli, and it is to be hoped that further experiments will be made in this line, with the view of determining the value of this procedure. [B.K.]

[1] Zeit. für Heilkunde, Bd. xxvi, Abth. f. path. Anat., Heft 2, p. 105.
[2] Johns Hopkins Hospital Bulletin, April, 1905.
[3] Zeitschrift für klinische Medicin, Bd. lvi, p. 241.

Fusiform Bacilli and Spirillums in Morbid Processes.—G. H. Weaver and R. Tunnicliff[1] report a study based on cases of ulceromembranous stomatitis, and angina, noma, and diphtheria, and the saliva and tartar from healthy mouths. In the early stages of ulceromembranous angina and stomatitis the bacilli are most abundant, and decrease as recovery advances. When the bacilli and spirillums are most abundant other bacteria are small in numbers. As the former decrease the associated bacteria usually increase. In normal mouths the fusiform bacilli were present in small number; in diphtheria they were found only after considerable search. The association of spirillums with bacilli was observed in all the cases studied. Some maintain they are different forms of one organism. The writers describe the cultural, morphologic, and staining properties, and inoculation experiments. The strongest evidence of a causal relationship between fusiform bacilli and necrotic processes has been furnished by microscopic sections. Now that the bacilli can be grown in pure culture the authors hope further study will reveal their relationship with the diseases with which they are associated. [H.M.]

Bacteriology of Scarlatina and Its Significance for the Disease Process.—G. Jochmann[2] has made a bacteriologic study of the various organs in scarlet fever. He maintains that the initial angina is due to the still unknown scarlatinal organism, while the more severe sore throats are due to secondary streptococcic infection; this is especially true of the necrotic tonsillitis that frequently occurs in this disease. The otitis media almost invariably arises from a necrotic angina, and is also due to the streptococcus. In like manner various other organs, such as the eyes, trachea, lungs, pleura, joints, heart, central nervous system and lymphatics, may show mild disturbances, due to the scarlatinal virus, and more serious conditions, due to secondary infection, especially with the streptococcus. This organism can frequently be recovered from the blood in the later stages of the disease and after death. It is to be noted that all of the cases of streptococcemia are attended by septic symptoms, and invariably end fatally; in fact, half of the fatal cases of scarlet fever will reveal this organism in the blood. The true scarlatinal nephritis of the third week is caused by the unknown virus of the disease, but a septic nephritis, due to the streptococcus, may arise at any time after the third day. The author believes that the eruption is undoubtedly due to the specific infection, as it differs in many respects from an ordinary septic exanthem. He also maintains that the streptococcus found in scarlet fever in no way differs from the ordinary pus-producing streptococcus. It cannot be regarded as the specific organism of the disease, because it does not make its appearance in the blood until after the height of the fever and exanthem has been reached and passed. It is, however, the most frequent and dangerous source of secondary infection, which fast accounts for the beneficial effects of antistreptococcic serum in this disease. [B.K.]

Myelogenic Origin of Acute Leukemia.—C. Aubertin[3] says the medullary theory of acute leukemia is supported by the absence of enlargement of the spleen and lymphatic glands, and by the occurrence of osseous pains and swellings, referable to inflammatory changes in the bone marrow. The undoubted presence of a myeloid reaction is also manifested by the finding of nucleated red corpuscles in the blood at an early date in the disease. At autopsy the sinuses and pulp of the lymphatic glands and spleen are found to be filled with the myeloid cells above described; but there are no evidences of proliferation in the parenchyma of these organs. On the other hand, an intense cellular proliferation is found in the bone marrow. This is especially well marked in the very acute cases. As the chronic form is approached, the lymphoid and splenic tissue participate more and more in the disease processes. The myeloid cells that result from this proliferation, are to be regarded as the mother cells, from which are derived the myelocytes, the red blood corpuscles, and perhaps all the elements of the blood. The cause of this special form of medullary proliferation is undoubtedly infectious, the exact nature of the infection being still unknown. [B.K.]

[1] Journal of Infectious Diseases, June 24, 1905.
[2] Zeitschrift für klinische Medicin, Bd. lvi, p. 316.
[3] La Semaine Médicale, June 14, 1905.

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A Clean Milk Supply in Rochester.—Health Officer Goler,[1] of Rochester, New York, describes how the deaths of children under 5 have, during the past eight years, been reduced to 864, as compared to 1,744 the preceding eight years, and this, notwithstanding, the population has increased more than 30,000 during the later period. The expense has been "but a thousand a year" for the two months the distributing stations are open. The beginning of the enterprise was small—one station, a primitive pasteurizing plant, pamphlets of directions to give to mothers, and scales to weigh the babies, the milk mixtures for those not under the care of a physician, being based entirely on weight instead of age. For three years the milk was pasteurized. Then this unsatisfactory preparation of the city-delivered product was abandoned in favor of clean milk, and a central station, under the direction of a nurse and three assistants, was established on a farm. There the milking is supervised, and the clean milk put in sterile bottles and shipped in iced boxes to the city distributing stations. Milk prepared in this way has shown an average of less than 10,000 bacteria per cubic centimeter, less than a fiftieth of the number of organisms in the milk ordinarily sold in the city. This report is valuable in two respects. It shows what can be done with a small outlay of money in lowering the deathrate of infants, and it also demonstrates the possibilities of milk kept clean from the beginning as compared with pasteurizing contaminated milk.

The cure of leprosy by röntgen rays has been announced in the press dispatches from Manila, but as cures of this infection have been announced in lay and scientific journals many times before, it will be necessary to await the details of the technical reports. Nevertheless, those who have devoted themselves to the therapeutic uses of concentrated short length rays, whether blue, violet, ultraviolet, or röntgen rays, have prepared us for such an announcement. The similarity of the bacillus to that of tuberculosis, and the comparative ease with which the latter can be killed, if it is not too deeply imbedded, would seem to indicate that similar success should be possible in leprosy. Dr. H. L. Gilchrist, of the United States army, has been the pioneer in the use of röntgen rays for leprosy, and has had very encouraging results. The other side is presented by the army surgeons who have been watching with much interest the changes in the leprosy patient at Fort Screven, Ga. These men have about come to the conclusion that they have discovered no cure in his case, and therefore they are not prepared to endorse heartily and without reservation the statements made in the press dispatches from Manila. The röntgen rays were applied to the Fort Screven patient, and there appeared to be at least an arrest of the disease. The progress of the case has been observed with much interest, but those who are acquainted with the circumstances say that they can offer nothing in the way of the permanent relief of lepers, although they show improvement. Medical discoveries have been made in the tropics with increasing frequency ever since Laveran found the plasmodium of malaria, but now they are coming in a veritable torrent which is bewildering. Scarcely do we become reconciled to one revolutionary change in our views, when another discovery lights up a new corner which was formerly in complete darkness. If the white man's conquest of the tropics has had no other result than the advances made in our knowledge of infectious diseases and how to prevent them, the cost in money and lives is cheap in comparison to the benefits. Formerly leprosy infection was a death warrant, and the sufferer had only to wait the end, happily somewhat stupefied by the toxemia which is at the basis of the peculiar resignation found in the disease, and so out of keeping with the hysteric accounts we read of the alleged horrors of their lot. Indeed, Filipino lepers show great pity for those suffering from syphilis, compared to whom their own lot is considered far superior.

Leprosy is a world-wide infection and as old as history itself. Its literature is so voluminous that it must have occupied man's thoughts in all ages. It is to be expected that opinions as to its cause and contagiousness should vary from time to time. George Pernet's review of the subject in the *Quarterly Review* for April, 1903, is a good summary to that date, to which the subsequent years have added little. It can be taken as proved that the disease is not caused by improper diet, but is due to a bacillus. It is contagious, but as the organism is mostly deep seated, and is not cast off in

[1] Charities, August 5, 1905.

such profuse numbers from mucous surfaces as the tubercle bacilli from the tuberculous, the opportunities of transferring it from host to host are comparatively few, except by close contact. There is every reason then for isolation. Though it was once widespread in Europe, something has killed it off, except in Norway and Iceland, and sporadic cases elsewhere. Perhaps a true immunity has resulted from the elimination of the susceptible, the process being still under way in the North, which was last invaded. If this is so, Americans have but little to fear; nevertheless the sad experiences in leper colonies have shown that the immunity is not complete. As the disease in America is more or less with us always, and as we also have inherited the burden of caring for some thousands of sufferers in the Philippines, the whole matter is of increasing national importance. Extensive plans are now being carried out to colonize these lepers on an island, copying the plan of the Hawaiian government. These new discoveries, then, if true, will change the isolation from a living burial to a temporary quarantine until recovery.

The Russian protest against Japanese neglect of Russian soldiers at Port Arthur[1] must be quite shocking to those who are inclined to credit the Japanese with superhuman excellence in everything they undertake. The lay press has been more or less deluged with statements of the wonderful results the oriental surgeons have been obtaining with their own sick, and we have had occasion to call attention to the fact that really nothing definite was known as to what they were doing, as secrecy has been their shibboleth. It will be a long time before facts of sufficient authenticity will be available for safe conclusions. So far we are in possession of nothing of value for adoption by western nations. At the same time, we are not justified in accepting the partisan view of the Russians, who, from the outbreak of war, have shown a childish querulousness in their protests to the other powers. In many, if not all of the matters of complaint, subsequent investigations have shown that the Japanese were acting properly. Indeed, any complaints whatever come in rather bad taste to say the least, for the main plan of the Russians seems to have been to kill, sink, and destroy—in marked contrast to the Japanese efforts to capture and save. The actions of the Russian ships have been the black spots of the war.

War is hell, and the Russians who wrote the protest seem to have forgotten that. It has been said that before the surrender, the condition of their sick in Port Arthur was dreadful in the extreme, without foods, medicines and dressings—as is the rule in besieged places, not the exception. Americans found the same state of affairs among the Spanish sick at the surrender of Santiago and Manila. It is not possible for any army to have everything needed for its own sick. The Japanese had a tremendous task with the thousands of patients left on their hands, and the neglect of some may have been unavoidable. Anyhow, the complaint refers to such a small number as to be insignificant in comparison to the total. Surgeons and nurses are always worked to death, and their apparent callousness is merely exhaustion. Indeed, the whole complaint has the earmarks of the usual querulousness about every unavoidable horror of war. The Japanese may have had good reasons for their course, and the accusation that they deliberately tried to kill off the sick is not credible. At the same time, we must remember that western civilization has reached only the upper ruling classes, and that the mass of the nation—the peasantry—is still untouched by it. They are all orientals with that contempt for life which we cannot understand. We should not be surprised to find the veneer of civilization to be worn off here and there by the war, and the concealed barbarism laid bare.

[1] *American Medicine*, August 19, 1905.

Japanese medical equipment is very simple and primitive. They have scarcely any furniture in their houses and need little in their hospitals. They have little need of stoves, so that the hospital wards in winter are cold enough to kill a European invalid. Clothing and food are simple, and their recuperative powers are so wonderful that primitive surgery will suffice. Under such circumstances it is quite conceivable that the Russians may have imagined they were neglected, when in reality they were receiving exactly the same as the Japanese sick. Indeed, it is known that to avoid just such complaints, the Japanese had planned to give the enemy's sick even more comforts than their own, as they recognized that what was good enough for Japs was insufficient for others. Though we must welcome every fact from which we can derive lessons for ourselves in our next war, it is evident that we must never take oriental facts upon their face value. East of Suez, things are seldom what they seem. Nor must we forget that in the excitement of our last war, we ourselves made dreadful accusations against the Spaniards, and later found out that we had been entirely mistaken.

The Exchange of Serums and Vaccine.—Compared with that of European establishments, a curious practice has become prevalent among the leading concerns in the United States devoted to the production of various curative serums and vaccine. Instead of setting an expiration time limit on these biologic agents and thus ending the transaction, the American commercial serotherapeutic institutions receive unused and "expired" products for exchange; thus the original cost of production, preparing for the market, and transportation, is renewed and repeated. So far as can be learned, this custom had its origin in an erroneous conception of the results which, as experience has shown, work particular hardship to the financial interests involved. Reflexly, it has affected the physician and his patient, since it has necessitated a relatively higher first cost, particularly in the case of the curative serums. This exchange system is not customary in the case of the products of foreign biologic laboratories, nor is it practised by our public institutions like Boards of Health engaged in the production of serums and vaccine. A custom working this peculiar injustice to American establishments, and one so unfair and unprofitable, should be abolished. This can be effected when biologic products find their way to

the physician who judiciously anticipates his wants, thus leaving no premium on the placing of large "future" orders through the efforts of enterprising salesmen. With the centers of distribution so conveniently located, as is now the case with the branches and jobbing houses in connection with the large mercantile antitoxin establishments, and with the ready communication afforded by telegraph and telephone, and speedy delivery through the agency of express trains, a supply of antitoxin or vaccine for an emergency can be immediately procured, thus obviating the necessity of carrying a large stock of these products by the physician or his local druggist.

The Cost of Vaccine.—Added to the unprofitable features incidental to the exchange of vaccine, the first cost of this important prophylactic agent in the United States is very low, considering the expense of its preparation under modern exacting scientific conditions. When vaccine comes to be sold at five cents a tube or point, and the operation of vaccination is performed by laymen, or by physicians for a trivial fee, an element of danger is introduced. Little wonder that as an outgrowth of these conditions vaccine has been offered by a department store as a commodity for popular use. In this respect our English confreres set a good example by marketing the Jennerian product at 12 or 25 cents a tube for single vaccination, and with no exchange.

The trypanosomes, though known to naturalists for more than a half century, have suddenly leaped into a position of such importance that they are being studied with feverish interest in all parts of the world. They present the unique spectacle of a wellknown genus of animal, suddenly revolutionizing our knowledge of several diseases and necessitating a new classification. Though this parasite has so long been known as a supposedly harmless resident in the blood of very many birds, frogs, fishes and wild mammals, and though for a quarter of a century it has been known as the cause of surra in the camels, horses, and cattle of India, and of the similar diseases, mal de caderas, in South America, and dourine, in North Africa, and for ten years as the parasite transmitted by the tsetse fly to South African cattle, it is only within the last three years that it has been found to be a veritable human plague, at the present time destroying African negroes by the hundreds of thousands yearly in the dreadful "sleeping-sickness." In addition to all this, Dr. Schaudinn, of the German Imperial Health Bureau of Berlin, but recently described the very remarkable series of transformations of the species inhabiting the stone owl, and it is presumed that similar changes occur in every other species. In one of these stages, the trypanosome so nearly resembles *Spirochæte obermeieri*, the spirillum long known as the cause of relapsing fever, that there is every reason to believe this disease to be due to trypanosomes. Indeed these organisms, long classed with the bacteria, are now transferred to the animal side of the living world. In like manner, the Leishman bodies found in the spleen, in the Indian fever, kala-azar, and similar ones found in Delhi sore, are presumed to be sexual or larval stages of other species of trypanosomes. It is quite evident, then, that these discoveries are of such importance that they justify the labor spent upon this new branch of pathology, which is already so vast in scope and possessed of such a great and growing literature as to need specialists devoted to it alone. The story of its rise is almost romantic.

The economic importance of trypanosomes is still the main issue with Americans, for it is but three years ago that surra was so prevalent in the Philippines as to bid fair to kill off every domestic animal imported into the islands. The parasite has destroyed stock worth several millions, and in some places it has killed so many of the native domestic animals as to make farming impossible. So far as known, trypanosomes have not infected any human victims in American possessions, probably because none of these species can live in man, or perhaps there may not be an appropriate intermediary host to transfer them. "Sleeping-sickness" exists only where the tsetse flies are found, but will no doubt spread, should they be carried into new places. It is not at all unlikely that if an appropriate intermediary host is introduced into the Philippines or even America we will encounter a new kind of epidemic. Professor Lankester, in a most interesting summary of the subject, in the *Quarterly Review* for July, 1904, suggests that trypanosomes are really not disease organisms at all, for each of the numerous species seems perfectly adjusted to the particular host in which it is found. They might even be conferring some benefit as symbiotics, so common are they. It is only when the fly transmits them to the wrong animal that they are either promptly killed themselves or flourish unduly. He suggests the word "repellant" for the form of immunity which kills the invader, and "tolerant" for that of the normal host. Man is undoubtedly repellant to the vast majority of species, for he must be frequently inoculated by the insects which are constantly transferring them from animal to animal in every part of the world. The races living in the districts where "sleeping-sickness" has been endemic for a long while, have already developed a partially "tolerant immunity" to this species, as in the case of malaria, and perhaps filaria also, for it is said that trypanosomes are found in 28% of the inhabitants. As only a few of these develop "sleeping-sickness" later, the others must tolerate or perhaps kill the organisms. Other races not having this immunity suffer a dreadful mortality when infected, for no case ever recovers once sleeping-sickness begins.

Government aid for human pathology is urgently advocated by Lankester, who calls attention to the present disgraceful conditions in England and America. Thousands are spent to keep cows and pigs healthy, but not one penny to help along the study of man's diseases. It seems as though human life were so cheap that we actually wanted many to die. Their places are desired by the unemployed. Before a man's corpse is cold, there is a horde asking for his position. For that matter we all seem to be waiting for dead men's shoes. But if the cattle die we all suffer. It is an axiom of warfare

that a mule is worth more than a soldier, and the attitude of the government to the civil population is the same. In the peasant's family it might be a greater disaster to lose the cow than to lose the baby, the baby is quickly replaced, but not so the cow. Man rarely gives a thought to his dead neighbors, but when diseases attack his herds he demands government aid at once—and gets it. Human pathology is left to private enterprise, and as pathologists must have bread and butter, they can devote only part of their energies to investigation. Past discoveries then were often lucky hits—few and far between. From Jenner to Lister was a long time, with but few marked revolutionary advances; but the last quarter century has seen an increasing flood of discoveries by salaried investigators. France, England, and America depend upon men hired to do military work and who are compelled to desert their real specialty. Beaumont led off with his work on the stomach, Laveran revolutionized theories as to malaria, Evans, surra, Bruce, tsetse disease and sleeping-sickness, and Reed, yellow fever. The contrast to German endeavor is remarkable, for here we find salaried men paid to do this work and nothing else. From Koch's work in tuberculosis and cholera there have been so many advances that no one man can even keep track of them. The last of these revolutions is Schaudinn's work with trypanosomes. Lankester suggests that as each species of this animal requires a certain set of blood conditions to flourish, and as it promptly dies when injected into the circulation of other animals, it should be possible to find a serum which will promptly cure every case of infection, not only in man but in the domestic animals also. But before anything can be done in this direction there is an enormous amount of study to be given the genus to work out the life history of each species, and they are legion. We cannot expect to have public money wasted in this work if it is merely to save a few surplus men, but if it is to save millions of dollars worth of government live stock, the public pursestrings might loosen a little perhaps.

It takes time to think, and moreover, good thoughts are rarely born without painful effort at that. Facts persistently present themselves out of their places and causes generally hide themselves while their results are ubiquitous. Brilliant discoveries, then, which look so simple, are likely to be the culmination of months or even years of patient search for data, and of painful sorting of the material into proper order. This cannot be done in the hurly-burly of the strenuous life we admire in America, but it requires the simple life with its good health, absence of financial worries, and plenty of sleep. There is great necessity of relieving teachers of much of their drudgery, that they may have time to think, instead of being automatic repeaters of other men's thoughts. It is the cause of the deadening conservatism of the pedagog who is afraid of the new as though it were heresy. If they created the new they would not now have the sad record of opposing Jenner, Pasteur, Lister, Laveran, Koch, and the host of other outsiders who had time to think and were not bound down to teach the past history of science as the only orthodoxy. New ideas generally have to wait for recognition until their young creators are old enough to enter officialdom, and that is generally after their opposition dies of old age. Similarly, how can we expect the busy medical man to dig and delve in investigations while so occupied in the strenuous work of making his living. This, no doubt, was the reason for Hunter's "damned guinea" episode, which, by the way, we once credited to Harvey, an illustration of the dangers of a haste in which the hand writes one thing while the mind thinks another. Lankester's suggestion is then in the direction of progress. We must have salaried experts to carry on investigations into those human diseases which our tropic expansion has brought into American life. Men are worth more than cattle even if we do not act as though we believed it.

The dangers of officialdom are too well known to enlarge upon. The free lance has no responsibility if in error, but the official is naturally afraid to be wrong and cannot afford to accept a new idea and make it orthodox until it is shown to be true. It is but human that in the course of years this attitude should drift into one of chronic opposition to the course of events, exaggerating the normal conservatism which comes with age. This is the main reason why it is a permanent necessity to have unofficial organs for the unorthodox publications of outside workers. A great popular science journal lost its power for good a few years ago just because its evolution supporters became orthodox in the natural course of events and are now able to suppress the outsiders. The natural tendency of official scientists to oppose the work of unofficial workers led to one of the great squabbles connected with our public service, yet it did not stop the course of events a moment. The feeling of responsibility, which comes with the knowledge that there may be an official halo around one's brow, rarely prompts one to an active attack upon new ideas, but is more of a healthy resistance to every new suggestion until it is known whether it is good. It prevents running after false gods. In spite of its defects, the system of salaried investigators has accomplished much in Germany, and as far as it has been tried here, it has been productive of great good. The intensely practical layman can be assured that it pays, even if it does save the man whose shoes he waits. The junior military surgeons no doubt keenly feel the repression of conservative seniors, and the less forceful naturally take the broad, level path of least resistance and drop out of the race. Nevertheless it appears to be a fact that the military surgeons of the world have, in proportion to their relative numbers, accomplished much more than their share of the world's medical discoveries. It is the best kind of proof that salaried men, freed of the worries of grubbing for food, can accomplish original and voluntary research in spite of all discouragements.

Polish Physicians Protest against Russian Language for Death Certificates.—The Warsaw Medical Department requires that certificates of death submitted as to insurance or for permission to remove bodies should be in Russian. Dr. Grosglika formally protests against the rule and his protest is reinforced by 96 other medical men of Warsaw and a number of lady medical practitioners.

BOOK REVIEWS

The Modern Mastoid Operation.—By FREDERICK WHITING, A.M., M.D. Philadelphia: P. Blakiston's Son & Co., 1905.

This octavo of 353 pages is one of the most elaborate monographs on a single operation that has ever come to our notice. The author says the possibilities of the surgery of the mastoid process as regards the extent of procedures upon that structure are practically exhausted, and improvement must come from perfection of technic. Hence the 19 chapters of the book are made up of the most careful description of the author's method of conducting this operation. He departs from some of the traditional views regarding certain points, and this, as well as the actual technic, adds materially to the value of the book, as Dr. Whiting's success in treating mastoid disease needs no comment. The drawings are unusually clear and explanatory, and the necessary instruments are described. The operation, from the preliminary preparation to the postoperative treatment, and the indications for the operation, with the pathology, are carefully considered. The book really leaves nothing undone in conveying to the reader just what should be done at each step; it can be unhesitatingly recommended to the profession. The paper, typography, and binding are of the best.

International Clinics.—Edited by A. O. J. KELLY, A.M., M.D. Vol. I. Fifteenth Series, 1905. Philadelphia and London: J. B. Lippincott Company.

The fifteenth series of this wellknown publication begins with a volume containing three articles on treatment, five on medicine, five on surgery, three on neurology, and one on obstetrics. In addition, the progress of medicine during 1904, in which treatment is summarized by A. A. Stevens, medicine by D. L. Edsall, and surgery by J. C. Bloodgood, occupies 110 pages. These reviews are of exceptional value because of the editorial comment added by each of the collaters. The names of the contributors to the clinical part of the volume include those of P. Merklen, A. Robin, Carstairs Douglas, J. J. Walsh, Morris Manges, A. L. Benedict, R. H. M. Dawbarn, C. K. Mills, Edwin Bramwell, and Robert Jardine. The papers are all practical, and, together with the summary of medical progress, make the volume very helpful to the practising physician. Illustrations are numerous and well chosen.

The Four Epochs of Woman's Life.—By ANNA M. GALBRAITH, M.D., with an Introductory Note by JOHN H. MUSSER, M.D. Philadelphia, New York, and London: W. B. Saunders & Co.

The author of this little volume discusses maidenhood, marriage, maternity, and the menopause in a sensible, comprehensive, and lucid manner so that her statements may be easily understood by the unprofessional man or woman. She has handled a difficult subject with truthfulness, yet with delicacy, and were her ethics of married life more carefully observed, there would be less marital infelicity and fewer resorts to the divorce courts. As Dr. Musser, in his introductory note, has well expressed it, "any contribution to the physical, and hence the mental perfection of woman should be welcomed alike by her own sex, by the thoughtful citizen, by the political economist, and by the hygienist."

Medical Examination for Life Insurance.—By CHARLES LYMAN GREENE, M.D. Second Edition. Philadelphia: P. Blakiston's Son & Co. 1905.

This work, which has been out of print for two years, has been largely rewritten and entirely revised. It now contains 466 pages, and is a commendable product from beginning to end. While life insurance is the text for all the remarks, the book contains directions for examining patients that are well worth the price of the book for physicians other than insurance examiners. Many of the illustrations of urinary sediments are better than those usually seen in works upon the urine; those showing the effect of low and high illumination upon tube casts are most instructive. A feature of the book is the wide margins, containing references to the contents of the page. We can heartily commend it to the profession.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Pocket Medical Formulary.—By WILLIAM M. POWELL, M.D., author of "Essentials of Diseases of Children;" Member of Philadelphia Pathologic Society. Containing 1,881 formulas from the best known authorities. With an Appendix containing Posologic Table, Formulas and Doses for Hypodermic Medication, Poisons and their Antidotes, Diameters of the Female Pelvis and Fetal Head, Obstetric Table, Diet List, Materials and Drugs used in Antiseptic Surgery, Treatment of Asphyxia from Drowning, Surgical Remembrancer, Tables of Incompatibles, Eruptive Fevers, etc. Seventh Edition, Revised. In flexible morocco, with side index, wallet, and flap. $1.75 net. W. B. Saunders & Co., Philadelphia and London, 1905.

Acute Contagious Diseases.—By WILLIAM M. WELCH, M.D., Consulting Physician to the Municipal Hospital for Contagious and Infectious Diseases; Diagnostician to the Bureau of Health, etc., Philadelphia, and JAY F. SCHAMBERG, A.B., M.D., Professor of Dermatology and of Infectious Eruptive Diseases, Philadelphia Polyclinic; Consulting Physician to the Municipal Hospital for Contagious and Infectious Diseases, and Assistant Diagnostician to the Philadelphia Bureau of Health, etc. In one very handsome octavo volume of 781 pages, illustrated with 109 engravings and 61 full-page plates. Cloth, $5.00 net; leather, $6.00 net; half morocco, $6.50 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Atonia Gastrica (Abdominal Relaxation), by ACHILLES ROSE, M.D., and ROBERT COLEMAN KEMP, M.D. 12mo. Cloth, 215 pages. Illustrated. Price, $1.00 net. Funk & Wagnalls Co., New York and London, 1905.

Atlas and Textbook of Topographic and Applied Anatomy.—By PROF. DR. O. SCHULTZE, of Würzburg. Edited, with additions, by GEORGE D. STEWART, M.D., Professor of Anatomy and Clinical Surgery, University and Bellevue Hospital Medical College, New York. Large quarto volume of 187 pages, containing 25 figures on 22 colored lithographic plates, and 89 text-cuts, 60 in colors. W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $5.50 net.

Lea's Series of Medical Epitomes.—Edited by VICTOR C. PEDERSEN, M.D. **Epitome of Clinical Diagnosis and Uranalysis.**—By JAMES R. ARNEILL, A.B., M.D., Professor of Medicine and Clinical Medicine in the University of Colorado, Physician to the County Hospital and to St. Joseph's Hospital, Denver. In one 12mo volume of 244 pages, with 79 engravings and a colored plate. Cloth, $1.00 net. Lea Brothers & Co., Philadelphia and New York, 1905.

A Textbook on the Practice of Gynecology.—By W. EASTERLY ASHTON, M.D., LL.D., Fellow of the American Gynecologic Society; Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Octavo volume of 1,079 pages, containing 1,046 new and entirely original line drawings. W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $6.50 net; half morocco, $7.50 net.

Gynecological Diagnosis.—By PALMER FINDLEY, B.S., M.D., Assistant Professor of Obstetrics and Gynecology, Rush Medical College in affiliation with the University of Chicago; Assistant Attending Gynecologist to the Presbyterian Hospital, Chicago. In one octavo volume of 588 pages, illustrated with 222 engravings in the text and 59 plates in colors and monochrome. Cloth, $4 75 net; leather, $5.75 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Diseases of the Heart.—By EDMUND HENRY COLBECK, B.A., M.D., B.C. (Cantab.), F.R.C.P. (London), D.P.H. (Cantab), Physician to Outpatients at the City of London Hospital for Diseases of the Chest, etc. With 43 illustrations, second edition, revised and enlarged. W. T. Keener & Co., Chicago. 1905. Price, $2.50 net.

The Modern Mastoid Operation.—By FREDERICK WHITING, A.M., M.D., Professor of Otology, Cornell University Medical College; Aural Surgeon to New York Eye and Ear Infirmary, etc. Illustrated by 25 half-tone and 23 key-plates made from original drawings. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $2.50 net.

The Thyroid and Parathyroid Glands. By HUBERT RICHARDSON, M.D., late Pathologist to Maryland Asylum and Training-school for Feeble-minded Children, etc. With 77 half-tone illustrations made from special drawings by F. P. WIGHTMAN. P. Blakiston's Son & Co., 1905. Price, $3 00 net.

Handbook for Nursing.—For hospital and general use. Revised edition. Published under the direction of the Connecticut Training-school for Nurses. J. B. Lippincott Company, Philadelphia and London.

Transactions of the American Röntgen-ray Society.—Fifth Annual Meeting, St. Louis, Mo., September 9, 10, 12 and 13, 1904. Press A. H. Sickler Company, Philadelphia.

A Textbook of Medical Chemistry and Toxicology.—By JAMES W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. Octavo volume of 600 pages, fully illustrated, including 8 plates in colors. W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $3.00 net.

Malformations of the Genital Organs of Woman.—By CH. DEBIERRE, Professor of Anatomy in Medical Faculty at Lille. With 85 illustrations, translated by J. HENRY C. TIMES, Emeritus Professor of Genitourinary and Venereal Diseases in Philadelphia Polyclinic. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $1.50 net.

Lea's Series of Medical Epitomes.—Edited by VICTOR C. PEDERSEN, M.D. **Diseases of the Eye and Ear.**—By ARTHUR N. ALLING, M.D., Clinical Professor of Ophthalmology in Yale University, Department of Medicine, New Haven, Connecticut, and OVIDUS ARTHUR GRIFFIN, B.S., M.D., late Demonstrator of Ophthalmology and Otology, University of Michigan, and Oculist and Aurist, University Hospital, Ann Arbor, Michigan. In one 12mo volume of 263 pages, with 83 illustrations. Cloth, $1.00 net. Lea Brothers & Co., Philadelphia and New York, 1905.

American Edition of Nothnagel's Practice: Diseases of the Blood.—(Anemia, Chlorosis, Leukemia, Pseudoleukemia). By DR. P. EHRLICH, of Frankfort-on-the-Main; DR. A. LAZARUS, of Charlottenburg; DR. K. VON NOORDEN, of Frankfort-on-the-Main; and DR. FELIX PINKUS, of Berlin. Entire volume edited, with additions, by ALFRED STENGEL, M D., Professor of Clinical Medicine, University of Pennsylvania. Octavo volume of 714 pages, fully illustrated. W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $5.00 net; half morocco, $6.00 net.

AMERICAN NEWS AND NOTES

GENERAL.

Cholera Spreads in Manila.—The cholera epidemic has taken a rather unfavorable turn. In one day last week there were 11 new cases reported among the natives. The total number of cases treated since the outbreak has been 61, with deaths numbering 28.

American Röntgen-ray Society.—The sixth annual meeting will be held at Johns Hopkins Hospital, Baltimore, September 28, 29, and 30. The Stafford hotel has been selected as headquarters. The program includes foreign as well as American workers in this special department of medicine. All regular practitioners are eligible to membership, and are invited to attend the scientific sessions and view the exhibition of apparatus. Further information can be obtained from Dr. Russell H. Boggs, secretary, Empire building, Pittsburg, Pa.

Fourth of July Tetanus.—This is the third year that *The Journal of the American Medical Association* has issued a review of the Fourth of July casualties. The present report shows that the deaths from tetanus are still numerous, though far less so than in 1903 or 1904; and the same is true of deaths from all other causes connected with the celebration of the national holiday. The total number of deaths from tetanus was 87; this compares favorably with the two preceding years in which the deaths from this cause were 91 in 1904, and 406 in 1903. The total number of deaths from other causes, however, was 95, an increase over the two previous years; and the total number of casualties was also greater.

Plague in the Canal Zone.—The report by the medical authorities of the canal zone that the death on August 26 of laborers employed on the wharf at Leboca was due to bubonic plague has given rise to much discussion. Jeronimo Ossa, consul of Ecuador at Colon, declares officially that the report is false, and that there have been no additional cases of bubonic plague on the Isthmus. As a result of the reported prevalence of plague, Central American and Mexican ports refuse to receive freight sent by way of the Isthmus. Costa Rica and Nicaragua have been altogether closed to Isthmian ports. Several thousand tons of freight for Central America and Mexico is tied up on the Isthmus, and the blockade is increasing with the arrival of every vessel.

Personal.—Lawrence F. Flick, of the Phipps Institute; **Joseph Walsh, Mazyck P. Ravenel**, and **D. J. McCarthy**, of Philadelphia, will sail on September 16 to attend the third International Congress on Tuberculosis in Paris, where they will read papers. During the Congress the delegates will visit the many important French sanatoriums, as well as the various medical, surgical, santitary and charitable institutions directly connected with the antituberculosis movement.—**Miss Florence R. Sabin** has been appointed Associate Professor of Anatomy in the Johns Hopkins University, says the *British Medical Journal*. Her name is well known to anatomists by her work on the nervous system. Miss Sabin, it may be stated, is not the first lady who has been professor of anatomy. In the sixteenth century Alessandra Giovanni taught that subject at Bologna, and Anna Manzolini occupied a chair of anatomy in the same university in the middle of the eighteenth century. Maria Pettracina was professor of anatomy in the University of Ferrara toward the end of the same century. She was the author of several works on a subject which is exciting great interest at present, namely, the physical education of children.

EASTERN STATES.

Gift of Japanese Envoys.—Baron Komura and Mr. Takahira, who last week attended a garden party at York, Me., having subsequently ascertained that the party was organized partly for the benefit of the York Hospital, gave $1,000 to the fund. The management of the hospital announce that it has been decided to perpetuate the gift by endowing two beds in the hospital, and placing over them tablets, inscribed with the names of the donors.

The Condition of Boston's Health.—The total number of deaths for the year was 10,757, an increase over the previous year of 125 deaths. The population, estimated in the middle of the year, was 614,522. The deathrate for the year, as calculated on this population, was 17.50 per 1,000 inhabitants. This rate is less by 0.19 than that of the previous year, and the lowest on the city's record. There were 2,311 deaths from infectious diseases, including tuberculosis, an increase of 19 deaths. There were 8 less deaths from diphtheria and croup than in 1903, but a large proportionate increase in the number of cases. The percentage of deaths to the number of cases of diphtheria reported was 8.12, as against 10.32% of the preceding year. The number of deaths of children under 5 years was 3,105, compared with 3,079 for the previous year, showing an increase of 26 deaths. The respiratory diseases caused fully 27% of the mortality for the past year.

NEW YORK AND VICINITY.

Gift to Charity.—Mrs. Annie Stewart Miller, of New York City, has given in her will, recently probated, to the New York Institute for the Blind, about $100,000, and to St. Mary's Free Hospital, $10,000.

Whole Ship Load Vaccinated.—The vaccination of the 558 cabin and steerage passengers on the steamer Peninsular was done by Health Officer Doty and his assistants last week at quarantine. The Peninsular reached New Bedford, from Lisbon, with a great crowd of fishermen, among whom was one sick with smallpox. The authorities at New Bedford had no facilities for the treatment of so many persons and sent the vessel to New York.

State of Typhoid Fever in New York.—During the week ended September 2 there were 324 cases of typhoid fever reported to the Board of Health, against 252 cases for the preceding week. It is explained that in reality this is not a large increase, 110 of the cases reported being old ones, which negligent physicians had failed to report before. Of the 324 cases, 210 were in Brooklyn, and most of those in the Bensonhurst and Bath Beach district, where there has been a small epidemic. There were 95 cases in Manhattan, 12 in the Bronx, 3 in Queens, and 4 in Richmond.

PHILADELPHIA, PENNSYLVANIA, ETC.

Typhoid Classed as Contagious.—To combat the spread of typhoid fever more effectively, the Philadelphia Bureau of Health hereafter will classify it among contagious diseases.

New Veterinary Hospital.—Work will shortly be begun on the new veterinary hospital of the University of Pennsylvania. The building, when completed, will be the finest of its kind in America, and will cost about $250,000. Dr. Leonard Pearson, the dean of the hospital and State veterinarian, has sailed for Europe to make a tour of the famous veterinary schools of the old world.

Brought Fever from Cuba.—While bound from Santiago de Cuba to Philadelphia, malaria fever broke out on board the Norwegian steamship Urd, causing the vessel to be held up at both the national and State quarantine stations. The surgeons in charge held that as the fever was neither contagious nor infectious, there was no valid reason for the vessel's detention, and she was accordingly released.

Fewer August Suicides in Philadelphia.—While August is still the favorite month for suicides in Philadelphia, there were fewer cases this year than in the same period of 1904. The records in the Coroner's office show that last month 18 people—16 men and 2 women—committed suicide. In August a year ago 23 persons committed self-destruction. Shooting was the favorite method used, five people ending their lives with bullets, while four chose carbolic acid. One man hurled himself under a locomotive. Two used potassium cyanid, one hydrochloric acid, another laudanum. Gas was taken by one and three hanged themselves. A much larger number attempted suicide, but all these are now fully recovered.

The Craig Memorial Fund.—Contributors will be interested to know of the birth, on Sunday, September 3, of a seven-pound girl to Mrs. Craig, widow of Dr. Albert B. Craig, whose heroic death March 13, in the course of his professional work, we have chronicled. An effort is being made to have the matter taken up by the Carnegie Hero Fund Commission as an individual instance of professional heroism. The fund originated by members of the profession for the benefit of the child is at present as follows:

Previously acknowledged	$236.00
Dr. Charles A. Orr	20.00
Dr. C. Fred Grimmer	3.50
Cash	1.00
Dr. F. C. Hammond	5.00
Dr. W. H. Anderson	6.00
Dr. Otto Lerch	5.00
Dr. Eugene A. Smith	2.00
Dr. C. W. Hoyt	1.00
Total	$279.50

SOUTHERN STATES.

Smallpox in Washington Jail.—A third case of smallpox was discovered at the Washington, D. C., jail last week. There are 200 prisoners in the jail, and the health authorities are debating the advisability of removing them to a temporary jail while the building is being disinfected.

Fever Crisis Has Passed.—Signed statements of all the leaders in the fever fight, Surgeon White, President Kohnke and President Souchon of the Boards of Health, Dr. Beverly Warner, Dr. Metz of Tulane University and Chairman Janvier of the citizens' committee indicate that the crisis has passed, that the campaign of science is meeting unbounded success, and that the fever will be practically forgotten by frost. Two cases of yellow fever have been reported at Pearlington, Miss., an important lumber point at the mouth of the Pearl River.

WESTERN STATES.

Lives with Punctured Heart.—Geysa Rek, aged 20, a laborer, was shot August 21, at Cleveland, O., a 32-caliber bullet entering his chest and puncturing the pericardium. The wound was pronounced fatal, but he is now out of danger.

Missouri Valley Medical Society.—This society held its annual meeting in Council Bluffs, Ia., on Thursday and Friday, August 24 and 25, with an attendance of 100. S. Grover Burnett, in his presidential address, entitled, Oslerism Bearded, or a Study of Age in Relation to Work, called attention to the fact that Geo. M. Beard was entitled to priority in suggesting the uselessness of man above 40 years of age. Beard claims that those who have done their best thinking before 40 do their best mental externalizing afterward. He has shown that 70% of life's work is done by the forty-fifth year, and 80% is finished by the fiftieth year, and that only 25% more actual work is accomplished from 30 to 40 years of age than is done between 40 and 50 years of age; thus man's retirement at 40 would mean a loss to the world of a sum equal to three fourths of his work done from 30 to 40 years of age, to say nothing of the auxiliary unfinished business accumulating before 40 and requiring concentrated experience which comes after 40, to shape it into a thing of value. The last half of man's life is unquestionably the best and most favorable part of it, especially if he devotes the first half to thought. Papers were read by LeRoy Crummer, A. C. Stokes, W. O. Bridges, A. P. Condon, and J. P. Lord, of Omaha; Fenton B. Turck, and W. F. Waugh, of Chicago; Daniel Morton, St. Joseph; J. W. Kime, Fort Dodge, Ia.; Herman E. Pearse and C. B. Hardin, Kansas City; T. N. Bogart, of Excelsior Springs, Mo. An amendment to the constitution was read, changing the annual meeting to the first week in September. The secretary's report showed a healthy condition of the society, 41 new members having been added during the year. The Buchanan County Medical Society extended an invitation to hold the next semiannual meeting in St. Joseph in March, 1906, which was accepted. The election of officers for the ensuing year resulted as follows: President, John E. Summers, Jr., Omaha; first vice-president, C. H. DeWitt, Glenwood, Ia.; second vice-president, C. B. Hardin, Kansas City, Mo.: treasurer, Donald Macrae, Council Bluffs; secretary, Chas. Wood Fassett, St. Joseph, Mo.

FOREIGN NEWS AND NOTES

GENERAL.

The number of deaths from tuberculosis in England is 60,000 a year; yet it is said there are only 70 sanatoriums, with room for 2,760 patients.

Personal.—The Emperor of Austria has conferred a life patent of nobility on **Dr. Edmund Neusser**, professor of medicine in the University of Vienna.

The Plague in Zanzibar.—The town is declared to be infected with plague. There have been ten cases among the natives, from which five deaths resulted.

A Prize for a Pulmonary Tuberculosis Cure.—M. Medeiros, of Rio de Janeiro, a member of the Brazilian Legislature, has submitted to the Chamber of Deputies the offer of a prize of £400,000 to be awarded to the discoverer of a certain means of stamping out pulmonary tuberculosis.

The First International United Congress of Anatomy took place at Genoa, Italy, on August 6 last. Professor Romiti, representing the department of education, received the delegates, being assisted by Drs. Fusari, Valenti, Tricomi, and Levi. Interest was increased by the attendance of prominent anatomists from America, England, Belgium and Germany.

Leprosy in Roumania.—Leprosy is said to be increasing in Roumania. Till 1895 no special precautions were taken, the disease not being considered contagious. Since then, however, so many cases have been discovered that the authorities became alarmed, and the rebuilding of an ancient monastery at Arnota, on the seashore, for the interment of lepers was resolved on. It is alleged that the prevalence of the disease has greatly increased in the districts through which the Russian forces passed in 1877-78.

Inoculation for Plague.—According to the *British Medical Journal*, Dr. R. Row, of Bombay, recommends the treatment of plague by the method of inoculation with living pyogenic organisms. He does not enter into details of the character or mode of preparation of the material with which he claims to have produced useful results, but states, somewhat vaguely, that "the chief part of the material consists of a species of *Staphylococcus pyogenes*." This material is introduced by local scarification round about the plague bubo in six or eight points, and "allowed to remain there for eight to ten hours so as to take root." Dr. Row says the pyogenic organisms inoculated counteract the action of the plague bacilli.

Cholera in Germany.—The spread of cholera from two localities on the river Weichsel five days ago to 29 cases in 12 localities extending from the Baltic to the river Warthe, 150 miles south, and its appearance in Hamburg, has given an unpleasant thrill to the people of Germany, for it may mean a long and steady fight, as in 1892 and 1893, to prevent the disease from getting beyond control. The Prussian government is keenly aware of the possibilities of the danger, and a committee from the cabinet has the central direction of the preventive measures. Bacteriologists have been sent into infected districts to assist in the surveillance of persons who have contracted cholera. Most of the victims have been in immediate touch with Russian rivermen. The Prussian government is sending physicians from other parts of Germany to assist the local health authorities. Twelve sanitary stations have been established along the river. The St. Petersburg Health Department reiterates its assurance that there is no cholera in the Russian empire, including the Vistula district. The Minsk district has just reported again that no cases of cholera have been discovered there. A special investigation is being conducted in the Warsaw district. The authorities are again tracing the course down the Vistula of the raft on which two cases of cholera (one of them fatal) occurred in April last, while descending the river from the Government of Minsk to Culm, West Prussia.

OBITUARIES.

Jared E. Cone, aged 55, of Youngstown, Ohio, August 24, from rheumatic endocarditis, at the Mahoning Valley Hospital. He was graduated from the State University of Iowa, medical department, Iowa City, in 1882; member of the American Medical Association, Ohio State Medical Society, Pediatric Society; surgeon to the Mahoning Valley Hospital, and formerly president of the Mahoning County Medical Society.

Charles H. Andrus, aged 82, of Poughkeepsie, N. Y., August 12, at the home of his son in Enfield, Mass. He was graduated from the College of Physicians and Surgeons, New York City, in 1845. He served as surgeon of the One Hundred and Twenty-eighth New York Volunteer Infantry, and brigade surgeon during the Civil war, and was coroner of Duchess county, N. Y., in 1871.

Siegfried Martius, aged 43, of New York City, August 31, at the New York Hospital. He was graduated from the New York University, medical department, in 1889. He had been connected with the Mt. Sinai Hospital for 14 years, one of the experts in the röntgen-ray department of the hospital, and a member the County Medical Society and the German Medical Society

Robert W. Hinds, aged 26, August 18, from typhoid fever, at his home in Atlanta, Ga. He was graduated from the Vanderbilt University, medical department, Nashville, Tenn., in 1902. He was assistant city bacteriologist and chemist of his home city, and assistant secretary of the State Board of Health.

Franklin Gillespie, aged 45, of Oxford, Pa., was struck by a train at Barnsley, Pa., August 23, and died in a few hours from the injuries thus received. He was graduated from the University of Pennsylvania, medical department, in 1889, and was a member of the American Medical Association.

John A. Morton, aged 71, August 17, at his home in Bethel, Me. He was graduated from the Medical School of Maine at Bowdoin College, Brunswick, in 1862. He served as assistant surgeon of the Twenty-fourth Maine Volunteer Infantry during the Civil war.

Augustin S. Clark, aged 84, August 18, at his home in Beverly, Ohio. He was graduated from Starling Medical College, Columbus, Ohio, in 1860. He was one of the oldest physicians of Washington county, Ohio.

Chas. E. Bushnell, aged 61, August 19, from heart disease, at his home on Smith Hill, Winsted, Conn. He was graduated from the University of Vermont, medical department, Burlington, in 1869.

John M. McGroth, aged 71, August 22, at his home in Delair, N. J. He was graduated from the University of Pennsylvania, medical department, in 1858. He served as surgeon during the Civil war.

John S. Morey, aged 59, August 18, from cerebral hemorrhage, at his home in Royersford, Pa. He was graduated from the University of Pennsylvania, department of medicine, in 1877.

John Gorin Harvey, aged 66, August 16, from general debility, at his home in Blue Mound, Ill. He was graduated from the University of Louisville (Ky.), medical department, in 1862.

Clement F. Ellerbrock, aged 27, September 2, formerly of Fairmount, Tenn., at Deming, N. M. He was graduated from the Baltimore Medical College, Baltimore, in 1900.

Henry F. Garey, August 31, from Bright's disease, at his home in Baltimore, Md. He was graduated from the Washington University School of Medicine, Baltimore, in 1876.

S. B. Hotchkiss, aged 63, August 16, suddenly, at his home in Edinboro, Pa. He was graduated from the Bellevue Hospital Medical College, New York City, in 1871.

John Gillies, aged 69, August 15, at his home in Teeswater, Ont., Can. He was graduated from McGill University, medical department, Montreal, in 1867.

G. A. Richardson, of Hyattsville, Md., recently in Hagerstown, Md. He was graduated from the New York University, New York City, in 1870.

Lorenzo Traver, aged 70, recently, at his home in Providence, R. I. He was graduated from Albany (N. Y.) Medical College in 1857.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 19, 1905:

	SMALLPOX—UNITED STATES.	Cases	Deaths
Arkansas:	Fort Smith.....May 20-June 2....	2	
California:	Los Angeles .....Aug. 5-12.....	5	
	San Francisco.....Aug. 12-19.....	2	
District of Columbia:	Washington.....Aug 12-19.....	2	
Florida:	Jacksonville.....Aug. 12-19.....	1	
Illinois:	Chicago.....Aug. 12-19.....	2	2
Louisiana:	New Orleans.....Aug. 12-19.....	1	
		Imported	
Massachusetts:	Lowell.....Aug. 12-19.....	1	
Ohio:	Canton ....Mar. 2-Apr. 2	1	
Wisconsin:	Appleton.....Aug. 11-18.....	4	
	Milwaukee.....July 30-Aug. 12...	2	
	SMALLPOX—INSULAR.		
Philippine Islands:	Manila.....June 17-24.....	2	
	SMALLPOX—FOREIGN.		
Africa:	Cape Town .....July 8-15.....	5	
Brazil:	Bahia.....July 15-22.....		1
	Rio de Janeiro .....July 16-23.....	21	1
	Rio Grand do Sul....July 11.	Epidemic	
France:	Paris .....Aug. 4-11.....	17	7
Great Britain:	Cardiff.....Aug. 6-12	2	
	Newcastle-on-Tyne..July 29-Aug. 5....	1	
India:	Bombay .....July 11-25.....		1
	Calcutta.. .....July 15-22.....		2
	Karachi.....July 16-23.....	1	1
	Madras .....July 8-21.....		8
Mexico:	City of Mexico.....July 15-Aug. 12...	23	18
Panama:	Bocas del Toro..... July 22-28	1	
Russia:	Odessa .....July 30-Aug. 5....	9	2
	St. Petersburg.....July 15-29.....	5	3
Spain:	Barcelona.....July 21-Aug. 10...		7
Turkey	Constantinople.....July 23-Aug. 6....		7
	YELLOW FEVER—UNITED STATES		
Louisiana:	Ascension Parish ...To Aug. 14..	1	1
	Avoyells Parish.....To Aug. 14.....	1	1
	Caddo Parish..... To Aug. 14..	4	
	Calcasieu Parish....To Aug. 14.....	3	2
	East Carroll Parish To Aug. 14.....	1	1
	Iberville Parish.....To Aug. 14.....	1	1
	Jefferson Parish.....To Aug. 14.....	5	5
	Lafourche Parish ...To Aug. 14.....	3	1
	Madison Parish.....To Aug. 14..	2	1
	Orleans Parish.....July 21-Aug. 17..	1,129	165
	Plaquemines Parish..To Aug. 14.....	11	2
	Rapides Parish.....To Aug. 14.....	2	
	St. Charles Parish ..To Aug. 15.....		
		About 18	8
	St. James Parish.....To Aug. 15.....	1	
	St. Johns Parish.....To Aug. 14.....		
		About 12	2
	St. Marys Parish.....	48	3
	Terebonne Parish...To Aug. 14.....	2	1
Mississippi:	Mississippi City.....To Aug. 17.....	10	
	YELLOW FEVER—FOREIGN.		
Brazil:	Rio de Janeiro..... July 16-23	20	7
Guatemala:	Livingston.....July 22-Aug. 5 ...		4
	Zacapa .....Aug. 5.....Present		
Honduras:	Chamelicon.....Aug. 10.....Present		
	Choloma.....Aug. 10 .....Present		
	Puerto Cortez..... July 22-Aug. 10...	2	1
Mexico:	Tierra Blanca.....Aug. 6-12	2	1
	Vera Cruz.....Aug. 6-12	6	3
	CHOLERA.		
India:	Bombay.....June 11-25.....		2
	Calcutta.....July 15-22.....		14
	Madras .....July 7-21.....		38
	PLAGUE—INSULAR.		
Philippine Islands:	Cebu..... .....June 17-24.....	2	2
	Manila .....June 17-24.....	2	2
	PLAGUE—FOREIGN.		
China:	Hongkong .....July 3-17.....	47	47
India:	Bombay.....June 11-25.....		84
	Calcutta .....July 15-22.....		10
	Karachi.....July 8-23.....	18	15

Changes in the Medical Corps of the U. S. Army for the week ended September 2, 1905:

HALL, WILLIAM E., contract surgeon, is relieved from duty as transport surgeon on the transport Ingalls and will report to the commanding general, department of Luzon, Manila, for assignment to duty.

LOWE, THOMAS S., contract surgeon, is granted leave for three months, with permission to visit the United States, and with authority to apply for an extension of one month, effective about July 14.

HARRIS, HERBERT I., contract surgeon, is relieved from duty at Calaoag, Tayabas, and will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

GREGORY, VERDO B., contract surgeon, is relieved from duty at Atimonan, Tayabas, and will proceed to Oras, Samar, for duty.

HILL, EDWARD J., sergeant first class, is relieved from further temporary duty at the Army General Hospital, Presidio of San Francisco, and will proceed to Jefferson Barracks for duty.

BURCH, WILLARD E., sergeant first class, Fort McDowell, will report for duty on the transport Buford during the next trip of that vessel to Manila and return, upon completion of which duty he will rejoin his proper station.

KENNEDY, Captain JAMES M., assistant surgeon, is granted leave for one month with permission to apply for an extension of one month.

GIRARD, Colonel JOSEPH B., assistant surgeon-general, is relieved from the further operation of par. 9, S. O. 144, June 22, W. D., and will proceed to the Philippine Islands on the transport to sail from San Francisco, Cal., about September 5 and upon arrival at Manila will report to the commanding general, Philippines division, for assignment to duty.

BOURKE, First Lieutenant JAMES, assistant surgeon, is granted leave for two months and twenty-eight days, to take effect when his services can be spared, with permission to go beyond the sea.

COLE, First Lieutenant CLARENCE L., assistant surgeon, is relieved from temporary duty in the bacteriologic laboratory at the Army Medical Museum Building, to take effect at such time as will enable him to comply with this order, and will proceed to Fort Leavenworth and report to the commanding officer of companies C and D, first batallion of engineers, for duty, to accompany that command to the Philippine Islands, where he will report to the commanding general, Philippines division, for assignment to duty.

HALLIDAY, FRANCIS A., contract surgeon, is relieved from temporary duty at Fort Caswell and from further duty at Fort McPherson and will proceed to Fort Fremont for duty.

STONE, FRANK P., and MCALISTER, JOHN A., dental surgeons, are relieved from duty at the Presidio of San Francisco to take effect September 1 and will then report to the commanding officer of the Army General Hospital at that post for duty.

BRITTON, ELMER J., sergeant first class, Washington Barracks, will be sent to Fort Greble to relieve Sergeant First Class Harry T. Brown. Sergeant First Class Harry T. Brown will be sent to Washington Barracks for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended September 2, 1905:

MCCORMICK, A. M. D., surgeon, detached from the Hartford and ordered home to wait orders—August 29.

BRISTER, J. M., passed assistant surgeon, detached from the Atlanta and ordered home to wait orders—August 29.

RIGGS, R. E., assistant surgeon, detached from the Newark and ordered home to wait orders—August 29.

BYRNES, J. C., surgeon, detached from the Texas and ordered to the Naval Academy—August 30.

FREEMAN, G. F., passed assistant surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the Naval Station, Cavite, P. I.—August 30.

TAYLOR, J. S., passed assistant surgeon, detached from the Ohio and ordered to duty at the United States Legation, Pekin, China—August 30.

WICKES, G. L., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Ohio—August 30.

PRYOR, J. C., surgeon, ordered to the Naval Medical School, Washington, D. C.—August 30.

DUNN, H. A., passed assistant surgeon, detached from the Terror and ordered home to wait orders—August 31.

HATHAWAY, G. S., assistant surgeon, ordered to the Naval Hospital, Washington, D. C.—August 31.

GEIGER, A. J., assistant surgeon, detached from the Severn, granted leave for thirty days, and then to wait orders—August 31.

Changes in the Public Health and Marine-Hospital Service for the week ended August 30, 1905:

SAWTELLE, H. W., surgeon, to proceed to Richmond, Va., for special temporary duty—August 28, 1905.

MAGRUDER, G. M., surgeon, granted leave of absence for one month from August 26, 1905, on account of sickness—August 26, 1905.

GARDNER, C. H., passed assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—August 28, 1905.

FOSTER, M. H., passed assistant surgeon, to proceed to Galveston, Tex., and assume temporary command of the service—August 28, 1905.

STILES, CH. W., chief, division of zoology, granted leave of absence for twelve days from August 14, 1905—August 12, 1905.

HUNT, REID, chief, division of pharmacology, granted leave of absence for ten days from August 21, 1905—August 21, 1905. To represent Service at meeting of American Pharmaceutical Association at Atlantic City, N. J., September 4-9, 1905—August 28, 1905.

RICHARDSON, N. D., acting assistant surgeon, granted leave of absence for seven days from August 17, 1905, under the provisions of paragraph 210 of the regulations.

STEVENSON, J. W., acting assistant surgeon, to report at Washington, D. C., for special temporary duty—August 23, 1905.

THOMPSON, C. V., acting assistant surgeon, granted leave of absence for sixteen days from September 2, 1905—August 30, 1905.

RICHARDSON, S. W., pharmacist, to report at Washington, D. C., for special temporary duty—August 24, 1905.

MCKAY, M., pharmacist, relieved from duty at Boston, Mass., and directed to proceed to Cincinnati, Ohio, and report to acting assistant surgeon in charge, for duty and assignment to quarters—August 24, 1905.

WOODS, C. H., pharmacist, upon being relieved from duty at Cincinnati, Ohio, to proceed to Evansville, Ind., and report to medical officer in command, for duty and assignment to quarters, relieving Pharmacist G. I. Van Ness, Jr.—August 29, 1905.

CARLTON, C. G., pharmacist, granted leave of absence for seven days from August 22, 1905, under the provisions of paragraph 210 of the regulations.

VAN NESS, G. I., JR., pharmacist, leave of absence for thirty days from August 1, 1905, granted Pharmacist Van Ness by department letter of July 19, 1905, amended so that said leave shall be for nineteen days only—August 25, 1905. Upon being relieved from duty at Evansville, Ind., by Pharmacist C. H. Woods, to report at Washington, D. C., for duty—August 29, 1905.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

House of Delegates.

FIFTH SESSION (CONTINUED).

JOSEPH MCFARLAND (Pennsylvania) presented the report of the **Reference Committee on Sections and Section Work.** The committee recommended the plan to allow members to read papers before two sections, when it seemed advisable on account of the varied interests represented in the papers, and urged the arrangement of more joint meetings of sections allied in interests; the organization of a section on electrotherapeutics was not recommended, as the demand seemed insufficient. It was recommended that the name of the Section on Pharmacology be changed, according to the request of the section, to "Section on Pharmacology and Therapeutics." The men who had been presented for membership were recommended as worthy of the honor. These, as already reported, were J. Hirschberg, Berlin, for honorary membership, together with Lea, New York; Fisher, California; and Kemp, Illinois, for associate membership. The report and its recommendations were adopted.

The Committee on Amendments to the Constitution and By-laws presented a supplementary report, recommending the adoption of an amendment permitting the reading of papers before not more than two sections and advising against the adoption of a plan to elect a presiding officer daily in the House of Delegates. The report and recommendations were adopted.

The Committee on Hygiene and Public Health reported next, and favored the resolution introduced for the purpose of calling the attention of the United States government to the lack of preparation for the prevention of disease in time of war; the resolution reported regarding the prevention of uterine cancer was also approved, and a committee of five recommended. This report, and its recommendations, were adopted.

The Committee on Keeping the Minutes presented a lengthy report, containing several recommendations designed to make the minutes more complete and accessible, among them the printing and distribution in pamphlet form, and the delay of a year before final approval. The report was accepted, and action postponed on account of the late hour and small number remaining in the meeting.

The Committee on Medical Legislation and Political Action reported with reference to the employment of contract surgeons and dentists in the army, and favored endorsement of the bill now in Congress, but advised postponing action regarding dentists.

J. N. MCCORMACK (Kentucky) offered a resolution of thanks to the physicians of Portland and vicinity, to the citizens of Portland, to the press, and "especially to the beautiful and charming women," for their kindness and hospitality during the session just closing. The resolution was unanimously adopted.

W. H. SANDERS (Alabama) moved to appoint a committee to investigate the validity of the constitution of the Association. The motion was laid on the table.

The Section on Otology and Laryngology presented a request to have its transactions printed and distributed free, which was granted.

A communication from Porto Rico, asking for recognition of its medical society, was read and referred to the Committee on Organization.

Practice of Medicine.

FOURTH SESSION (CONTINUED).

Knowledge of the Gastric Contents.—GEORGE DOCK (Ann Arbor, Mich.) said that laboratory work in stomach diseases was unduly neglected, probably because it took time and apparatus. Many failed to make instrumental examinations because they thought the passage of the stomach-tube was difficult. In his experience this was not so, although training and practical experience were necessary for its success. The absence of hydrochloric acid in cancer was frequent, but cancer might be present with hydrochloric acid preserved for a long time, and even in excess of the normal amount. In many cases hydrochloric acid may be found all during the course of gastric cancer. It may even be present in excessive amounts of gastric cancer. An excess of hydrochloric acid is not necessarily present in ulcer of the stomach, though commonly there is an increase in this secretion. Great variations occur in individual cases, and even from time to time a distinct difference in the amount of acid may be found. Such exceptions and contradictions occur in all branches of diagnosis, and should emphasize the necessity of discovering other details. Single or a few examinations were misleading. The value of estimations of hydrochloric acid was greatest in the functional diseases of the stomach, or rather cases in which the stomach functions were altered, without gross organic disease primarily in that organ. There was still room for further investigation in the methods of gastric chemic examination. Günzberg's reagent he used largely. To determine the amount of hydrochloric acid, dimethylamidoazobenzol was most satisfactory. For the total acidity the phenolphthalein reaction was used. Test for the combined hydrochloric acid was not necessary, as a rule. Of abnormal or pathologic acids, lactic was the only one requiring chemic tests, for acetic acid or butyric acid often occurred in large quantities, and could be detected by the odor. The determination of pepsin was not necessary in ordinary work, since it was rarely absent when hydrochloric acid was present in sufficient quantities. The digestive functions could easily be shown by the biuret test. A very important feature of the investigation of the stomach contents is the demonstration to patients of how insufficiently they masticate their food. If an ordinary meal is removed several hours after it has been eaten, the patient will often be surprised to find what large pieces he has swallowed without realizing that they were going down unchewed. It is then usually much easier to persuade them that they need to masticate their food more thoroughly, with the common result of an immediate improvement in the gastric symptoms.

Gastric Symptoms in Nongastric Diseases.—J. H. MUSSER (Philadelphia) said many patients come complaining of gastric symptoms, although the trouble is really related to some other organ. It is extremely important to differentiate in this class of affections. Practically every organ in the body may reflexly affect the stomach. The eye may cause stomach symptoms, as is well known, and fitting with glasses may relieve dyspeptic symptoms that may have existed obstinately, in spite of all treatment, for a long time. Affections of the throat and nose may cause stomach symptoms, particularly in the presence of adenoids. Various diseases of the stomach may be simulated by intoxications, organic disease of the brain and spinal cord; diseases of the heart and bloodvessels, of the lungs and the kidneys. He also considered the significance of pain, vomiting, modifications of secretions, etc., in nongastric disease. Nervous affections are a most prolific source of stomach symptoms, as are also gallstones, reflexes from the genitourinary tract, anemia, intestinal parasites, etc. The gastric symptoms may be so acute as to lead both surgeon and physician astray. Vomiting of blood may occur to such an extent as apparently to make the diagnosis of gastric ulcer sure, yet on exploratory incision, condition present may prove to be nothing more than a severe congestion of the stomach consequent upon cirrhosis of the liver. Uremia may produce gastric symptoms that simulate ulcer of the stomach or severe gastritis. In a recent case the epigastric pain was so typically localized, the vomiting with blood and the presence of collapse seemed surely to indicate the necessity for surgical intervention for perforating ulcer of the stomach. When death took place four days later from uremia, the autopsy showed that there was no organic disease of the stomach. Locomotor ataxia may produce the impression that surgical intervention is needed. Many cases are now on record in which operations have been performed during the course of the gastric crisis of tabes.

[*To be continued.*]

Surgery.

FOURTH SESSION (CONTINUED).

Ununited Fractures in Delayed Union.—CASPER W. SHARPLES (Seattle, Wash.) discussed with much particularity the symptoms, pathology, diagnosis, prognosis, and treatment of this condition. He also gave the details of a number of cases occurring in his practice, with the results of treatment in each.

Site of Origin of Gallstones.—L. L. MCARTHUR (Chicago, Ill.) reported an interesting case occurring in his practice, in which for several days after he had operated for all the stones in sight they continued to come out of the wound through a drainage-tube. He exhibited the liver with the stones in place. He said that it was very evident that no matter how far into the liver substance one might go at the time of operation he could not be sure that all the stones had been gotten away.

Diagnosis and Treatment of Leg Fractures.—C. O. THIENHANS (Milwaukee) said that many fractures formerly considered rare have, since the discovery of the röntgen rays been found more common. The following fractures of the leg, however, are still rare: 1. Epiphyseal separation of the great trochanter. John Polland (London) collected all cases in literature up to 1898, and found only 12. Only two patients recovered. Thienhans' patient recovered. 2. Subastragaloid forward dislocation of the foot is very rare. Thienhans' case is the fifth cited in literature. It was complicated by fracture of external malleolus. It was of four months' standing, removal of entire astragalus was necessary. There was perfect functional result, and the patient resumed work as a miner. 3. Fracture of the patella of two years' standing. The difficulties of getting the fragments together are oftentimes enormous. The methods used in this case were: (*a*) Rectus femoris muscle lengthened by Z-shaped tendinoplastic; (*b*) inferior patellar ligament

lengthened by chiseling off tuberosity of tibia; (c) fragments wired together. The functional and anatomic results were excellent, the patient performing duties as miner.

Obstetrics and Diseases of Women.

THIRD SESSION (CONTINUED).

Etiology and Treatment of Socalled Endometritis.—ERNEST F. TUCKER (Portland, Ore.) said that an examination of seven modern textbooks on gynecology showed 27 different and distinct forms of endometritis spoken of. All these different kinds should be described in all textbooks if they exist, and vice versa. He discussed the anatomy and physiology of the endometrium, stated that it was not a true mucous membrane, but a glandular structure, whose normal function was not to be cast off at each menstrual epoch. A true endometritis can only exist as a direct irritation of that structure, regardless of its cause, and the condition which is usually called endometritis is the result of disturbances of the circulation in the pelvic organs. He thinks gonorrheal infection seldom if ever exists; the disease attacks the cervical endometrium, but not the endometrium of the body of the uterus. The true treatment he considers dependent on the removal of the cause, and not on the local treatment of the endometrium. He entered a plea to reduce the subject down to a true pathology.

Discussion.—MARCY (Boston) said that in considering this subject it was important to keep in mind the functions of the glands of the uterus, and that there was much damage done if we did not understand their true nature. TUCKER, in closing, stated that gynecologists are not as well up in anatomy, physiology, and pathology as they should be, and that all textbooks on the subject are written by clinicians. CARSTENS (Detroit) thought the section should take some action on this subject from the standpoint of pathology and anatomy. He moved that a committee of three be appointed by the chair, with Tucker as chairman, to report to the section next year on the proper nomenclature for endometritis. Motion carried. Chairman Bonifield appointed the following committee; Tucker, chairman, Portland, Ore.; Clark, Philadelphia; Marcy, Boston.

[*To be continued.*]

Diseases of Children.

FOURTH SESSION.

The Management of Children with Typhoid Fever.—W. C. HOLLOPETER (Philadelphia) said the management of the child often necessitates the exercising of more tact than the management of the disease. An early diagnosis is not always easy because the disease is frequently ushered in under the disguise of another acute disorder. The symptoms may strongly suggest enteritis, meningitis, pneumonia, or autointoxication. It is rarely possible to recognize before the end of the first week, and then only by a process of exclusion. Widal and diazo reactions are of little value before the beginning of the second week. The fever expresses general sepsis; therefore, great care is necessary to prevent complications. The treatment should be to lessen the toxemia and shorten the leakage in the general circulation. There is no specific as yet. Multitudinous methods of general medication come into vogue and then are discarded a little later and quickly forgotten. Drug treatment, as a rule, seems to be useless, but tepid bathing has universal application. There seem to me two elements necessary to success in combating this disease: (1) To reduce toxemia; (2) to supply food and fluid. The first step should be quietude in a large, well-ventilated room, with a calomel purge and daily colon irrigations. Enteroclysis will reduce toxemia, lower the temperature, and supply fluid. See that the nurse understands the technic of the operation, for this is very important. If done properly, it is not necessarily unpleasant. Remember that the intestinal tract is the seat of many troubles and dangers. Tympanites may be very troublesome. Combat it with colon washings. Frequently substitute bicarbonate of soda solution for the saline solution, or you may add asafetida, or some aromatic infusion, as chamomile, or a small amount of turpentine, if tympanites and pain are very bad. If peristalsis is increased by washing, diminish the frequency or use starch or some other solution. For hemorrhages use cold enemas and ice externally, and perhaps ice suppositories. For a weak heart use a little whisky. Use an ice-bag to the head and hot-water bag to the feet. Look to the careful toilet of the nose and mouth. Enteroclysis with application of ice externally gives better results than sponging, which has now been practically abandoned. The diet should consist of peptonized milk and albumen water. Whole milk is out of the question. Lemon and orange water is of intestinal value. Use few drugs except as they are positively indicated, and then always give with a large glass of water. A test of the free exhibition of water in a certain number of hospital cases gave the following result: In those cases the fever seemed to disappear about two days sooner than in those cases where water was not so freely used. Retain in recumbent position, and keep on liquid diet for about ten days after the normal temperature has returned.

Discussion.—COOK (Chicago) accentuated the value of hydrotherapy. He said it was now a fashionable treatment, and he had found that fashionable treatments were usually successful. Our views on therapy mark epochs in medical history. Hydrotherapy is harder to use in private practice. Always go into details when giving instructions, or you may not get the best results. LINDSEY (Boulder, Colo.) said she had used hydrotherapy when it was not a fashionable treatment, with good results. She advocated hot fomentations to alternate with ice-bag treatment. Nervousness is soothed by the wet pack, and patients will get to like it. COTTON (Chicago) emphasized the giving of details, saying we are too apt to trust them to the nurse. Many trained nurses will fail to recognize all anatomic relations. Enemas should be given with the patient on the left side instead of on the back, or the operation may cause trauma, with possibly rectal ulcers. MORSE (Boston) said in judging the results of any treatment we must remember the tendency is to get well, and any treatment will probably give good results. He advised care in giving water by the mouth. The vasomotor system is already overworked. He said that Cushing, of Baltimore, had reported a case of dilation of the stomach from giving too much water by the mouth. He thought the diet should not be restricted to milk strictly. Diluted cream with starches or sugars gives large caloric value without much residue. GARRISON asked if it were necessary to wait for the diagnosis of typhoid before giving enteroclysis. She thought it was of equal value in kindred affections. In closing the discussion, HOLLOPETER sounded a note of warning against introducing the tube into the rectum any distance until water has gone ahead and distended it. The bowel then balloons out and the tube will follow without resistance.

[*To be continued.*]

Ophthalmology.

SECOND SESSION (CONTINUED).

Traumatic Lesions of the Eye.—FRANK W. MILLER (Los Angeles) called attention to the increasing frequency of these lesions and referred to the classification, old and new. The import of the injury depended upon its location and extent and upon the inflicting agent. Infection and hemorrhage were the distressing possibilities and of grave consequence. In the nonpenetrating wounds an expectant attitude might be assumed, but in these only. The use of the cyanid of mercury was especially advocated, subconjunctivally after Darrier's suggestion. The introduction of iodoform into the interior of the eye was also referred to, but personally its use had been disappointing. Every effort should be made to remove the foreign body, an occasional tolerance offering no excuse for allowing it to remain. All prognosis should be guarded.

Discussion.—EDW. JACKSON (Denver) agreed with Donovan, and thought the lines laid down by him for treatment of these cases the best that could be followed; the large bodies to be removed at once, the smaller ones from time to time, as they make trouble, and, still others to be let alone always. He also referred to the beneficial influence of the röntgen rays upon these eyes. Prof. J. HIRSCHBERG (Berlin) believed that it was not safe to leave foreign bodies in the eye; they were deceptive. Every particle should be extracted from the posterior part of the globe. It should always be done at once. Foreign bodies from shoeing horses, he said, were especially infectious. We could, in other cases, have no test of the infectiousness of the foreign body, and so in fresh cases they should always be removed at once. The giant magnet should never be applied as a means of diagnosis. If the splinter is as large as papilla optica, the formation of connective tissue follows, and there is detachment. He always attempted to dislocate the foreign body from its bed by means of the hand magnet. If the body has gotten into the anterior chamber, an incision is made, and the tip of the curved point used to draw it out, then the iris replaced, and the pupil remains clear. E. SMITH (Detroit) had used the Hirschberg magnet for many years, and had been successful in many instances with the hand magnet, where the Haab giant magnet had failed. When the foreign body has been located, incision in the sclera in the vicinity of the body was preferable to the use of the large magnet, with its danger of drawing it into the ciliary region. L. H. TAYLOR (Wilkes-Barre) thought it was not so much the location of the injury as the nature of the foreign body, and what might be on it. Some very serious injuries get well with very little difficulty, while other apparently slighter ones cause great damage. If we could only be sure of watching the patients, many eyes that are enucleated might be saved. JNO. E. WEEKS (New York) thought the prognosis should depend very largely upon the character of the foreign body. Iron and steel are dangerous in every case unless removed. Copper and zinc produce suppuration and inflammatory reaction of severe type. Particles of glass may under certain conditions remain indefinitely without causing trouble. Lead will in the majority of cases set up irritation, though shot may remain in the eye for many years. The giant magnet should not be used for diagnosis. He used the T-shaped incision in removing bodies from the anterior chamber. S. D. RISLEY (Philadelphia) emphasized Donovan's remarks upon the importance of waiting before operative interference for the removal of cataractous lens. When the foreign body is entangled in the iris he

thought it better to do an iridectomy because the iris is prone to take an inflammatory reaction of a plastic character. After the localization of the foreign body he thought it safer to remove them without the use of the giant magnet; the scleral puncture and the employment of the Hirschberg magnet being preferable; the point should not be inserted into the vitreous. He thought the giant magnet dangerous if the foreign body was of considerable size. He also alluded to the nonmagnetic character of the manganese steel, which might often cause disappointment. MARK D. STEVENSON (Akron) referred to the use of iodoform in cases of beginning panophthalmitis and had devised a little instrument for placing the powder within the eye without any difficulty. He preferred the powder because it remained for a considerable time. Fluid was apt to be washed away by the aqueous humor.

Address (by special invitation), PROFESSOR J. HIRSCHBERG (Berlin). The address consisted of a study of the history of the old Arabian ophthalmology and would not lend itself to abstracting. The society gave a standing vote of thanks to Professor Hirschberg for his eloquent and learned address and requested a copy for publication in the transactions of the section.

[To be continued.]

Nervous and Mental Diseases.

THIRD SESSION.

Public Care of the Insane.—J. M. BARSTOW (Council Bluffs, Iowa) considered the laws of the different States regarding this subject and believed that any person who was so mentally deranged as to be unable to care for himself or his property, should be considered a ward of the State and that when the State had assumed the guardianship of such individuals, the property rights belonging to them should pass to the State, subject to reports of the management thereof to be made to the proper tribunal at stated intervals. He did not feel that the insane hospitals and colleges offered a suitable field for the proper investigation and study in these cases, and felt that the States owed it to their citizens and to the profession to provide laboratories and other means for the clinical and pathologic study thereof, believing that much benefit would result to all thereby.

Discussion.—G. R. CLARK (Dearborn, Mich.) felt that while histologists and pathologists had been able to observe certain changes from their work in the State laboratories, yet there was a wide field for the clinician in these cases, referring particularly to the change in the odor from the skin and the change in the vasomotor circulation noted during the life of these patients.

Psychoses of Morphinism.—T. D. CROTHERS (Hartford, Conn.) said the most prominent symptom in these cases was moral paralysis, which appeared in many different forms and degrees, depending on the defects of sense and feeble reasoning. The language centers are affected, the method of expression varying widely, being sometimes expletive, while in other cases violent terms, and in still others vague, doubtful terms with double meanings predominate. The power of discrimination between right and wrong is weakened and there is an intense desire to explain reasons and motives of conduct; in a few cases criminal impulse and alternating consciousness, posing in new characters, requiring mental skill and cunning are prominent, egotism being the chief motive, and prominent among the criminals are swindlers, forgers, etc., cases being cited illustrative of the various criminal tendencies. The author stated that later in the career the mental strength gives away and the conduct and motives cannot be concealed, and that double personality is a mental weakness remaining during life.

Discussion.—JOHN PUNTON (Kansas City) referred to the question of the duty of the physician when a patient should come to him and acknowledge this habit, which patient was holding a position where his condition might endanger the lives or the property of others, citing the opinion expressed by the *British Medical Journal*, and also by a leading legal practitioner that he would have no right to divulge it, and also the opposite views of the newspapers of this country upon the subject. G. R. CLARK (Dearborn, Mich.) suggested the possibility of an epileptic basis before the formation of the morphin habit in those cases given to criminal tendencies, and asked whether the author had made any observations in this direction. CROTHERS, in closing, stated that he had no doubt that in many of these cases of criminal tendency there was an underlying epileptoid taint, but that why the exaltation of reasoning along certain lines should be so prominent had not yet been determined. He cited further cases illustrative of the criminal propensity and expressed the belief that when caught they should be placed in an institution.

Comparison of the Quick and Slow Methods of the Treatment of Morphinism.—A. J. PRESSEY (Cleveland, O.), for the purposes of this paper classified all methods in which a cure was undertaken to be made within five or six days as the quick methods, and all others the slow methods. He referred to the fact that hyoscin hydrobromate had in the majority of instances been used in the treatments advocated for the rapid withdrawal of the drug, and stated that while the results had been apparently satisfactory in some cases, experience had shown that the danger was too great to warrant the employment of this method. He believed that the patients would regain their strength and health quicker and more surely by the slow method, as while the withdrawal was going on, therapeutic measures looking toward the aid of the nutrition could be established. He stated that in many cases following the rapid withdrawal the patient's reason was deranged, and while it usually returned in periods varying from a few weeks to some months, there were cases in which this effect had been permanent, and cited several cases illustrative of the dangers of this rapid mode of procedure.

Discussion.—T. D. CROTHERS (Hartford, Conn.) referred to the large number of physicians addicted to the morphin habit, and urged the necessity for more attention to the subject in the medical colleges, and believed that the slow treatment was the safest and most successful. H. G. BRAINARD (Los Angeles, Cal.) felt that the percentage of physicians addicted to the habit was not as large as estimated by Crothers (10%), and PRESSEY, in closing, agreed with Brainard in this connection.

The Psychoses of Heart Disease.—WILLIAM HOUSE (Portland, Ore.) classified the cases (1) slight forms which do not produce severe mental symptoms, and (2) aggravated forms of organic disease, where the mental infirmities recorded were inferior to the physical. In the severe forms the treatment must be directed chiefly to the physical condition, while in the milder forms both conditions may be treated coincidentally. Etiologically he divided the conditions into four classes: 1. Local conditions, such as palpitation, tachycardia, etc. 2. Local pain, such as angina pectoris. 3. Disturbances of the circulation. 4. Secondary lesions of the brain, giving a careful review of the symptomatology of each group. He also reported the histories of 25 cases upon which the conclusions of the paper had been chiefly based.

[To be continued.]

Hygiene and Sanitary Science.

The Relation of the Water-supply to the Diseases of the Isthmus.—D. N. CARPENTER (Surgeon United States Navy) considered the various sources of water-supply. The supply of the original canal company, of the marines in camp, of the waters of the canal zone and interior, and of the cities, and showed the relation of the various diseases to the different classes of water-supplies. The diagnosis of malaria and other diseases associated with water was discussed, and the differential diagnosis between malaria and dengue. The water-supply and the diseases resulting therefrom were studied by Carpenter in the camps of the United States marines at Obispo and Empire. During the days of the old French Canal Company the water of each section was obtained from the adjacent rivers or streams, and pumped into tanks and relay stations to be distributed to the buildings occupied by the French employes. The native quarters were supplied by street hydrants. All connections were found in need of extensive repair. After repair this original supply was utilized by the marines for several weeks. The ships at Colon provided distilled water for drinking purposes. Eventually all drinking water was obtained by filtering river water and sterilizing it with field sterilizers. The several sections, with their native populations of Jamaicans, Chinese, Indians, and Colombians, rely on rain water for potable use. Old barrels, tanks, dredge buckets, and cans containing rain water are found in every house. The rain water contains myriads of larvas of culex and stegomyia. A few springs and wells were in use in the canal zone and cities. Usually they were contaminated by surface drainage. Previous to American occupation severe epidemics of yellow fever, smallpox, and dysentery had occurred. No deaths occurred among the 1,500 marines during two month's encampment on the Isthmus. The following water sources were examined: Obispo (Chagres river) very muddy, excess of sodium chlorid, calcium, and organic matter. Empire (above pumping station) no contamination by chemic tests. In several small streams in the vicinity, lime and vegetable matter were found. In the lake at Cubebra, lime and organic contamination, probably vegetable. Chagres river (Obispo to Colon) the sample examined did not show contamination. The head waters were formed by innumerable small streams. The Dias river, near Panama, is also available for a supply; dark, stagnant water with only vegetable contamination. The Rio Grande, near Panama, is a clear, sparkling stream; the sample was the purest examined. For all purposes of water-supply in the canal zone, the Chagres would appear most suitable. The Rio Grande would be probably most suitable if the supply were sufficient. During the height of the dry season its water flows in gallons—said by the engineer in charge to be more than enough for all purposes. The disposal of sewage and garbage is an important problem. Field latrines and garbage sinks were used by the marines. Among the natives solid and liquid refuse are thrown out upon the ground. The French section houses were provided with stone vaults and earth closets. Garbage of kitchens was disposed of in open drains. A sewage system for Colon, Panama, and the entire canal zone will be constructed. There was little sickness among the marines under military discipline. These results promise reasonable hope for the

future. The principal diseases were malaria and dengue. The two cases of dysentery were infected in one of the towns. Typhoid fever is not seen on the Isthmus. The relation of the water-supply to ankylostomiasis is more apparent. The presence of standing water, affording numerous breeding places for mosquitos, furnishes a dangerous factor in the transmission of malaria, filariasis, and yellow fever. The greatest number of cases of malaria occurred in the outskirts of camps nearest to the native dwellings. A notable decrease in the number of cases was observed when the natives were compelled to vacate their dwellings. Examination of children under treatment revealed the malarial parasite in the blood in all of those from 6 weeks to 15 years. Uncinariasis was very common, especially among the Indians. The disease was frequently discovered accidentally. Only three cases of elephantiasis were seen. The blood of a case of recurrent lymphangitis taken at 8 p.m. failed to show filaria. The question of Chagres fever was carefully studied by the author and his confreres. The majority of the cases of the Chagres fever type showed the malarial parasites. Another fever with malarial symptoms did not show parasites. This proved when the disease assumed epidemic proportions to be dengue. Examination of the blood gave the most certain differential diagnosis between malaria and dengue. Yellow fever may resemble both diseases. Stained specimens were found most satisfactory; Wright's stain was employed. There is no destruction of the erythrocytes in dengue, on the contrary, there is usually polycythemia. Piroplasm-form bodies seen in the fresh blood the author regards as artefacts; they did not appear in stained specimens. Inoculation experiments were conducted with mosquitos. Dengue is one of the few fevers accompanied by leukopenia. The mononuclear lymphocytes are relatively increased. In malaria there is no leukopenia and a large mononuclear lymphocytosis. The author believes dengue depends on overcrowding and that infection occurs by inspiration. The symptoms resembled the nervous or neuralgic type of influenza. Superimposed or alternating infections with malaria and dengue were frequently observed; parasites disappeared from the blood when dengue developed. Single and double tertians were the predominating type of malaria, with an almost equal number of estivoautumnal. No quartan malaria occurred. The typic chart of dengue shows a fall by lysis in three to five days, followed by a secondary rise. The eruptions, when present, varied from a faint erythema to a profuse measly rash. The neuralgic pains of dengue are more severe than those of malaria. Pain in the eyeballs on looking upward and tenderness on pressure are said to be almost diagnostic of dengue.

[*To be continued.*]

Stomatology.

SECOND SESSION.

Dentistry of Tomorrow.—H. P. CARLTON (San Francisco) said: Dentistry is the only specialty of medicine not universally requiring the degree of doctor of medicine. Dentistry and medicine have been separately studied, and this is a great error. The dentist and the physician do not know enough of each other's work. The mechanical aspect of dentistry appealed to those first studying; it has been made a trade rather than a science. The relation of physiology, pathology, and bacteriology necessitates an entirely different attitude, and is rapidly bringing the child, dentistry, back to the parent, medicine. Many diseases are best studied in the mouth. The training of dentists should be under scientific teachers—men who devote their time to the study of medical education, rather than those with a busy practice. The technic of dentistry appears only as a small branch of the work in which we all should share. Specializing without culture is likened to the low branching bush without any hope of reaching any height. The great branch of dentistry must grow out from the university tree, and the bigger the tree the more far-reaching the branch. The merely mechanical dentist is not competent to judge problems of diseases of the mouth, which may often be simply an indication of general systemic disturbance. Faulty dental conditions may cause faulty nutrition, etc., which could not be diagnosed by a merely mechanical man. The dental specialist of the future must be a broad diagnostician; must interpret what he sees in the mouth in connection with his general medical education. The same preliminary training should be required whether a student expects to practise general medicine, surgery, dermatology, ophthalmology, dentistry, etc. When this is accomplished, what will become of the dentist? The practical life demands division of labor, and the natural ability of the individual will bring about the proper division. This will not only prepare great men for great things, but little men for greater things than would otherwise have been possible. He who takes up the mechanical side has a broad field. Dentistry requires the highest type of mechanical ability; broad, mental training makes a better dentist. We live not only to be wage-earners, but for our country, our nation and science.

What Will Probably be the Educational Standard for the Coming Decade?—C. C. CHITTENDEN (Madison, Wis.) spoke of the advisability of lengthening the college course to four years, and of requiring a degree of doctor of medicine.

[*To be continued.*]

Pharmacology.

SECOND SESSION (CONTINUED).

Therapeutics of Lupulin.—THOMAS F. REILLY (New York) stated that it was not his wish to call attention to any new chemic product of coaltar nor to any of the modern medicinal agents that are guaranteed to cure all diseases, but rather to refresh our memories as to some old and, to himself, at least, new properties of one of the oldest agents in the materia medica. He further said that the history of the use of lupulin as a medicinal agent dates back as far as the oldest medical literature, and up to the early part of the last century it was used for almost every pain or disease. Soon after 1852, however, it sank, so far as literature is concerned, into complete oblivion. The two principal results that Dr. Reilly found to be fairly constant following the use of lupulin are the production of sleep and the relief of pain. He stated that lupulin is best administered in capsule form, but that aromatic spirits of ammonia forms a good vehicle when it must be given in liquid form. Its use as a substitute for opiates and coaltar products is highly recommended to induce sleep in cases of pains and aches and insomnias which are not in themselves severe and do not have any organic disease as a cause.

Discussion.—ABBOTT (Chicago) strongly opposed the use of any coaltar derivatives, stating that it is usually possible to use instead something that will do a great deal more good and that cannot possibly do harm. Foss stated that he had very good results in the treatment of nervousness and sleeplessness with Lupulin, and that he had been impressed with the large number of cases in which the mind was impaired by the use of various hypnotics, but that lupulin does not have this ill-effect. WAUGH (Chicago) stated that as resident physician of an insane hospital he had given considerable quantities of lupulin the basis of his composing medicines at night. He also found it had value as a sedative in cases of delirium tremens, and produced added benefit in the way of settling the stomach and restoring some amount of circulatory equilibrium. STERN (New York) said he was sorry that lupulin could not be gotten from the hops grown in this country, that the only lupulin in use comes from hops grown in Saarz, Bohemia, and that Pilsner beer is made from that kind of hops. To get the best results, he said, the lupulin must be fresh, and commented on its enormous antiseptic value, stating that he had used it in gastric and intestinal diseases with the utmost benefit. HALLBERG (Chicago) held that there was no intestinal antiseptic among the 500 phenol or benzoin derivatives that approached the diluted form of lupulin with about 50% alcohol in the form of an amber liquid.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 391.*]

Intracranial Complications of Middle-ear Suppuration.—EDWARD BRADFORD DENCH (New York) opened the general discussion on this subject, and gave the following personal statistics: He had observed 12 cases of brain abscess (9 temporosphenoidal, 3 cerebellar); 38 cases of sinus thrombosis, in 13 of which the internal jugular was excised; 28 cases of epidural abscess, and 4 cases of meningitis. These statistics were fairly accurate, excepting those for meningitis. Under that heading many cases escaped observation, as only those operated upon had been recorded. From these statistics it appeared that the relative frequency of the various intracranial lesions had been as follows: Epidural abscess, 34.1%; brain abscess, 14.6%; sinus thrombosis, 46.3%; general meningitis, 4.8%. Of the sinus thrombosis cases, the jugular was tied in 36.8%. Regarding the mortality of the various conditions, of the 12 cases of brain abscess, 3 were cured and 9 died; of the 38 cases of sinus thrombosis, 33 were cured and 6 died. In 25 cases, the internal jugular was not excised, and of these, 10 recovered and 3 died. Of the 4 cases of meningitis operated on, 1 was cured and 3 died. From these statistics it appeared that the 2 classes of cases that were attended by the highest mortality were brain abscess and diffuse meningitis, either of the purulent or serous variety. Epidural abscess and sinus thrombosis, including those cases where the jugular demanded excision, need not be looked upon as being of such a very serious character if the cases were operated upon early.

Discussion.—WENDELL C. PHILLIPS (New York) said that the series of papers just presented very completely covered the subject, and little could be added in the way of criticism. The suggestions they contained and the methods outlined were entirely in harmony with the experience of men who were engaged in this line of work. There were one or two points, however, that the speaker said he wished to emphasize, and one was in connection with Smith's paper. Statistics showed that injuries to the head were quite frequently associated with attacks of meningitis from middle-ear suppuration. Phillips said he could recall one or two instances in his own series of cases of chronic middle-ear suppuration going on for years until the patient received an injury to the head, and this was

followed by an intracranial complication. Such a sequence was not difficult to explain. The only barrier between the suppurative process in the ear and the brain was a rather thin plate of bone, and it was quite probable that a severe injury to the head might be the actual exciting cause of the intracranial complication. SMITH, in his paper, tried to differentiate between the varieties of meningitis, and PHILLIPS thought that many of the points brought out were correct. As a general statement, it might be said that meningitis, in contradistinction to brain abscess and lateral sinus thrombosis, was more frequently associated with severe and long-continued pain in the head. While pain might be present in all varieties, that accompanying meningitis was more intense than that complained of in the other forms of intracranial complication. Temperature could not be relied upon as a characteristic symptom, excepting that associated with sinus thrombosis. In that condition it was quite characteristic when the sinus had become extensively diseased—not in the early stages. The speaker said he had recently opened a lateral sinus in which the diagnosis was based largely on the temperature variations, ranging from high to subnormal. Phillips said he did not regard the pulse as particularly characteristic of any of the conditions under discussion, excepting sinus thrombosis. A rather wellmarked chill could also be usually looked for in that condition, and this was not at all common in the meningitis cases. He did not think a chill could be regarded as one of the symptoms in differentiating between brain abscess and meningitis. The speaker said he was surprised that greater emphasis was not placed upon the importance of lumbar puncture. He had come to make use of it in practically all of his cases of meningitis, and by making a careful examination of the cerebrospinal fluid, the exact character of the intracranial condition could often be determined. In regard to hernial protrusions following large openings in the skull, the speaker said it was now generally recognized that the main portion of the protruding mass was not brain tissue at all, but granulation tissue, and it could be sliced off to the level of the bone with comparative immunity. In differentiating between lateral sinus thrombosis and brain abscess, the mentality of the patient often proved a valuable and helpful symptom. As McKernon had pointed out, cerebration was rarely interfered with in the former condition, the mind usually remaining clear until a late stage, whereas with brain abscess, we were very apt to get early signs of mental impairment, and the same was true of meningitis. The fact could not be too strongly emphasized that serious intracranial complications were more frequently observed in connection with chronic than with acute middle-ear disease, and this should be regarded as an additional reason why those cases should receive more careful consideration than they did. A minute examination of the histories of acute mastoid cases would often show that they were really complications of chronic suppuration of the middle-ear. These patients not infrequently neglected to give a history of former ear discharge or of previous milder attacks of mastoid involvement. This was an argument in favor of the radical operation in selected cases, when the opinion was well grounded that further local treatment would prove of no avail. Harris' paper contained the statement that among 30 cases of purulent meningitis, there was one recovery. In that single instance, Phillips said the meningitis was probably serous in character. The purulent form he regarded as invariably fatal, and he thought it was useless to operate on such cases. In two instances of supposed purulent meningitis that came under his observation during the past winter the condition proved to be epidemic cerebrospinal meningitis. One of these recovered; the other died. These cases had been reported in full at the recent meeting of the American Otological Society. CHARLES W. RICHARDSON (Washington, D. C.) said there were some points that he thought were not sufficiently emphasized in the paper on meningitis. One was, the improbability of any form of treatment being beneficial in pure leptomeningitis. The Germans had reported good results from lumbar puncture, but those were probably not cases of pure leptomeningitis. The speaker said he had operated on three such cases without any effect, the patients rapidly succumbing to the disease. This was not surprising, when we considered the character of the lesion in these cases. Masses of purulent exudate covered the surface of the brain and invaded the interlobular fissures, rendering recovery practically impossible. In JACK'S excellent paper there was one point that was not sufficiently emphasized, and that was in regard to the aphasia that occurred in the left-sided cases. This aphasia was usually one of the earliest symptoms. Of course, it did not occur in the right-sided cases (excepting in left-handed patients), but when it came on in the course of suppurating ear disease, even without other symptoms, the occurrence of a brain abscess on the left side was very probable. Richardson said that in the treatment of the radical mastoid wound he did not look with favor upon the application of skin-grafts to the freshly exposed dura. He regarded that as a bad method of treatment. The application of skin-grafts was apt to give rise to the development of granulation tissue and cause unpleasant symptoms. The speaker said he was also opposed to the treatment of the wound by the formation of a blood clot, as that was another method by which infection could be readily carried into the cranial cavity.

[To be continued.]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

ALTITUDINAL MEDICAL NOTES OF A SOJOURN IN THE POCONO MOUNTAINS OF PENNSYLVANIA.

BY

ALBERT S. ASHMEAD, M.D.,

of New York.

At an elevation of 2,000 feet in Pike county, Pennsylvania, I noted the following interesting medical facts:

The inhabitants are nearly all closely related to each other, having descended from the few original settlers of the region in the early history of the county. They are mostly German or Irish. Close intermarriage has been kept up for upward of 100 years. In a number of the families there are several weak-minded individuals, men, women, and children, even idiots. Five cases of goiter—two children and three adults—were noted, but no dwarfs. One cretin was found. There was a general tendency to gigantism.

Starch predominates in the dietary of these people. In summer time but little fresh meat is used. It cannot be had. But in winter sausage and pork are obtainable in plenty. The sausage meat is cooked at the time of killing, one hog being used by every family for the purpose alone, and packed away in glass jars, with melted lard poured about it, filling each jar. By this method of preservation, fresh meat is obtained through the winter, when the houses and roads are cut off by the high drifts of snow. Pork is salted and covered with brine in barrels, in the usual way.

Enormous quantities of starchy foods are eaten per head at every meal—10 or 12 slices of a large loaf of bread, 8 or 10 large white potatoes, and buckwheat cakes, plentifully also. Buckwheat meal and rye flour are the cereals used. Summer and winter this supply of starch is kept up to the human economy. Meat is not craved, but starch is, perhaps because of the coldness of the air and the increased calorification needed. The thermometer in summer ranged 34° F. to 65° F., in winter from zero to 25° or 30° below. The air is extremely dry. Westerly winds prevailed and were constant and strong. All storms came from the northwest. A storm from the southeast was rare. In spite of the low temperature and blowing cold winds, the people apparently did not feel the cold. Even at zero, one may go without his overcoat. It seems like springtime all winter. Bathing the body was not indulged in by the people. An air-bath is all they ever take. Fruit, mainly apples, is freely partaken of. Cider galore is drunk, mostly hard cider, throughout the winter. One man's family I knew consumed 23 barrels of it in a winter. Everybody drinks "hard cider". This cider is made always from fallen, not picked, apples, usually from wild sour apples and some grafted stock trees. The wild sour apples are mostly used, because the grafted apples are marketable. These fallen apples are gathered up in October, with the leaves and filth of the orchards, chicken and hog manure, flies, bees, worms, maggots, etc. Freshly made cider, therefore, is extremely poisonous, and is rarely drunk, as it produces severe diarrheas and dysenteries, with sometimes dangerous collapse.

The excess of starch diet and the close intermarriage of families already degenerating are, in my opinion, responsible, more than the drinking of mountain snow water or the changed pressure of the atmosphere, for the goiter and cretinism, etc., of the people. In winter the fall of snow is large, and the drifts a great nuisance. The air being always dry, the snow perpetually drifts, shutting up people in their houses and blocking the roads. The dreariness of life therefore is great, and it is no wonder that mentality is small. When the huge drifts of snow melt, water flows overland, and underland on top of the buried rocks, and feeds the springs, washing into them the dirt of pig-sties and cattle pastures.

The spring water is not tasteless by any manner of means. Dead leaves and reptiles were always present in these "pure mountain springs." Some of these springs are notoriously "poisonous," and consequently always avoided by the natives.

The soil is a bare coating of dead forest muck on a vast broken-up hard rock base, the points of rock jutting out in places all over the land, which is unarable.

Pneumonias are usually fatal; altitudinal pneumonia is not at all as easy to treat as sea-level pneumonia. The patient's heart seems to weaken more quickly and is harder to support. On the second day of a pneumonia, the pulse-rate shows about 115. Death occurs on the fourth or fifth day. Out of five cases, four terminated in death.

A residence of some months at this altitude (2,000 feet) produces in well persons, newcomers, frequent palpitations, and nervous people become unbearably nervous after but a short sojourn. Perhaps some of this palpitation is due to flatulent dyspepsia, induced by overindulgence in starchy food. Nearly every native has flatulent dyspepsia—for which he gets no treatment.

Sleepiness is the burden of one's life, after a week's residence. The blowing air evidently has a soporific effect, or is it the changed pressure conditions of the atmosphere on the blood circulation of the brain?

Water boils very slowly over a fire, requiring nearly double the time to come to a boil as at sea-level.

One's urine becomes very red and tawny after two weeks, the hematin being produced in excess by the ozone of the air; and its superabundance is voided. The air is a natural oxidizer and hence the absence of craving for meats. Albumin gradually disappears from the urine in Bright's disease cases.

Deafness (bilateral) from catarrh (nasopharyngeal) and eustachian closure is quite common. Sore eyes from the influence of the blowing winds are found everywhere, and as fast as they are cured, become sore again.

Diabetes is also common, from the excess of starch eaten, and not eliminated as heat.

The bowels move more freely than at sea level, and there is, apparently, more moisture in the stools or they are better lubricated. The movements of the bowels are more satisfactorily performed; one feels that he has thoroughly emptied the colon. Hence piles are not known, and if one has them on arrival they quickly ameliorate, even disappear.

A case of hypertrophy and dilation of the heart did not obtain compensation, after three years residence, and the patient was forced to return at intervals to Brooklyn for relief. While residing on the mountain he was kept well codeinized.

Wounds heal readily, blood flows freely at this height. A greater loss of blood can be suffered than at sea-level. Menstruation is excessive and prolonged. Girls become women earlier.

There was no malarial fever on this west side of Pocono, as there are no mosquitos ever felt or seen. Not that they cannot live there, but they have not yet been imported, for mosquitos can live on the Perbeckian range of the Himalayas, 13,000 feet high.

Typhoid fever occurs every summer and fall. It is spread from the lumber camps of the winter time. The melting of the snow washes the camp filth down the streams with logs.

The type of nearly every disease is magnified; harder to deal with than is usual at sea level.

One case of old elephantiasis was observed, in a native who had only been away when Sherman marched to the sea. Evidently there were mosquitos at one time, infested with filaria, or what is more probable, he caught the disease at Savannah, Georgia, where the mosquito life is infected with *Filaria sanguinis hominis*. The fortunate absence of mosquitos here protected the community from contamination by this case. This man died while I was there. Several natives in whom tuberculosis had been cured were seen. The disease had aborted itself.

Laziness was the prevailing disposition of the inhabitants. Exercise is never brisk. They work at 40 different things a day, a little of this, a little of that, as pleases them. There is no persistence of their mental or physical force. Trifling is the habit with them. The life of the women is extremely hard, as their duties, household and outdoor, are regulated by the clock, and not like the men's, "go as you please" matters; dinner must be ready on time for the master.

The common saying is that "Pike county is Heaven for men, but hell for women and horses;" that is up-hill work for both without pasture of ease.

On the top of Pocono the stars shine in the heavens more brightly than at sea-level, and the moonlight appears clearer, more magnificent. When full, the moon looks down upon you like a big ball of fire; you see it perspectively as a sphere, not merely as a round circumscribed disc, for the air is so pure, not a single germ in it.

THE SUN CURE OF WOUNDS.

BY

J. M. TAYLOR, M.D.,
of Boise, Idaho.

To the Editor of American Medicine:—In reading your article relative to "The Sun Cure of Wounds," on page 127, in your issue of July 22, I am reminded that I have frequently noticed in cases of small wounds that they seem to heal more quickly without than with dressings. It is probable that not only sunlight, but fresh air, promote healing, and the action on large wounds would be the same if it were not necessary to protect them from infection-bearing dust and flies. Six years ago, in looking up the treatment of tetanus, I found that Kitasato had said, after detailed study of the tetanus toxin: "Diffuse daylight diminishes the intensity of the poison." "Direct sunlight robs it of its poisonous properties in from 15 to 18 hours." I determined then, at the first opportunity, to test these facts. The opportunity has not yet come, but I would like to know if any one has tested the value of direct sunlight in the treatment of tetanus. It has been shown that the poison circulates in the body fluids. The tissues are sufficiently translucent for direct sunlight to have some effect.

SIMPLE METHOD OF DISINFECTING WITH FORMALDEHYD.

BY

J. L. MARBOURG, M.D.,
of Seattle, Wash.

To the Editor of American Medicine:—In answer to inquiries regarding my clinical note, "A Simple Method of Disinfecting with Formaldehyd,"[1] I would say that no bacteriologic test has been made, but my experience for the past 12 years has demonstrated that it was all that could be desired; only in the following instance was its efficacy in doubt:

Miss J., aged 25, contracted diphtheria; the house was fumigated in the manner stated after recovery, and two weeks later she was down with the second attack, more severe than the first; all the other members of the family escaped. It was claimed that the fumigation was at fault, but I was sure the fumigation was effective, and later discovered that the patient had put on a wrapper that had been taken off and placed in a closet on the back porch when she was first taken sick; the closet and wrapper had both escaped fumigation.

I would not risk a smaller quantity than a half ounce each of equal parts potassium permanganate, oxalic acid, and formaldehyd in fumigating, and an ounce each or more could be used if desired, for every 10 square feet.

The ozone formed in the mixture is equal, if not superior to the free formaldehyd gas liberated, and cannot help but enhance the value of the combination as a disinfectant.

MERCURIC CHLORID IN CEREBROSPINAL MENINGITIS.

BY

RICH. HOGNER, M.D.,
of Boston, Mass.

To the Editor of American Medicine:—In a lay paper of recent date I read that Baccelli in Italy advocates the use of mercuric chlorid in the treatment of cerebrospinal meningitis. I was entirely ignorant of Baccelli's use of the drug when I began to use it, and even now I am unaware to whom belongs the credit of priority. I published the results of my treatment believing it original. I am much pleased to find another's work corroborates its value.

[1] *American Medicine*, July 1.

ORIGINAL ARTICLES

CASES ILLUSTRATING SOME OF THE DIFFICULTIES IN ABDOMINAL DIAGNOSIS.[1]

BY

E. E. MONTGOMERY, M.D.,

of Philadelphia.

Lawson Tait, who was justly considered a genius in the field of abdominal surgery, in a lecture before the faculty and students of Jefferson Medical College, said: "As I feel this table, I can tell that it is wood, but without removal of the cloth I can have no idea of the character and quality of the wood. So it is in abdominal surgery; we can recognize that there is a tumor within, but frequently we cannot determine the kind of tumor until the cover has been removed by the abdominal incision." While this statement was true at the time when it was made, our increased familiarity with the characteristics of such growths obtained through the frequent removal of the cover enables us to be more precise and determinate in our diagnosis.

The errors of today are more frequently the results of careless habits of investigation and failure to utilize all the means at our command to illuminate the subject under investigation. The larger the experience of the investigator the less can he afford to be slothful in his method of investigation. Just so surely as he fails to employ every means for his study of the patient he will himself be caught napping when he least expects, and will make a mistake which his subsequent analysis of the case will demonstrate as entirely inexcusable. I purpose to test your indulgence by citing some cases which illustrate the difficulty of acquiring a proper diagnosis and will indicate later how such errors can in the greater majority of cases be avoided. These illustrative cases may be divided into: (1) Those in which the solution has to do with the existence or nonexistence of pregnancy; (2) those in which ovarian tumor may be in question; (3) those in which the condition may make us doubtful as to the existence of a myoma; (4) those due to other growths.

1. The first class presents cases which must be of especial interest to both the specialist and the general physician, because of the frequency and variety of the variations from the normal in the case of pregnancy, which can come under observation.

In April, 1894, a patient entered my service at the Jefferson Hospital. She said she had missed her sickness two months, and became convinced that she was pregnant. In February, 1893, she had a discharge of blood attended with cramplike pain, large clots and shreds of tissue which she and her attendant regarded as an abortion. Much to her surprise, she later found that her abdomen was enlarging, and in a few months noticed what she believed to be fetal movements. She went into labor in October, but after some days of severe pain and convulsive movements all symptoms subsided. When she came under my observation, 15 months had transpired since the first symptoms. Menstruation returned after the cessation of the symptoms in October. The abdomen was as large as that of a woman at full term. The enlargement was a little more marked upon the left side. Palpation disclosed an apparently thin-walled sac with fluid contents, as fluctuation was quite distinct. By conjoined manipulation, the uterus, somewhat enlarged, could be felt adherent upon the anterior surface of the cyst. The deeper portion of the mass was more resistant, but permitted no special determination of its contents. To add to the difficulty of diagnosis, while the sac afforded fluctuation, percussion over the summit of the tumor gave resonance. My explanation of this series of phenomena was that this woman had had a rupture of an ectopic gestation, instead of an abortion, that the fetus had not perished, but continued to grow and had finally perished in October at the time of spurious labor. The resonance in the sac was due to maceration of the fetus and the development of gas as a result of the degenerative process. The subsequent operation, which was followed by recovery, verified my diagnosis.

In May, 1899, a patient was referred to my service at the Jefferson Hospital, by my assistant, Dr. Fisher. She had been told over a year before that she was pregnant, and when labor failed to occur that it was an ectopic gestation. Her abdomen was enlarged to the size of that of a woman at the sixth month of pregnancy. Fluctuation was indistinctly recognizable. By pressing suddenly upon the abdomen a mass could be felt to recede and come back against the hand—well-defined ballottement. Vaginal examination disclosed the cervix large, above it in front a mass separated by a cleft which felt like bones of a fetal skull separated by the suture. Several physicians had diagnosed an abnormal pregnancy. Notwithstanding these views which were made known to me, I announced that the woman was suffering from myomas, and that the ballottement was simulated by a subperitoneal growth which had a rather thick pedicle. Greater freedom of movement was permitted by an accompanying ascites. A subsequent operation confirmed this diagnosis.

2. Next to pregnancy, certain ovarian growths probably afford opportunities for error. In this class may be cited the following:

Mrs. MacP., aged 34, entered Jefferson Hospital, October 26, 1899. She had had two labors at full term without accident. In April, 1899, she had a severe attack of illness, which her physician pronounced inflammation of the stomach. It was characterized by pain, tenderness, rigidity, nausea, vomiting, and distention. She was confined to bed for a period of nine weeks. Following this the abdomen became enlarged. The menses were absent. Upon her admission to the hospital her abdomen was as large as that of a woman pregnant at full term. The symmetric contour and conditions of fluctuation and resonance were such as to leave no doubt as to its character, so in the hurry of other work no pelvic examination was made. The abdomen was opened, the sac emptied of straw-colored fluid by a trocar, and the sac partially drawn out. With it and apparently adherent to it was intestine. In attempting to separate the latter it was found that it tore off from its mesentery. Examination revealed that the apparent cyst was continuous above with the diaphragm. Inspecting it below, disclosed that it did not dip into the pelvis and that the ovaries were not enlarged. Further investigation showed that it was apparently an accumulation of fluid in the lesser peritoneum, which, in its development, had spread out the mesentery, forming a collection behind the latter, which distended the entire abdominal cavity. The opening was stitched to the abdominal wound and drained with a wick of gauze. The portion of separated intestine was excised and an end-to-end anastomosis done. Recovery was rapid. She was discharged well two months subsequent to the operation. For several weeks subsequent to the operation a large quantity of serous fluid drained from the sac. A careful bimanual examination would have rendered certain the nonovarian character of the growth, as both ovaries were readily accessible to touch.

The following case illustrates another difficulty:

September 15, 1893, Mrs. F., aged 48, underwent an abdominal operation in my service at St. Joseph's Hospital. She gave the following history: Married at 20 years, she had given birth to six children. After the birth of her first child, 18 years before, an enlargement of the abdomen was noted, which gradually increased. The enlargement was not painful, and it was symmetric. It caused no inconvenience, except from its weight. Some eight years before I saw her she had consulted Dr. Goodell for prolapsus uteri. He advised an operation, to which she would not consent. Six weeks before her operation she was seized with a severe attack of vomiting, attended with high temperature and frequent pulse. The elevation of temperature continued, and when she came to me she was pale, emaciated, with a frequent pulse, a temperature of 103°, and the abdomen presenting a tumor, slightly more prominent upon the left side. Fluctuation was distinct over the entire surface. Resonance was absent over the greatest distention, and distinct and somewhat metallic at the sides, apparently from the colon. The diagnosis was a single ovarian cyst with thick walls. An incision, instead of disclosing the pearly, glistening surface of an ovarian cyst, revealed a thickened peritoneum covering a cystic tumor. Supposing the growth to be an intraligamentary ovarian or broad ligament cyst, a trocar was thrust into it and some 28 pounds of a dirty yellow fluid evacuated. The decrease in the size of the abdomen permitted its exploration with the hand, when it was found that the tumor was a retroperitoneal one. The opening in the peritoneum made by the trocar was enlarged, and the tumor gradually enucleated without tying a vessel. Upon sponging out the cavity, bleeding was occurring directly over a mass upon the left side, above the brim of the pelvis. A couple of cysts projecting from this mass were opened and found to be the calices of a dilated kidney. As the pelvis of the kidney was greatly distended, its calices had been opened, and bleeding was taking place from its surface; its removal seemed the wisest procedure, and was done. The entire left side of the abdomen, from the diaphragm to the pelvis, had been occupied by the growth. The parietal and visceral layers of the peritoneum were united, a gauze drain inserted into this cavity, and brought out at the abdominal wound. The patient was greatly shocked, but rallied and ultimately made a good recovery. The solid portion of the cyst weighed 18 pounds, and with its fluid contents already noted, comprised a growth of nearly 50 pounds.

[1] Read before the Los Angeles Medical Society, Los Angeles, Cal., June 28, 1905.

3. Myomas: The symptoms, resistance and relation render the diagnosis in the majority of cases readily determinable. The following case presents an unusual difficulty:

Mrs. H., colored, aged 26, was admitted to the Jefferson Hospital, April 13, 1905, with a large solid growth in the abdomen, which extended to the ensiform cartilage. She had been married seven years, and had been pregnant four times; twice reached full term. Seven years ago she noticed a small tumor in the abdomen, which has steadily increased in size, growing very rapidly in the last year. The tumor was very firm, not movable, and by bimanual examination was apparently loosely connected with the uterus, leading one to think that it had arisen from the anterior surface. During operation, April 18, the tumor was found to have originated from the muscle wall of the right side of the abdomen and had grown into the abdominal cavity, pushing the peritoneum before it. The peritoneum was firmly adherent over its surface. The entire muscle wall of the right side of the abdomen was removed with the growth, from above the umbilicus to the pubes. The left side was utilized to close the opening. The tumor weighed 19½ pounds and is the largest desmoid tumor so far reported.

4. Irregular tumors often present difficulties, as in the following:

October 20, 1899, Mrs. L. J. F., aged 52, upon whom I had done a double ovariotomy some six years before, exhibited a tumor upon the left side of the abdomen, which extended from the ribs to the crest of the ilium; from beyond the median line it filled up the lumbar region. Over its anterior surface resonance was distinct. As my notes showed that at the former operation malignancy was suspected, I proceeded to operate, in doubt whether it was a sarcoma of the descending colon or a tumor of the corresponding kidney. An incision external to the left rectus was made over the surface of the tumor and unexpectedly opened through the mesocolon into the colon. This wound was sutured and the incision carried backward, expecting to open the kidney, but a collection of brownish fluid was evacuated and found to have been a localized peritoneal collection. The kidney was free from disease. The collection had apparently originated in a mesenteric gland, as others were present containing similar fluid.

While all the cases here cited present difficulties, they demonstrate the certainty with which diagnosis can be effected when the symptoms, subjective and objective, are carefully elicited and analyzed. Errors in diagnosis can in the great majority of cases be traced to neglect to investigate the cases.

DEFORMITIES OF THE LOWER EXTREMITY.

BY

GWILYM G. DAVIS, M.D.,

of Philadelphia.

It is impossible in the time allotted to go much into detail in considering the deformities of the lower extremity, exclusive of tuberculous disease and congenital luxations. It is better to endeavor to systematize the subject and deal more with general principles applicable to many cases.

In looking over the deformities of the lower extremities, one sees that the element of weakness plays an important part in their causation. The lower extremities have as their function the support of the body-weight and the moving of the body from place to place, that is, locomotion. Therefore when deformities occur, they interfere with this function, and the patient either walks in a defective manner, or if the trouble is severe, may not be able to walk at all. Also, many patients who are deformed, being debarred by their deformity from taking a sufficient amount of exercise, begin to get fat and heavy, and this aggravates their original trouble and increases the difficulties of its treatment.

During the last 15 years, orthopedics has so increased its peculiar field as justly to deserve the position and name of a specialty. It holds an intimate relation both to the practising physician and the general surgeon. These deformities are usually first seen by the physician, and often are treated by the general surgeon. It is but the truth to say that they should only continue under the care of the physician, provided he be guided by the advice of an orthopedic surgeon, and they should not be treated by a general surgeon unless he has given the time and labor necessary to qualify him as an orthopedist. To hand a patient over to an instrument maker, is a confession of ignorance. To think any person can properly treat these patients, is a heresy of years past. Science has not only come to the aid of the general surgeon in his treatment of abdominal, liver, kidney, and brain affections, it has likewise extended its beneficence to the helpless maimed and crippled.

It is the relations of the physician to these patients that now interests us. They first see these patients and it is evident that on them devolves the duty of first advising as to what corrective measures should be taken. Hence, the ability to recognize, and at least approximately diagnose the cases and conduct a considerable portion of the treatment, is of the greatest importance. A knowledge of their probable course and the results to be achieved by treatment will also be of service.

The main characteristic of these deformities is, as has been said, weakness. This may be either a weakness affecting the constitution and tissues of the body generally, or it may be a local weakness, or it may be both combined.

In considering them the most useful classification I can make for our purpose is to divide them into three classes: (1) Those due to rickets; (2) to paralyses; and (3) to deformities of the feet. In these three groups we can include most of the deformities of the lower extremities. Rachitis, or rickets, in its general phases is more or less familiar to all. It first shows its effects when the child is aged one-half to one and one-half years. Heredity may play a part in its origin and certainly it at times follows as an apparent effect of illness. The immediate cause appears to be defective hygienic surroundings and improper food. While the affected child often appears fat and well nourished, it has a pale complexion, its muscles are flabby, and it is decidedly weak. Indigestion and flatulence, with a more or less protruding abdomen, are present. The bones in the regions of the joints are tender, especially on pressure; the child is restless, and sweating of the head is frequent. No effort is made to learn to walk. An examination of the head reveals a delayed closure of the anterior fontanel. The back may be unduly curved, sometimes anteroposteriorly, forming the rachitic lordosis or kyphosis, or even laterally, as a true scoliosis or lateral curvature. Anteriorly we may find beading of the ribs at their chondral junction, forming in marked cases what has been called the rachitic rosary. The sternum may protrude in the form of pigeon breast and a groove called Harrison's sulcus may extend to each side toward the arm-pits. The protruding belly has already been mentioned. The upper as well as the lower extremity may be deformed. If we examine the foot we may find the arch gone, forming a flat-foot, or it may be distinctly turned further out, forming a true valgus. Varus and other deformities are rare. The ankles may be enlarged and tender, owing to the swelling of the epiphysis of the tibia. The tibia and fibula may be curved outward, forming the common bow-legs. Anterior bending is also frequently seen. At the knees enlargement is not so common as at the ankle, but there may be a condition of knock-knee or genu varum, or a distortion in the opposite direction, genu valgum. The thighs may be bowed outward and also forward, and these distortions are frequently quite marked. The neck of the femur, instead of joining the shaft at an angle of about 130°, may be shortened, and even come off at a right angle to the shaft, producing the condition which has received the name of coxa vara.

In connection with the question of diagnosis there are three affections which it is well to bear in mind. The disease known as late rickets presents many of the features of the infantile form, but makes its appearance late in childhood or adolescence. It is a rare disease in my experience, one of the most marked examples seen,

having been a subluxation affecting both wrists in a girl of 18. This form has been called Madehlung's disease, and it seems to me to be of a rachitic nature.

Fetal rickets or chondrodystrophia resembles rickets which appears to be present almost from birth. The trunk is long, the head large, chest full, and abdomen distended. There appears to be atrophy of the articular cartilages and a tendency to abnormal rapidity of ossification. When a few years old the child has much the general appearance of a cretin, but there is no mental deficiency as in the latter disease.

Infantile scurvy should be distinguished from rickets. Its symptoms resemble more general rheumatism. The joints are painful and may be the seat of effusions of blood and separation of the epiphyses. The spongy, bleeding gums will aid in identifying the disease.

Prognosis.—The deformities of rickets are often allowed to go untreated because it is thought the child will outgrow them. This is true to a large extent. Those of the chest and the arms often disappear entirely. A slight amount in the lower extremities will likewise disappear, but if nothing is done the deformities of the legs may increase, which increase is more rapid if the child is walking and the weight of the body has to be supported; only mild cases should be allowed to go without local treatment. In children from two to four years of age, with bones so soft as to be readily bent with the hands, moderate deformities may be outgrown, but when the bones have become hardened in their distorted condition and the child is about five years of age, then active local treatment is requisite.

Treatment.—The disease is essentially a constitutional one, and being so evidently associated with defective hygiene and food, it follows that the child should be kept in the open air and sunlight as much as possible, and the character of its food supply changed. It is a good rule to change the diet, because it is evident that its present diet is unsuitable, and a change will be, in all probability, for the better. Cream, wheat, and eggs are to be allowed, while starchy foods, as potatoes, are to be eschewed. Whitman has said that it is unlikely that any drug has a very distinct influence on the disease, but in this I cannot agree. Codliver oil, a teaspoonful three times daily, is a most valuable and efficient remedy. Of its great value I have not the slightest doubt. Syrups of the lactophosphate of lime, of the hypophosphites, or iron iodid are all at times of service, but always with the codliver oil.

As regards local treatment there is no reason why children too young to walk should not have splints of some form bandaged on their bent legs. They tend to straighten them materially and do not prevent the child from creeping. If the child is walking then some form of metal brace is more suitable; this is to be looked after every few weeks and bent and adjusted as necessary. For the flattened and everted foot a stout shoe with the inner edge of the sole slightly raised and a felt pad inside to support the arch is often all that is required. Operations like osteotomy are to be recommended in children several years of age in which the bones have hardened in their distorted position. Nowadays it is an operation of such safety and efficiency that it is wise to resort to it more frequently than would otherwise be the case. I have never had suppuration occur or a case go wrong in any way and it may obviate the necessity of braces in those cases in which they either cannot be obtained or are unlikely to be properly attended to.

Paralyses.—Seventy-five percent of the paralyses of childhood are said to be due to anterior poliomyelitis, 20 to cerebral palsies and 5 to miscellaneous causes.

Anterior poliomyelitis usually attacks children 1 to 3 years of age, but sometimes older. It is acute in its onset and may be accompanied by fever. The attack is not seldom overlooked and the affection first recognized by the child failing to use the paralyzed members. The muscles are flaccid, the reflexes lost, the muscles fail to contract on faradization and the reaction of degeneration is present. Wasting speedily ensues. The paralysis may affect both the trunk and extremities. It may be hemiplegic or paraplegic or a single extremity may alone be affected. The paralytic condition may disappear largely in a few days or weeks, leaving only a single extremity or part of the extremity disabled. If it does not clear up in a few months it is probably permanent. Sometimes a single muscle or groups of muscles are affected which may give rise to marked deformities as the child grows older.

I know of no treatment to restore a paralyzed muscle. Electricity may be used with the object of keeping the muscle in condition to resume its functions should nature give it back its power.

There is one disease to be remembered that is liable to be unrecognized; it is hereditary or Friedreich's ataxia. This is a sclerosis of the posterior and lateral columns of the cord and is, as its name indicates, congenital in origin. It is characterized by weakness of the legs, arms, and back and finally interference with speech. There is sometimes nystagmus and frequently a condition of equinovarus of the feet. The disease is progressive, lasts for many years, and is incurable. The utter helplessness of these patients may cause them to be mistaken for severe infantile paralysis.

The object of treatment in infantile palsy is twofold: To prevent the occurrence and increase of deformity and to aid locomotion. These cases call for the highest skill of the orthopedist. It is necessary to consider carefully each individual case and devise and contrive special measures to meet the peculiarities present.

Two main means are employed—apparatus and operations. To be effective, apparatus must be skilfully devised, carefully constructed, and well looked after. A lack of any one of the three, means discontent and failure.

The use of apparatus is directed to the control of four joints. The foot turns laterally at the subastragaloid joint. In toe-drop the foot extends at the ankle. The loose knee requires a mechanism which makes it stable in walking, yet which allows a certain amount of flexion in walking and sitting down. At the hip-joint, mechanism is required in those cases of paralyses of the muscles passing from the thigh to the trunk. When this condition exists on both sides, the child often does not learn to walk until the proper supporting apparatus has been obtained.

As regards operations, they are both numerous and various. Tendons are cut, lengthened or shortened, ligaments and fascia divided, bones divided and replaced in more favorable positions, sometimes excised altogether. Arthrodesis or artificially ankylosing a joint is valuable at times; transplanting tendons from one place to another is of service; and, still more recently, transplanting of nerves.

It is impossible to go into the details of the various procedures, but the modern orthopedic surgeon has passed beyond the stage of braces and tenotomies and now seeks ways of substituting—by operation—natural tissues for braces and so dispensing with the latter altogether.

Cerebral Palsy: Spastic Paralysis.—In paralysis from anterior poliomyelitis, the paralyzed parts are relaxed and flail-like, but there is another form in which the paralysis is united with contraction of the affected muscles. These are most often cerebral in origin. It is rare to find spastic paralysis in children, arising from changes in the spinal cord alone, except those due to the meningitis produced by caries of the spine. The remainder are mostly due to cerebral lesions, and are birth palsies. There is often a history of difficult labor. The legs are more affected than the arms, and there may be nystagmus, difficulty of speech, and often deficient mentality, all evidence that the brain itself is impli-

cated. Attempts to use an extremity gives rise to spasmodic, jerky movements termed athetoid. Sensation is not impaired, nor are the reflexes lost. Recovery from the affection does not occur. In some cases, the lower extremities are affected, in others, both the upper and lower, and in still others, all extremities and the head.

Involvement of the lower extremities, of course, interferes with walking. More than once I have seen children who would begin walking with the feet, almost or quite flat on the floor. After taking a few steps, the heels would become more and more elevated until they would be walking on their toes. The spasm, likewise, interferes with the use of the hands and with talking. In many cases the child seems bright, intellectually, but unable to express itself properly.

As regards the lower extremities, something can be done for them. If the affection is confined largely to the feet, a brace, which simply prevents elevation of the heel, may enable the child to walk fairly well. If the paralysis involves both lower extremities nearly completely, these patients cannot walk without braces. The object of the braces is to steady the trunk on the legs, to prevent the bending or giving way of the knees and the elevation of the foot. If the arms are not affected, but only the lower extremities, then by fixing the legs with braces and giving the patient crutches, he is often enabled to walk and get about from place to place, a most valuable result. If, however, the arms and legs are both affected, then, even though apparatus is applied to the legs, the arms are incapable of using crutches, and it is almost an impossibility to get these patients to walk, no matter what devices are resorted to. They are hopeless. Sometimes the division of a tendon will set the muscle at rest, and much good may be accomplished by this means. When the affection is hemiplegic in character, 50% are said to be feeble-minded, and when paraplegic or diplegic (all four members paralyzed) 70%. These latter usually die before their twentieth year, and the former rarely live beyond 40.

The deformities of the feet are so numerous and complicated that I can but barely allude to them. The bulk of these deformities is due to spinal paralyses of infancy. The paralysis persists in one or more muscles of the leg and as it is used in walking the unopposed action of the healthy muscles aided by the superincumbent weight of the body increases the primary deformity. This should impress one as to the necessity of early treatment. Never delay, should be our motto after their presence is once discovered. We may divide them into two classes: One in which weakness is the predominating element and the other in which contraction is marked. This latter class embraces what is ordinarily known as clubfeet.

In the first class we may place weak foot, flat-foot and hollow foot or pes cavus.

The weak foot may be regarded as an early stage of flat-foot. The main symptoms are discomfort and pain in the feet particularly on prolonged standing, some flattening of the arch and a tendency of the foot to become everted.

Flat-foot is a more marked grade of weak foot. The pain is often disabling, the arch is completely lost and the tubercle of the scaphoid forms a hard prominent protuberance at the inner side and lower edge of the sole of the foot. The foot is often rigid or locked and the peronei muscles and extensor muscles are frequently in a state of spasm. While flat-foot occurs at all ages it is most frequent during youth, hence the name flat-foot of adolescence. It is liable to be mistaken for rheumatism and that is sometimes a cause. In that affection as well as in its ally, gout, the pains are likely to affect the sole of the foot and the heel as well as through the instep and around the ankle. Pain in the heel is so often symptomatic of rheumatism that its presence should at once lead us to suspect its presence. There is likewise a peculiar appearance of the rheumatic flat-foot which will enable one to recognize it. In the ordinary flat-foot swelling is not a prominent sign. The arch may be down, but the thickness of the instep from the sole through to the dorsum is not markedly increased. In flat-foot of rheumatic origin, the increased thickness of the foot is often marked, it looks swollen and clumsy as well as flattened.

In treating the milder grades of flat-foot, some simple support of the arch may be all that is required. If the patient is a woman, some shoes are to be had ready made in which the shank is firmer and more arched than is common; these may bring relief. A little more severe grade can be met by flat-foot plates made of leather, celluloid, or metal. In other cases I prefer taking a well-fitting, strong, laced shoe, and having the instrument maker insert a thin strip of steel in the shank to strengthen it and then place strips of felt under the insole so as to form a soft, firm pad that supports the arch perfectly. This is simply glued in place, and can be altered as desired. In my experience this has been the most comfortable and satisfactory method of giving support. When the foot is rigid from the jamming together of the bones, and spasm of the muscles, then it is well to massage forcibly and bend the foot to loosen it as much as possible and put it up in plaster, having turned the foot in and pushed up the arch as much as possible. To do this I have usually not found it necessary to administer a general anesthetic. The patient is then kept in bed, and in a week's time on removal of the casts the spasm and pain will be found to have disappeared, the foot will be less rigid, and then the application of a shoe made as described with perhaps the inner edge of the sole a trifle raised, will be all that is necessary to relieve the patient. In very obstinate and severe cases some form of braces may be of service.

Clubfoot.—When we come to the treatment of clubfoot we find we have an entirely different condition to deal with. In a flat-foot the predominating element was weakness, and for its treatment support was indicated. In clubfoot, contraction is its main characteristic, and the deformity is only to be remedied by more or less forcible measures. Obstinate resistance can only be overcome by determined treatment. The contracted tendons are the anterior tibial, the posterior tibial, and the tendo-achillis. The plantar fascia is also contracted. Personally, I would divide the contracted plantar fascia early, and even repeatedly, but care should be exercised in dividing the tendo-achillis. In equinovarus there is an ankle deformity due to raising of the heel, and there is a foot deformity due to its contraction and inversion. The deformity of the foot should be first attacked by division of the plantar fascia, and only in very bad cases by dividing the anterior and posterior tibials and then the foot stretched by means of the hands over König's block or by means of powerful instrumental clubfoot stretchers.

After the foot, so to speak, has been unfolded, then division of the tendo-achillis will allow the heel to come down. If contraction should again recur, a second division of the reunited tendo-achillis will not be of much service. Then the feet are to be corrected as much as possible and put up in plaster. This may be changed every 10 days for two or three times if necessary, and after its removal, braces may be applied. When after much trouble, the deformity has practically been removed and the feet can be brought straight without force, and the heel down, then braces may be discarded and shoes worn that have a strap to fix the foot firmly in place and that have the soles slightly raised on the outer side and extended out from the side one-half to three-fourths of an inch. By this means the foot is kept turned out, and later these shoes can be replaced by those of the usual pattern.

The question arises, how soon should treatment be instituted? It should be at once. If a newly-born child is found to have clubfeet, the nurse or mother should be

taught to stretch them daily. Then they can be shown how to bandage the feet, after stretching, with a flannel bandage and fix it into a plain right-angled sheet iron gutter splint. The mother soon learns to stretch the foot and bandage it in the splint. After this course has been followed for perhaps a few months, say when the child is eight months, a pair of braces may be applied, which are more convenient than the splints. If this treatment is faithfully carried out, and it can largely be looked after by the family physician, the feet will be corrected enough to allow the child to begin walking at the usual age. A persistence of the deformity is to be cured by repeated stretchings, either manually or instrumentally, and strict attention to the braces. In some cases marked paralyses persist after the deformity is corrected. To obviate a tendency to recurrence, tendons are transplanted, one of the most serviceable being the anterior tibial from the inner to the outer side of the foot. Wedge-shaped resections are at times desirable, when full correction must be made in the shortest possible time, and when the patient lives at such a distance that frequent visits are impossible.

Arthrodesis or the production of an artificial ankylosis of a joint is more applicable in cases of infantile paralysis than in those of clubfoot, but an excision of a comparatively small wedge in the region of the subastragaloid joint not only serves to correct the deformity, but also tends to keep the foot in its corrected position and sometimes enables one to dispense with the use of braces. The secret of the treatment of clubfoot is not only thoroughly to correct, but to overcorrect the deformity and only to use apparatus to maintain what has been acquired. To employ braces to correct the deformity will only result in failure.

THE THERAPEUTIC VALUE OF THE DIGESTIVE FERMENTS.

BY

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of Cincinnati, Ohio.

The use of pepsin for therapeutic purposes was suggested by Corvisart in 1857. A half century of experiment and research has not sufficed to determine its value or to define the indications for its use. From neither a scientific (theoretic) nor practical standpoint can we be said to possess knowledge that may be considered definitive or final regarding the use of digestive ferments in medicine. This is in part due to the constantly fluctuating state of our knowledge of the digestive process, and in part to the fact that only during the past 20 years has the diagnosis of digestive disturbances become reasonably accurate and trustworthy. I do not believe that our knowledge of the physiology of digestion is sufficiently developed at the present time to render the final solution of the problem possible at this time. What we can do, is to review the indications for the use of the digestive ferments in the light of knowledge which we now possess, and also to question our own experience and the experience of others concerning the results actually achieved in practice.

*Description of the Digestive Processes.**—Before the food reaches the stomach, it is acted upon by the ptyalin of the saliva; the cooked starch is rapidly changed into amidulin or soluble starch, (this change requires only 30 seconds after the addition of saliva to cooked starch); during the early part of its sojourn in the stomach, the starch undergoes further hydrolysis, a various proportion of dextrose, maltose, and isomaltose being formed. The ptyalin is destroyed by HCl, and when the chyme acquires a strongly acid reaction, the further hydrolysis of starch is stopped.

In the stomach the food is thoroughly mixed, and its temperature is raised or reduced to that of the body. HCl has a strong antiseptic action on certain bacteria, destroying some and inhibiting the action of others. It also exerts a strong inverting influence on cane-sugar, changing it into invert sugar (a mixture of half levulose and half dextrose). The presence of a fat-splitting ferment in the stomach is still unproved. Any milk present in the food is curdled by the rennin.

HCl and pepsin act upon the proteid matter, changing it successively into globulin, primary and secondary albumoses, and finally peptones. This conversion is never complete; and the chyme, as it enters the duodenum, contains in addition to fully formed peptones, various proportions of albumoses, and often also primary albumins. The chyme is discharged into the duodenum in little jets, and begins to pass the pylorus not very long after the ingestion of food.

The mechanism by which the pylorus relaxes at the proper intervals to permit of the passage of chyme, has been investigated by the pupils of Pawlow. It seems probable that the stimulus for the relaxation of the pylorus arises in the duodenum, and is dependent on the chemic reaction of this portion of the digestive tract. The juices in the duodenum are alkaline, and must be kept alkaline, and for this purpose the acid chyme is permitted to enter the duodenum only so fast as it is possible to neutralize its acid. In achylia gastrica, the food enters the duodenum more rapidly than in health; in hyperchlorhydria, the passage of the hyperacid chyme is delayed.

The entrance of HCl into the duodenum stimulates the secretion of pancreatic juice. This process is a complicated one, and takes place even after section of all the nerves of the pancreas and duodenum, and destruction of the solar plexus. It is probable that the duodenal mucosa secretes a substance called prosecretin; this is changed by HCl into secretin; secretin is absorbed and reaches the pancreas through the blood stream, and stimulates it to secrete pancreatic juice. The fatty acids formed in the duodenum also have the power of changing prosecretin into secretin.

The altered chyme is acted upon in the small intestine by the pancreatic juice, the bile, and the succus entericus. By means of the pancreatic juice the remaining starches are rapidly converted into sugar; the fats are split up into fatty acids and glycerin; the proteids are converted into alkali albumin, deuteroalbumose, and peptone. It is probable that the fatty acids formed in the duodenum are neutralized to soaps by the alkaline intestinal juices, and with the aid of the bile salts are then rendered completely soluble and are absorbed in solution from the intestinal mucosa. It is probable also that the pancreatic juice itself is incapable of converting proteids without the aid of a ferment of the succus entericus, called zymolysin (enterokinase). Zymolysin acts upon pancreatic juice, setting free the trypsin which in time splits the proteids into proteoses and peptones, and finally in part into leucin, tyrosin, etc. The final breakdown of peptone and proteoses into leucin, tyrosin, and ammonia compounds is effected by erepsin, which is a ferment of the succus entericus, and which has no effect on native proteids.

Certain Physiologic Considerations Regarding the Value of Gastric Digestion.—The physiologic value of the chemic changes performed in the stomach has never been wholly explained.

Certain it is that they are in no sense necessary to health. Gastrectomized dogs may enjoy perfect health; human beings whose stomachs have been removed may apparently make full use of a mixed diet without pathologic symptoms; and some patients who are the subjects of achylia gastrica may be entirely unconscious of the suppression of all gastric digestion. It is now universally conceded that the chief digestive processes occur in the duodenum and that the stomach digests only part of the proteids and prepares the food for duodenal digestion.

*Bibliography.[1]

Undoubtedly gastric digestion renders duodenal digestion more easy and more certain. A person without normal gastric secretions is more liable to digestive disturbances and impairment of nutrition than one whose secretions are normal. In addition to being essential to the action of pepsin, HCl has the functions of partially sterilizing the ingesta and stimulating the secretion of pancreatic juice.

Linossier [17] suggests that the action of pepsin is of the greatest value in the digestion of bread and meat. The gastric juice digests the gluten of bread, making the starch granules the more readily accessible to the amylopsin of the pancreatic juice.

Pepsin also dissolves the sarcolemma of muscle, thus splitting up meat and rendering it digestible in the duodenum, the pancreatic juice having no effect on connective tissue.

The proteolytic value of the curdling of milk is also a doubtful one. Popper [21] tested the digestibility of milk with trypsin before and after coagulation with rennin. The coagulated milk was not more easily digested and no noteworthy difference could be discovered.

Regarding the Presence of Pepsin in the Stomach in Health and Disease.—The introduction of the methods of Mett and Hammerschlag have done much to increase our knowledge of the pepsin content of gastric juice in health and disease. The normal gastric juice contains pepsin in a percentage which would be represented by a 0.35% solution of pepsin (U. S. P. Merck). It was formerly thought that the secretion of pepsin ran parallel with the secretion of HCl and rennin. This has been definitely proved not to be the case. In cases of hyperchlorhydria the percentage of pepsin sometimes rises above the normal; sometimes it is within the normal range and occasionally it is below the normal (Schiff, Roth, Kovesi, Oppler). The secretion of pepsin may be normal in cases of anacidity due to gastritis or even carcinoma (Schiff,[2] Schorlemmer,[3] Roth [4]).

In many cases of hypacidity the pepsin may be present even in excessive quantity (Schorlemmer). As a rule, however, in cases of hypacidity and anacidity the pepsin is present in less than normal quantity; however, no exact parallelism between HCl and pepsin secretion exists even here. The secretion of lab ferment is subject to more fluctuation than the pepsin secretion, and is approximately parallel with HCl secretion. In neuroses the quantity of pepsin usually remains within the normal limits.

I can verify all of the foregoing observations from my own experience during the past two years, *e. g.*, Mr. B., dilation of stomach; free HCl, 0.16%; peptic activity exactly half the normal, *i. e.*, quarter the normal quantity of pepsin present. Mr. H., neurosis; free HCl, 0.14%; peptic activity three-halves the normal. Mr. Deh.; chronic gastritis; no free HCl; peptic activity two-fifths the normal. Mr. E., gastric ulcer; free HCl, .3%; peptic activity exactly normal. Mrs. W., atony with hypacidity; free HCl, 0.08%; peptic activity normal. (I append another list to illustrate the relation between HCl and pepsin.)

A RECORD OF QUANTITATIVE PEPSIN EXAMINATIONS TO ILLUSTRATE THE MUTUAL INDEPENDENCE OF THE SECRETION OF HCl AND THAT OF PEPSIN.

No.	Name.	Diagnosis.	Free HCl.	Peptic activity compared to the normal.
1	Mr. A. S.....	Gastric cancer, tumor.	0.06%	2/3
2	Mr. J. C.....	Gastric cancer, tumor.	0.00%	none
3	Mrs. W.....	Gastric cancer.	0.00%	1/6
4	Miss K.....	Hyperchlorhydria.	0.28%	1/1
5	Mr. F.....	Hyperchlorhydria.	0.30%	1/1
6	Mr. K.....	Hyperchlorhydria.	0.28%	2/3
7	Mr. C.....	Alcoholic gastritis.	0.06%	1/3
8	Mrs. S.....	Gastritis.	0.08%	2/5
9	Mr. A.....	Gastritis.	0.02%	1/1
10	Mr. R.....	Gastritis.	0.08%	5/7
11	Mr. L.....	Alcoholic gastritis.	0.00%	2/5
12	Miss G.....	Atony with hypacidity.	0.00%	1/2
13	Mrs. W.....	Atony with hypacidity.	0.08%	1/1
14	Mr. J.....	Atony, hypacidity.	0.02%	5/6
15	Mr. H.....	Neurosis.	0.14%	3/2
16	Mr. S.....	Achylia gastrica.	0.00%	0
17	Mrs. W.....	Neurosis.	0.13%	2/3
18	Mr. W.....	Neurosis.	0.17%	1/1
19	Mr. M.....	Neurosis.	0.17%	1/1
20	Mr. G.....	Tabetic crises.	0.16%	1/2

(These cases are selected from a list of nearly 100 examinations.)

Even in health the secretion of pepsin varies within rather wide limits. Schiff analyzed 19 normal cases with normal acidity and found peptic activity varying between 50% and 80% (Hammerschlag method). Roth (using the Mett method) examined six normal cases and found variations from 3.98 mm. to 5.25 mm. of egg-white digested. Schorlemmer tested 40 normal cases and also records wide variations of peptic activity.

The Problem before us, Both a Theoretic and a Practical One.—Every therapeutic problem can be approached from two sides, the theoretic (scientific) and the practical (empiric). The value of quinin in malaria was known long before it could be explained scientifically. The use of mercury and the iodids in syphilis is empirically established, but the scientific explanation is still wanting. We have no right, therefore, to condemn or underrate a therapeutic resource because we cannot scientifically understand its modus operandi. The scientific knowledge can be used to control the therapeutic application, to define its indications and limitations, and thereby to render the use of any drug more accurate and rational, but the supreme test of the therapeutic value of any drug is the clinical test, as interpreted by competent observers.

The Theoretic Aspect of the Pepsin Problem.—From a theoretic standpoint, the administration of pepsin (the word pepsin will here be used generically to stand for all the digestive ferments employed to digest food in the stomach) would seem to have few indications.

To administer a drug which in the majority of instances is already present in approximately normal quantity does not appear reasonable. As shown before, of all the gastric secretions, pepsin is the most resistant to diseased conditions and remains longest undisturbed. As is well known, a small amount of ferment has very great digestive power, and only in profound diseases of the stomach (achylia gastrica, few cases of carcinoma, atrophy of the gastric mucosa) does the pepsin disappear altogether from the stomach. Furthermore, pepsin cannot act well except in the presence of free mineral acid. Now in all cases in which free HCl is found in the stomach, pepsin is also present; and when free HCl is absent, the administration of pepsin alone can be of no service.

Theoretically, therefore, the isolated administration of pepsin would seem indicated only in those cases in which HCl is present and the pepsin is below the normal proportion (some cases of hypacidity and a few of hyperacidity); and the use of pepsin with HCl in cases of cancer, achylia gastrica, atrophy of the mucosa, subacidity with dyspepsia and acute indigestion (spoiled stomach).

The proportion of cases in which pepsin would seem indicated compared with the total number of stomach cases to be treated is very small, and most authors who have dealt with the question have from theoretic considerations alone restricted the use of pepsin within very narrow limits.

Riegel:[22] There are few indications for the use of pepsin.

Einhorn:[23] Of late years, I have entirely abandoned the use of pepsin.

Hemmeter:[24] There is rarely any indication for the use of pepsin.

George Herschell:[25] I do not think that pepsin by the mouth is ever indicated, nor can I conceive of any circumstance in which it can do good, except as a local application to the gastric mucous membrane.

Martin and Frye:[26] From a scientific basis there is little to be gained from the use of pepsin.

Sidney Martin:[27] It would seem that the administration of pepsin in gastric disorders is very limited in its application.

A. L. Benedict:[28] The administration of ferments should never be resorted to without first demonstrating their absence—something that occurs in scarcely 1% of cases. As a rule the body which lacks ferments, lacks the power of using them if artificially supplied.

Boas:[29] The actual indications for pepsin are those rare cases in which there is a disproportion between the secretion of HCl and of pepsin. This occurs especially in hyperacidity and gastrosuccorrhea.

Ewald:[30] We should, therefore, restrict the administration of pepsin to the cases in which its absence can be actually proved, *i. e.*, to cases of advanced mucous catarrh and atrophy.

These quotations, all taken from eminent authorities, seem to overstate the case. In explanation, it may be pointed out, that they were made before the practical quantitative tests for pepsin in gastric juice came into general use. Now, that we are able to determine in a given case whether pepsin is secreted in normal quantity or not, we are in a position to gain at least a theoretic indication for the administration or withholding of that ferment. During the past few years, I have extensively used the method of Hammerschlag, the Mett method, as modified by Nirenstein and Schiff,[5] and lately the foam method of Bettmann and Schroeder.[6] The last two methods are clinically accurate, can easily be carried out, and are reliable.

In the light of these facts, it does not appear scientific to deny to pepsin all theoretic indications. It would seem reasonably indicated (either with or without HCl), in every case in which nature does not supply it in a sufficient quantity, and we can easily determine a deficiency in any case by the simple tests referred to.

The Practical Aspect of the Pepsin Problem.—This problem, as stated before, is entirely distinct from the theoretic problem. Pepsin might seem clearly indicated in a given case; the question to solve is, does it do good? And, conversely, the administration of pepsin might appear entirely without scientific foundation; the practical problem of its clinical efficiency requires an entirely independent solution.

We may approach the problem from several directions and ask: 1. What is the general view of the profession, and especially of those who have devoted the most careful attention to disorders of digestion? 2. What special reports by competent observers have been published regarding the clinical use of pepsin? 3. What conclusions can be drawn from personal experiences, the use of pepsin having been personally and carefully observed in cases in which its administration seemed theoretically indicated, and also in other cases.

The opinions of those who have written textbooks on diseases of the stomach, have been quoted. There is a unanimity of opinion that little benefit can be derived from the use of pepsin.

These authors (especially Ewald, Riegel, Einhorn), have, to a large extent, molded public opinion, and the textbooks on the practice of medicine are all lukewarm or very reserved regarding the use of pepsin. Among the textbooks at my command, there is not a single, strong advocate of its administration in any condition.

Its use is referred to perfunctorily, or it is advised in general terms in the treatment of dyspepsia, gastritis, etc. On the whole, pepsin cannot be said to stand in high regard among medical writers (English, German, or American).

Pawlow[31] refers to recent experiments made in France on the use of dog's gastric juice as a therapeutic agent, and suggests a more general trial of it in Russia. Benjamin T. Fairchild,[32] in an article on "Pepsin," refers encouragingly to the same reports. In 1898 Frémont published the very favorable results of administering dog's gastric juice to patients suffering from various digestive disorders. He obtained the juice by establishing a gastric fistula and isolating the stomach completely from the rest of the digestive tube, without, however, severing the fibers of the vagus or destroying the sympathetic nerve supply. Considerable literature has grown up on this subject in France. During the past five years I have carefully read all the published reports and discussions and believe that they are of sufficient importance to warrant careful consideration.

Fremont's[7] first report deals with 11 patients, to whom he had administered dog's gastric juice ("gasterin") for various gastric and gastrointestinal disorders. All the patients were promptly benefited, gastric symptoms subsided, gastric digestion was improved, and intestinal symptoms (chiefly colic and diarrhea) rapidly disappeared.

As much as 500 cc. was administered to some patients daily. Fremont explains the favorable influence of gasterin by declaring that it restores impaired gastric digestion. The intestinal symptoms disappear, because only well-prepared and nonirritating fluids enter the duodenum.

In a later paper Fremont says that gasterin is indicated in every case of gastric hyposecretion, and that under its influence all dyspeptic symptoms disappear more or less promptly. Many new cases are cited. The effect of gasterin is not a psychic one (many patients being ignorant of the nature of the remedy), it is not due to special dietetic rules, but it acts by restoring normal gastric conditions, under which the organism rights itself.

Gasterin is best administered with the meals in bouillon, beer, wine, or water; ordinarily 100 cc. to 500 cc. should be administered daily; when the stomach is very irritable, the patient should be placed on a milk diet at first, and other food should be added as the gastric intolerance subsides.

Other observers have reported in equally enthusiastic terms regarding the value of dog's gastric juice. Le Gendre[9] reports six of his own patients markedly benefited by gasterin, and adds that all apeptics and hypopeptics should be treated with animal gastric juice. He suggests that gasterin will play the same role for the stomach that digitalis does for the heart. Huchard, elsewhere, uses the same simile. A year later le Gendre reported many successes with gasterin in cases of acute and subacute dyspepsia, postoperative gastric intolerance and the vomiting of pregnancy. M. Rendu[10] considers gasterin the most powerful remedy we possess in certain cases of dyspepsia. Mathieu and Laboulais[11] report favorable results in 15 cases treated with gasterin; they consider it a valuable remedy in obstinate diarrhea. Finkelstein[12] also reports excellent results from the use of dog's gastric juice in 22 cases. (This report impresses one with its partisanship, and is presented in a most unconvincing way.)

Other cases with good results have been reported by Sarrade, Daudé, Lanois,[13] Barth.[14]

M. Hepp[15] obtained excellent results with Fremont's[8] gasterin, but found it objectionable on account of its canine odor, its exaggerated acidity, and the difficulty of preserving it. He has substituted pig's gastric juice, which he gives in much smaller doses (one to three spoonfuls) and obtains equally good results.

These favorable results reported by competent observers require interpretation. Gasterin has several times been carefully analyzed. M. Bardet[16] describes it as a perfectly limpid fluid, without a trace of mucus, with a scarcely perceptible odor, and strongly acid to the taste. The study of the acidity shows:

Total acidity	0.4422%
Free HCl	0.4154%
Combined HCl	0.0268%
Fermentation acids	0.0000%

Other published analyses show slight differences in the acidities. (Hayem free HCl 0.357% combined HCl 0.077%.)

Several possibilities regarding the therapeutic effects of gasterin at once suggest themselves.

(1) It may be an agent of peculiar efficacy due to certain inherent properties not yet understood; (2) it may act by virtue of the HCl independent of the pepsin;

(3) it may act simply like a corresponding solution of pepsin and HCl.

1. There is very little reason to believe that in dog's gastric juice we are dealing with a compound of particular and inimitable qualities.* It is true that we can not exactly imitate gastric juice by mixing proper proportions of HCl and pepsin—but the difference between the artificial and natural gastric juice consists in certain minor chemic reactions, and not in their proteolytic power or any other important feature. To assume, therefore, for dog's gastric juice specific virtues unattainable by artificial preparations is unreasonable and improbable, though the bare possibility cannot be denied.

2. That gasterin acts merely by virtue of HCl is possible, and the results achieved by the French authors are like those obtained in other countries by large doses of HCl. The indications are approximately the same (hypopepsia).

3. That the combination of HCl and pepsin is especially advantageous may also be true, though for reasons advanced before it is not very probable. It has been urged by some that hitherto pepsin and HCl have not been employed in sufficient doses to test their therapeutic effects thoroughly, and that they should be administered in daily quantities corresponding to 500 cc. of dog's gastric juice. This would represent about 1.75 gm. pepsin (U. S. Pharm.), and 20.00 official dil. HCl daily. Linossier [17] has given a formula for combining HCl with egg-white in order to make it palatable, and claims excellent results from the combination.

Fournier et Perraud [33] have also tried very large doses of HCl with good results.

The Results of Individual Observation.—During the past year I have instituted an extensive series of observations regarding the therapeutic value of pepsin. I have in each case carefully considered the indications; have administered the drug in what would seem sufficient doses .32 gm. to .65 gm. (5 gr. to 10 gr.) with and without HCl as seemed advisable; have given it to adults and to infants, and often merely empirically without previous study of the case.

On the whole, the results have been unequivocally disappointing. The limits of this paper will not permit an extended report of individual cases but a summary of my results can be briefly given. In few chronic cases could beneficial results be long obtained. In few chronic cases could results be obtained with pepsin which could not be obtained in other ways without it. In few cases did pepsin enable the patients to utilize larger quantities of food (proteids) than they could utilize without it.

In many cases pepsin would seem to bring amelioration of symptoms for a time, usually a very short time not usually extending over four or five days, in a few cases over a few weeks. The experiences of specialists in gastric disorders (as quoted) although not conforming to theory, were substantiated in nearly all respects in practice; and a carefully guarded experience with pepsin has convinced me of its very limited utility. Theoretically it often seems indicated; practically it rarely does good, and then only for very brief periods.

In the dyspepsia of infants, pepsin has sometimes seemed to correct digestive disorders without any change in diet. Fermentative diarrhea seems to be checked sometimes by the liberal use of pepsin. (Henoch writes of its good effects in certain cases.)

In acute indigestion pepsin has a soothing effect upon the gastric mucosa. Its influence is heightened sometimes by giving each dose with a few drops of dilute HCl. After its administration the patient will often be able to eructate gas and will have a sense of relief, the nausea often growing less. In such cases alcoholic solutions are usually badly tolerated.

In achylia gastrica and atrophic gastritis, pepsin in the cases under my observation has done no good. In two cases of achylia an acid-pepsin mixture has been of marked service for more than six months.

In carcinoma it is useless and neither increases the power of digestion nor allays the local irritation and pain. In many cases of hypopepsia (simple gastritis, gastric catarrh, atony with hypoacidity) and also in various neuroses, I have given pepsin experimentally with very little satisfaction. Any improvement is slight, and lasts only a few days and satisfactory results are achieved better in other ways.

Certain Conditions and Methods for the Further Experimental (Clinical) Tests with Pepsin.—It is clear from what has been said that the problem of the administration of pepsin cannot be considered a closed chapter. Adverse conclusions have been too sweeping in their denial of any indications, and the favorable reports have not yet been subjected to sufficient criticism (interpretation) and corroboration. Further study is needed to arrive at permanent and just conclusions. It is important to map out the path which further experimentation should take, and to define the conditions under which new clinical tests should be made.

In what Diseases of the Stomach should the Administration of Pepsin be Tried?—This question has been answered. Pepsin would seem to be indicated in acute indigestion (spoiled stomach); in all cases of hypopepsia in which the quantity of pepsin secreted is below the normal; in achylia gastrica, atrophic gastritis, and as a palliative in carcinoma.

In what Form should Pepsin be Given?—The trade preparations of pepsin are countless. In some of these the pepsin is inactive, in others it is combined with incompatibles. Some of the preparations have a high proteolytic activity. The pharmacopeia recognizes only pepsin (in powder and scales), saccharated pepsin, liquor pepsinum. In the test-tube pepsin is incompatible with alcohol, tannin, alkali carbonates, and chlorids.

Creasote, chloral, gallic acid, the soluble salts of iron, atropin, carbolic acid, the bromids, and the iodids, quinin, ratanhia, etc., all retard its action. It should not be given with alcohol. *In vitro*, alcohol (in from 10% solutions up) acts as a strong inhibitory substance and in the stomach it is probable that the inhibitory effect continues until the alcohol is got rid of by absorption or dilution.

Dilution weakens the effect of the pepsin, its activity being reduced as the square root of the degree of dilution, *i. e.*, a pepsin solution diluted to one-fourth will manifest only half the original digestive activity. The normal gastric juice contains pepsin in a strength about equivalent to a 0.35% solution of pepsin (Merck, United States Pharmacopeia, 1 to 3,000), and it should be administered in about that strength, *i. e.*, about 0.23 gm. (3.5 gr.) of pepsin to each 59.2 cc. (2 oz.) of fluid.

As is well known, pepsin should not be given in an alkaline solution; contact with an alkaline solution for a few seconds will permanently destroy the pepsin. This can easily be demonstrated by the two following experiments which I have repeatedly carried out:*

Experiment 1.—Make a solution of pepsin, 3.5 gm., in water 1000.0 gm. Add KOH n/10 vol. solution, drop by drop, until reaction is alkaline to litmus. After a minute, acidify with 3 vol. 0.2% HCl. The peptic activity of the solution is destroyed.

* It is probable that in natural gastric juice HCl is not altogether free, but that most of it is loosely combined with albumoses or peptones. HCl in gastric juice differs from a corresponding aqueous solution of HCl in these particulars: (*a*) gastric juice does not dissolve calcium oxalate; (*b*) gastric juice inverts cane-sugar much more slowly than a solution of HCl; (*c*) digestive enzymes (*e. g.*, pepsin) are much less injured by HCl in the presence of albumoses and peptones than in a pure watery solution of HCl; HCl in the presence of these substances seems to enter into combination with them; (*d*) in gastric juice or in mixtures of HCl and proteid the acid does not dialyze nor distil off so readily as in simple aqueous solutions. These differences are very slight in the face of the great resemblances between the artificial and the natural juices. Their effect upon albumins is identical; they are subject to exactly the same laws regarding dilution, temperature, inhibiting influences; and all the proteolytic effects of the one can be reproduced with the other. For all practical purposes we may adopt the dictum of Halliburton (p. 478) that "artificial gastric juice acts like the normal juice."

* Most of the laboratory tests recorded in this paper have been carried out with the cooperation of Dr. J. H. Schroeder.

Experiment 2.—Dissolve 3.5 gm. pepsin in 1000.0 gm. of the solution bismuth and ammonium acetate. After a minute, acidify as above. The pepsin has been destroyed by the alkaline bismuth solution.

The usual trade solutions of pepsin should not, ordinarily, be prescribed. I have carried out a long series of experiments with a large number of the special digestive solutions on the market.

Using the Mett method, it is found that the trade solutions do not digest egg-white. When diluted with three volumes of water a very slight digestive activity is displayed. To become active, they must be mixed and diluted with a solution of HCl.

The best method of prescribing pepsin is in a dilute solution of HCl. The following formula is suggested: Pure pepsin, 3.5 gm.; diluted muriatic acid, 10.0 gm.; distilled water, 60.0 gm. A teaspoonful of this mixture in 60 cc. (2 oz.) of water will contain about 0.35% of pepsin and about 0.1% absolute acid, corresponding to a weak but normal gastric juice. Mr. Fairchild states that such a solution rapidly deteriorates, the high acidity causing a destruction of the pepsin. That such is not the case the following experiment will demonstrate:

The following pharmaceutic preparation was made:

Pure pepsin	5.0
Dilute HCl	10.0
Distilled water, sufficient quantity to make	100.0

A teaspoonful of this mixture was diluted with 10 times its volume of distilled water and the digestive activity of the mixture was tested by the Mett method. Every day for five days the mixture was tested in the same manner.

The first day 4 mm. of egg-white was digested; the second day, 4 mm.; the third day, 3.9 mm.; the fourth day, 4.1 mm.; the fifth day, 4.2 mm.

This proves conclusively that for therapeutic purposes, a mixture like the foregoing may be prescribed with the assurance that the digestive activity of the pepsin will not deteriorate for at least five days. I did not carry out the experiment any longer, but it is probable that the pepsin will remain active several weeks at least.

Objections to the Administration of Pepsin.—It is often stated by eminent writers that the continued administration of pepsin and HCl, or the use of predigested foods, weakens the stomach, that is, reduces its secretory activity.

This conclusion, so far as I know, entirely lacks experimental confirmation and is not in conformity with the facts. I have often administered HCl over a long period of time (sometimes several years) and found the secretion of HCl at the end of that period in no way diminished. Recently Dr. Schroeder was consulted by a patient who for 15 years had lived exclusively on predigested foods, and had taken daily doses of pancreatin. An examination of the gastric secretions after a test-breakfast showed a normal quantity of HCl and of pepsin. Another patient had taken daily, for several years, three digestive tablets (a wellknown patent medicine). His gastric juice was likewise found to be perfectly normal.

On the Indications for the Use of Diastases.—Starches are converted into maltose in the mouth and in the small intestine. The action of the saliva (ptyalin) begins at once after the starches enter the mouth (raw starch is acted upon very imperfectly), and is continued in the stomach until the gastric acidity inhibits further diastatic action. The pancreatic juice, by virtue of its amylopsin, converts all the remaining starches into maltose. Ewald has examined the saliva of many patients suffering from the most varying diseases, and has found that the saliva under all conditions retains its diastatic action. There is no known disease of the pancreas (except destructive processes) in which the secretion of amylopsin is demonstrably reduced below the normal.

When the pancreas is totally extirpated, 20% to 40% of the ingested starch may reappear in the feces (Opie,[18] p. 312).

When the pancreas is only damaged, however, sufficient pancreatic juice may reach the intestine to carry on all the required digestive processes.

Imperfect conversion of the starches may occur under the following conditions: 1. The starch may be ingested in an abnormally large quantity, or in an improperly prepared form. 2. The starch may be swallowed too hastily. 3. Excessive and too early appearing gastric acidity may interfere with the conversion in the stomach. 4. The pancreas may be the seat of destructive processes (abscess, tumor, or cyst formation) or of inflammation, so that the secretion of sufficient amylopsin is interfered with. (This last condition is entirely hypothetic and probably has no existence in fact.)

From this enumeration, it will be seen, that conditions calling for the administration of diastatic ferments are rare. It is more sensible to prescribe the proper mastication and the proper preparation of food, and the use of proper quantities of food, rather than to permit these errors of diet and then attempt to correct them by the use of drugs. Destructive diseases of the pancreas are so rare that their consideration may be omitted from the present discussion. Excessive gastric acidity is the condition most frequently referred to by authors as requiring the use of diastatic ferments, and yet a little consideration will show that even here the indication is very slight. It is far better to diminish the quantity of starch in the food than to administer a diastatic ferment, in the hope of converting the starch in that short interval after swallowing before the acid stomach-contents inhibit all diastatic action. The more conservative and experienced clinicians adopt the first course, and have little to say regarding the use of diastases, while the manufacturing chemists discuss more freely about "amylaceous dyspepsia" and "intestinal indigestion," which, in the sense used by them, probably do not exist.

Regarding the Use of Pancreatic Extracts.—Pawlow[34] designated as the most important general result of his laboratory work the discovery of the relationship existing between the various chemic agencies of digestion and the possibility thus afforded of a real synthetic construction of all the digestive processes.

As yet we are far from understanding the relation between gastric and duodenal digestion on the one hand and between the various duodenal (intestinal) processes on the other.

Pawlow has shown that the promoting effect of the bile upon the pancreatic fat-splitting ferment is dependent upon certain dietetic conditions; also that the diet has a determining influence on the greater or less secretion of trypsin or trypsinogen. When dogs are fed exclusively on meat, the pancreatic juice is rich in trypsin; when the dogs are fed on bread and milk, the pancreas supplies a fluid in which the zymogen stage of the ferment predominates (trypsinogen) and the juice does not become active for proteids until acted upon by the enterokinase of the succus entericus. Peptone as such has no stimulating effect upon pancreatic secretion; and physiologists have not as yet been able to tell us what significance gastric digestion has for the further processes in the intestine. We know that the bile inhibits the activity of the pepsin as it enters the bowel; that the acid chyme is the true exciter of pancreatic secretion; and that the bile and the succus entericus are both necessary to render the pancreatic juice fully effective. So complicated, however, are all of these interrelationships that the application of our partial knowledge to therapeutic problems must be very imperfect.

It would seem rational to administer extracts of the pancreas or the pancreas itself when the gland is known to be diseased or partially destroyed. In case of the complete suppression of gastric digestion, pancreatic extracts might be given with the idea of utilizing the time during which the food remains in the stomach. Pancreatin and pancreon have, indeed, been advocated in

cases of achylia gastrica, and even in cases of gastritis (Osler), but the theoretic basis of their use is slight and the practical results achieved are doubtful. As has been stated, the intestinal digestion is fully able to provide for all the needs of the system; and so long as the gastric mobility is unimpaired it seems useless in the diseases named to try to assist the duodenal digestion, which probably needs no assistance. As pancreatin is destroyed by acids, it should not be given when the stomach secretes HCl, unless it is coated with keratin or other substances unaffected by gastric juice.

The administration of pancreatic extracts in pancreatic diabetes has so far proved entirely unsuccessful. Opie[35] reviews the efforts which have been made to influence the excretion of sugar by giving the fresh pancreas or extracts from it, and concludes that no satisfactory results have so far been attained. However, when the pancreas is known to be diseased (pancreatitis), or partially destroyed, the administration of preparations of the pancreas has been followed by very decided improvement. Opie[36] has collected a number of cases in which good results have been thus obtained.

These cases may be very briefly reviewed:

CASE I.—Reported by Fles, 1864. Patient diabetic. Stools contained striated muscle fibers and much fat. Upon the administration of fresh calf pancreas extract the muscle fibers and fat disappeared from the stools. The patient died of pulmonary tuberculosis. The autopsy revealed advanced sclerotic pancreatitis.

CASE II.—Reported by Langdon-Downs. Patient had profuse fatty diarrhea. Upon the administration of pancreas extract, the fat disappeared from the stools.

CASE III.—Reported by Oser. Tumor of the pancreas (probably carcinoma). The use of pancreatin 1.0 gm. three times daily caused much improvement in the absorption of fat.

H. Salomon[19] recently has collected a few other cases in which the patients were treated with more or less benefit with various pancreatic extracts, and adds a striking illustration of the benefits of pancreatic extract (pancreon) in a case of fatty diarrhea.

Yeo,[20] in 1899, reported a case of fatty diarrhea, treated successfully with pancreatic emulsion. The diarrhea ceased upon administration of the emulsion and returned when the latter was stopped for a few days.

New cases in which pancreatic extracts have been given with good results are gradually being added to the literature, and it seems probable that the future will record still greater progress in this field. All preparations of the pancreatic ferments should be administered in such a way that they are protected from the destructive effects of the acid gastric juice.

SELECTION OF CASES ILLUSTRATING THE USE OF PEPSIN.

Achylia Gastrica: CASE I.—L. M., male; chief symptoms, emaciation, nervousness, vomiting of mucus about two hours after meals. Gave unirritating diet, lavage, pepsin in HCl mixture; no improvement. Remained unimproved under all treatment.

CASE II.—Mrs. C. T.; chief symptoms, diarrhea, loss of weight. Diet, mixture of pepsin, bismuth, charcoal. Diarrhea relieved, but returns frequently. Stopped mixture; gave HCl pepsin in large doses; no result. Complete and permanent cure with lavage, diet, and tannigen.

CASE III.—Mr. J. B.; atrophic gastritis or achylia. HCl pepsin caused pain in stomach. Cure on milk diet without drugs.

CASE IV.—Mr. J. T.; chief symptoms, emaciation, discomfort and weight in stomach after eating, diarrhea; careful diet. HCl pepsin after meals; no improvement; pancreon, no improvement. Slowly improved under guarded diet without drugs.

Hyperchlorhydria.—Miss B.; hyperchlorhydria; free HCl, .24%; regurgitation of acid food; pepsin normal. No relief from peptenzyme in powder before and after meals.

Mr. A.; hyperchlorhydria; pains three hours after meals; gas in stomach; free HCl, .18%; pepsin 1/1. No relief from peptenzyme after meals. Relieved by soda and magnesia, with diet.

Mr. G.; tabes; hyperchlorhydria; heaviness in stomach; free HCl, .18%; pepsin 5/6. Relieved for four weeks by mixture of pepsin and bismuth. Symptoms returned in milder form under continued use of the same drugs.

Mr. M.; chief symptoms, coated tongue, bad taste, and foul breath. No nasal or pharyngeal affection; free HCl, .18%; pepsin 1/1. Tried pepsin, .65 gm. (10 gr.) after meals; symptoms were aggravated.

Atony with Hypoacidity.—Mr. H.; gastric atony; diarrhea; free HCl, 0.08%; pepsin, 1/1. No relief of heaviness in stomach, belching, or diarrhea from HCl pepsin.

Miss S.; atony; free HCl, 0.1%; pepsin, 1/2; HCl pepsin. No relief from heaviness and belching.

Mr. R.; atonic dilation; free HCl, .08%; pepsin, 1/1. No improvement under pepsin HCl. Relieved by lavage and diet, with creasote.

Mrs. G.; atony of stomach; chronic catarrhal enteritis; diarrhea. Tried large doses of HCl pepsin in bouillon, then in beer, after Fremont's method. Absolutely no relief. Tried mixture of bismuth, charcoal, and pepsin. Very temporary improvement. Cured by change of climate.

Mr. N.; atony; belching; discomfort. Free HCl, 0.11%; pepsin, 4/5. No relief from pepsin HCl. Cure under diet, exercise, and tonics.

Mr. M.; atony; constipation: bloating. Free HCl, 0.05%; pepsin not tested. Relief from bloating after HCl pepsin. Probably relief due to HCl.

Neuroses.—Mr. G.; neurotic distress in stomach from overwork; free HCl, .14%; pepsin, 1/1. No relief from pure pepsin, .65 gm. (10 gr.) after meals.

Miss M.; neurotic vomiting. Neurasthenia; free HCl, .12%; pepsin, 5/6. No relief from HCl pepsin.

Mr. W.; neurotic belching, following death of father from cancer. Free HCl, 0.1%; pepsin, 2/3. No relief from pepsin after meals.

Mr. P.; melancholia, anorexia. Free HCl, .05%; pepsin, 2/5. No relief from pepsin HCl.

Mrs. S.; anacidity and anorexia from nervous strain. HCl pepsin restored appetite for about 10 days; then complete anorexia returned. Later HCl reappeared in gastric juice. Recovery under fresh air, exercise, and freedom from worry.

Chronic Gastritis.—Mrs. S.; atony; chronic gastritis; free HCl, 0.03%; pepsin, 1/2. Belching and fulness relieved under diet and pepsin HCl for four to five days, but returned in full force. Cure with diet, lavage, HCl tonics.

Mr. S.; great discomfort after eating; diarrhea, followed by obstinate constipation; free HCl, .03%; pepsin, 2/3. No relief at all from HCl pepsin.

Mr. H.; chronic gastroenteritis; free HCl, 0.03%; pepsin, 1/4. No relief at all from HCl pepsin.

Mrs. W.; mucous catarrh; free HCl, .08%. Pepsin not tested. No benefit from HCl alone, or HCl pepsin. Relieved by diet and lavage.

Mr. DeL.; alcoholic gastritis following hyperchlorhydria. No free HCl; pepsin, 2/5. HCl pepsin causes pain. Relieved by mixture of bismuth and pepsin after meals.

Mr. B.; catarrhal gastritis; diarrhea; free HCl, .03%; pepsin not tested. No relief from pepsin HCl.

Mr. G.; longstanding catarrhal gastritis; free HCl, 0.02%; pepsin, 2/5. No relief from HCl pepsin.

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REPAIR OF THE GENITAL TRACT FOLLOWING LABOR.[1]

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Every physician engaged in obstetric practice must be interested in the subject of lacerations of the genital tract and their repair. It is incumbent upon the attending physician upon the termination of labor, to make a careful examination of the genital tract by inspection, and with a good light; combining digital examination when necessary.

The diagnosis of injuries to the vulva and perineum is readily made by inspection, but the recognition of injuries to the pelvic floor, cervix, and vault of the vagina requires especial care in exposing the deeper structures. To make a thorough examination and diagnosis, the patient must be placed upon her back or side at the edge of the bed or on a table, the labia separated and the pelvic floor raised for inspection. The extent and importance of lacerations of the pelvic floor must be estimated by the presence or absence of injuries to the deep fascia and to the sphincter ani muscle. Too often the labia are merely separated, and if there is no evidence of a laceration at the outlet, or of an external tear, the examination ends.

About eight years ago I was called to render assistance to a practitioner who was in attendance upon a primipara. Upon my arrival I found a vertex presentation, and the head impacted upon the pelvic floor, in which position it had been for over two hours. The vagina and vulva were literally black and very much swollen. The physician had a pair of Tarnier's forceps which he was very anxious to try. He delivered the fetus with great difficulty. Upon the completion of labor, he simply separated the labia and congratulated himself that there was only a slight external tear. Owing to the clumsy and jerking manner in which he effected delivery, I failed to see how the woman could escape severe internal injuries. I therefore asked permission to examine the patient, and demonstrated to the gentleman in attendance that the entire right wall of the vagina had been stripped upward from the vulvovaginal margin to its attachment to the cervix. The ischiorectal fat could be seen protruding between the muscles of the pelvic floor. A primary repair was done with perfect union.

Too frequently lacerations of the posterior segment of the pelvic floor only are sought for. The anterior segment should also be routinely examined as to depth and extent of lacerations; for, if the lacerations extending through the fascia are allowed to go unrepaired, as so frequently occurs, there will be a resulting cystocele, which until recently has proved so rebellious to operative cure.

Not infrequently, following forceps delivery, there will be found one or more transverse lacerations of the anterior fornix of the vagina extending through the fascia, which if not repaired will permit the anterior wall of the vagina to prolapse with its consequent train of symptoms.

Having determined the position and degree of lacerations of the genital tract, the question naturally arises, when shall the injuries be repaired? The time for the repair of these injuries may be divided into three periods: 1. The immediate, as soon as labor is completed or within 12 hours thereof. 2. The intermediate, 5 to 10 days after confinement. 3. The secondary, which is at any time subsequent to the termination of the puerperium.

It must be apparent to every one that the ideal method of procedure is the one which will restore the organs and structures of the parturient woman to a condition similar to what they were prior to the occurrence of her labor. When one considers the various sequels that are likely to result from failure to unite, this is still more evident. Subinvolution of the uterus and genital tract, the increased danger of infection and the long train of symptoms that arise as secondary results of such conditions, make it extremely desirable that repair should be done as early as expedient.

Some obstetricians are advocating the intermediate or fifth day repair as a routine procedure. The genital tract is kept clean to avoid the possibility of infection through the open avenues afforded by the injuries, until the fifth day, when all lacerations of the genital tract, including the cervix, are sutured. However, I am skeptical as to the ultimate value of the fifth day repair. If primary healing is not satisfactory, the results of secondary operation are so good, that to break into a woman's early convalescence and upset the general household on the fifth day of the puerperium, by giving her ether and subjecting her to an operation, at a time when the milk secretion is fairly established and the baby is nursing well, is not justified by the surgical exigencies of the case. The wealthy and well-to-do will remain in bed the extra length of time incident to the intermediate repair, and so will patients under hospital care. But as the vast number of labors in this and all countries occur in private houses, and as in many instances it is essential that the parturient should leave her bed as early as consistent, and as a large number of women are so situated that they cannot receive the services of skilled assistance, the surroundings of the patient, the ability to receive efficient nursing, etc., must all be borne in mind, and as a consequence, we must consider these operations from the standpoint of the conditions under which they will usually be performed.

Personally, I prefer immediate repair of the lacerations inc dent to labor, irrespective of their degree or extent, unless the patient is too exhausted, the physician tired out by long attendance on the case, there is poor light, insufficient help, or the necessary instruments or suture materials are not available. In such instances 12 hours may be allowed to elapse, when all repair can be efficiently accomplished.

If the physician in attendance is unable to execute this work properly, he should call in a specialist.

Cervix.—Slight degrees of cervical lacerations are a natural sequence of labor, and usually heal rapidly and rarely give rise to symptoms. Extensive lacerations involving the vaginal fornix and the lower uterine segment occasionally open the base of the broad ligament. Such lacerations usually involve vessels of large caliber, are invariably associated with profuse hemorrhage, and fortunately are rare. In cervical lesions there is usually no escape of blood until after the child is delivered, when the hemorrhage may be profuse. Very frequently the bleeding is so slight that the condition would not be detected were not an examination made for some other indication. Cervical tears, when not infected, invariably heal spontaneously. In order to determine definitely the extent of the laceration, the cervix can be readily drawn down to the vulvar outlet and inspected. It must be

[1] Read before the North Branch of the Philadelphia County Medical Society, June 20, 1905.

borne in mind that a most rigid antiseptic technic must be observed. My practice in cases of cervical lacerations is to ignore the cervix, except when there is profuse hemorrhage from the lacerations; in those cases in which there had been bilateral incisions, and those in which the cervix is low in the vagina and may be easily reached. In these cases the introduction of a few sutures will be efficient. In others it is advisable to leave the patient alone rather than expose her to the additional risk of infection. Moreover, in the majority of such tears, spontaneous healing ensues, and in the exceptional cases in which this does not occur, better results are usually obtained by a secondary operation.

Vaginal Vault.—Frequently following forceps deliveries the examining finger will detect lacerations in the vaginal vault. To those who are trained in operative work these lacerations can be closed by touch, as it is frequently impossible to expose them to view. This will require the use of a Kelly needle.

Anterior Segment of the Pelvic Floor.—"When the uterus is well contracted, when inspection of the cervix reveals no laceration with bleeding, and when torn vessels in the posterior segment of the pelvic floor are not bleeding, persistent hemorrhage is caused by a laceration of the vulva or of the anterior segment of the pelvic floor." Upon inspection a positive diagnosis is made. If the lacerations are slight, do not interfere. If, however, they are of considerable extent, the important fascia of the pelvis will be torn, and prolapse and dislocation of the bladder, urethra, and anterior vaginal wall will result. The primary closure of such injuries gives satisfactory results, precaution being exercised to approximate carefully the torn edges of the fascia. When extensive lacerations high up occur, it is often impossible to close the entire laceration accurately and completely.

Posterior Segment of the Pelvic Floor.—If the tear be considerable and the condition of the patient bad, the operator may wisely delay repair for 12 hours. The most important sutures in closing lacerations of the pelvic floor are those that coaptate the torn levator ani and transversus perinei muscles, and the stitches that are placed at the highest points of the tears in the sulci. In the introduction of sutures in the pelvic floor, the so-called "inside" sutures begin above toward the cervix, and work outward toward the vaginal outlet; in repairing the perineum, the socalled "outside" sutures begin nearest the anus and proceed up to the point where the posterior vaginal wall begins. These latter sutures should bring together the skin edges and underlying fascia, taking a good hold of tissue but without tension. The results following these operations are usually very good. When the pelvic floor alone is lacerated, sutures may be introduced previous to the delivery of the placenta, but not tied until after the placenta is delivered. In this way a great deal of time is saved and the temptation to hasty expression of the placenta is diminished. In complete tears the rectum should first be closed by a continuous suture, the stitches inserted into connective tissue, turning the rectal mucosa into the bowel. The fascia and sphincter ani muscle should then be accurately closed, and then the pelvic floor and perineum, as in an incomplete tear. Operations for complete tears are not so satisfactory as those for the incomplete variety, a large percentage failing to heal by first intention. In the case of a complete or partial failure, a secondary operation is indicated before the patient is discharged from treatment.

For suture material chromicized catgut is used throughout. Size No. 1 is sufficiently strong. If in the opinion of the operator the tension on the perineal sutures is too great, this may be diminished by the introduction of one or two silkwormgut sutures.

Mercuric chlorid need not be stronger than 1 to 4,000, and lysol 1%. Salt solution acts very nicely upon mucous membranes.

Dusting powders are not necessary, and when used do no good.

The after-treatment of these patients consists in strict regard to surgical cleanliness so applied as to disturb least the tissues and parts which are healing. The use of the catheter should be limited to the second or third day, even in most extensive cases. Whether the tear is incomplete or complete, the bowels should be moved at the end of 48 hours.

It is an interesting observation repeatedly made, that puerperal infection may develop, while wounds in the perineum and pelvic floor heal by primary union.

"In estimating the success of an immediate operation, the vaginal walls must be completely or very nearly in apposition and without prolapse; there must be good control of the sphincter of the bowel, and the patient must be free from pain, especially when using the closet or commode; there must be no considerable discharge coming from the sutured tissues."

IRON PRECIPITATES IN THE BLOOD, SPLEEN AND RED MARROW.

BY

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Professor Quincke, of Kiel, formerly of Bern, first called attention to this interesting subject in a series of articles on "Pernicious Anemia," published between 1875 and 1895.[1] He found that in this disease granular precipitates of iron sulfid could be demonstrated in the liver, spleen, bone marrow, and sometimes in the kidneys and pancreas, by treating sections of these organs with a strong solution of ammonium sulfid. The color of these precipitates is bottle-green, the natural color of iron sulfid. By treating similar sections with a solution of the potassium ferrocyanid, dark blue precipitates of iron ferrocyanid (Prussian blue) were found. To these reactions, he gave the name of siderosis, and surmised that the iron in the case was the product of a decomposition of the red blood-corpuscles. He afterward found that the same reactions took place in healthy spleens and healthy red marrow, but this did not alter his opinion as to the source of the iron, because Professor Kölliker had indoctrinated the scientific world with the belief that red blood cells were perpetually going to pieces in the spleen, and probably, as Quincke reasoned, in the marrow as well.

I have taken some pains to test these reactions on animal spleens and red marrow, and also on my own blood. I find the precipitates most numerous in spleens, sufficiently abundant in the red marrow, and less numerous, though still perfectly well marked, in the blood. My method is to make a series of smear preparations, harden them with sublimate salt, and stain from 15 to 30 minutes in the several reagents. Ammonium sulfid alway produces the most abundant precipitates, since it has the power of throwing down iron from combinations of both the iron oxids, the protoxid and the sesquioxid. Potassium ferrocyanid only throws down the sesquisalts; the precipitates in this case are always less numerous. Potassium ferricyanid precipitates solutions of the iron protosalts as iron ferricyanid, leaving the sesquisalts untouched. The precipitates thus formed are less numerous than those produced by the ferrocyanid, which shows that the iron exists in both forms, but that the sesquisalts are more abundant than the protosalts.

What are we to infer from these experiments? I have elsewhere shown that Kölliker and his followers are mistaken in their supposition that red blood-corpuscles are perpetually destroyed in the spleen. The most careful scrutiny of spleen preparations suitably hardened and stained, absolutely fails to show any such disintegrating red blood-corpuscles. The same is true of the

marrow, and of healthy blood. Therefore, the iron cannot come from disintegrating red blood-corpuscles, except in cases of disease, as in perinicious anemia.

Where does it come from? Necessarily from the food, which always contains iron in abundance The gastric juices extract this iron in the form of a chlorid, which combines with the peptones in the stomach to form an iron peptonoid. Thence it passes into the portal vessels and spreads through the system. A large amount of it is evidently deposited in the spleen and marrow, where it is intended to serve as pabulum for the young red blood-corpuscles. When we see, as it is easy to do under the microscope, the young erythroblasts of the spleen and marrow dividing and multiplying, it is clear they must get their iron from some source. It is not to be supposed that they live on their own dirt, as the Quincke theory would require. Therefore, they must obtain iron from the free supply already existing in the blood, spleen and marrow.

A chemic analysis recently made for me, by Professor Stephen P. Sharpless of this city, shows that fresh hog spleens contain ¾ gr. metallic iron per ounce. They contain no putrefactive products whatever, as was erroneously stated by Scherer over 50 years ago.

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THE TECHNIC OF PELVIC EXAMINATION AND THE PRINCIPLES OF LOCAL PELVIC MEDICATION.[1]

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The recognition of the particular lesions of the pelvic organs, giving rise to a given symptom-complex and the outline of a logical course of treatment, must depend almost entirely upon the accuracy of the gynecologic examination. A brief review of the special technic to be followed, and of the difficulties to be met and overcome, may, therefore, not be amiss.

In the diagnosis of gynecologic disease, it must be remembered that not only are the lesions peculiar to the genitalia to be studied, but the effect of general visceral and functional disturbances must be taken into account. To this end the history of the patient must be studied, and a systematic general physical examination must be made. The natural order would be history, pelvic examination, and general examination. Of these, the history and the physical examination need not be dwelt upon, as they are routine matters of general knowledge. The technic of the pelvic examination, however, is a subject offering such peculiar difficulties that it may be of some value to discuss it.

The first essential to an accurate diagnosis is the confidence of the patient. A woman suffering either with an acute and painful inflammatory condition, or an old laceration or displacement, with its concomitant nervous disturbances, approaches the examining table with fear and uneasiness; she resists the physician's manipulations, the abdominal walls are rigid, the bladder and rectum distended.

The examination is, therefore, difficult and unsatisfactory, and though a provisional diagnosis may be determined, it is well to reserve a definite opinion until a second examination is made, some time within the next 36 hours, if possible. By this time, the patient has outgrown her fear of the ordeal; she has been told to report with bladder and rectum empty; she does not strain, and a very careful and systematic examination is made possible. In many cases, of course, this double examination is unnecessary, and even inadvisable, but in the difficult and vague cases, it will be found of great value.

The examining table may be of any type, though an ordinary kitchen table is preferable. If possible the surface should be firm and unyielding, not upholstered. It should be fitted with Edebohls leg holders. The patient is placed with the feet in the stirrups, the legs flexed on the thighs, the thighs on the abdomen, and the buttocks drawn well down to the edge of the table. This is known as the Edebohls position, and has been found to result in the greatest possible degree of relaxation of the abdominal walls, allows the most satisfactory palpation of the pelvic organs, and affords the greatest comfort to the patient.

The patient being prepared, the examiner should inspect carefully, and in order, the external genitalia. Such inspection should be practised with due regard to the temperament of the patient. In many cases, when one is dealing with a sensitive, delicate woman, it must be abandoned entirely. The anus, the perineum, the labia majora, the nymphæ, the fourchette, the orifices of the ducts of the vulvovaginal glands, the hymen or its remains, the vestibule and the glands surrounding it, the external urinary meatus, and the clitoris are to be thus examined. These having been carefully studied, the vagina is next approached. The examiner having carefully sterilized his hands, and the vaginal outlet having been wiped free from secretions by a pledget of gauze or cotton wet with a solution of mercuric chlorid, 1 to 1,000, the physician introduces his forefinger, preferably the left, into the vaginal orifice. It is important that the other fingers be kept well flexed, not to touch or irritate the clitoris. When the finger has been passed a short distance within, the perineum should be firmly depressed for the entrance of air, which will balloon the vagina and give ample space for the digital examination. The condition of the vaginal walls and the direction, consistency, form, etc., of the vaginal cervix may be determined. The shape and size of the external os should be noted, especial attention being paid to any laceration or granular or eroded surfaces. If, now, the other hand be placed upon the abdomen, immediately above the symphysis and the tips of the fingers gently and firmly pressed backward toward the vaginal finger, the various pelvic organs, the uterus, the fallopian tubes, ovaries, and even the ureters may be palpated between the two fingers and their characteristics determined. In making this bimanual examination a regular order should be maintained in palpating the various structures. The vaginal finger notes the condition of the cervix. The uterus may then, if in normal position, be taken between the abdominal hand, making pressure upon the fundus and the vaginal finger, gently pushing the cervix upward; by this means the size, shape, mobility, and consistency of the organ are noted. The vaginal finger is then passed laterally and anteriorly toward either uterine cornua while the abdominal fingers pass to the posterior aspect of the same cornua; the ovarian ligament, the fallopian tube, and the ovary may thus be felt. It should be remembered, however, that the normal tube and ovary, are in most women, exceedingly difficult to palpate. The pelvic organs having been examined, careful search should be made for evidences of inflammation, adhesions, the indurated area of a cellulitis or the presence of a collection of blood or pus in the pelvis. The accurate diagnosis of these conditions must be largely made from the history and the symptoms elicited from the patient by careful inquiry. Sometimes the examination may be facilitated by dragging the uterus down by means of a double tenaculum grasping the cervix. Either the anterior or the posterior lip may be caught in

[1] Read before the Potter County Medical Society.

the tenaculum, and as sensation in the cervix is very slight, no discomfort results. When this is done the uterosacral ligaments are made tense, and can be felt like two cords extending from the sides of the cervix outward and backward to the pelvic wall.

Vaginal examination should not be practised in the presence of very acute inflammatory disease, when the hymen is intact, or in virgins. These contraindications may be disregarded, however, should vaginal examination prove essential to the intelligent conduct of the case. Under such conditions rectal touch may satisfactorily determine the diagnosis. It is carried out under the same general principle as the examination by the vaginal route. Rectal touch, whether digital or conjoined, may be impeded by the presence of coils of intestine, finding their way between the examining finger and viscera to be palpated. To overcome this, Kelly places the patient in the knee-chest posture and introduces a cylindric speculum into the rectum. Air immediately rushes in and the rectum balloons out over the posterior pelvic wall and the posterior surfaces of the pelvic organs, the small intestine falling away into the upper abdomen. The patient is thus returned to the lithotomy or Edebohls position, care being taken to have the pelvis at a higher level than the rest of the abdomen. By this means the pelvic organs may be palpated with great accuracy and ease.

Inspection of the vagina, the cervix uteri, and the external os is accomplished by means of a vaginal speculum. For this purpose the most satisfactory instrument is the duckbill speculum, or perineal retractor of Sims. It is introduced with the woman in the Edebohls position as described. Upon the perineum being retracted with the blade of the instrument, air rushes into the vagina and the vaginal slit will balloon out. To obtain a clear view of the external os and the vaginal cervix, it is necessary to push forward the anterior vaginal wall. This is done by means of a pledget of moist cotton held in ordinary long spring forceps. One of the various depressors made for this purpose may also be used. In inspection of the cervix, the size and shape of the vagina are noted, the presence and extent of laceration, the amount and character of secretions, the presence of congestion or anemia, erosions or granular surfaces. With the careful inspection, the results of the pelvic examination may be summed up and a complete and trustworthy diagnosis made.

In discussing pelvic examination, it may be proper to append a few of the more prominent measures for the local nonsurgical treatment of gynecologic diseases. The first and most important agent is the hot vaginal douche. From various causes the pelvic veins lose their tone, become much distended, and a local venous congestion takes place. As a direct consequence of this passive congestion, the various pelvic organs become increased in size and weight and suffer a marked excess of secretion. It is by stimulating the vasomotors and thus restoring tone to the pelvic circulation that the hot douche exerts its beneficial influences. Furthermore, the douche is of great value as a cleansing agent. The vagina being a passage way for all the secretions of the internal genitalia, as well as retaining a certain proportion of these discharges in the folds of its mucous membrane, acts as an incubator and a focus for the distribution of bacteria; the aseptic and antiseptic value of the douche in such situations becomes therefore obvious. The indications for the hot douche are all chronic pelvic inflammatory conditions and circulatory disorders. It should not be given during pregnancy, menstruation, nor in cases of friable and hemorrhagic neoplasms presenting in the vagina. To obtain good results it is of importance that the douche be properly administered. To quote Emmet: "The full benefit can be obtained only while the patient is lying on her back, and she cannot efficiently give them to herself. It is also necessary that her hips should be elevated and the quantity of water used should not be less than a half gallon for each injection." The douche bag used should be of ample size to prevent the interruption necessary while refilling it and the bedpan should also be of large capacity. The patient must be placed in the dorsal position, with the legs flexed, the shoulders low, and the hips elevated upon a bedpan, so that the vaginal outlet is the highest portion of the canal. By this means the vagina will be kept constantly distended and overflowing with the water.

The douche should be given at least twice daily, morning and evening, and its administration should last perhaps a half hour—certainly not less than 15 minutes. The temperature of the water should be as high as may be comfortably borne by the patient. It may be increased from day to day from 100°, 110°, 115° and even 120° F. Its use should be continued for over a long period of time—months and sometimes even years. Long-continued use is essential to the success of the procedure. The long-continued use of the douche in the normal vagina must never be practised, since the washing out of the normal vagina lactic acid bacteria, whose function is to render the vaginal secretion acid and an unfit culture medium for most pathogenic bacteria, renders the passage of such organisms to the higher pelvic organs comparatively easy.

Next in importance to the douche in the local treatment of pelvic disease is the use of the tampon. The vaginal tampon is indicated in pelvic inflammation and in hemorrhage. In inflammatory conditions it may be used to fulfil one of three indications: First as a means of pressure, next as a vehicle for the application of medicinal substance, and lastly for drainage (Dudley). As an instrument for the production of pressure, the tampon is used in cases of displacements of the pelvic organs, especially those displacements having an inflammatory origin. Here the lamb's wool tampons are much to be preferred. They should be of comparatively small size, not more than 2 in. in diameter, and should be lightly but firmly packed into the vagina, so as to bring about pressure in the particular direction required. As a vehicle for the application of drugs, the tampon is best made from a mixture of lamb's wool and cotton, the combination being elastic, while dense enough to retain the medicament. In hemorrhage the tampon should be a continuous strip of aseptic gauze, about 2 in. in width. Should the hemorrhage be intrauterine in origin, the cervix should be exposed with the Sims speculum, grasped with a double tenaculum, the strip of gauze introduced to the fundus and firmly packed in by means of a sound, slender dressing forceps or some similar instrument. Needless to say, this should be carried out under strict aseptic precautions. Uterine hemorrhage may also be controlled by the use of a large, firm vaginal tampon. The method occasionally fails, however, and the pack may press upon the bladder or rectum, sometimes seriously interfering with their functions. In any case the tampon should be removed within 24 hours, and, if necessary, replaced by a fresh one, as the absorbed secretions rapidly decompose—and become a dangerous source of infection.

The direct application of medicaments to the endometrium is a method of treatment now seldom used. In certain cases of excessive hemorrhage from an obstinate endometritis, the application of a solution of silver nitrate, .65 gm. (10 gr.) to 30 cc. (1 oz.), has proved of great value.

The use of intrauterine applications after curetment is rather general, the material used being usually astringents or disinfectants—pure carbolic acid, various strengths of silver nitrate and Churchill's iodin tincture being among the remedies most frequently used.

The contraindications to intrauterine applications are: When the excessive secretion is due to general and not to local cause; when there is present some lesion of the extrauterine tissues, as a parametritis or pelvic tumor, or when the discharge is set up by some local noninfec-

tious disturbance, as a temporary and acute displacement of the uterus.

When the intrauterine medication is indicated, it should be performed under careful aseptic precautions; the vulva and vagina must be carefully cleansed, and the cervical canal must be irrigated (after having been dilated to about a half inch without anesthesia, if necessary); the cervix is then exposed by a Sims speculum and steadied with a tenaculum, when the applicator carrying the medicament on a pledget of cotton is introduced into the uterine canal. A syringe may be used, if large quantities of the drug are required. Some patients will not tolerate this procedure without anesthesia, and its use is, therefore, greatly restricted. The application of medicinal substances to the vagina and cervix, is a common and valuable form of treatment.

In the various forms of vaginitis, ointments, douches, caustics, and so on, should be applied under general medical principles, and in no way differently than elsewhere. Local treatment of the cervix is necessary, chiefly for the preoperative treatment of a lacerated and indurated cervix with an erosion, or for the cure of an uncomplicated cervical catarrh. In the former case, the cervix is treated with Churchill's iodin tincture thoroughly swabbed over its surface and over the vaginal vault after all Nabothian cysts have been punctured. The iodin should be followed by a glycerin tampon applied to the cervix for its hygroscopic action to deplete the organ.

In cervical catarrh the same general course is pursued except that the applications are made directly to the cervical canal. Any time in the menstrual interval is appropriate for these applications, which are made by exposing the cervix by a Sims speculum, and steadying it by a tenaculum. The mucus filling the cervical canal is then wiped out with cotton held in forceps or wrapped upon an applicator. The desired solution is then applied by means of an applicator to all portions of the cervical mucous membrane.

The solutions used for this purpose vary greatly. Violent caustics should be avoided. Solutions of value are zinc chlorid, .065 gm. to .13 gm. (1 gr. or 2 gr.) to 30 cc. (1 oz.); zinc sulfate, tannic acid, silver nitrate, mercuric chlorid. Pure carbolic acid may be used. Churchill's iodin tincture (tincture of iodin 1 part, potassium iodid 3 parts, glycerin 6 parts) is the application most frequently used. After the applications, the vagina should be tamponed with a glycerin tampon or one saturated with 25% ichthyol in glycerin.

Beyond these simple measures, topical treatment is inefficient and inadvisable, and the cases requiring more active measures should be referred to the surgeon for treatment.

THE ADVANTAGES OF SANATORIUM TREATMENT OF TUBERCULOSIS.[1]

BY

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Since the curability of tuberculosis has been thoroughly established, it is an injustice, to put it very mildly, to allow tuberculous individuals to go without competent guidance and treatment. In the past, there has been no class of sufferers so sadly neglected by the medical profession, and no class so ruthlessly and criminally played upon by quacks and charlatans as those suffering from this disease. The medical profession is now fast learning that this disease is curable and that it yields readily to rational measures, intelligently applied.

The difference between treatment and a let-alone policy in those cases which are sufficiently advanced to make the disease manifest, is practically the difference between life and death. Shall we allow these individuals to die or shall we offer them the hope which the study of tuberculosis during the past quarter of a century has established, is the question which confronts the medical profession today. This disease is demanding the best thought that medical science can give, and offers promise of yielding to its penetrating search. In many, many instances, the fact that, while about 60% of the people have tuberculosis, only about 11% die of it, is totally ignored and the disease being looked upon as hopeless, nothing is done to save the lives of those afflicted. In many other instances its curability is believed in, in a half-hearted manner, and various measures, some helpful, some harmful, are adopted, which encourage the patient and make the disease easier to bear. In still many other instances active measures are indulged in which prove absolutely harmful to the sufferer. Many such could be recited, but I shall content myself to note only a few. The first harmful measure that I wish to notice is that of belittling the symptoms in early tuberculosis, assuring the patient that nothing is the matter, and sending him or her away, at this favorable time for cure, to allow the disease to extend and death to become inevitable. Another is that of prescribing such remedies as creasote, codliver oil, and cough medicines, without regard to the condition present or the individual to be treated, and failing to give instruction for that careful guidance of the life of the individual, without which recovery is all but impossible. I would especially emphasize the common practice of telling those suffering from pulmonary tuberculosis to adopt the fresh-air cure, without instructing them how to do it, or advising a change to some distant climate, without instructions as to what the patient should do and what he should not do to obtain advantage of his change. (And here let me say, that all patients making such a change should be advised to consult some competent physician when they reach the new country.) There are right and wrong doses and right and wrong methods of prescribing fresh air and climate, the same as in the administration of drugs. What I would term doing the right thing for those suffering from tuberculosis, consists in treating every sufferer as an individual. We have no single remedy upon which we should rely for a cure, not even fresh air, but we have many measures which will aid, and if these are carefully and judiciously combined, we can rob this dread disease of much of its terror, and save lives when single measures would surely fail. If we would be successful in treatment, we must give our patients the same thoughtful and watchful care we would a patient with typhoid fever and pneumonia, not for a few weeks, but for a period extending over months, and sometimes years.

There are two methods of treatment, which are sometimes designated as the open and the closed methods. In the former, the patient lives at home or in some private or public boarding-house and receives his instructions and treatment from the physician who either sees him at his office or calls at his rooms. The closed method is synonymous with sanatorium treatment.

The supposed advantages of the open method are that the patient can be with his family and friends and can attend to matters of business while being treated. These supposed advantages, however, are positive disadvantages. A tuberculous individual, although he does not always recognize the fact, is ill. He cannot and must not do the things that a well person does. If he associates with well people, he is compelled to do many unwise and harmful things, he is forced to entertain and be entertained, when he should be resting, he is led into vices and excesses, he is tempted to attend parties, theaters, and not infrequently dances, he is constantly tempted to eat indigestible food, he is ever receiving gratuitous advice, contrary to the doctor's orders, from some would-be wise individual who knows far more of the needs of a tuberculous individual than the attending physician. It is also difficult to get sunny, well-

[1] Read before the Los Angeles County Medical Society, January 6, 1905.

ventilated rooms, and food suited to the needs of these patients in private houses or public boarding-houses. Attending to business while taking treatment is a mistake. While under exceptional circumstances and in picked cases this may be allowable, yet, as a rule, the individual who is attempting to be cured of tuberculosis should not be bothered with business worries.

Few are the things in this world to which some objection cannot be raised, and sanatorium treatment is no exception; but strange to say, the objections which are usually raised to this method are not found to hold in a well-conducted institution. All must agree that an institution, thoroughly equipped for the treatment of this disease, must offer much greater opportunity for cure than can be obtained outside, provided it is properly conducted. On this there can be no difference of opinion; but the objections usually raised, and these come most often from those who have never visited a sanatorium, are: (1) That being thrown with so many sick people will be depressing, hence, interfere with recovery; (2) that association with other patients will cause reinfection.

These objections will not hold. In the first place, a sanatorium is not a hospital. It is a place where those suffering from tuberculosis may be cured, not where the tuberculous may die. Only such cases should be taken as offer either an opportunity of cure or of material improvement. To take those who cannot possibly get well is a double injustice. It discourages those who can get well and it encourages the one, who cannot, to spend money for something which cannot be attained. On the contrary then, a sanatorium is not a place of gloom and sadness. My experience is that these patients are as happy a company as can be found anywhere. It is a pleasure to do for them, because they are so happy. They are happy because they feel that the right thing is being done for them, and because they believe they are getting well.

Regarding the danger of those who go to sanatoriums being reinfected, there is absolutely none. There is no place so free from danger of contracting the disease as a sanatorium. The danger is not in association with those who are ill, but in carelessness on their part. The chief, and for practical purposes, we can say, the only danger of communicating tuberculosis to another is through the sputum, and since this is all carefully destroyed in an institution, there is no danger. Not only is this care maintained in the buildings, but also throughout the grounds. The best proof of the freedom from danger of infection in sanatoriums is the fact that physicians, nurses, and attendants who constantly associate with these patients almost never become infected.

The advantages offered by sanatoriums are: 1. The patients are under the immediate and constant guidance and control of the physician, who can see they do the things which are necessary to help bring about a cure, and prevent them from doing things which tend to lower vitality and retard their progress. 2. They are furnished with apartments suitably lighted and ventilated, and with food adapted to their needs and properly prepared. 3. They can be given the advantages of all scientific measures which have been proved of value in treatment.

All tuberculous patients cannot get well, no matter what is done for them, but in nearly all incipient cases, and in a large percentage of moderately-advanced cases the patients should be restored to health, if treated intelligently, and this especially in Southern California, which possesses the best all-year-round climate in the world for the treatment of this disease. With constant, competent, medical supervision, a continuous life in pure air, a bountiful supply of suitable food, and the addition of scientific measures, we offer the tuberculous an excellent opportunity of regaining health. It is all but impossible to carry out such a course of treatment, except in sanatoriums.

The progress of these patients depends much on their being contented and happy. This is best secured through close association and frequent visits from the medical director, whom they learn to rely upon absolutely, and in whom they must believe implicitly. In fact, the successful medical director of a sanatorium must carry his patients with all their troubles. A thorough cooperation of the patient must be secured, and this, while it makes recovery more certain, really throws a greater responsibility upon the physician. If these patients can be kept happy, they sleep better, have better appetites, better digestions, better assimilation, put on weight faster, hence offer greater resistance to the disease. There is no question but that a happy patient is more resistant to disease than a melancholy one.

It has been well said that tuberculous patients do not die, but kill themselves; and I would add, or are killed by their friends. The life of the tuberculous is a constant unconscious repetition of Beecher's prayer: "O, Lord, deliver us from our friends." Tuberculosis has been so common that all the neighbors have remedies for it which are reputed to have been used on the wife of some friend of some neighbor of one of their distant relatives. Each neighbor has a different remedy, and each remedy is equally sure. The patients upon whom the remedy was tried, in most cases died, but that does not affect its standing. It is a great relief to the patient to get away from this meddlesome advice, and to be directed by one who understands the disease he is treating, and the remedies he is employing. If there is one factor which makes sanatorium treatment superior to the open method, and which will account more than any other for the good results therein attained, it is the constant supervision of the medical attendant.

People do not go to a sanatorium for fun. They go to get well. All the people in the institution are there for the same purpose. This helps and encourages every one. The ordeal of treatment is made easier and the deprivations are more easily borne. The whole life is one of regularity. It is easy to retire early, to awaken late, to take the morning cold sponge, to eat large quantities of food, to remain in the open air day and night, to keep free from vices and excesses, because all are doing the same thing. Each patient knows that whether or not he will get well depends upon his own individual effort, and unless he wishes to get well, the institution is not the place for him. So with a medical director, who knows the things a patient should do, always at hand, and a patient who is willing and anxious to do them, we have the first essentials for the cure of this disease. "Open air" is the reputed cure for tuberculosis today. Its star is in the ascendency, and a mighty force it is. It is not the only force, however, which can be exerted against this disease. It is only one of many valuable measures.

The rationale of the employment of "open air" in the treatment of tuberculosis is based upon the fact that tuberculosis is a disease which develops mainly among the poor, who live in overcrowded, badly ventilated rooms. If pure, open air is a safeguard against the development of this disease, it should be of value in treating those afflicted with it. It is a revelation to most people to see the manner in which open air is used in sanatoriums. Patients are required to remain in the open all day. The rooms in which they sleep should be so constructed that there is a through-and-through ventilation, without air passing from one bedroom to another, hence should be placed only on one side of a corridor and should face preferably to the south. After a patient is in an institution for a short time drafts of air are no longer feared, and what was a delicate hot-house plant becomes a hardy inhabitant of the open, disturbed but little by winds and weather. The object is to keep these patients constantly bathed in pure air.

The question of food for the tuberculous is most important. The best and most digestible food is required

and required in large quantities. It is not only necessary to meet the ordinary demands of the body dependent upon the natural functions and growth, but to supply the enormous waste incident to the disease. A high state of nutrition is the best barrier to the disease, and, while many measures enter into the securing and maintaining of nutrition, such as regulating the life and habits of the individual, a continuous life in the open air, sunshine, hydrotherapy, and various other forms of tonics, nevertheless, these will all fail to bring about the desired end unless suitable food be supplied. There is no place where the needs of these individuals are met, except in sanatoriums. Private homes, boarding houses and hotels cater to the needs of the well. They do not furnish the food needed by the tuberculous, and they are apt to have quantities of indigestible food which tempt the sick and cause disorders of digestion. An indigestible meal has been the beginning of the downfall of many a tuberculous individual. The best diet for the tuberculous consists of large quantities of albumin, such as meat, muscle juice, eggs, and milk; and fats, such as butter, cream, bacon, and olive oil. The more easily digestible vegetables and ripe fruits are also of great value in varying the diet and maintaining the appetite.

Fresh air, good food, and careful guidance of the patient, are the measures which are universally recognized in the treatment of tuberculosis. These are the basis, and, in many institutions, constitute the sole treatment adopted. However, there are other measures which have undoubted influence; some of them are adopted by one institution, some by another; few, however, have adopted all of them. In the treatment of a disease as serious as tuberculosis, and in an institution which professes to be able to cope with this disease, every measure which can lay claim to a rational foundation should be worthy of consideration. A careful combination of many measures will produce better results than any one alone.

Scientific measures added to the hygienic-dietetic open-air treatment will save many individuals who would undoubtedly perish by the latter alone. Among such aids I would mention hydrotherapy, tuberculin, actinic rays, and the various methods of applying remedies to the air passages.

Hydrotherapy is usually understood as a method of reducing temperature. This is an erroneous and harmful impression, and perhaps has done more toward delaying its scientific introduction into therapeutics than anything else. This action is only one of a great number, and is one of the least important of all the various actions of the hydrotherapeutic procedures. The value of hydrotherapeutic measures depends upon the mechanical and thermic effects, and most of them are judged by the reaction which they produce. Their primary action is upon the nerves which supply the part to which the water is applied, but their secondary action may affect every organ and structure in the body.

We have in water, then, a remedy with which we can produce a variety of effects, according to the mechanical impact and the temperature used. Cold rubs, wet packs, half baths, sheet baths, and pressure sprays are all of great value, when applied with discrimination. Hydrotherapy must be classed among our best tonics, and when used along with fresh air and sunshine, renders the use of medicinal tonics rarely necessary.

The value of sunlight as a tonic and stimulant to nutrition has long been known, although its full value is not yet appreciated. The studies which have been made in recent years have determined that sunshine consists of two kinds of rays, those which produce heat, and those which produce chemic effects, hence called actinic. These latter are the rays which have most to do with the stimulation of the functions of tissue elements and organs. To these chemic rays is doubtless due much of the value of those climates where sunshine is almost perpetual. These rays, while a powerful tonic to the animal organism, have a retarding effect on plant growth and a destructive action on bacteria. The rays of the visible spectrum which possess the greatest amount of chemic action are the violet and blue, while the ultraviolet possesses more than either of them. Now, if it is possible for the blue, the violet, and the ultraviolet rays to penetrate the body, theoretically, we would have a valuable aid in the treatment of tuberculosis, for we would have a remedy which is highly stimulating to the functions of the human organism and at the same time one inhibitive to growth and destructive to the bacteria themselves. It has been found that highly concentrated sunlight will pass through the body, also that the chemic rays from a powerful arc light will do the same; hence, the chemic rays usually spoken of as the violet and ultraviolet rays are given to us in forms that we can use to advantage in treatment. Finsen's work in lupus has established their value beyond question in the treatment of this form of tuberculosis, and the reports of various clinicians are very favorable to their use in the pulmonary form.

I wish again to emphasize my belief in the value of tuberculin. After having seen local tuberculous areas, as in the nose, tonsil, pharynx, and larynx heal under its use, after seeing, as determined by the stethoscope, the areas of recent involvement in pulmonary tuberculosis quickly yield to its beneficial action, after seeing secreting cavities healed out under the effect of its local stimulating influence, and after watching the patients whom I have treated and discharged as apparently cured during the past six years and seeing that not one of them has had a relapse, I feel that I am justified in considering tuberculin as of more than trivial value, and in claiming for it a specific action and in extolling it as one of the most valuable aids to sanatorium treatment.

The last measure to which I wish to call attention is the application of remedies directly to the air passages, whether it be by means of sprays and local applications in the treatment of the catarrhal conditions usually present in the upper air tract, or by intratracheal injections or the inhalation of nebula. These are of value, because of their indirect action. They have a salutary effect in altering the secretions and facilitating expectoration. They reduce congestion and lessen cough. While they are not capable of curing tuberculosis, they ameliorate one of the most distressing symptoms, hence should form a part of the scientific treatment of this disease.

Why cannot these scientific measures be carried out in general practice as well as in sanatoriums? They can be, but where is the busy practitioner who has the time, even if he had the inclination, to follow out the minutiæ of these various measures? This can best be done in an institution, where the medical director has a corps of trained assistants and all the necessary equipment for expediting such work.

Sanatorium treatment, to my mind, has its greatest advantage in that it offers the opportunity of doing everything that can be done for the tuberculous individual. Good food, fresh air and careful guidance are the basis of treatment, but the tuberculous individual is not receiving the best that can be had until we give him the benefit of all scientific aids, and of these I would especially commend hydrotherapy, the chemic rays, tuberculin, and direct medication to the air passages, and I would bespeak for these a more extended use in the institutions which are devoted to the cure of this disease.

Orthopedic Prize Awarded.—The adjudicators of the Umberto I Orthopedic Prize, Roth, of London, and Bassini, of Padua, after considering a communication from Professor Carle, of Turin, who was prevented by illness from being present, have awarded the prize to Oscar Vulpius, of Heidelberg, for his work on "The Transplantation of Tendons." The value of the prize is $1,000.

MISCELLANY

ABILITY OF THE LARVAS AND PUPAS OF STEGOMYIA FASCIATA TO WITHSTAND DESICCATION.

BY

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of New York City.

Passed Assistant Surgeon.

During the antimosquito campaign waged by the Public Health and Marine-Hospital Service in Laredo, Tex., in the summer of 1904, observations were made on the ability of mosquito larvas and pupas to withstand desiccation. It may be added that the Laredo climate was a particularly favorable one to study this phase of the mosquito subject. The humidity during the summer was very low, the temperature high. Occasional rains, rather exceptional, formed puddles in the street which lasted for a few days. In only one of these were mosquito larvas ever found. Dr. L. O. Howard noted a small pool, containing numerous larvas, go entirely dry; yet the next day after a rain numerous larvas were seen swimming about in it. This was also observed in a street puddle in the outskirts of Laredo. Larvas were noted in this puddle on June 26. The next day it had almost dried, only a few gallons remaining. This quantity contained numerous pupas. The following day the puddle became entirely dry, and during the next few days both dry and dusty. On July 2 occurred a hard shower, and another on July 3, filling all the gutters and puddles in the city. Large larvas were seen in the above-mentioned puddle on the afternoon of July 5. On July 6 the puddle was again visited and found to be entirely devoid of water, and had apparently been dry for several hours. The mud was still moist, however, and lying in a depression in the puddle caused by a horse track were hundreds of apparently lifeless larvas, and not dead without cause, for the thermometer had registered about 100° in the shade for several hours.

Some of the mud containing larvas on its surface was scooped up and taken to the laboratory for examination. Another portion of mud containing larvas was marked in situ to be seen the next day. The mud taken to office was placed in water and the larvas revived at once. A small portion of mud containing three larvas was taken up in a teaspoon, placed out in the sunlight, and left for over half an hour. The mud speedily dried into a hard baked clod, almost devoid of moisture, yet when this clod was disintegrated in water two of the larvas began to exhibit signs of life and floated to the surface. One died in half an hour, but the other seemed no worse off from his experience several hours after. Three minutes was the average time necessary to kill a *Stegomyia* mosquito exposed in a test-tube to the same sun's heat at the same place. Another portion of mud containing larvas was set aside in the office.

The next morning ants had gotten them, as well as those left in the puddle.

The larvas placed in water, however, all thrived and hatched out into mosquitos. These were identified by Passed Assistant Surgeon Goldberger, and also by the consulting entomologist of the Service as "*Tæniorhynchus signipennis* Coquillet." One peculiarity of this mosquito larva, which was always the one found in water containing flowers, plants, lily bulbs, etc., was its ability to stay under water for long periods of time. One specimen was observed to stay under an hour by the watch. The next rain occurred on July 25. Larvas were taken from puddles on July 28; on July 29 had changed to pupas and the next day to mosquitos of same species as before.

At the beginning of my investigation I believed that the explanation of the incident witnessed by Dr. Howard, and also of the large larvas noted by myself in the puddle so soon after a rain, was that the larvas burrowed or sunk in the soft mud and thus lived from one shower to another. However, my observations did not bear out this theory. The larvas showed no disposition to burrow, but merely settled down on the surface of the mud as the water evaporated. And while it was shown that larvas can stand drying for hours, they could not have stood it for days and weeks; beside the baked mud was ground into powder by the wheels of vehicles.

The explanation, I suppose, of their presence in the puddle is that householders living on a little higher ground emptied their water barrels, containing old water, and incidentally wigglers, in order to catch rain water; the wigglers would then float down until they lodged in this puddle.

Since *Stegomyia fasciata* was never found in puddles in Laredo, artificial experiments were necessary to determine their ability to withstand desiccation. Three larvas and three pupas of this species were placed on a double thickness of blotting paper at the bottom of a large glass jar, the blotting paper being used with the idea of absorbing every particle of moisture from the wigglers. At the end of four hours one pupa hatched out, and the remaining larvas and pupas were taken out and placed in water, where they became as active as ever. The next day 12 pupas were placed in this jar, and at the same time 10 pupas and 2 larvas were placed in a similar glass jar whose bottom had been covered by a two-inch layer of fine, almost dry, river sand. The pupas were quite active in both jars, casting themselves about. Those in sand jar soon became plastered with the fine sand. At the end of two hours one mosquito had hatched out in sand jar and three from paper jar. At the end of five hours three more mosquitos had hatched out in each jar. Shortly afterward small ants got in through double thickness of mosquito netting fastened over the top of the paper jar and attacked the remaining pupas. However, no ants got in sand jar, and by the next morning there were nine mosquitos in it. The last pupa was seen to cast off his sandy coat and emerge as a healthy mosquito at 10 a.m., just 24 hours after being placed in the jar. The two larvas survived the 24-hour drying, and on being placed in water soon became as active as they should be. The hatched-out mosquitos were apparently as lively specimens of *Stegomyia fasciata* as those bred out under more favorable conditions.

The pupas used in this experiment were of all ages, from the almost matured black one to the one who had only recently cast off his larval skin, and the color of which was a very light brown, yet every one in sand jar hatched out, showing that the younger ones lived almost their entire pupal stage outside of the water. Before these experiments with the *Stegomyias* had been performed the option had been given Laredo householders, whose barrels contained wigglers, of emptying them or having them oiled. Orders were then issued to all inspectors to oil barrels containing pupas and to leave two hours before emptying.

There is apparently no reason why pupas emptied on the ground on cloudy days or late in the afternoon should not hatch out, if not found by ants; nor why they should not hatch out on sunshiny days if emptied on the shady side of the house. As far as I am aware, it is the custom in most antimosquito campaigns to oil or empty water containers containing wigglers. It is well to know in epidemic times that the mere emptying of a vessel containing *Stegomyia* pupas does not necessarily kill the pupas, and that the neighborhood may be stacked with these highly dangerous insects.

While mentioning the abilities of mosquito larvas to resist drying and heat, it might not be amiss to state their powers of resistance to cold. Three *Stegomyia* larvas were placed in a test-tube containing about an inch of water. The test-tube was then placed in a mixture of cracked ice and salt and the water in the tube frozen into a solid lump of ice. It was then left frozen for five minutes by the watch, taken out, and thawed out by the heat of the room. The larvas were apparently dead, but slowly revived, and by the next day were as lively as ever.—[*Public Health Reports.*]

An Institute of Tropic Research has been established in connection with the University of Liverpool. Its headquarters are to be the Hartley Laboratories. The object is to collect and tabulate information likely to be of use to science and to commerce; to study the botany, zoology, ethnology, meteorolgy, and physiography of tropic countries, especially of British colonies; to investigate scientific problems connected therewith; and to train experts in the various branches of applied science. On the professorial staff are Major Ronald Ross, C.B., F.R.S., and Professors Herdman, F.R.S., Gonner, Harvey Gibson, and Dr. Benjamin Moore.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 2, 1905. [Vol. XLV, No. 10.]

1. Studies of School and Hospital Hygiene of Interest to the Ophthalmic Surgeon. CHRISTIAN R. HOLMES.
2. Fibroid Growths of the Abdominal Wall. CHARLES A. POWERS.
3. Cysts of the Spleen. W. A. BRYAN.
4. Indications for the Removal of the Pathologic Spleen. BYRON B. DAVIS.
5. Acid Intoxication and Late Poisonous Effects of Anesthetics. Hepatic Toxemia. Acute Fatty Degeneration of the Liver Following Chloroform and Ether Anesthesia. ARTHUR DEAN BEVAN and HENRY BAIRD FAVILL.
6. Ossification of the Lower Jaw in Man. EDWARD FAWCETT.
7. The Antimicrobic Action of Iodin. (Continued.) GUY C. KINNAMAN.
8. The United States Pharmacopeia: The Advance in Pharmacy Indicated in the Eighth Decennial Revision. C. S. N. HALLBERG.

1.—See *American Medicine*, Vol. X, No. 4, p. 137.

2.—See *American Medicine*, Vol. X, No. 6, p. 220.

3, 4.—See *American Medicine*, Vol. X, No. 7, p. 260.

5.—See *American Medicine*, Vol. X, No. 8, p. 302.

6.—Ossification of the Lower Jaw in Man.—Fawcett's conclusions are substantially as follows: 1. The jaw in its ossification is not so complex as some claim, though still complex, involving (*a*) Meckel's cartilage at its anterior extremity, (*b*) the membrane on its outer side, (*c*) at least one accessory cartilage found in the condyle, neck, and base of the coronoid process. These statements apply to each half of the jaw. 2. In order of sequence, ossification begins, first in the membrane between the mental nerve and the middle line, and extends backward and under the nerve. Next, it commences in Meckel's cartilage about the tenth week of fetal life in the region of the mental foramen, and gradually extends inward. That part of the jaw, then, between the mental foramen and the symphysis is compound in origin, being partly cartilaginous, partly membranous, not entirely cartilaginous, as Sutton says. Finally, ossification takes place in the accessory mass of cartilage in the condyle, neck, and root of the coronoid process at the third month. 3. There are no separate centers in membrane for either the coronoid process or the angle, or for the socalled splenial, all these parts being outgrowths, as it were, from the main mass. 4. The inner alveolar border is developed in two parts by ingrowth from the main mass and at two different periods. The part behind the mental foramen appears first and elongates from before backward; that in front of the foramen appears later, and grows from behind forward. 5. The canal for the nerves is completed by the growth of spicules from one alveolar border to the other, over the top of the nerves, the mental nerve being first so covered, then the incisive, and the inferior dental much later. 6. The teeth sockets ossify rather late, the canine first. 7. Meckel's cartilage becomes incorporated in the jaw anteriorly by the development of upper and lower shelves, which gradually close over it; behind the mental foramen these shelves do not meet, and Meckel's cartilage, therefore, is not included in the jaw, but gradually atrophies to form the internal lateral ligament of the jaw. In an ordinary dissection at the fourth month this ligament can be seen to be independent of Meckel's cartilage.

Boston Medical and Surgical Journal.

August 31, 1905. [Vol. CLIII, No. 9.]

1. Stokes-Adams' Syndrome: A Report of Two Cases with a Short Review of the Literature. T. J. FOLEY.
2. Ulcer and Cancer of the Stomach: Their Relationship. CHRISTOPHER GRAHAM.
3. A Study in Abnormal Psychology. GEORGE M. PARKER.
4. What the Suburban Surgeon is Doing in the Abdomen, and How He Does It. (Concluded.) CHARLES E. DURANT.

1.—Stokes-Adams' Syndrome.—T. J. Foley states that this may be either of nervous or cardiac origin. The disease is characterized by vertigo, syncope, loss of consciousness, and a slow pulse—a pseudoapoplexy. In one case reported the pulse ranged from 20 to 52 and in the other from 16 to 42. The treatment consists in rest; diet, tonics and regulation of exercise are sometimes important. Some of the older patients may live for ears, but they must guard themselves against bodily or mental worry. This is especially true of coronary cases. In paroxysms, ammonia and the nitrates are useful. Atropin may be given subcutaneously. Recumbency favors the return of the blood to the brain. One patient prevented attacks by getting on his hands and knees and allowing the head to hang down. Cases are known in which rest and good feeding caused disappearance of the attacks without any change in the pulse. [H.M.]

2.—Relationship of Ulcer and Cancer of the Stomach.—C. Graham presents conclusions based on the study of four years' statistics at St. Mary's Hospital, Rochester, Minn., in which 85% of the ulcers and more than 76% of the cancers were at the pyloric end of the stomach, the immediate pylorus coming first, the lesser curvature second; 50% to 60% of patients with carcinoma give three or more years of precancerous history. A growing percentage of cancer cases is found with short histories and ulcer demonstrated as the earlier lesion. There is a small percentage with a short ulcer history leading to acute pyloric obstruction in which the ulcer must have been present for quite a period and latent. Ulcers may be present for an indefinite period and no symptoms follow until obstruction, perforation, and hemorrhage appear, if the acidity is low or absent and the ulcer locates itself along the lesser curvature or near the pylorus. Cancers may develop under the same gastric conditions and manifest themselves only when obstruction or systemic poisoning makes itself felt. Diagnosis should be made earlier in nonmedical cases when promises for life are greatest. [H.M.]

Medical Record.

September 2, 1905. [Vol. 68, No. 10.]

1. Two Cases of Functional Strabismus. D. B. ST. JOHN ROOSA.
2. The Food Factor in Uricemia. FRANCIS H. HARE.
3. Report of the Tuberculosis Clinic at Gouverneur Hospital. STELLA S. BRADFORD and N. GILBERT SEYMOUR.
4. Cystoscopy and Ureteral Catheterization in Gynecology. HENRY DAWSON FURNISS.
5. The Abuse of Bromids in Epilepsy. WM. P. SPRATLING.
6. Convenient Points for Intramuscular Injections in the Treatment of Syphilis. VICTOR COX PEDERSEN.
7. A Case of Acute Hemorrhagic Pancreatitis. CHARLES M. TINNEY.
8. Hospital Building in the Philippine Provinces. DONALD G. MCCASKEY.

1.—Functional Strabismus.—D. B. St. John Roosa's first case is that of a girl of 11, who, after an attack of what was erroneously called cerebral meningitis, recovered from the other symptoms, but continued to have functional strabismus. Treatment of the squint by glasses proved ineffectual, and the interna were therefore stretched and divided under ether, according to the method of Panas. For a time there was intermittent strabismus with double vision after the operation, which did not yield to treatment, but finally, two and a half years later, after all treatment except the use of the stereoscope and correcting glasses had been dropped, the intermittent strabismus ceased, and has not returned. The other patient was a boy of 4½, who had functional, convergent strabismus and amblyopia exanopsia, which was cured by the use of glasses and exercises, which involved exclusion of the good eye at intervals and the use of the stereoscope. Now, at the end of eight years, the strabismus has disappeared, though correcting glasses are still worn.

2.—The Food Factor in Uricemia.—Francis Hare believes that in acute articular gout there is primarily a condition of oversaturation of the blood with unoxidized carbonaceous material which he calls hyperpyremia. This is supposed to involve progressively increasing uricemia through the inadequate renal secretion of uric acid, which is associated with the hyperpyremia. The acute attack of gout is accompanied by high fever, which involves an increased combustion in the nitrogenous tissues and relieves the hyperpyremia, while the dispersion of the hyperpyremia in turn terminates the renal disability and permits free excretion of uric acid, and in this way a temporary restoration to approximately normal conditions is secured. He therefore terms acute articular gout a recurrent acarbonizing process dependent on and adapted to disperse hyperpyremia and secondary uricemia, and says that it is in the strict sense of the term a conservative pathologic func-

tion. The various heterogeneous dyspeptic, bilious, nervous, etc. symptoms usually associated with gout are all dependent on hyperpyremia and not directly on the uricemia or the arthritic attack. There seems little doubt that uric acid excretion depends directly upon the introduction of uric acid forming material, and inversely upon the degree of pyremia. There will thus be at least a double column of variations in the excretion of uric acid. But since on a mixed diet, the introduction of uric acid material is for the most part approximately concurrent with the increase of pyremia due to meals, it follows that the resulting opposite variations in uric acid excretion will overlap and tend to obscure each other. The argument for the twofold causation of uricemia and uric acid excretion seems appropriately clinched by the following two pertinent observations: 1. The delayed excretion of uric acid, which in the gouty follows the ingestion of uric acid-forming material. 2. The uniformity of uric acid excretion during starvation.

4.—Cystoscopy and Ureteral Catheterization in Gynecology.—Henry Dawson Furniss says that by a careful history, a thorough physical examination, and a painstaking urinalysis, we may be able to make a diagnosis of the nature of a urinary disease and its location, but very often not; and it is just here that cystoscopy, meatoscopy of the ureteral orifices, and ureteral catheterization furnish their most valuable aid. He prefers an instrument of the water dilating variety, direct view with catheterizing attachment, as with this, all of the bladder can be examined except the anterior wall, which is seldom affected, and catheterization of the ureters with a direct view instrument is far easier than with one of the prism type. Cases of tuberculous cystitis especially are much aggravated by intravesical manipulations. He recommends lavage of the renal pelvis for pyelitis, but believes that the cases of Bright's disease reported benefited by this means were really ones of pyelitis with a few casts in the urine, rather than cases of true nephritis.

5.—Bromids in Epilepsy.—Wm. P. Spratling says that years ago he became convinced that the bromids as generally administered did vastly more harm in the treatment of epilepsy than they did good, and his 10 years' experience at Sonyea in the treatment of nearly 2,000 cases has strengthened that conviction. The bromids have a limited range of usefulness in their power of suppressing epileptic convulsions, but he has never seen a case cured by the bromids alone. He has never given potassium bromid to an epileptic, and says that the cases must be carefully selected for the use of the other salts. At the Craig Colony the average dose of the drug is 15 gr. a day, 5 gr. at a time. He has analyzed 27 patent nostrums for epilepsy, and has found that the basis of all of them was potassium bromid. If recoveries occur under the use of the drug, it is in spite of it and not on account of it. When used, the bromids must be prescribed with the greatest caution, and it is rarely necessary to push them to the point of producing acne. Their disadvantages are many, and it is preferable to use other harmless depressants in their stead.

7.—Acute Hemorrhagic Pancreatitis.—Tinney's patient, a man of 41, was sick for a week with symptoms interpreted by two consultants as being due to autointoxication and typhoid fever respectively. Acute pancreatitis was thought of but dismissed, as the epigastric pain was not sufficiently intense and on account of the duration of the illness. The symptoms comprised constipation, slight fever, epigastric pain, and tympanites. On the day of his death the patient was suddenly seized with excruciating pain in the epigastrium, went into collapse, and died a few hours later. At the autopsy the abdomen was found full of blood clots and serous fluid originating from the lacerated, indurated head of the pancreas, in which a large blood cyst had ruptured. There were other smaller cysts with clots in various stages of disorganization. There was no necrosis, but the liver was fatty.

New York Medical Journal.

August 26, 1905. [Vol. LXXXII, No. 9.]

1. A Contribution to the Surgery of Perforating Gastric Ulcer. A. B. MITCHELL.
2. Astigmatism, a Cause of Vomiting in School Children. AARON BRAV.
3. End-results in Surgery of the Kidney, Based on a Study of 90 Cases, with 123 Operations. ALBERT VANDERVEER.
4. Preoperative and Postoperative Treatment of Surgical Cases. JOHN EGERTON CANNADAY.
5. Notes on the Tropic Diseases of the Angola Highlands. (Continued.) F. CREIGHTON WELLMAN.
6. Extragenital Chancres. ABRAHAM L. WOLBARST.
7. The Fly and Tuberculosis. THOMAS J. MAYS.
8. Sterility in Women: The Pathologic Affections of the Ovaries and Tubes that Produce It and Their Treatment. J. RIDDLE GOFFE.

2.—Astigmatism a Cause of Vomiting.—Aaron Brav says it may be laid down as a rule that vomiting in school children not preceded by a sensation of fulness, distress in epigastrium, epigastric pain, eructation of gases, regurgitation of fluid, heart burn, fever and chills, is caused by astigmatic errors of refraction. The toxic form of vomiting occasionally met with in school children, is of uremic origin; and is always preceded or accompanied by headaches, dizziness, and nausea, and is almost independent of any gastric pain. This form closely resembles the form due to astigmatism. Brav reports three cases of vomiting due to astigmatism, and one of uremic origin. [C.A.O]

3.—See *American Medicine*, Vol. X, No. 4, p. 182.

4.—Treatment of Surgical Cases.—J. E. Cannaday says that the preoperative and postoperative care of surgical cases is not secondary even to the technic of the operation itself. The value of habituation of the patient to the bed, giving a restricted nonputrefactive dietary, the alimentary canal emptied, and put in good condition, the eliminative organs inspected, and normal action if possible secured, and lowered states of resistance as far as practicable remedied, is inestimable. Shock may be at times averted and well treated by artificial heat and stimulants, of which the chief are physiologic saline solution and adrenalin. Empty the stomach and keep it so for the alleviation of vomiting. The devotion of special care to the cleansing of the site of incision on skin or mucous membrane is important. After the operation, conserving the energy of the patient in every possible way and avoiding needless purgation and unnecessary annoyance of all sorts are self-evident procedures, as are the prevention of tympany by proper dietetic measures and the avoidance of opiates. [C.A.O.]

6.—Extragenital Chancres.—A. L. Wolbarst reports several cases. The first is that of a bartender whose index finger was the site of the lesion. The infection took place by inserting the fingers in glasses when holding them. The second is that of a man of 30, who had a superficial ulceration at the junction of the anal mucous membrane with the skin. This man had been indulging in unnatural practices. The third case is that of a child of 3, who was infected with syphilis and gonorrhea simultaneously. The specific lesion was just below the umbilicus. In the fourth case the lesion was on the posterior surface of the thigh. It is supposed that an infected water-closet seat was responsible. The fifth case was one in which the lesion was in the anal mucous membrane, and in the sixth, inner aspect of the right thigh was the seat of the lesion. [C.A.O.]

8.—Sterility in Women.—J. Riddle Goffe considers the pathologic affections of the ovaries and tubes that produce sterility under three heads: (1) Those that relate exclusively to the ovary; (2) those that relate exclusively to the tube; and (3) those in which both the ovary and the tube are involved. The most frequent pathologic conditions that are the causes of sterility are catarrhal, gonorrheal, and septic salpingitis, pyosalpinx, hydrosalpinx, and hematosalpinx. In cases of atrophy of the ovary attention must be directed to the nutrition, not only of the local condition, but also of the patient generally. The general health is a large factor in the case. Not only must there be a good supply of nutritious blood, but methods must be adopted of directing this especially to the affected part. This can be done by treatment with the glycerin tampon, or electricity may be tried. Goffe has great confidence in bicycling and horseback riding. The cirrhotic ovary is more or less amenable to the same treatment. Hypertrophy and cystic ovaries can be relieved only by surgical interference. In cases of tubal trouble operative procedures seem to be more efficient. [C.A.O.]

Medical News.

September 2, 1905. [Vol. 87, No. 10.]

1. The Prognosis in Syphilis. R. W. TAYLOR.
2. Prognosis of Syphilis: Relations to Marriage and Heredity. PRINCE A. MORROW.
3. Dermoid Cysts of the Mediastinum. (Continued.) ROGER S. MORRIS.
4. The Social Status of Tuberculous Persons. WILLIAM W. PENNELL.
5. Medical Treatment of Nephritis. ARTHUR R. ELLIOTT.
6. The Care of the Perineum, with a Description of a New Method of Delivery of the Shoulder. H. KAY KERR.

1.—Prognosis in Syphilis.—R. W. Taylor says clinical observation has shown that neither extragenital chancre nor ulceration, phagedena and gangrene of the chancre, are necessarily ominous. Diminution in severity of the disease over that of 30 years ago, is due to improved treatment and increased immunity through heredity. In the healthy, the disease is eliminated if active treatment is instituted promptly and continued for two or three years. Women are less frequently attacked by cerebrospinal affections than men. Severity and malignancy among the lower orders are due to carelessness. The causes of tertiary syphilis are insufficient treatment in the secondary stage, lowered nutrition and diseased conditions. Syphilitic tissues are hotbeds for the tubercle bacillus. Chronic alcoholism induces severe lesions and causes the disease to run into the tertiary stage. Bright's disease, diabetes, scurvy, and other circulatory diseases, are grave complications. The depression and debility following infective diseases, render the course severe. [H.M.]

2.—Prognosis of Syphilis: Marriage and Heredity.—P. A. Morrow calls attention to the risk of the breadwinner becoming incapacitated as well as infecting his wife, and the added danger to the offspring which would come from her infection. When syphilis is no longer contagious or transmissible, the danger to the husband from it is not always extinct. The gravest lesions in 50% of cases occur after the tenth year of the disease, and often after an initial benignity. When syphilis is recent, infection may occur when the husband has no contagious lesion on his person. The prognosis is more unfavorable with recurrences of papular genital and buccal lesions. The elements of a favorable prognosis are advanced age of the diathesis, prolonged exemption from specific manifestations (12 or 18 months after the completion of the secondary stage), and sufficient specific treatment. The arbitrary designation of 2½ years is dangerous. Hereditary influence may be manifest long after the disease has ceased to be contagious, especially in the case of maternal heredity. When subjected to treatment for four years, experience shows the transmissive qualities are extinguished. When infection is specially directed toward the nervous system, the prognosis is rendered much more unfavorable by marriage. [H.M.]

5.—Medical Treatment of Nephritis.—A. R. Elliott states that indications of vast importance in chronic nephritis are care of the bowels and maintenance of cardiovascular equilibrium by regulation of the blood-pressure. A sphygmomanometer should be used. In high pressure, the underlying toxemia must be removed by diet and elimination. If necessary, vasodilators may then be given. Aconite, though not a dilator, lowers pressure in an astonishing manner. Potassium iodid is also satisfactory. In dropsy, the treatment is rest, light diet, "little water and no salt," colonic irrigation with sodium bicarbonate, puncture in severe skin tension, tapping of the thorax, paracentesis of the abdomen, energetic diaphoresis; in anemia, iron, and in cardiorenal dropsy, digitalis and theobromin. In uremia, the indications are purgation, venesection, sweating and lumbar puncture. [H. M.]

6.—Care of the Perineum.—H. K. Kerr finds that damage is frequently due to the ploughing through of the shoulder. In delivery, he places the patient on the left side with the back to the edge of the bed. After the birth of the head the right shoulder presents against the pubic arch, the left against the perineum at least one and a half inches from the outlet. He places his left hand on the right side of the child's head and presses back firmly, driving the left shoulder as far back as it will go, thus stretching the perineum from its circumference and almost entirely overcoming muscular contraction and making it elastic, and at the same time lowering the right shoulder into the pubic arch. The next pain drives the right shoulder well down into the vulvovaginal outlet and the arm into the arch. Then he closes the fingers of the left hand low down on the back of the neck and raises this up. This opens the right axilla. Through this he passes the right forefinger, hooks it around the arm, bringing the latter down behind the child's back out of the vulva and sweeps it over the pubic arch. Before relaxing the grip with the left hand, he places the right on the left side of the child's head, and with the left supporting the perineum, by a downward, forward, and slightly upward movement he effects delivery. Thus before there is any strain on the anterior part of the perineum he has exchanged the bisacromial diameter for the shorter axilla-acromial diameter as presenting part, making practically no danger of laceration. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Alcoholic Stimulants in Clinical Practice.—The evergreen subject of the employment of alcoholic stimulants in the treatment of disease has recently cropped up in the columns of the London *Standard*, newspaper. Dr. Copeman alleged the existence of a high deathrate from typhoid in the wards of the London Temperance Hospital, and proclaimed his estimation of the advocates of the total abstinence practice as faddists. These statements and opinions have, very naturally, aroused the antagonism of the honorary secretary of the institution, Mr. Dawson Burns, who absolutely denies the occurrence of the high deathrate, and points out that the use of alcohol is permitted in "exceptional cases," and has been resorted to in 71 such, of 23,373 treated. Mr. Burns gives his readers an interesting item of history—medical and controversial:

> Now, it is a fact that the "stimulant" treatment of disease—*i. e.*, the free use of alcoholic liquids—received a fresh impetus about 50 years ago from the late Dr. Todd, of King's College Hospital, and to this "fad" of the worst kind thousands of lives have been sacrificed. To Sir Samuel Wilkes and a few other eminent members of the medical profession we owe a resolute opposition to the Todd theory, and it was for the purpose of putting the question at issue to a really scientific and experimental investigation that the London Temperance Hospital was founded in 1873. It is also a fact that since that date the use of alcohol in the great general London hospitals has diminished half.

The Brandy-toddy Treatment of Pneumonia.—We may supplement this item of therapeutic history by informing our readers that the "brandy-toddy" treatment—so named from its eminent advocate—was itself an almost purely reactionary movement, and specially directed toward the clinical management of pneumonia. It may even be regarded as part and parcel of the same recalcitrant feeling—produced by continuous recurrence of disappointing results—which at that period led to the almost complete abolition of venesection, and the great modification of the employment of mercury. Readers who are acquainted with the history of medical progress in the first half of the last century will remember the earthquake influence which the publication by Laennec of his treatise on Auscultation (in 1819) had upon the whole medical world. At that date the great therapeutic agents of universal employment in the treatment of acute disease undoubtedly were: Bleeding, purging, mercurializing, and—starving! The inventor of the stethoscope was led by its revelations—confirmed by postmortem criticism—to divide acute (croupous) pneumonia into three stages of pulmonic modification: Splenization, red hepatization, and gray hepatization. The *nimia diligentia medici* was far more conspicuous in clinical practice then, than (even) now, and the new pupils of the stethoscope arranged a convenient program of prac-

tice which the densest of them could almost be fancied capable of applying to pneumonia. First stage: Bleeding, purging, starvation—diet—being the only effective means of diminishing the violence of the onset; second stage: Free administration of mercury, to promote absorption of the oxidation products which filled the air vesicles; third stage: Expectorants—specially suggested by *crepitus redux*. When these therapeutic weapons were vigorously employed against pneumonia, can we be surprised that the mortality was appalling, that Dr. William Stokes (of Dublin), who was the apostle of the stethoscope to the British nation, made, in his description of pneumonia, a supplemental stage of gangrene or circumscribed abscess of the lung, and that when Dr. Todd dropped the venesection, and the purging, and the starving, and the mercurializing of his pneumonia patients, and treated them with recurrent nips of brandy punch instead, he obtained far better results?

REVIEW OF LITERATURE

Typhoid Cholecystitis and Cholangitis as Cause of Positive Widal Reaction in Icterus.—R. Müller[1] reports a case of a patient who was suddenly seized with vomiting, high fever and later, jaundice. The fever became irregular after some time, and later fell to normal. The course of the disease was that of a purulent cholecystitis and cholangitis. The spleen was slightly enlarged, but there were no roseolas. The Widal reaction was positive in high dilution. The patient died finally of complications, and at autopsy not the slightest trace of intestinal lesions could be found. Bacilli, recovered from the blood, were found to be identical with the typhoid bacillus. It is, therefore, evident that there was an infection of the biliary passages by the typhoid bacillus, without participation of the intestinal tract. Cases of jaundice with positive Widal reaction may be divided into two groups: (1) Those in which the agglutination never gets above 1 to 40 or 1 to 50 dilution; (2) cases in which the blood agglutinates above 1 to 50 dilution. Agglutination of the first type often occurs in other diseases, or even in health, and may be ascribed to other factors than the typhoid bacillus; perhaps to a property of the bile itself. In the second group of cases, however, it is more likely that an infection, and not the icterus, is responsible for the positive reaction. It is possible that investigation in such cases would show the typhoid bacillus as being the cause of infection. The infectious icterus, known as Weil's disease, may be shown to come under this category, as that condition has frequently given a positive reaction. [B.K.]

Renal Decapsulation in Experimental Nephritis Due to Ammonium Chromate.—E. Fioretti[2] of the laboratory of physiology in the Roman Royal University, reports careful study, the results of which have been grouped, and gives the following general conclusions: 1. Normal kidneys developed but slight changes subsequent to capsulectomy—a trace of albumin, but transitory, may occur in the urine. 2. After this capsulectomy, about 10 days will see the formation of new perirenal connective tissue, which is extremely rich in blood and lymph vessels. 3. Also, new blood tracts form, connecting the renal substance with adjacent tissue, *e. g.*, lumbar muscles, omentum, etc. 4. Hypodermic injections of ammonium chromate give rise to a chronic parenchymatous nephritis. 5. Decapsulation is beneficial in effect on the general condition of the renal parenchymal epithelium. 6. Actually new tubules develop after the operation. 7. The newly-formed capsule, examined three months after operation does not show a tendency to retract. [T.H.E.]

Glycosuria after the Medicinal Use of Mercurial Preparations.—J. Fauconett[3] reports the case of a man of 20, who acquired syphilis and was treated by him with a 5% solution of the acid nucleinate of mercury; this salt contains 33% mercury and 1 cc. of the 5% solution mentioned contains 15 mg. mercury. This amount was injected every other day. After the eighth injection it was found that the mercury produced a transient glycosuria without however any other symptoms of diabetes; bichlorid injections and inunctions had the same result. The first seven injections passing off without production of glycosuria the author believes it to have been due to the cumulative action of the drug. [E.L.]

Experiments with Sahli's Test-meal.—Sahli's test-meal consists of oatmeal soup, to which is added a certain amount of melted butter, the whole being made into a homogeneous mixture. When the gastric contents are removed an hour after taking this meal, a determination of the fat will reveal how much has passed into the intestines, how much remained in the stomach, and what proportion of the whole is composed of gastric secretion. H. P. T. Oercum[1] claims that the Sahli test-meal is superior to others, especially on account of this last possibility. It allows of a distinction between hyperchlorhydria and hyperacidity or hypersecretion. This latter condition, hypersecretion, is found in nervous dyspepsia, symptomatic dyspepsia of constipation, intestinal inflammation, nephrolithiasis, cholelithiasis, tænia, etc. It may also accompany a hyperchlorhydria. The latter is found in most cases of gastric ulcer and chlorosis. The test-meal also allows of a distinction between atony and hypersecretion, and disturbances of motility are more readily recognized than with Ewald's test-meal. The author describes a simple method of determining the fat by means of an ordinary centrifuge, sulfuric acid and amyl alcohol. The acid determinations are done in the same way as with the Ewald meal, the normal figures being the same for free HCl, but a little lower for the total acidity. [B.K.]

Thyroiditis and Suppurative Struma.—Inflammation of the thyroid, says G. B. Mariotti-Bianchi,[2] is not so rare as asserted. Infectious and contagious fevers may be causes. Frequently the stage of suppuration is not reached. While some cases are reported in vicinities in which goiter is absent, literature shows that the great majority of inflammations of the gland occur in those already affected by goiter. The author reserves the term "thyroiditis" for cases free of goiter, and calls the others "strumitis." The infection is usually mixed. There is no clear opinion as to the direct etiology. Eberth's bacillus has been recovered in some instances. This is possible through what has been termed typhemia. Very serious symptoms may supervene. The nature of the parathyroids, as well as the physiologic value of the gland proper, explain this, and treatment must be along lines suitable to the character of the exciting cause of the inflammation. Fever, among the general symptoms, is one of the most variable. The thermic curve is of almost any variety. [T.H.E.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Experimental and Histologic Study of Cargile Membrane.—A. B. Craig and A. G. Ellis[3] state that the most distant time at which they found the membrane macroscopically intact in the peritoneal cavity was the fourteenth day; generally it disappeared much sooner; the earliest was the third day. When buried in tissue, unchromicized, as around tendons and nerves or in muscle, it is apparently absorbed sooner than in the peritoneal cavity, never appearing macroscopically so late as the fifth day, though microscopically it was noted after 14 days. The chromicized variety remains much longer. Unchromicized and less so chromicized membrane will adhere somewhat firmly to denuded peritoneum fairly dry, yet neither can be depended on to remain, unless anchored, in a place subject to peristalsis. The deduction is that the membrane will not prevent adhesions in the peritoneal cavity. It appeared to act as an irritant. Both varieties are valuable in preventing adhesions to wounded nerves and tendons; the chromicized is the better, and several layers are safer than one. Owing to the facility

[1] Zeitschrift für Heilkunde, Bd. xxvi, Abth. f. Path. Anat., Heft 3, p. 263.
[2] Il Policlinico (Rome), August 6, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 949.

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 254.
[2] Il Policlinico (Rome), August 13, 1905.
[3] Annals of Surgery, June, 1905.

with which the chromicized variety can be handled, its greater toughness and power to resist absorption it will prove of greater value in replacing the dura. The membrane is destroyed by a lytic substance in the body fluid. It is softened, and at least partly absorbed without the presence of cells. In the tissues it is split into fibrils, formative cells penetrating and enclosing it. Phagocytosis may safely be excluded as an important contributing cause in absorption. [H.M.]

Pancreatic Cyst.—Exner[1] tells of a patient, a cab driver, who had been kicked in the abdomen by a horse and who did not seek medical aid until a month later. When he appeared at the clinic, a large tumor was found in the region of the umbilicus. The mass was elastic, fluctuating, and appeared to be overlain by the stomach above and the colon below. The urine showed a trace of sugar. Subsequent examination revealed the fact that the growth had increased in size, and soon after this fact was elicited, the mass could not be detected at all, but fluid was found to be present in the abdominal cavity. The sugar now disappeared from the urine. About six weeks after the rupture of the tumor the patient perceived another mass occupying the same area as the first. This growth appeared firmer. There was neither sugar nor albumin in the urine. At operation this mass was found to be a cyst containing 1,100 cm. fluid which was lipolytic and amylolytic but contained no proteid splitting ferment. The first 24 hours after the operation the secretion amounted to 1 liter then they gradually became less. Exner inclines to the view that the first mass was a hematoma since but six weeks intervened between the formation of the mass and the trauma and because no changes were produced in the peritoneum after the evacuation of its contents. [J.F.]

Diagnosis and Treatment of Fractures of the Carpal Scaphoid and Dislocation of the Semilunar Bone.—E. A. Codman and H. M. Chase[2] state that sprains of the wrist which do not promptly recover are in many cases fractures or dislocations of the carpal bones, the majority either simple fractures of the scaphoid or anterior dislocations of the carpal bones. These injuries are often combined, and in such cases the proximal fragment of the scaphoid is usually dislocated forward with the semilunar bone. Fractures may unite if motion is prevented for four weeks. If it does not occur by this time future union is unlikely. Excision of the proximal half gives a better result than conservative treatment. Passive motion of the joint and active motion of the fingers should begin within a week of operation. A bipartite scaphoid must be considered in interpreting röntgen rays. After fracture there is localized swelling on the radial side of the joint, acute tenderness in the anatomic snuff-box, when the hand is adducted, limitation of extension by muscular spasm. In anterior dislocation of the semilunar bone there is the silver fork deformity, a tumor under the flexor tendons anterior to the end of the radius, a shortened appearance of the palm, pain on moving the partly flexed fingers, normal relation of the styloid processes of ulna and radius and shortening of the distance from the radial styloid to the first metacarpal. Dislocations may be reduced even after the fifth week by hyperextension followed by hyperflexion over the thumbs of an assistant held firmly in the flexure of the wrist on the semilunar. Irreducible dislocations demand excision of the semilunar and the whole or part of the scaphoid if there is a coincident fracture of the latter. [H.M.]

Prospects and Vicissitudes of Appendicitis.—C. A. Ballance[3] says that the rule to operate early in all cases, leads to the recovery of a larger proportion of the severe cases. The mortality of late operations is high, and a certain number of cases are lost that probably would have been saved by an early operation. It is true that a certain proportion of cases will recover without operation, and remain well, but it is now impossible to differentiate these cases at the beginning of the attack. Those cases that recover from the acute attack without operation, and are treated subsequently by an interval operation, would gain by an early operation, by reason of a speedier recovery and the avoidance of the risks of waiting. He advocates removing the appendix in all cases of operation, whether or not there is a localized abscess. Convalescence from operation may be disturbed by persistence of symptoms, complications, or certain specific diseases. Persistence of symptoms may result from adhesions, abscess, or the occurrence of some other disease, such as renal calculus. Among the complications and diseases disturbing convalescence, the author has observed ventral hernia, venous thrombosis, intestinal obstruction, septicemia, cancer and tuberculosis. [B.K.]

Laceration of the Liver.—Rammstedt[1] says the symptoms include the symptoms of shock, this being of varying degree, contraction of the muscles of the abdominal wall, vomiting, and the symptoms of internal hemorrhage. The differential diagnosis is not always easy, the condition being separated with difficulty from cases of rupture of the stomach and the large intestines. Exploratory laparotomy is the only certain means of recognition, and this must be performed in all cases when the symptoms of shock do not improve after stimulation has been employed for two hours; if the pulse gets worse progressively, and the general condition deteriorates, the condition is that of internal hemorrhage or rupture of the intestines, and demands immediate operation. Two cases of hepatic laceration are reported in detail; the first patient recovered from the hepatic injury, but died on the seventh day of pneumonia; in the second case a subcapsular laceration of large dimensions produced death because of the huge hemorrhage. In small lacerations and instances where the laceration is easily reached, the hemorrhage may be checked by suture; in large wounds and where the hemorrhage cannot be reached easily, tamponing must be resorted to. While the prognosis is better than during the time when no operations were performed for such injuries, it is still bad enough. The best statistics obtainable show a mortality of 52.4%. [E.L.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Hebotomy (Extramedian Symphysiotomy.)—F. Hammer[2] reports two cases of hebotomy performed by Hofmeyer, of Würzburg. The first patient was a multipara of 27; she had been in labor for 48 hours, and spontaneous delivery seemed impossible, because of an abnormally large head and an equally contracted rachitic pelvis, the internal conjugate being but 8 cm. After the operation the bones were separated by a space of 1 cm.; the diastasis enlarged itself to 5 cm. during the delivery; there was but slight bleeding during the delivery; the child's skin over its forehead was irregularly torn down to the periosteum, which according to the author was due to the great pressure exerted by the high forceps and the gradually widening pelvic bones contusing the infantile tissues. The operative wound was drained and the pelvic bones drawn together by means of a strong belt so that the separation was less than 1 cm. Perfect recovery after three weeks, even the pelvic bones having united; the patient had no difficulty in walking. The second patient had a flat rachitic pelvis with an internal conjugate of 7 cm.; when operated on she was already septic, as shown by an elevation of temperature and tonic contraction of the uterus. The same operation was performed and with the exception of considerable hemorrhage with the same result; she also was perfectly well after three weeks. In both instances were the children perfectly well at the time of discharge. The head of the first child had a circumference of 36.5 cm. [E.L.]

Congenital Multiple Occlusions of the Small Intestine.—J. G. Emanuel[3] reports the case of a seven-months' infant, which died nine days after birth with symptoms of intestinal obstruction. At autopsy, a complete obliteration of the intestine was found at the duodenojejunal junction. In two other localities further down, the bowel was merely represented by a thickening of the mesentery, while the further course of the intestine was marked by the occurrence of five additional annular constrictions of progressively decreasing completeness. As there were no signs of peritonitis, the

[1] Wiener klinische Wochenschrift, No. 30, 1905.
[2] Annals of Surgery, May and June, 1905.
[3] British Medical Journal, July 15, 1905.

[1] Archiv für klinische Chirurgie, 1905, lxxv, 940.
[2] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 952.
[3] The Lancet, August 12, 1905.

anomaly must be ascribed to arrest of development, probably caused by strangulation in the course of formation of the various intestinal loops. [B.K.]

Primary Malignant Degeneration of Cystic Embryomas of the Ovary.—Ludwig[1] tells us that these tumors are more frequently observed in patients about the age of 50 years; of the 16 women of whom he speaks, but three were under 35 years, the average age being 46. Two of the women were nulliparas and 9 had borne altogether 67 children. So long as these cystic embryomas remain benign, they give rise to scarcely any symptoms. The pain, the dragging sensation and the consciousness of the presence of a tumor are occasioned only when the growths become malignant. There is then the associated emaciation, weakness, the involvement of neighboring organs. Sometimes they rupture into the bladder, sometimes into the rectum, or the peritoneum may become affected, ascites occurs and metastasis to other organs in the peritoneal cavity. Saenger years ago maintained that the cystic embryomas should be looked upon as especially malignant tumors, but Ludwig believes that then these growths were seen only in the later stages when operation could not be attempted. He calls attention to the fact that Pfannenstiel has recently reported two cases, one of which has escaped a recurrence now for 11½ and the other 8 years. In Ludwig's case there is no evidence of a recurrence two years after the operation. If the operation can be performed in the early stages, the prognosis is good; the earlier the operation the better the prognosis. [J. F.]

The Movements of Spermatozoa.—G. A. Adolfi[2] reports a series of interesting observations, which go to prove that the spermatozoa of man and mammals are able to swim against the current. This ability accounts for their journey from the vagina up to the ostium of the tubes. When we remember that there is almost always a slight discharge of mucous fluid from the uterus into the vagina, we understand how difficult it would be for spermatozoa to reach the uterus without some locomotive power of their own. The epithelial hairs of the tubes and uterus also keep up a current toward the vagina and the spermatozoa are thus compelled actually to swim against the tide. This fact has been observed and recorded in older literature, and one author compares this upward motion of spermatozoa with that of trout swimming up the stream. The old teaching, that spermatozoa are carried up the tube by peristaltic movements of the latter, is still often met, but, according to the author, it is rendered improbable by his experiments. [L.J.]

Subperitoneal Pelvic Fibromas.—W. F. Whitney and F. B. Harrington[3] review the literature and report cases. There is little clue to etiology beyond the predisposition of the female sex. The edematous, lamellated, shapeless fibrous masses without definite boundary, cannot be mistaken. Microscopically there are finely felted fibrils among which are large flat endothelial-like cells and connective-tissue corpuscles. The vessel walls are thin, surrounded by round cells, and stand out sharply against the adjacent tissue. There is painless swelling, usually first noticed in the labium majus or perineum, complicated by later growths in the ischiorectal region or groin, occurring between the ages of 20 and 50. After long duration hernial protrusions of peritoneum or intestine may come to lie within these growths, which sometimes reach enormous size. The only treatment is surgical, which will tax all the skill of the operator and endurance of the patient on account of extensive ramifications. There may be local recurrence, even after a long interval, but metastasis is unlikely. To avoid unfortunate results (30% have died) a combined intraabdominal and extraabdominal operation is desirable even when no abdominal tumor can be felt. [H.M.]

The Treatment of Free Puerperal Peritonitis with Laparotomy and Drainage.—After dividing the puerperal infection into three groups, (1) those due to streptococci, (2) those due to putrefying organism, (3) those due to a mixture of both, Kownatzki[4] states that operative procedures should be carried out so soon as any evidence of peritonitis exists. He advocates the extirpation of the uterus, ovaries and tubes; then one can be certain that with the source of infection removed other outbreaks will not occur. For drainage he makes an incision in the inguinal region, since the infections arising in the uterus always arrive at this point in their passage to the peritoneum, and a counterincision deep in the flank on the opposite side; he uses rubber tubing and not gauze for drainage. Of the 9 cases of puerperal peritonitis he saw during the last year, 5 came to operation and of these 2 died. At autopsy it was found that the pus had invaded the pleural cavity in one of the cases and in the other, multiple incompletely encapsulated abscesses were found in the peritoneum; the drainage introduced was sufficient to relieve all the cavities of the purulent matter. He is inclined to believe that if these patients had come to operation earlier, death would not have resulted. [J.F.]

Bossi Method of Rapid Uterine Dilation.—U. Ceni[1] adds 11 cases to literature, and sums up the opinions of other writers, with results in general, and indications, which are: Eclampsia, 2; placenta prævia, 2; heart disease, 1; premature discharge of membranes, 1; grave sapremic infection, 1; habitual death of fetus, 1; complicating hepatic infection, 1; pelvic contraction, 1; bilateral bronchopleuropneumonitis, 1; in all, 11 cases. Leopold, of Dresden, is the most experienced in this method, and he has claimed to be able to dilate in 20 minutes sufficiently for any obstetric maneuver. Other methods of dilation are: (1) Digital, in first two months of gestation, or for gynecologic work; (2) Krause's method, which consists in the introduction of bougies, and is long; (3) tamponing the cervical canal, of little value in urgent cases; (4) Barnes' bags, which may require 48 hours. In the Bossi method it is denied that lacerations result. Ehrlich, in 47 cases, reports that 75% showed not the slightest tear. Lichtenstein reports 11 without tear; 4, slight laceration; 2, severe tears; and 1, bilateral tear of the whole uterine neck. In the last analysis, the Bossi method is advantageous, because it induces true uterine contractions, aiding the surgeon to remove the mass within. [T.H.E.]

Keloid of the Female Breast.—E. Lamphear[2] finds after a breast operation keloid is likely to be mistaken for epithelioma of the scar. It is differentiated from cancer by its slow growth and freedom from pain, there being merely prickling or burning or itching. It is the result of local irritation of the scar tissue. Sometimes these growths disappear spontaneously, rarely they develop rapidly, causing trouble by their size and number. Keloid of the breast is best left alone, unless there is every prospect of primary union, otherwise there will be recurrence. Before operation the most rigid antisepsis must be used. The surface must not be touched by the fingers. An incision should be made around the growth at the distance of an inch or more, and well into the subcutaneous fat. The stitches may be removed on the tenth day, and the surface must be protected from the clothing for several weeks. If there is recurrence, electrolysis may be tried, followed by elastic pressure. Scarifications have been recommended. There has been no cure from röntgen rays. [H.M.]

[1] Wiener klinische Wochenschrift, No. 27, 1905, Jhrg. xviii.
[2] Russki Vratch, July 25, 1905.
[3] Annals of Surgery, June, 1905.
[4] Berliner klinische Wochenschrift, No. 30, 1905.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Cupping in the Treatment of Inflammatory Affections.—R. Klapp,[3] writing from Bier's clinic in Bonn, commends his chief's labors in enlarging the field of the passive hyperemia treatment. He himself has included mastitis, furuncles, carbuncles, onychias, panaritias, abscesses and other inflammatory infections in the class of cases which can be treated successfully by suction apparatus. The methods, by means of which mastitis is treated to-day, he considers unsatisfactory, some because of the disfigurements they produce, others because they interfere with future lactation by destroying too much parenchyma, others because they are too severe, etc. He fits a broad-brimmed glass, the upper part of a bottle, over the base

[1] Il Policlinico (Rome), August 20, 1905.
[2] American Journal of Surgery, June, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 16, 740.

of the breast; rarefaction is produced in this bell by a glass syringe connected with it by a canula, which perforates the rubber stopper of the apparatus. The air should be rarefied to a degree of marked hyperemia (a bluish tint), but should stop short of actual pain; the patient may complain of warmth, formication, and even of a sensation as if the breast would burst, but not of pain unless she be hypersensitive, when the degree of hyperemia must act as guide. As the treatment during the first few days is of great importance to the actual outcome, he aspirates for from 45 to 60 minutes daily, later for from 20 to 30 minutes; every 5 minutes the bell should be removed to permit reestablishment of the proper circulation. The patient can hold the bell herself, thus regulating the amount of suction. The edges of the bell should be thick and round, and for purposes of better excluding the air, smeared with simple ointment. If fluctuation is present, the abscess is opened by a small puncture under ethyl chlorid spray; immediately the suction glass can be applied, this drawing off pus and blood. The pain of the inflammatory process ceases almost at once, the patient often going into the first sound sleep of a few days; even if no incision is made the pain disappears. The more recent the infection the quicker a cure is produced; early cases may be aborted; diffuse infiltrations without abscess formation took the longest to cure; three weeks was the average duration of treatment in 15 cases, 13 of which were puerperal; 4 healed without incision being necessary. The incisions were never greater than 1 cm., and the scars in accordance. The milk must be drawn off before the aspiration is begun; an ordinary breast pump is best, and sometimes it is necessary to apply the breast pump again after the suction apparatus has been applied. The same method of treatment was employed in a large number of cases of furuncles, carbuncles, panaritias, paronychias, abscesses and other infections. For furuncles he uses a turned-up glass with a perforated base; to it a suction pump is fastened, for fingers a cylinder with a lateral opening. If suppuration is established, a puncture is made or the crust picked off, otherwise suction is performed at once. The average time of producing a cure is five to six days. Acute abscesses healed promptly, the incisions in no instance being greater than 1 cm. Four carbuncles were thus treated and cured; one of the patients was very ill with the abscess, but no other treatment was required. The same results were noted in panaritias and paronychias. [E. L.]

Treatment of Acute Peritonitis with Normal Horse Serum.—To increase the resistance of the organism and to protect the peritoneum against infection, Federmann[1] employed normal sterilized horse serum. Such serum possesses the power of inducing a marked leukocytosis, having also marked bactericidal properties. Fractional sterilization diminishes the latter, and for that reason it is better to employ serum, which has been withdrawn sterile, but has not been heated to 60° C. A number of cases were treated with it, among them 11 cases of purulent peritonitis following appendicitis; 8 of these died, 3 recovered. In all the instances these were cases of advanced diffusely purulent peritonitis with an absolutely lethal prognosis. The bad prognosis was made from the clinical picture (absent or low leukocytosis) and the findings at operation. In 8 cases (2 of which were cured) the injection of the serum (40 cc. to 60 cc. daily) was begun after the operation and continued for several days. The injections were made subcutaneously into the thigh. In 3 instances (1 cured) 60 cc. to 80 cc. of the serum was poured into the abdominal cavity, after the appendix had been removed and the abdomen washed with normal salt solution; it was then packed. The number of cases still being small, nothing definite can be said concerning the value of the procedure. [E.L.]

Creasote in Nontuberculous Conditions.—Creasote, very valuable in tuberculous states, has also been found very useful by J. Alter[2] in many other morbid conditions. In the obstinate bronchial catarrhs following influenza, in conditions with fetid expectoration, in the winter coughs of old men, creasote has produced excellent results. In pneumonia, it and guaiacol are of unquestioned value, but they are not specifics by any means. In whoopingcough and the postinfectious catarrhs, it is useful given either by mouth or inhalation. It acts as an antifermentative and bactericidal agent in chronic gastrointestinal catarrh and the summer diarrheas of children, also in typhoid fever and other conditions associated with tympanites. In vomiting of pregnancy, post-anesthesial vomiting, and other obstinate vomiting, it acts as a gastric sedative. The author has found it useful as hemostatic in hematuria; as antiseptic in carbuncles, erysipelas, etc. He gives it to adults in the form of drops or in pill form; to children, with liquid peptonoids. [E.L.]

Treatment of Gonorrhea.—C. E. Pollock[1] advises before beginning treatment the using of Thompson's two-glass test. If the anterior urethra is attacked, local treatment must begin at once, using protargol or permanganate irrigations, not forcing any fluid beyond the sphincter. If both anterior and posterior urethras are affected, the bladder should be filled with the solution, and balsams, turpentine, salicylate of soda, urotropin, or other antiseptics should be given. The two-glass test should be used daily. If the first urine passed in the morning is clear and free from threads on three successive mornings, the man should be given a full diet, including beer and as much fatigue work as possible. If it still remains clear, the man may be discharged as cured. If threads persist, with pus cells either with or without gonococci, further treatment is indicated. The importance of complete cure cannot be overestimated. Even when the host has become immune to recurrence the disease may be transmitted in marriage, causing pelvic disease and sterility. [H.M.]

Guaiasanol against Oxyuris Vermicularis.—A. Rahn[2] has found guaiasanol very effective against the oxyuris vermicularis, its employment simple, and its effect lasting. Guaiasanol is diethylglycocol guaiacol; it is easily soluble in water, has a penetrating odor and taste, but is absolutely harmless for the mucous membranes, having been employed by the author even in cleansing of the nasal cavity. He employs it in the following manner: The rectum is cleansed with a lukewarm soap enema (150 cc. in adults, 75 cc. in children); this is followed by the same quantity of guaiasanol solution (4% to 5% in adults, 2% to 3% in children); it is retained in the rectum for about five minutes, the patient lying on his left side; this is repeated during three successive evenings. It sufficed to kill all the worms in every case in which the method was employed. [E.L.]

Treatment of Cardiac Insufficiency.—Functional and pathologic conditions are of equal importance in the treatment of cardiac diseases according to A. Hoffman.[3] Cardiac insufficiency means nothing more than weakness; it may be a relative or an absolute insufficiency, the former being a primary stage of the latter. Relative insufficiency does not mean cardiac dilation at once; it is recognized at its very outset by dyspnea on slight exertion, slight cyanosis, etc. To prevent it from going to an absolute insufficiency should be the endeavor of the physician. Hoffmann treats it by regulating the patient's life, so he will not exert himself unduly; some patients have to be kept in bed for a time; quantity and quality of the food as well as the state of the bowels are regulated; coffee, tea and alcohol are forbidden. The amount of liquid allowed the patient should not be over three pints a day. After the heart muscle has again improved, judicious employment of gymnastics should be considered. He has not seen specially good results from carbonated baths, and believes them to be more of prophylactic than curative value; the combination of baths, and gymnastics (Zander) he considers dangerous. Electric baths also are of but little value. He noted considerable improvement after lukewarm baths, cool sponges and gentle massage. In absolute insufficiency he puts his patient to bed, applies an ice-bag over the cardiac region and prescribes digitalis in powder form. He gives 0.1 gm. (1½ gr.) 5 times daily for 2 to 5 days, stops it for a few days and then begins anew; the patient once better, he gives him only about 0.05 gm. to 0.1 gm. (¾ gr. to 1½ gr.) daily, continuing this in combination with caffein, strophanthus and valerian for a long time. Where digitalis is inefficient, theocin, caffein, morphin, calomel may be tried. Calomel should be given in large doses for several days. He

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 18, 731.
[2] Medical Review of Reviews, 1905, xi, 33.

[1] Journal of the Royal Army Medical Corps, June, 1905.
[2] Münchener medicinische Wochenschrift, 1905, lii, No. 16, 788.
[3] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 18, 701.

praises a combination of morphin, camphor and digitalis. The diet should be light and nutritious; refusing the patient water is of no service. When an underlying condition exists it must be treated. [E.L.]

Santonin in Pulmonary Tuberculosis.—C. Tollens,[1] having his attention called to the fact that in Persia santonin is employed as a medicinal agent in tuberculosis, performed a series of experiments on rabbits to inquire into the rationale of this. He found that if the temperature of rabbits is raised artificially by means of a brain puncture, a dose of santonin as small as 0.1 gm. (1½ gr.) reduces this 1°; larger doses diminish it still more; the respiratory depth is increased, the rate diminished and lastly, phagocytosis is stimulated at least 20%. He employed sodium santonate. He argues from this the possibility of santonin being a very efficient agent against tuberculosis. [E.L.]

Neuronal.—Karl Schulze[2] used neuronal in 43 cases. Neuronal is a bromidethylacetamid. His experience on the whole was favorable. Neuronal was effective in ½ gm. to 1 gm. doses in most cases in which severe pain or other severe disturbance was not the cause of the insomnia. In the headache of chlorosis the drug was ineffective, as well as in the convulsions of a case of cortical epilepsy, while attacks of genuine epilepsy seemed to be lessened under its influence. A cumulative effect was not observed. After-effects were observed three times, and consisted of headache, vertigo, vomiting and urticarial exanthems on the following morning. Dangerous after-effects were not observed. Becker[3] employed neuronal in 50 cases and was able to conclude that it was a useful and harmless hypnotic. He used it to advantage in the irritability of paresis and imbecility. Vomiting followed its administration in two cases. He did not observe a cumulative action in any case. It is not as powerful as trional or veronal. [J.H.W.R.]

Against hyperchlorhydria.—A. Albu[4] recommends the following mixture:

Extract of belladonna	0.3 gm. (4½ gr.)
Bismuth subnitrate, Calcined magnesia, Sodium bicarbonate, of each	10.0 gm. (2½ dr.)

S.—A half teaspoonful one to two hours after the main meals. [E.L.]

Gonorrheal Epididymitis.—The following ointment is used in the Philadelphia Hospital[5] in cases of gonorrheal epididymitis:

Guaiacol	8 gm. (2 dr.)
Lanolin, Resorcin, of each	12 gm. (3 dr.)

It is applied topically on gauze. [E.L.]

DERMATOLOGY

M. B. HARTZELL.

EDITORIAL COMMENT

The Causes of Eczema.—Apart from our knowledge of the effect of certain external irritants upon the skin, we know very little concerning the actual causes of eczema, notwithstanding the fact that every textbook contains numerous pages upon the etiology of this protean affection. Like every other department of medicine, dermatology has suffered from a plethora of theory, but a poverty of fact. Certain factors have so long figured among the causes of eczema, on largely theoretic grounds, that we have come to regard them as proved agents in the production of this disease; and it is only when these supposed causes are subjected to the cold logic of figures by some doubting Thomas that we find on what an unsubstantial foundation most of them rest. In a recent paper, not yet completed, Hall[6] has been carefully analyzing some of the commonly accepted causes of infantile eczema, with results which are somewhat disturbing to our long-established notions. Among the causes accepted by all authors are dentition, improper feeding, and alimentary disturbances; but our author's figures play sad havoc with the idea that these are concerned to any considerable degree in the causation of infantile eczema. First as to dentition. Hall found that the eruption preceded the first dentition 49 times in 56 cases, and that in 37 of these 49 cases the interval between the eruption and the first dentition was more than two months, making it quite evident that the dentition was not at all concerned in the production of the eruption. As to improper feeding, no less than 86.5% were breast-fed infants when the rash appeared, a fact which pretty effectually disposes of the notion that improper diet played any important role in the list of causes of these cases at least. Vaccination too, which frequently figures in the list of causes of infantile eczema, fares no better; the greater number of cases had not been vaccinated before the eruption appeared. While papers of this kind are rather dry reading, not nearly so interesting as the reports of rare cases, they are far more instructive; and we need more of them. It is better to know fewer things than to know so many that are not true.

[1] Münchener medicinische Wochenschrift, 1905, lii, No. 16, 764.
[2] Neurologisches Centralblatt, March 1, 1905, p. 232.
[3] Neurologisches Centralblatt, March 1, 1905, p. 233.
[4] Münchener medicinische Wochenschrift, 1905, lii, No. 16, 783.
[5] Medical Review of Reviews, 1905, xi, 35.
[6] British Journal of Dermatology, May, June, July, 1905.

REVIEW OF LITERATURE

The Treatment of Psoriasis.—Dreuw[1] again calls attention to an ointment which he has found very efficacious in the treatment of psoriasis. This ointment, which contains considerable quantities of keratolytic, macerating, and antipsoriatic remedies, is as follows:

Acid salicylic	℥iiss
Chrysarobin, Ol. rusci, of each	℥v
Sapo. virid., Vaselin, of each	℥vss

This is applied for from four to six days with a stiff brush to the diseased areas, and on the fifth or sixth day the patient begins to take hot baths daily, rubbing in vaselin after the bath. This course of treatment may be repeated several times if necessary, but as a rule the patches disappear soon after the first treatment. The difference between this ointment and others containing chrysarobin is that the irritation which commonly follows the use of chrysarobin is limited almost entirely to the diseased area.

The Etiology of the Socalled Multiple Neurotic Gangrene of the Skin.—Rona[2] since 1900 has observed five cases of the affection described by Kaposi under the name herpes zoster gangrenosus hystericus. From a study of these cases he concludes that it is identical with the so-called multiple hysteric gangrene of the skin, and, therefore, should not be separated from this latter affection, as was done by Kaposi. The lesions of the disease are observed only in the hysterical or in malingerers, and represent artefacts produced by some caustic material. The morphologic and pathologicoanatomic differences observed by authors are dependent upon differences in the chemic substances employed, the degree of their concentration, the duration of their application and the varying irritability of the different individuals.

A Case of Acanthosis Nigricans following Cancer of the Breast.—Menaham Hodara[3] reports a new case of this rare disease occurring in a woman, who suffered from a cancer of the breast. The patient was 30, and, according to her statement, the acanthosis had first appeared two months after the beginning of the cancer. The skin about the mouth and nostrils was dark brown to black, thickened, and showed numerous small furrows and small, wart-like elevations. There was itching, but no scaling. After the removal of the breast considerable improvement took place, especially in the face; the color became lighter, and the disease seemed to be at a standstill, but six months later it began to advance more rapidly than before, involving not only the whole face, but the neck, the trunk, the axillas, the flexures of the elbows, and the

[1] Journal of the American Medical Association, June 10, 1905.
[2] Archiv für Dermatologie und Syphilis, Band lxxv, Heft. 2 and 3.
[3] Monatshefte für Praktische Dermatologie, Band xl, No. 12.

genitalia. Especially noticeable was the freedom of the operation scars from pigmentation. The patient appeared in excellent health, there being no sign of recurrence of the cancer.

Effect of the Finsen Light upon Tattooing.—Meirowsky,[1] induced by the observation frequently made by pathologists that particles lying in the tissues of inflamed organs are frequently carried to the surface by migratory leukocytes, has employed the Finsen light for the removal of tattoo marks. He has found that after a few exposures, lasting from an hour to an hour and a quarter, with the Finsen-Reyn lamp, the tattooing not only becomes decidedly paler, but completely disappears in small areas, apparently normal epidermis taking its place. The author promises more details of this method of removing tattoo marks in the future.

Erythema Due to Mercury.—Dreyer[2] reports a case of mercurial erythema; the patient had prescribed mercurial ointment for himself because of body lice, and twice within a space of six months had broken out with the same type of erythema. It affected chiefly the mons veneris and its immediate surrounding. At the periphery the redness ceased to be confluent, being limited to the orifices of the follicles. After enlarging upon the importance of this eruption from the standpoint of differential diagnosis, the question is considered to what extent the drug should be continued if the erythema is proved clearly to be due to mercurial preparations. In connection with this it is important to know that while the erythema may appear after all methods of applying the substance, it occurs quicker after some preparations than others; in other instances the patient becomes accustomed to the drug. It is not necessary, therefore, to stop the use of the mercury, but only to alter the method of application and to diminish the size of the dose. The same rule applies to bloody diarrhea, which is occasionally noted after the hypodermic injection of mercurial preparations, but disappears as quickly as it appears. The condition is due to an idiosyncrasy of the patient and the organ affected. [E. L.]

Acne Treated by Punching Instruments.—When acne is treated by means of the ordinary knives, a small scar is left at every point; Kromayer[3] has devised a set of cylindric knives, which, rotated by means of an electric machine, punch small cylinders of skin out over the obstructed gland orifice. The cylinders of skin punched out vary, depending on the size of the instrument, from 0.7 mm. to 1.2 mm.; they are so small as not to leave macroscopic scars. The procedure is almost painless, so that many abscesses can be opened at one sitting; the openings heel up promptly. He uses them prophylactically in cases where one and the same follicle inflames repeatedly, every time leaving an indurated area of subcutaneous tissue behind as a nidus for future inflammations; tension is relieved and absorption goes on rapidly; the acne pustules forming are aborted by this method, and those already formed are cured for all times. He has employed the same method in instances of tertiary syphilitic papules and gummas, which are not influenced by mercury chiefly because of too great tension. [E.L.]

A Pemphigus Following a Peculiar Course.—Scherber[4] says when he saw the patient the vestibule of the nose was transformed into an ulcerated surface, the cartilaginous septum was entirely destroyed, and the membranous septum almost completely. Upon the left buccal mucosa he found a circumscribed area overlain with a fibrinous, grayish substance and surrounded by a hyperemic band. In the immediately surrounding tissue, vesicles formed, which soon ruptured, and they were substituted by a grayish-white epithelium which became detached at points, exposing a bright-red, readily-bleeding area. These points then became covered with the exudate membrane and coalesced with the larger area mentioned; finally the areas were covered with epithelium which later again became discolored and vesicles formed repeating the process. The entire left buccal mucosa became involved in this manner. He thinks the condition in the nose was a result of a similar process, and that a secondary infection gave rise to the extensive necrosis in that region. At the autopsy ulcerated areas 1 cm. to 1.5 cm. ($\frac{3}{8}$ in. to $\frac{5}{16}$ in.) in diameter were found in the ascending colon. The fact that there was no history of a syphilitic infection and that the periodic formation of vesicles existed for two years lead him to exclude syphilis; the fact that Plaut's fusiform bacillus was never found in the spreads made from the ulcerating areas led him to exclude an ulceromembranous stomatitis. [J.F.]

Bacteriology of Chromidrosis.—R. Trommsdorf[1] made bacteriologic studies of several of the axillary hairs of a patient troubled with intensely red perspiration, which stained all her clothing and which she could not rid herself of in spite of the greatest cleanliness. The perspiration had no bad odor. The cultures contained red and yellow bacteria. After describing these bacteria minutely, he makes the statement that red and yellow sweat is always due to correspondingly colored bacteria; there are usually several different varieties of chromogenic organisms, which can be found in any one case. In his own case the organisms belong to the leptothrices (Wilson) and *Trichomycosis palmellina*. Blue perspiration is due to abnormal secretion of the sweat glands, but further bacteriologic examinations must be made, as a bacterial origin cannot be excluded, and is even likely. [E.L.]

Pemphigus in Infants.—A. Longo[2] reports four cases in infants, in one of which he recovered *Staphylococcus pyogenes aureus* in pure culture, in another he found a noncapsulate diplococcus, in a third there was a pure staphylococcus infection, and lastly a mixed infection which showed chiefly a prevalence of streptococcus and staphylococcus. Serum of healthy individuals would not agglutinate this staphylococcus culture in dilution higher than 1 to 15, and the author gives additional tests which show that serum of convalescent babies varies much in agglutinative potency. [T.H.E.]

Pemphigus Contagiosus Containing Leishman Bodies.—W. Turner[3] found these bodies in scrapings from the lesions after staining by Leishman's method for malaria. They were oval, having one end rounded and the other pointed. The nucleus, which stained lilac, occupied from a quarter to half the body and was variable in shape; a smaller chromatin spot invariably circular was placed near the nucleus. The cases were treated by removing the blisters, scraping the sores, and applying antiseptics, as corrosive sublimate (1 to 1,000). [H.M.]

Trichorrhexis Nodosa.—Heidingsfeld,[4] reporting a case of trichorrhexis nodosa, reviews the literature of the subject and gives the results of his personal observation and study. He is not inclined to agree with those who regard the affection as of parasitic origin, but thinks some trophic cause was the chief factor in the production of the disease in the case which he reports. He looks upon it as both a normal and pathologic process, being present normally in long, uncut hair. When present in excessive degree in individuals with a special predisposition, it becomes pathologic and interferes with the proper growth of the hair. L. Dekeyser[5] states that at present there are three theories to account for this condition. That it is due (1) to disturbance of nutrition; (2) to a special microbe; and (3) that it can be provoked by certain microorganisms which develop in the hair under special conditions. Dekeyser, as a result of a study of a number of cases, concluded that uncleanliness cannot be considered a cause of trichorrhexis nodosa. He does not believe that mechanical irritation is capable of producing this condition. Nevertheless, in certain cases it seems to follow traumatism, but the condition is associated with the influence of certain chemic irritants. It is possible, although not absolutely demonstrated, that in rare cases the disease is of trophic origin. As the result of bacteriologic examinations in a case in which contamination was proved, he considered that the disease is in the majority of cases a microbic affection and contagious. He describes a micrococcus which he found in all of his cases. [J.H.W.R.]

Picric Acid in Eczema and Other Cutaneous Diseases.—O. Meyer[6] has employed picric acid in different types

[1] Monatshefte fur praktische Dermatologie, Band xl, No. 11.
[2] Münchener medicinische Wochenschrift, 1905, lii, No. 16, p. 775.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 942.
[4] Wiener klinische Wochenschrift, No. 29, 1905.

[1] Münchener medicinische Wochenschrift, 1904, li, 1285.
[2] Il Policlinico (Rome), August 20 1905.
[3] Journal of the Royal Army Medical Corps, March, 1905.
[4] Journal of Cutaneous Diseases, June, 1905.
[5] Journal Médical de Bruxelles, March 9, 1905, p. 145.
[6] Therapeutische Monatshefte, 1905, xix, No. 5, 221.

of eczema with favorable outcome. He uses it in the form of a paste or ointment adding from .5% to 1% of the drug to the various bases; in some cases he has given hot local baths for 10 minutes twice daily, adding .25% to .5% of the acid to the water. The improvement was especially marked in weeping and chronic eczemas, it being noted sometimes after the second and third application. The itching was not relieved, as much as the surface was improved. Symptoms of intoxication were never noticed, although reported by other observers; he never employed it however when there was the slightest sign of either gastric or renal insufficiency. The only unpleasant accompaniment which he records is the discoloration of tissues and clothing which invariably follows even the short use of the substance. [E.L.]

Cutaneous Epithelioma and Röntgen Rays.—A. Bayet[1] cites four cases which were favorably influenced. He classifies epithelioma of the skin into ulcus rodens and "épithélioma perlé," which may be either a simple cicatricial epithelioma or a "chancroid vulgaire." He believes that the röntgen ray may cure the chancroid type and the ulcus rodens. In order to study the effect upon the cells, he excised small pieces of the tumor at different periods of the treatment. The nuclei of the epitheliomatous cells seemed to be affected most intensely. The chromatin disappeared, the nuclei took the stain poorly, and sometimes disappeared. The cell undergoes a change by which it is at the mercy of the polynuclear phagocytes, which surround it. Beside being curative, the röntgen ray has the double advantage of relieving the pain and combating hemorrhage. It appears to have a more favorable action upon the ulcus rodens than curetage, incision, etc. Moreover, when the ulcer is localized to the eyelids or nose, excision is not practical. Simple cicatricial epithelioma is a benign affection, and if situated in an excisable part, excision may be preferred. When the chancroidal ulcer has extended to parts which forbid surgical interference, the ray may be used as a last resort. [J.H.W.R.]

Rheumatism in Skin Affections.—D. Walsh[2] believes that as acute rheumatism is generally accepted as due to a specific microorganism, that direct irritation of the skin by a toxin therefrom may be inferred from the acrid, sour-smelling sweat. Some of the skin lesions may be due to the organism itself. Peliosis or purpura rheumatica is characterized by red patches that do not fade on pressure. There is a rare condition of dermatalgia, described by some as rheumatism of the skin. The pain is spontaneous as well as readily excitable, and is thus distinguishable from hyperesthesia. In erythema nodosum, associated with joint pains, the spots are occasionally hemorrhagic, showing a close analogy with purpura rheumatica. In seborrhea of the body and scalp the patients examined by the writer for several years, have given a distinct history of gout, rheumatism, or rheumatic fever almost invariably. Nowadays some dermatologists include all psoriasis under seborrhea. Psoriasis is sometimes cured with large doses of salicylates. In many obdurate eczematous and scaly diseases the hot-air treatment gives immediate, and in some instances, lasting results. [H.M.]

Etiology and Pathogenesis of Erythema Nodosum.—Erythema nodosum is an acute infection, characterized by a prodromal stage, during which the patient has irregular fever and arthritic pain, a stage of eruption during which the patient's temperature reaches normal quickly and a stage of retrogression which lasts 10 to 14 days. The nodes are 8 to 20 in number, situated over the extensor surfaces of the leg, thigh, and forearm; they vary in size from a pea to a chicken egg, are of a rose-red color, surrounded by much edema, and are quite painful and tender; relapses are common, and the duration of the condition may be as much as five weeks. Young females are oftener affected than others. It is to be differentiated from polyarticular rheumatism and erythema multiforme. E. Hoffmann[3] differentiates between three varieties—the idiopathic, symptomatic, and toxic. The first and second are caused by an inflammation in the walls of the subcutaneous veins chiefly at their points of division, and this is always secondary to an inflammation elsewhere; from one node he was able to cultivate *Staphylococcus albus*. The primary seat of the affection is usually either the tonsils, the gastrointestinal, or respiratory tract, and the nodes are analogus to the joint and cardiac complications of these conditions. The phlebitis produced rarely ever goes to complete thrombosis, and the process may subside without leaving appreciable traces. [E.L.]

Thigenol in Dermatology.—F. Kornfeld[1] asserts that thigenol is useful in eczema seborrhoicum, pruritus and scabies. It is no way inferior to ichthyol in gonorrhea. It is analogous in its effect to ichthyol and has the advantage of being odorless and can be used in its pure state. Thigenol is a synthetic preparation of sulfur and is a dark-brown thick fluid of not unpleasant odor, almost entirely tasteless, and is completely soluble in water, dilute alcohol and glycerin. [J.H.W.R.]

Eudermol in Scabies.—A few years ago eudermol (nicotine salicylate) was recommended in scabies. W. F. Demitch[2] made comparison between the therapeutic efficiency of this new remedy and the time-honored Wilkinson's ointment. He finds that a salve of eudermol, 1 gr. to 3 gr. to the ounce of vaselin, is a cleanly, prompt, and reliable application in scabies, and preferable to the older salve. No toxic effect has been noticed. It is interesting to observe that in Russian villages the people treat scabies with tobacco-juice from the pipe and get good results. [L.J.]

Dermatitis Due to Primrose and Other Plants.—E. Hoffmann[3] enumerates some of the substances which are known to produce dermatitis and then discusses other substances, which are not usually connected with the inflammations, and the causal relation with which is therefore not recognized. Among these are the Japanese and Chinese primrose, rhus toxicodendron (poison sumach), the Japanese varnish made from rhus vernicifera, malacca bean, chrysanthemum, fresh squill roots, and the arbor vitæ. The individuals thus affected usually possess a special idiosyncrasy, but the instances of such predisposition are by no means rare. The cause once recognized the disease is easily removed. [E.L.]

Holländer's Treatment of Lupus Erythematosus by the Combined Use of Quinin and Iodin.—Moritz Oppenheim[4] modified Holländer's method of treating this disease in the following manner. After discovering the possible presence of idiosyncrasy for quinin, the patient received the first three days, 5 gm. of quinin morning and evening. Before the diseased surface is painted with iodin it is washed with absolute alcohol and then with ether for the purpose of removing the crustations. After the first three days the patient receives .5 gm. of quinin more, and this dose is increased until 8 doses of .5 gm. each are taken in the day, according to the intensity of the disease. This dosage is then continued until there is some evidence of improvement in the diseased areas, when the daily dose is reduced in three days, .5 gm. a day until the dose reaches .5 gm. twice daily. The treatment is only interrupted when the patient complains of the cinchonism, and when these symptoms abate the original dose is again administered. All the cases received 100 gm. of quinin in a few weeks, and in none were there any unpleasant after-effects. The author believes this method should be used especially in cases that have proved obstinate to other treatment. In none of the six cases reported were the results of this method negative. When potassium iodid is given internally, and iodin painted on externally, the results were valueless. Oppenheim experimented on dogs with a view to shedding some light upon the modus operandi of this treatment. He injected dogs with solutions of quinin, and painted the shaved skin with preparations of iodin. He discovered that there was more quinin in the skin so treated than in skin which had not received applications of iodin. He believes that the favorable influence of Holländer's treatment depends upon this fact. The increased amount of quinin in the diseased skin occasioned by the application of iodin was not due to this or other influence upon the glands, but was the result of the chemic effect of the iodin upon the quinin. [J.H.W.R.]

[1] Journal Médical de Bruxelles, April, 1905, p. 225.
[2] Medical Press and Circular, April 26, 1905.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 1877.

[1] Wiener klinische-therapeutische Wochenschrift, December 25 1904, p. 139.
[2] Russki Vratch, January 29, 1905.
[3] Münchener medicinische Wochenschrift, 1904, ii, 1966, No. 44.
[4] Wiener klinische Wochenschrift, January, 1905, p. 53.

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Specious Appearances of Life.—For nearly two months the newspapers of the country have been printing sensational articles with regard to the supposed discovery of the beginnings of life, as made by one of the assistants in science at Cambridge, England, during June. The announcement that the action of radium on a sterile culture medium produced appearances as of life came at a very favorable time to be well exploited. With regard to appearances of life, the medical profession perhaps has been deceived oftener than any other class of serious scientific students. For years cancer investigation in many countries has apparently pointed to the fact that certain parasites connected etiologically with the newgrowth existed within the cells, at least of the luxuriantly growing tissues. These parasitic appearances have been described by many observers, and have been pictured in many ways. Photographic reproductions of them have been given time and again, and faithful artists have copied them in minutest details. For nearly two decades there has been a discussion as to what these appearances mean, and those most interested in them have not hesitated to proclaim them independent living beings. In the last few years there has come a revulsion of feeling, and now practically all the authorities in pathology are agreed that these appearances are only signs of degeneration within the cells, or artefacts caused by the staining and other methods of preparation for study. Under these circumstances it would not be surprising for medical scientists, at least, to be especially sceptical in accepting appearances under the microscope as any evidence of the existence of life, unless there were other proofs for this supposition. With regard to the supposed germs of life, or radiobes, as their discoverer called them, claiming not absolutely to consider them as living, and yet begging the question by the very designation which he employed, there will have to be very careful investigation before even the possibility of their representing life can be entertained.

As to the beginnings of life, if there really are any such things, in the present stage of our evolution it seems probable that they would be smaller than those which have been under Mr. Burke's observation in England. There are some microorganisms definitely recognized that are no larger than the appearances described by the English scientist, while the cause of foot-and-mouth disease, as investigated by Löffler, some eight years ago, is probably so small that it is quite beyond the range of any microscopic powers that the German investigator could obtain, though as his investigation was carried on under the authority of the German government, and therefore with the best possible microscopes available, it would seem that there could be no doubt about the accuracy of his observation. It would naturally be expected that any socalled beginning of life would be much smaller than any definite organism known to exist. The organism of foot-and-mouth disease, however, though invisible, can be grown very readily, and though it passes through a Pasteur filter, it can produce infection even when it has been diluted many times in successive culture mediums. This is one crux of the present sensational announcement; another is to be found in the fact that so far in the experience of medical practitioners, radiations such as come from radium, far from encouraging life in any way, have shown a distinct tendency to inhibit it.

That radium inhibits life has been true not only of microorganisms in culture mediums, but also of such rapidly growing cells as those of malignant growths in the human body. The physical agent with which physicians have had most to do and that most nearly resembles radium in its effects is the röntgen ray, and that has always been destructive and not constructive in its effect. It was the announcement not many months since of its destructive action on germinal particles even in human beings, that threatened to wreck its popularity as a therapeutic agent. Its effect on the life of spermatozoa was found to be extremely unfavorable, to the extent even of rendering sterile those who were not careful in the manipulation of röntgen-ray tubes. This same phenomenon has been noted in all departments of biology. The larvas of insects failed to undergo their usual metamorphosis into winged creatures after having been exposed to the röntgen rays for some time. Its effect on seeds is always to delay growth and eventually to kill the germ of life in them if only they are exposed to its action long enough. It would be indeed surprising, then, if a similar agent should prove to be a producer of life where there was none before. Analogies are not arguments, but still the true significance of a scientific observation can often be best understood by means of analogy.

The metric system has been under discussion in the columns of *Science* for a long time, and much has been written upon the good and the evil of substituting these measures for our present standards. Uncompromising metric advocates have been led into intemperate assertions of the benefits to accrue to the nation by the adoption of these standards, and the opponents of the change have, perhaps, been equally intemperate. The medical profession is probably more interested in both sides of this matter than any other body of scientific workers. It can afford to take a judicial attitude, and it should be competent to pass upon the points at issue. When two bodies of equally intelligent and learned men hold opposing opinions, it is generally, if not always, found to be due to incomplete knowledge. Each side is right and wrong at the same time. Discovery of missing facts is likely to be followed by perfect agreement through a modification of each extreme opinion. The missing facts in this case are probably in the direction of the failure of each side to realize that what is best for a few exceptional men is not necessarily best for the mass of mankind. There is involved in this discussion, then, a psychologic matter of considerable importance, though the chief objection to the proposed change comes from the manufacturers whose machinery would have to be changed more or less completely and at a great cost. Objection has been made to the great waste of time in learning the old measurements in school, yet this has been denied and the countercharge made that French school children are far worse off in this matter, with their numerous old standards still a matter of instruction. It sounds like heresy for a modern scientist to oppose the change, but it is scientific to inquire why the old measures are so useful, and why they are retained so tenaciously by the unscientific—that is, by the mass of mankind.

Ease of factoring is the great necessity for the mass of the uneducated. Physical measurements were used for ages before there were written signs for them. They were slowly invented for practical purposes, so that those in present use are the result of a very long evolution. It may seem an extreme statement, but it is true, that few men are able to conceive of any other fractions of a measure than a half or a third. Herbert Spencer based his opposition to the metric system upon the fact that division into halves was the only natural system and the only one in practical use by the mass of mankind. It is easy to halve a piece of land, a distance or a piece of meat, more difficult to divide into thirds, and there is scarcely anyone who attempts smaller fractions except by repetition. Tenths are almost inconceivable except by exceptional men—the mathematicians. Hence, when it became necessary to form a relation between measures, they were made easy factors of each other to facilitate divisions. The selection of two, three, four and twelve units was not a deliberate invention, but a natural process which had always been used, and the actual number of grains, ounces, pints, quarts, pecks, acres, or rods in a higher measure, and their sizes were all gradual evolutions for very practical purposes. A half or third of a mile or foot could still be expressed in whole numbers of units, and fractions occur only when we compare units invented for different purposes. The law of halving is now universal in countries using the metric standards, and we ourselves cannot do without our half and quarter dollars. Hence there is found to be a practical reason for the size and number of units in every kind of measurement, and he who would abolish them would first find it necessary to change the brains of the mass of mankind. Throughout Europe, the peasantry merchants, and even manufacturers, still use, to some extent at least, the old measures which have survived as the fittest after centuries of trial.

Arithmetic is Not Measuring.—Men used measures millenniums before arithmetic was invented. In the slow evolution of numbers it was never possible to use many signs and the system of repeating had to be used. Numbers were repeated after five, ten, or twenty were used, these systems being no doubt copied from the digits of the hands and feet, which were the first means of counting. Ten being the most convenient, naturally survived, even over the duodecimal system, which some declare to be the best for factoring. Hence, those men who have the most arithmetic work, naturally desire to use measures which are divided into tenths like the numbers, but the far greater number of men, having no calculations to make, have no use for such measures and cannot understand them. There can be no denial of the great value of the metric system for all scientific work, not to mention the convenience of using the same in all the laboratories of the world. But this small body of workers must not think that all the rest of the world would be equally benefited by their system. Nor, indeed, is it possible to force out the units, which are the fittest survivals for practical purposes. Our very country, for instance, is mostly divided into sections of a mile square, the highways are a mile apart, and each farm is 160 acres, so that these two measures will remain forever and there is no possibility of substituting metric ones. If the metric measures are introduced we will be bothered by a double standard forever.

The metric system in practical medicine has not at all proved its appropriateness. For most drugs the grain is a more natural measure than the milligram, which is 65 times too small and is like using an inch measure for a ten acre lot. The ounce, likewise, is better suited to our purpose than the little gram or big kilogram. In spite of the fact that chemists depend upon the metric system, it is not at all shown to be essential in compounding prescriptions. The practical physician is thus in the class of practical men, using a grain and ounce because they are so convenient. Thus the two sides of the metric controversy are quite likely to be reconciled by an acknowledgment that the system has its uses, is indispensable to a very small class of men, but unnatural, and therefore unable to supplant the natural measures which the mass of mankind have evolved for their convenience. The wisdom of forcing an unnatural system upon the nation can therefore be questioned, and it would be far better to have the matter very widely discussed before committing ourselves to

any petitions to Congress. We must keep in mind the fact that a human law cannot displace a natural law, and if the present measures are really the natural evolution of man's practical needs, it is folly even to try to abolish them. If the French system is the best for the world it will supplant the others whether we desire it or not. Congress cannot do it. The extremely slow headway it is making among practitioners does not seem to indicate any special fitness. Our patients for a long time will persist in talking and thinking in grains and ounces and inches, so that the practical physician must keep both systems in his mind and waste time in translating back and forth, if he writes all his prescriptions in the metric system. This is so great a nuisance that it can well be asked if it is not desirable to end it. Anyhow, it is wise to take stock of our scientific opinions now and then, so that we will not be led astray by scientific enthusiasm.

Professional Opinion as to Smoking.—*The Practitioner* has gone to the trouble to elicit the opinions of a number of medical men concerning the effect of smoking upon the health. Nothing new or decisive is reached as a result, and the editor, in summarizing the discussion, takes the customary standpoint that abuse, of course, may be due to the habit, that the custom of smoking by boys is wrong, but not sufficiently so to warrant any control by law. Fun is, indeed, poked at the "faddists" who are seeking to control the abuse both in this country and England. Everyone is to judge for himself, and the spirit of the editorial principle of *laissez faire* is shown by the quoted jingle:

> Cats may have had their goose
> Cooked by tobacco juice;
> Still, why deny its use
> Thoughtfully taken.

Doubtless, professional opinion as regards the use both of alcohol and tobacco has been often dictated by the personal habits of many medical writers. The purely scientific or clinical facts, moreover, are hard to get at. The question is not as to the physiologic and single dose, nor the very moderate use, but relates to the persistent use, the long-continued habit, and the effects of overuse and abuse. No data are at hand to determine such questions, and the matter thus comes down to the attention of careful clinical observers, the collection of isolated cases and facts, and attention spread over many years by exceptionally shrewd men, both patients and physicians. There is an old story which illustrates too well the attitude of some physicians:—Strict rules as to diet, etc., were laid down to the poor patient by the grand medical adviser, ending with a stern command, "and one cigar after each meal!" In a week the woe-begone sufferer returned worse than ever, saying: "I have carried out your orders, doctor, accurately, in everything except as regards tobacco. I have never smoked before this, and every time I try to smoke as you said, after each meal, I become sick as death, vomit, and it takes 24 hours to recover. I cannot do it!"

Tobacco and Disease.—That all agree that habitual smoking, and especially of cigarets, by boys, is most injurious, is a fact which should give pause to the let-it-alone advisers. If harmful to the young why not to those who are older, particularly if carried to excess? At least a new clinical law is suggested as to the action of drugs on the young and upon older patients. Again, if tobacco is not harmful to men, why should women be excluded from the supposed harmlessness and admitted pleasure of smoking? Some other principle than an esthetic or social one must be allowed to obtain, and one must begin the study of the action of drugs on the male as contrasted with the female organism. The morbid effects of much smoking on special organs, the eye especially, the tongue, and throat, etc., and frequently upon other tissues and functions, is frankly admitted. It is in the observation of every experienced physician that smoking often has a speedy and decided effect upon the appetite, digestion, etc. A study of idiosyncrasy and the different effects in individuals is evidently highly desired, and above all, the cumulative results of long habit and excess. What is excess? Surely ten cigars or pipefuls a day is excess, and is bound to produce disease. Just as surely hundreds of thousands of Americans are smoking to excess. But excess in individual cases may be only three cigars, or even one, a day. Who has sought to determine the conditions and signs of the physiologic dose when habit or slow absorption, and subtle effects are sought? New factors are also coming into play, *e. g.*, the qualities and morbidity-producing conditions of tobacco from different countries, and from different grounds, even from different factories. The rage for luxury and show is modifying the growing of tobacco and manufacture of cigars, and proceeding to such lengths that cigars, enormous in size, and powerful in effects, are "sported," cigars which cost from 25 cents to a dollar or more each; and is it sure that these expensive cigars contain no drug except pure tobacco? It has come to our personal knowledge that cases of severe although mysterious diseases and ill-health have existed in which smoking was finally demonstrated to be the source of the mischief, after all other theories and diagnoses had been proved false. The whole subject needs a rigorously scientific investigation. In the meantime busy physicians should be constantly on guard not to overlook tobacco as an unsuspected cause of great mischief.

Finger-prints and Criminal Identification.—The theory and practice of finger-print indentification form a special feature in the administration of criminal law in all civilized communities of the present day. The discovery of the interestingly complex structure of the "tactile corpuscles" made by itself an epoch in the history of the development of physiologic histology. It has now been found that there is an unchanging law of papillary arrangement, which has actually come to modify the powers of legal proof and the establishment of human identity. Nature never disposes these papillas in exactly the same order in all ten fingers. At least, according to mathematic calculation, the chances against a duplication are 64,000,000,000 to 1! Rarely, indeed, does it happen that there are not striking differences in the arrangement of the papillary ridges on the corresponding fingers of the same individual. Then not

only are the ridges themselves distinguished by peculiarities, of physical disposition, but also their branches and their "lines" or wrinkles. The latter do not usually show in the young, but form gradually with the advance of years. It has been found that in persons of weak circulation they are prone to form earlier in life, but undergo temporary obliteration when the fingers become congested—by heat, etc. The presence of these ridges (and corresponding furrows), combined with the natural stickiness of the secretion of the cutaneous glands, accounts for the formation of "finger-prints." The value of these has recently been sharply tested in the London law courts, where the identification of a thumb impression found on a cash-box was the most effective item of evidence toward securing the conviction and death sentence of two prisoners on trial for burglary and murder. Impressions of the thumbs of the murdered owner were produced and shown to be entirely unlike that left on the emptied cash-box, while this absolutely corresponded with an impression taken from the right thumb of one of the two accused brothers in the dock. The trial caused a phenomenal sensation; and was prolonged on the closing day (May 7, 1905) till after 10 p.m., an almost unprecedented course.

New Loaves for Old Ones!—"Bread and Disease: A New Alarm," is the title of an article which recently appeared in the *Daily News* (London). It deals with a movement set on foot with the object of procuring the cooperation of the various metropolitan branches of the Master Bakers' Association in a crusade against the long-standing practice of allowing for stale returns. A new suit in which to dress the threadbare grievance had been opportunely discovered in the recently-issued annual report of the medical officer of health for Leyton, Dr. A. Peskett, in the course of which the system of changing stale loaves for fresh bread is strongly condemned on account of the danger of conveyance of the germs of typhoid and other infectious diseases from the houses in which they had sojourned for a day or more. We are told that Dr. Peskett is admitted by prominent members of the trade to have made out a fairly strong case; but to the representative of the *Daily News* who was deputed to make inquiries, "they freely discounted the suggestion that the custom of changing bread obtains to any material extent in poor districts. They ridicule the idea of children in working-class localities being sent on Saturdays for the week-end supply, and on Mondays taking back any remaining loaves 'after being handled by the dirtiest of hands and placed anywhere in the house.'" An official of the association remarked that housewives of the working class are too wise to buy more bread than is likely to be consumed, and common sense has taught mothers that stale breads forms a healthier item of diet for their children than the warm, freshly-baked article. One gentleman who had received the attentions of the interviewer informed the latter that although the system of "returns" had been for some months under discussion by the executive of the bakers' associations, no definite line of action had been adopted with the view of getting rid of it. He observed that Dr. Peskett had done well in drawing attention to the danger of bread lying about in houses "collecting dust and germs," but added that it was a moot point whether an uncovered cartload of loaves was not exposed to far more germs during the house-to-house journey than the individual loaves by being kept in the average house for a day or two. A circular letter is being prepared for the purpose of urging the members of the trade to a uniform decision. The question is surely an important one for a large city. In the name of cleanliness, hygiene, and general esthetics, we should surely eradicate such an exchange system, whenever and wherever discoverable.

"Our Monster Static Machine, Ruhmkorff Coil, and Influence Machine."—The ways of the American advertiser are finding him out, but while he lives, and advertises, he is, as Artemus Ward said of another gentleman, "an amoosin' little cuss." We hope our humor-loving readers may be so fortunate as to receive the astonishing circular of a more astonishing sanatorium (located in one of the largest and breeziest cities of the United States), described as "a high class private hospital for the reception of obstetrical cases." After they are "received," one wonders how these "cases" are to be treated; but, as are bespoken "the ultraviolet ray," "our dynamo," "our monster static machine," "our Ruhmkorff coil," "our faradic and galvanic machines," "our high frequency coil," "our powerful microscope made by Beck, of London, with oil immersion objective" (a new material, plainly, used in the construction of microscopes has been discovered by Mr. Beck)—all in the hands of "our experienced electro-therapeutists"—one may be assured that the "cases" will be treated well in "our laboratory." The "influence machine" excites the greatest curiosity. In the picture of the "resident staff" it is comforting to find the canine race represented. "These advanced methods of treatment *has* a fixed plan, etc." All sorts and any sorts of "assistance," even the legal kind, for deserted girls, are given, with addition of the "influence machine." "Antepuerperal vagaries" and even melancholia, are conquered by means of "drives in the parks and boulevards, in our rubber-tired surrey, swings, lawn tennis, hammocks, croquet, physical culture, boxing, foils, single sticks, vacuum gun, pool, and billiards, piano, guitar, zither, flute, and other musical instruments, crokinole, ping pong, cards, lotto, pit, panic, checkers, books, periodicals, etc." Twenty or more pages of full-page photographs of savage life, with fac simile descriptive reports from the yellow newspapers complete the amazing accounts of this institution, "heretofore," at least, "conducted in the most quiet and ethical manner." "These *has brought* it at last into the light of scientific interest and public appreciation."

"There was a young man who said, How
Shall I escape from this terrible cow,—"

A Congress General of Sanitation.—The call is issued by the Secretary of the *Medical Parliament Bulletin*, G. Sanarelli, who states that the meeting will take place in November and at Rome. While the delegates are strictly representative of Italian territory, the interest of the whole world centers on a movement having for its scope any phase of modern preventive medicine.

BOOK REVIEWS

State Board Journal.—Physicians generally, and especially those just beginning the practice of medicine, will find the *State Board Journal*, Vol. I, No. 1, of which has just been issued by The State Board Publishing Company, 921 Colorado Building, Washington, D. C., interesting and useful. It is a monthly periodical, devoted to the mutual interests of boards, students, and colleges of medicine. Its table of contents includes practical information, which so many beginning practitioners desire, concerning examination questions before different State Boards, and other data relating to State Examining Boards. The journal apparently will fill a practical want.

A System of Physiologic Therapeutics, Vol. xi.—Edited by SOLOMON SOLIS COHEN, A.M., M.D. Philadelphia, P. Blakiston's Son & Co., 1905.

With this, the final volume, a System of Physiologic Therapeutics, well conceived, broadly planned, and splendidly executed, is completed. The volume opens with a chapter on serum therapy, by Dr. Joseph McFarland, in which he discusses in a concise, though lucid and extremely satisfactory manner the general principles of serum therapy, including some dispassionate references to the apparently discordant views on immunity upheld by the Ehrlich school on the one hand, and the Metchnikoff school on the other—views that he regards not so much discordant as explanatory, the one of the other, Ehrlich's, as he states, "being an accurate means of defining chemically what the latter (Metchnikoff's) expressed in different—so to speak—biologic terms." Dr. Oliver T. Osborne contributes an interesting chapter on organotherapy which may be commended to the reader as a sane and conservative discussion of a form of treatment that, almost as much as electricity, has lent itself to charlatanism, but which in reality is capable of much good in restricted fields, and of which our knowledge doubtless will be increased in the future. Dr. Samuel T. Tracy contributes a short chapter on radium, thorium, and radioactivity, in which he discusses the evolution of our knowledge of radiology, the physicochemistry, the physiologic effects, the therapeutic indications, and by no means least important, the limitations of radium and of thorium. The editor has deemed it wise (and no one will question his wisdom) to add a short addendum on röntgen-ray therapy, in which he discusses the very recent additions to our knowledge of the constitution of matter and of electric phenomena, and certain improvements in röntgen-ray therapy. A chapter on counterirritation, external applications, and bleeding is by the late Dr. Frederick A. Packard, of which it suffices to say that it fully sustains the high standard set by one who knew and contributed to the best in medical literature. The editor is not unmindful of the practice of the ancient epicures who reserved their choicest dishes and rarest wines to the end, we have read with much interest and great profit his Outline of the Principles of Therapeutics, with Special Reference to Physiologic Therapeutics. Every one would be the better for a careful reading of these 41 pages. He points out what should be self-evident upon a little reflection that therapeutics, equally as much as pathology, depends upon and should be studied from the point of view of biologic principles, and in order that progress may attend our efforts we must study and determine the basic relations between physics, chemistry, and therapeutics. The outline merits all the more study since it is a return to principles—a most encouraging sign in these days when the "practical" is a name almost to conjure with. The volume ends with an index-digest of therapeutic measures of 110 pages, prepared by Dr. R. Max Goepp and Dr. Charles W. Barney, of which we may say that it well subserves its purpose of "a compendium of the practice of medicine from the viewpoint of treatment by physiologic measures, giving also many hints as to auxiliary treatment by drugs."

As each succeeding volume of this System has been issued we have had occasion to commend the plan, admire the scope, and approve the manner of its execution. Being finished we desire to compliment the editor upon the discretion and foresight that he exercised in selecting his collaborators and enlisting their cooperation. The System will long stand as an evidence of a new departure in therapeutics, as a standard work of reference.

Diet in Health and Disease.—By JULIUS FRIEDENWALD, M.D., and JOHN RUHRÄH, M.D., Baltimore. Philadelphia, New York, London: W. B. Saunders & Co., 1905.

The scope of this latest addition to the subject of dietetics is indicated by the statement that it has been prepared to meet the needs of the general practitioner, hospital interne, and medical student, as well as for a reference handbook for training schools. As a consequence, it has been made eminently practical and any of these classes may find in it much that will be helpful. The first 276 pages are devoted to the chemistry and physiology of digestion, classes of foods, beverages and stimulants, various factors in their bearing on diet, infant feeding, diet for special conditions, and special methods of feeding. The larger part of the book is then occupied with the discussion of diet in various diseases. The last 125 pages contain a list of army and navy rations, dietaries of many public institutions, recipes, elaborate tables showing the chemic composition of American food materials, diet lists, weights and measures, and a list of books on the subject in hand. Authorities are freely quoted and the experience of the writers is also made apparent; they have no fads to impress upon the reader, and the attempt to supply information has been successfully carried out. The book is one that can be honestly recommended to the profession.

A Textbook of Obstetrics.—By J. CLARENCE WEBSTER, M.D. (Edin.), F.R.C.P.E., F.R.S.E. Philadelphia, New York, London: W. B. Saunders & Co., 1903.

Webster has written a volume which is valuable both to the scientific student and the active practitioner. The practical aspects of the subject have been clearly presented, and emphasis given to methods of treatment that have been tested by experience. The writer believes a general anesthetic may be employed in obstetric practice for two purposes: (1) To produce mere analgesia for the relief of suffering; (2) to produce deep anesthesia in order that unconsciousness and complete muscular relaxation may be produced. We cannot quite agree with him that there is little danger of chloroform producing postpartum inertia. The chapter on forceps is of much historic and practical interest. Great care has been given to the illustrations, many of which are new. Over 20 pages of index add to the value of the book. We can recommend this volume as a safe guide to the practitioner of obstetrics.

Studies in General Physiology.—By JACQUES LOEB. The Decennial Publications. Second series, Volume xv. Chicago: The University of Chicago Press, 1905.

This volume, in two very attractive parts, aggregating nearly 800 pages, contains all of the author's papers on General Physiology. Many of them were originally published in German journals, hence, in this form, they are not only collected, but also made accessible to a greatly increased number of readers. The leading idea is, that it is possible to bring life phenomena under the control of man, the numerous ingenious and often partially successful methods of the author being well known. Both Dr. Loeb and the University of Chicago have earned the thanks of the profession in collecting the numerous papers.

A Textbook of Diseases of Women.—By BARTON COOKE HIRST, M.D. Philadelphia, New York, London: W. B. Saunders & Co. 1903.

This book is a companion volume to the author's textbook of obstetrics and in it a special effort has been made to describe the palliative treatment of the diseases of women and such curative treatment as can be carried out by the general physician. The text is characterized by the same conciseness and lucidity as marked the writer's previous works. Methods that have been tested and tried by the author in his wide experience have been described and advocated. The book is adorned with 655 illustrations, mainly original and many in colors. It is a practical, safe, and up-to-date treatise upon the diseases of women.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Food Preservatives.—Their Advantages and Proper Use. The practical versus the theoretic side of the pure food problem. By R. G. ECCLES, M.D., Phar. D., Fellow of the American Association for the Advancement of Science, etc. With an introduction by E. W. DUCKWALL, M.S., Member of Society of American Bacteriologists, etc. D. Van Nostrand Company, New York. Price, 50 cents.

Diseases of the Heart and Aorta.—By THOMAS E. SATTERTHWAITE, M.D., Professor of Medicine in the New York Postgraduate Medical School, Consulting Physician to the Postgraduate Orthopedic and Babies' Hospitals, etc. E. R. Pilton, New York City.

Nineteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania.—Vols. I and II. Transmitted to the Governor December 7, 1903. Wm. Stanley Ray, State Printer of Pennsylvania, 1904.

A German-English Dictionary of Terms Used in Medicine and the Allied Sciences.—By the late HUGO LANG, B.A. Edited and completed by BERTRAM ABRAHAMS, M.B., B.Sc., F.R.C.P., Assistant Physician Westminster Hospital, etc. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $4.00 net.

The Eye, Mind, Energy, and Matter.—By CHALMERS PRENTICE, M. D. Published by the author, Chicago, 1905.

Anemia in Porto Rico.—Report of the Committee for Study and Treatment of Anemia in Porto Rico, December 1, 1904. Bureau of Printing and Supplies, San Juan, P. R.

Medical Philology.—Part I. A-El. Gathered by L. M. GRIFFITHS, M.R.C.S., Eng. J. W. Arrowsmith, Quay Street, Bristol, 1905.

A Sketch of the History of Obstetrics in the United States up to 1860.—By J. WHITRIDGE WILLIAMS, Professor of Obstetrics, Johns Hopkins University, etc.

Health, Strength and Power.—By DUDLEY ALLEN SARGENT, A.M., Sc.D., M.D., Director of Hemenway Gymnasium, Harvard University. Illustrated. H. M. Caldwell Company, New York and Boston. Price, $1.75 net.

A Reference Handbook for Nurses.—By AMANDA K. BECK, of Chicago; 32mo volume of 150 pages. W. B. Saunders & Co., Philadelphia and London, 1905. Bound in flexible morocco, $1.25 net.

International Clinics.—A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, with the collaboration of Wm. Osler, M.D., Baltimore; John H. Musser, M.D., Philadelphia; James Stewart, M.D., Montreal; J. B. Murphy, M.D., Chicago; A. McPhedran, M.D., Toronto; Thos. M. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London; Edmund Landolt, M.D., Paris; Richard Kretz, M.D., Vienna. With regular correspondents in Montreal, London, Berlin, Paris, Vienna, Leipsic, Brussels and Carlsbad. Vol. i, fifteenth series, 1905. Price, cloth, $2.00 net. J. B. Lippincott Company, 1905.

Special Report on the Diseases of Cattle.—By DRS. PEARSON, MURRAY, ATKINSON, LOWE, HARBAUGH, LAW, DICKSON, MOHLER, TRUMBOWER, SALMON, SMITH, and STILES. Revised Edition. Government Printing Office, 1904.

Mechanical Dentistry and Metallurgy.—By GEORGE W. W. WARREN, A.M., D.D.S., Professor of Clinical Dentistry, Pennsylvania College of Dental Surgery, etc. Second edition, revised, and in parts rewritten with 179 illustrations. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $2.00 net.

Conservative Gynecology and Electrotherapeutics.—A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. BETTON MASSEY, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia; Fellow and Ex-President of the American Electrotherapeutic Association, etc. Fourth Edition, Revised. Rewritten and Greatly Enlarged. Extra cloth, beveled edges. Price, $4.00 net. F. A. Davis Company, Philadelphia.

The Life of Florence Nightingale.—By SARAH A. TOOLEY. With 22 illustrations. The Macmillan Company, New York, 1905.

International Medical Annual.—A Yearbook of Treatment and Practitioner's Index. E. B. Treat & Co., New York. Price, $3.00.

Wharton and Stillé's Medical Jurisprudence. Vol. II. Poisons.—By ROBERT AMORY, A.M., M.D., President of the Sixth National Convention of 1880 for Revising the U. S. Pharmacopeia, etc., and ROBERT L. EMERSON, A.B., M.D., Instructor in Physiologic Chemistry, Medical School of Harvard University, etc. Fifth edition. The Lawyers Cooperative Publishing Company, Rochester, N. Y., 1905.

Operative Surgery.—By JOSEPH D. BRYANT, M.D., Professor of the Principles and Practice of Surgery, Operative and Clinical Surgery, University and Bellevue Hospital Medical College; Visiting Surgeon to Bellevue and St. Vincent's Hospitals. Third revised edition. In two volumes. 1,576 illustrations, 90 of which are in color. Price, cloth, $10 00.

Wharton and Stillé's Medical Jurisprudence. Vol. I. Mental Unsoundness.—Legal Questions by FRANK H. BOWLBY. Insanity: Forms and Medicolegal Relations, by JAMES H. LLOYD, A.M., M.D., Neurologist to Philadelphia Hospital, Physician to Methodist Episcopal Hospital, etc. Vol. III.—Physical Conditions and Treatment, Medical Aspects, by TRUMAN ABBE, A.B. (Harv.), M.D. (Col.), Assistant to the Professor of Surgery and to the Professor of Physiology at the Georgetown University Medical School. Legal Aspects, by FRANK H. BOWLBY. Fifth edition. The Lawyers' Cooperative Publishing Company, Rochester, N. Y.

The Detection of Poisons and Strong Drugs. Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials.—By DR. WILHELM AUTENRIETH, Professor in the University of Freiburg. Authorized translation from the third enlarged German edition, by WILLIAM H. WARREN, Ph.D., Professor of Chemistry, Medical Department, Washington University. 17 illustrations. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $1.50 net.

AMERICAN NEWS AND NOTES

GENERAL.

Pharmacopeial Revisions.—H. K. Mulford & Co. will send to physicians, on application, a small folder, containing tabulated changes in the eighth revision of the Pharmacopeia, as a ready reference for the writing of prescriptions.

The Manila Leprosy Experiments.—It is reported that in the leprosy experiments at Manila, 25 cases have been treated by röntgen rays and 6 are reported actually cured, while the disease has been checked in several whose bodies are partially gone.

Personal.—**J. D. Cahill** is the only medical man in Scott county, Kansas. The county commissioners pay him $300 a year, nominally to attend the poor, though there is but one pauper in the county. The bonus is paid to keep him there, as otherwise there is usually not enough practice to keep a physician busy.

Dr. Salmon Resigns.—Dr. Daniel Elmer Salmon, Chief of the Bureau of Animal Industry, Department of Agriculture, has resigned and Secretary Wilson has accepted the resignation, to take effect October 1. No explanations are made, but the resignation is reported to be due to an investigation which showed that Salmon was repaid a loan out of moneys received by a friend from the beef inspection label contract.

Eucalyptus in Canal Sanitation.—The Panama Canal Commission has under consideration the use of eucalyptus trees in the canal zone to aid in sanitation. The tree is credited with driving fever and malaria from tropic regions by drying up marshes for miles around. It has been tested by France in Algeria, where it redeemed vast regions of miasmatic districts and made them fit for cultivation. In the malarial suburbs of the Roman Campagna, Italy has found it a great help. Planted along the Chagres river, it is believed the trees might control its flood tendencies and dry up the marshy soil.

Panama Fever Summary.—According to the summary of yellow fever conditions in Panama, as compiled by the Isthmian Canal Commission, there were 16 cases and 2 deaths from the disease on the canal zone during the month of August. There were 14 cases and 5 deaths during this time in the republic of Panama, making the total on the Isthmus for the month 30 cases and 7 deaths. During the month of June there were 70 cases and 18 deaths; during July, 29 cases and 11 deaths. At the present time there is but one case of yellow fever under treatment on the Isthmus, that of an Italian nonemploye.

Marine-Hospital Service Warning against Lobsters.—In view of the present prevalence of typhoid fever in several large cities and other localities, the Public Health and Marine-Hospital Service has published an advance statement of the discussion on typhoid at the recent annual conference of State and territorial health authorities. One of the danger sources is from sea food. The lobster industry of the Maine coast, whence several hundred barrels of lobsters are sent out daily after being kept in floating traps, originates much typhoid. Many of these floating traps are close to mouths of sewers. Infected houses, bedding, clothing, eating utensils and the like are considered largely responsible in all epidemics.

Site for Naval Sanatorium.—Surgeon-General Rixey, of the navy, will shortly designate an officer to visit different localities in this country for the purpose of ascertaining the best site for a naval sanatorium. There are several sites regarded as available by the naval medical officers, and, naturally, these sites are in the West, where the climatic conditions offer more advantages for the treatment of the sick than is the case in the East. The examination of the different sites will be very thorough, and all the necessary statistics will be acquired, so that when the recommendation is made to Congress by the Surgeon-General, there will be full and complete information in favor of whatever place is regarded by the medical officers as best adapted for the purpose.

NEW YORK AND VICINITY.

Ogdensburg Medical Association.—On September 5 the Ogdensburg Medical Association celebrated their fortieth anniversary. Many interesting papers were presented and read.

New Home for Bellevue Nurses.—Plans have been filed for the remodeling at a cost of $5,000 of a dwelling on East Twenty-sixth street, into a private home for the nurses of Bellevue Hospital. The city has leased the premises for the trustees of Bellevue and the Allied Hospitals. A new steam-heating plant and new plumbing will be installed, and the building renovated and rearranged.

Pneumonia Declared Infectious Disease.—Extraordinary efforts will be made by the New York health authorities this winter to check the rapid increase in the mortality from pneumonia that has alarmed the city during the past two or three years. New York's deathrate has fallen 25% during the last 20 years, but in the same period the deathrate from acute respiratory diseases—pneumonia, grip, etc.—has increased more

than 100%. In the first half of 1904 there was an extraordinary increase in deaths from respiratory diseases, which amounted to no less than 25% of the total deaths in the city.

Sue City for Nurse's Error.—Relatives of Joseph Kuhlwein and John Dooling, who died in the Cumberland Street Hospital, Brooklyn, as a result of carbolic acid said to have been administered by mistake, have sued the city for $25,000 damages each, because of the two deaths. Kuhlwein and Dooling were patients in the hospital. Whisky had been prescribed to make them sleep. Late one night an orderly called a nurse and told her it was time to give the whisky to the patients. The nurse, as she afterward testified to the coroner, picked up a bottle, the label on which was blurred, but which she thought contained whisky. Two half ounces of the liquid in the bottle were poured into glasses and given to Kuhlwein and Dooling. Both men died in a short time. The coroner made an investigation, but finding that the nurse had simply made a mistake, took no further action.

PHILADELPHIA, PENNSYLVANIA, ETC.

Cholera Expert's Trip Delayed.—Surgeon-General Wyman has held up the departure of Dr. Fairfax Irwin, who was ordered several days ago to Germany to study and report on the cholera outbreak in East Prussia. Dr. Irwin has done similar work in Russia, and is a recognized authority on the disease.

Big Increase in Typhoid Fever.—There were 152 cases of typhoid fever reported in Philadelphia for the week ended September 2, more than twice as many as for the previous week, when there were but 62 cases. The most cases were in the northeastern wards supplied with Delaware river water, through the Wentz farm reservoir.

New Medical Society.—On September 8 the physicians of the southeastern section of Philadelphia formed a new society with about 40 members. The following officers were elected: Dr. S. Dubin, president; Dr. B. Segal, first vice-president; Dr. S. Kimmelman, second vice-president; Dr. J. Frankel, treasurer; and Dr. M. Barbour, secretary.

After Malpractitioners.—Postal Inspector Malone, who conducted the recent crusade against malpractitioners in Philadelphia, has requested the city authorities to revoke the license of several lying-in establishments. He complains that lying-in licenses are granted by the city to houses instead of to persons. The city officials promised a hearing at the next meeting of the Board of Health.

Embalmed Sausage for the Navy.—Frederick M. Hall, Philadelphia agent for Swift & Co., of Chicago, was held in $1,000 bail by Magistrate Beaton, charged with selling sausage preserved in boric acid to the League Island Navy Yard. President Roosevelt has assured Dr. Warren, of the State Dairy and Food Commission, that the federal authorities will give all possible aid to the State in prosecuting violations of pure food laws.

Outbreak of Typhoid Fever in Nanticoke, Pa.—An epidemic of typhoid fever prevails in the town of Nanticoke. More than 150 cases have been reported to the Board of Health, and so far 4 deaths have occurred. The opening of public schools has been deferred, and public funerals have been prohibited. The water-supply of the town comes from Harvey's Lake, the largest body of water in the State, and heretofore considered pure, but within the last two years a great deal of sewage has found its way into the lake.

Sailor May Have Yellow Fever.—Because of the suspicious illness of a sailor, the national quarantine official at Reedy Island have decided to place in quarantine the entire crew of the steamship Shawmut from Tampa, Fla. Sporadic cases of yellow fever were prevalent when the Shawmut left. Samples of the sick man's blood have been sent to the Bacteriologic Department of the Marine-Hospital Service at Washington for analysis. After the crew have been placed in the hospital the vessel will be disinfected and released, and a new crew will be sent down to bring her to Philadelphia.

Philadelphia Makes Rules to Prevent Pneumonia Contagion.—Pneumonia has been placed on the list of transmissible diseases, and for the past five months the Board of Health has required physicians to report cases of the disease. As yet the board has not completed any rules for the supervision of these cases, but several drafts have been made, and in a short time rules will be formulated. Copies of the rules will be sent to every physician, to schools and to police stations and hospitals. The principal recommendation will be isolation. The board will recommend, rather than order, certain precautions to be taken by physicians and the public.

Must Vaccinate Every Pupil.—State Health Commissioner Samuel G. Dixon has sent letters to all secretaries of Boards of Health, calling attention to the fact that every school child in the State, every student at college, and all parochial and Sunday-school scholars must be vaccinated and hold a certificate from a physician that he or she has either been vaccinated successfully or has had the smallpox. A letter of like import has also been sent to all secretaries of school boards, principals or teachers of schools and presidents of colleges in the State, with a request that they see that the law is enforced, and calling attention to the penalties for its violation.

SOUTHERN STATES.

Virginia Quarantines.—Acting under instructions from the Surgeon-General of the Public Health Service, persons from infected territory will not be allowed to stop in Richmond, Norfolk, Portsmouth, Newport News, Va., or any other point within infectible territory until they have been absent from infected territory for six days.

Tire of Yellow Fever Fight.—The fact that the general mass of the people is not working with the same zeal that marked the earlier stages of the fight is given as one of the reasons why yellow fever is not declining as steadily as two weeks ago. Lack of faith on the part of some authorities in the mosquito as the only transmitter of yellow fever is one cause of the disturbance which has resulted in Dr. Tichenor's withdrawal from Tallulah, whither he had been sent by the State Board of Health. Dr. Tichenor proceeded to apply the mosquito theory rigidly, but found that some of those in authority did not altogether believe in it, with the result that friction resulted, and he asked to be relieved. The situation at Tallulah and Lake Providence is now causing the State Board of Health more concern than anywhere else in Louisiana. Tallulah has less than 1,000 inhabitants, but the fever is generally distributed over it in virulent form, and there is not sufficient scientific help to handle all who are ill. Medical Inspector Brady has reported to President Souchon of the State Board of Health that one of the reasons why yellow fever spreads so persistently in the country districts is the apparent inability or unwillingness of some physicians to diagnose mild yellow fever. These physicians apparently look for black vomit and marked jaundice, and when these do not appear, they do not think a yellow fever diagnosis can be made. Dr. Brady asked President Souchon to address a circular letter to the physicians throughout the State asking them to recognize mild cases of the disease. City Health Officer Kohnke has written a letter to the managements of the various educational institutions, telling them under what conditions their schools may be opened later. He has advised against the coming to New Orleans of pupils who live in uninfected localities. Every school-room in the city will be disinfected once a week.

WESTERN STATES.

Tropic Medicine School.—Sir Patrick Manson, in a speech before the board of directors of the Merchants' Association of San Francisco, outlined his theory that yellow fever may yet become a source of worriment there in the changed trade conditions which will follow the completion of the Panama canal, urging the futility of what now passes as quarantine either in yellow fever or the bubonic plague. Owing to the advantages that San Francisco possesses over London for the study of tropic diseases, an advantage due to the fact that it has a colony of 10,000 Chinese, as well as many Japanese, Filipinos, and Hawaiians, he suggested that a school should be established there for the study of tropic medicine.

Chicago Deathrate Lower.—The deathrate in Chicago shows a slight decrease, according to the weekly bulletin issued by the health department. An increase in mortality among children is noted. The bulletin says in part: "While there have been 417 more deaths reported during the first eight months of 1905 than during the similar period of last year, the rate in proportion to population is slightly lower—the respective rates per thousand being 14.04 this year and 14.09 last year. The increase has been in the age period, under 5—1,294 excess, but 1,043 fewer in the ages over 20. Statement of mortality for the first eight months of 1905, compared with the corresponding period of 1904: Deathrates computed on United States census bureau's midyear populations—1,990,750 for 1905, and of 1,932,315 for 1904."

Indiana Medical College.—September 1, 1905, by the unanimous action of their respective boards of trustees, assembled in Indianapolis, The Medical College of Indiana was made the Medical Department of Purdue University, with the title of "Indiana Medical College, The School of Medicine of Purdue University." The Medical College of Indiana was founded in October, 1869, and has given continuous instruction in Indianapolis for the 35 succeeding years. It has graduated over 1,600 students, has some three-score teachers, and unexcelled clinical facilities. For the first time in the history of medical education in Indiana, its pioneer medical school has formed a university union, which makes it an integral part of the State system of education in the same way and manner that the Medical Department of the University of Michigan is related to the State system. For the present year, the functions of the medical college will be carried on exactly as indicated in the annual catalog already issued and distributed. The college will remain permanently in Indianapolis.

FOREIGN NEWS AND NOTES

GENERAL.

New Move against Cholera.—The German government hopes to conquer the cholera outbreak by instructions sent to all physicians in the infected districts that suspicious cases must be considered genuine until proved otherwise. Even railway conductors are being schooled to decide when a person is taken ill on the trains whether the patient should be placed alone in a compartment until the next large town is reached. Almost a sanitary state of siege now exists from the river Oder northwestward to the Russian border, about 250 miles, and from Danzig to Grodziske, south of Posen, about 150 miles. One thousand emigrants were put on board the Hamburg-American Line steamer Graf Waldersee last week from the Bulgaria, where they had been quarantined for eight days and given a clean bill of health. About 600 of the emigrants are Russians and the others are from Germany and Austria, except about 75, who are American citizens. No more Russian emigrants will be booked for the United States until after the raising of the embargo against cholera. Up to September 11 there were reported 161 cases and 46 deaths, with seven less cases on September 10 than any other day. This furnishes continued cause for confidence at the Ministry of Health that the infection is under control, although a steady fight will be necessary to keep that control. The cost of the campaign is likely to be a considerable addition to the Prussian budget. In the province of West Prussia, where the cholera has been most serious, nearly $100,000 has so far been spent. The Russian government has sent out an official denial that the outbreak of cholera originated in Russia, declaring the raftsmen among whom the disease was first discovered, although they came from the Vistula, had been in Germany a fortnight before they became sick, whereas 10 days is the period of inception for cholera.

OBITUARIES.

John Milton Davies, aged 78, September 4, from exhaustion due to diseases of advanced age, at his home in Warren, Pa. He was graduated from the University of Pennsylvania in 1854. When the Civil war broke out he enlisted as a private in the Ninth New Jersey Volunteers, was advanced to sergeant and then commissioned an assistant surgeon, and later chief surgeon. In 1872-3 he was city physician of Erie, Pa. He was deeply interested in the Emergency Hospital at Warren and has served as president of the Medical Board and as visiting physician. He had practised medicine for 51 years.

Philander J. Payne, aged 65, of Keokuk, Iowa, August 25, at the home of his daughter in Nashville, Tenn. He was graduated from the College of Physicians and Surgeons, Keokuk, Iowa, in 1861. He served as assistant surgeon of the Tenth Missouri Volunteer Infantry in the Civil war, was charter member of the Tristate Medical Society, member of the Lee County and Iowa State Medical Societies, professor in the local medical college and one of the founders and directors of the German Hospital, Keokuk.

Smith Austin Skinner, aged 81, August 15, from heart disease, at his home in Hoosick Falls, N. Y. He was graduated from the University of Vermont, medical department, Burlington, in 1854. He served as assistant surgeon of the Seventh Vermont Volunteer Infantry; was a charter member of the New York State Medical Association; member of the Rensselaer County Medical Society, for several years president of the Union Medical Society, and for eight years health officer of his home city.

Erwin W. Woodford, aged 63, of Cleveland, Ohio, August 15, from typhoid fever, at the Lutheran Hospital, Cleveland. He was graduated from the College of Physicians and Surgeons of Chicago in 1900. He was a member of the American Medical Association and a well-known physician of the West Side, Cleveland.

Thomas Menees, Sr., aged 83, September 7, at his home in Nashville, Tenn. He was graduated from the Transylvania University, medical department, Lexington, Ky., in 1846. He was widely known throughout the South, having been professor in several southern colleges.

Adolph Schlosstein, aged 64, August 27, from cerebral hemorrhage, at his home in St. Louis, Mo. He was graduated from the University of Würzburg, Germany, in 1865. He served as surgeon in the German army in 1866, and was a member of the American Medical Association.

Charles F. W. Doehring, aged 59, September 5, at his home in Philadelphia. He was employed by the United States Department of Labor in chemic investigations, and was noted as an inventor, author, physician and teacher.

Ernest Fruh, aged 55, September 7, suddenly, from heart disease, on a street car in Philadelphia. He was graduated from Jefferson Medical College in 1876, and was formerly chief resident physician of the German Hospital.

George Arthur Torgler, aged 26, of Portland, Oregon, August 16, from heart disease at the Open-Air Sanitarium, Portland. He was graduated from the University of the State of Oregon, medical department, Portland, in 1904.

J. Franklin Ford, aged 50, August 28, from diabetes, at his home in Omro, Wis. He was graduated from the Rush Medical College, Chicago, in 1887. At one time he was president of the Fox River Valley Medical Society.

William M. Late, aged 72, of Bridgeport, W. Va., September 6, at the home of his brother-in-law, in Bordentown, N. J. He was graduated from the University of Pennsylvania, department of medicine, in 1855.

George C. Porter, aged 52, August 25, at his home in Hollister, Cal. He was graduated from the Jefferson Medical College in 1890. He was a member of the American Medical Association.

S. T. Dickinson, aged 76, September 5, at his home near Milford, Va. He was graduated from the Jefferson Medical College in 1849. He was the oldest physician of Caroline county.

W. H. H. Cain, aged 68, of Chicago, Ill., August, 28, at the Soldier's Hospital, Danville. During the Civil war he served in the Sixth Indiana Cavalry.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the three weeks ended September 8, 1905:

			Cases	Deaths
SMALLPOX—UNITED STATES.				
Louisiana:	New Orleans	Aug. 19-26	1	
Michigan:	Grand Rapids	Aug. 19-26	2	
Ohio:	Toledo	Aug. 12-19	1	
Tennessee:	Memphis	Aug. 19-26	2	
Wisconsin:	Appleton	Aug. 19-26	2	
SMALLPOX—INSULAR.				
Philippine Islands:	Manila	July 1-8	1	
SMALLPOX—FOREIGN.				
Brazil:	Bahia	July 29-Aug. 5		1
	Rio de Janeiro	July 23-Aug. 6	18	5
Chile:	Valparaiso	To Aug. 9	3553	886
China:	Niuchwang	July 22	1	
France:	Lyon	Aug. 5-12		1
	Paris	Aug. 5-19	76	11
Great Britain:	Cardiff	Aug. 12-19	1	
	Liverpool	Aug. 12-19	1	
	London	July 29-Aug. 5	3	
India:	Bombay	July 25-Aug. 8		6
	Calcutta	July 22-29		3
	Madras	July 22-28		3
Italy:	Catania	Aug. 17-24		1
Russia:	Moscow	July 22-Aug. 12	13	6
	Odessa	Aug. 5-19	11	3
	St. Petersburg	July 29-Aug. 5	3	1
Spain:	Barcelona	Aug. 10-20		1
YELLOW FEVER—UNITED STATES				
Florida:	Pensacola	Aug. 29	3	
Georgia:	Atlanta	Sept. 2	1	
			Imported	
Indian Territory:	Mayville	Sept. 1	1	
			Doubtful	
Louisiana:	Acadia Parish	To Aug. 17	1	
	Ascension Parish	Aug. 14-Sept. 3	21	
	Ass'mption Parish	Aug. 26-Sept. 3	6	
	East Carroll Parish	Aug. 14-Sept. 4	36	1
	Iberville Parish	To Aug. 31	15	5
	Jefferson Parish	To Sept. 3	149	14
	Lafayette Parish	Aug. 15-Sept. 4	2	
	Lafourche Parish	To Sept. 3	331	31
	Madison Parish	Aug. 14-Sept. 4	9	
	Orleans Parish	July 21-Sept. 4	2075	292
	Plaquemines Parish	To Sept. 3	23	2
	Rapides Parish	Aug. 15-Sept. 3	7	
	St. Bernard Parish	To Sept. 3	17	1
	St. Charles Parish	To Sept. 3	73	6
	St. James Parish	To Sept. 3	4	
	St. John the Baptist Parish	To Sept. 3	55	7
	St. Mary Parish	To Sept. 3	342	9
	St. Tammany Parish	To Aug. 22	2	
	Terebonne Parish	To Sept. 3	66	3
Mississippi	Gulf Quarantine	July 22-Aug. 19	53	1
			On vessel	
	Hattiesburg	Aug. 28	1	
			Diagnosis proved not yellow fever	
	Lumberton	July 28	1	
	Mississippi City	Aug. 22-Sept. 4	31	
	Natchez	To Aug. 30	15	
	North Gulfport	Aug. 15-Sept. 4	32	
	Pearlington	Sept. 1	2	
	Vicksburg	Aug. 30	2	
New York:	N. Y. Quarantine	Aug. 1-12		1
			From S. S. Advance from Colon	

YELLOW FEVER—FOREIGN.

Brazil:	Rio de Janeiro	July 22-Aug. 5	16	6
Mexico:	Tezonapa	Aug. 20-26	3	
	Tierra Blanca	Aug. 13-26	1	2
	Vera Cruz	Aug. 13-26	5	
Nicaragua:	Leon	Aug. 8	Present	
	Managua	Aug. 8	Present	
Peru:	Lima	Aug. 12	1 Imported	
Panama:	Bocas del Toro	Aug. 11-18	1	
	Colon	July 31-Aug. 12	6	2
	Panama	July 31-Aug. 12	8	1

CHOLERA—INSULAR.

Philippine Islands:	Manila	Aug. 26	Present	

CHOLERA—FOREIGN.

Germany:	Hamburg	Aug. 29-Sept. 5	2	1 First case imported
India:	Bombay	July 25-Aug. 8		2
	Calcutta	July 22-29		26
	Madras	July 22-28		145

PLAGUE—INSULAR.

Hawaii:	Waipahu	Aug. 30		1
Philippine Islands:	Manila	July 1-8	3	2

PLAGUE—FOREIGN.

Argentina:	Santiago del Estero	July 20		Recrudescence
Australia:	Queensland—			
	Cairns	July 8	1	
	Ipswich	July 5	1	1
	New South Wales—			
	Sydney	July 1-8	1	
Brazil:	Rio de Janeiro	July 22-Aug. 5	4	2
China:	Mukden district	July 22	Reported	
Egypt:	General	July 8-15	11	10
India:	General	June 24-July 8	4338	3943
	Bombay	July 25-Aug. 8		102
	Calcutta	July 22-29		8
	Madras	July 22-28		1
Japan:	Chiba Ken	July 20		1
Panama:	La Boca	Aug. 26		1
Peru:	Lima	July 10-20	2	
Siam:	Bankok	July 1	Present	
Turkey:	Beirut	July 17	1 Imported	

Changes in the Medical Corps of the U. S. Army for the week ended September 9, 1905:

HEARD, First Lieutenant GEORGE P., assistant surgeon, will report at the Army General Hospital, Presidio of San Francisco, for duty.

ARENDT, MAX, sergeant first class, will stand relieved from duty at the Army General Hospital, Presidio of San Francisco, on September 5, and will then report to the commanding officer of the troops on board the army transport scheduled to leave on that date, reporting in Manila to the commanding general, Philippines Division, for assignment to duty.

O'BRIEN, PATRICK, sergeant first class, is relieved from duty at the depot of recruits and casuals, Angel Island, Cal., and will proceed to Fort Jay for duty.

MOSELEY, Lieutenant-Colonel EDWARD B., deputy surgeon-general, leave granted August 2 is extended one month.

GILCHRIST, First Lieutenant HARRY L., assistant surgeon, is granted leave for fifteen days, to take effect upon the return of Major William C. Borden, surgeon, from leave.

COOK, JAMES J., sergeant first class, now at Rahway, N. J., will report September 20 at Fort Du Pont, to relieve Sergeant First Class John Hodgins. Sergeant Hodgins will be sent to the depot of recruits and casuals, Fort McDowell, Cal., reporting to the commanding officer, who will send him to Manila, P. I., on the transport leaving San Francisco about October 5.

The following-named assistant surgeons are relieved from duty in the Philippines Division, to take effect on the dates set opposite their respective names, or as soon thereafter as practicable, and will then proceed on the first available transport to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders: Captains Charles E. B. Flagg, November 1; William F. Lewis, November 1; Thomas J. Kirkpatrick, December 1; Weston P. Chamberlain, February 1; First Lieutenants Charles Y. Brownlee, November 1; Will L. Pyles, November 1; Edward M. Talbott, November 1; John A. Clark, November 1; Jacob M. Coffin, November 1; James D. Fife, November 1; William A. Powell, November 1; Edwin D. Kilbourne, November 1; Jay W. Grissinger, November 1.

The following named assistant surgeons are relieved from duty at the stations designated after their respective names, to take effect at such times as will enable them to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5 for Manila, P. I., where they will report to the commanding general, Philippines Division, for assignment to duty: Captains Robert N. Winn, Fort McDowell; Percy M. Ashburn, Fort Missoula; George B. Peed, Army General Hospital, Fort Bayard; First Lieutenants Robert M. Thornburgh, Fort Warren; John L. Shepard, Army General Hospital, Presidio of San Francisco; George W. Jean, Fort Adams; Joseph F. Siler, Fort Meade; James W. Van Dusen, West Point, N. Y.; John J. Reilly, Fort Slocum; William M. Roberts, Fort Sill; Gideon McD. Van Poole, Fort Stevens.

So much of orders of April 12 as relieve from duty in the Philippines Division Major W. Fitzhugh Carter, surgeon, about November 30; Captain Christopher C. Collins, assistant surgeon, about October 26, and Captain Louis T. Hess, assistant surgeon, about November 29, are so amended as to relieve the officers named in time to enable them to proceed on the transports to sail from Manila about the dates specified: Major Carter, September 15; Captain Collins, October 15; Captain Hess, October 15.

KIEFFER, Major CHARLES F., surgeon, is granted leave for two months from about September 15.

LAUDERDALE, C. E., dental surgeon, leave granted August 3 is extended one month.

HALLIDAY, FRANCIS A., contract surgeon, is relieved from temporary duty at Fort Caswell and from further duty at Fort McPherson. He will proceed to Fort McPherson for the purpose of supervising the shipment of certain public property at that post, and upon the completion of this duty will proceed to Fort Fremont for duty.

MCCALL, JAMES H., contract surgeon, leave granted June 30 is extended twenty days.

MCCALL, JAMES H., contract surgeon, is relieved from further duty at Fort Moultrie, and will proceed to his home, Huntingdon, Tenn. Upon the expiration of his present leave he will report by letter to the surgeon-general of the army for annulment of contract.

MORRIS, Major EDWARD R., surgeon, upon his arrival at San Francisco, Cal., will proceed to Fort Slocum for duty.

BRANCH, FREDERICK D., contract surgeon, is granted leave for fourteen days upon surgeon's certificate.

Changes in the Medical Corps of the U. S. Navy for the week ended September 9, 1905:

GRUNWELL, A. G., surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Wolverine—September 2.

RICHARDS, T. W., surgeon, detached from the Arkansas and ordered to the Naval Recruiting Station, Baltimore, Md.—September 2.

WRIGHT, B. L., passed assistant surgeon, ordered to the Arkansas—September 2.

MCCLANAHAN, R. K., assistant surgeon, detached from the Naval Recruiting Station, Baltimore, Md., September 5 and ordered to Washington, D. C., September 6 for examination for promotion and then to wait orders—September 2.

LANDO, M. E., assistant surgeon, detached from the Naval Hospital, Mare Island, Cal., and ordered to the Naval Medical School, Washington, D. C.—September 2.

DEVALIN, H., acting assistant surgeon, detached from the Wolverine and ordered home to wait orders—September 2.

DELANCY, C. H., passed assistant surgeon, ordered to the Paducah—September 5.

BUTLER, C. ST. J., passed assistant surgeon, detached from the Castine when placed out of commission and ordered to the Naval Hospital, San Juan, P. R.—September 6.

PAGE, J. E., passed assistant surgeon, detached from the Lancaster and ordered home to wait orders—September 6.

BACHMANN, R. A. Y., assistant surgeon, ordered to the Lancaster—September 6.

BAKER, M. W., assistant surgeon, detached from the Naval Station, San Juan, P. R., and ordered home to wait orders—September 6.

Changes in the Public Health and Marine-Hospital Service for the week ended September 6, 1905:

VAUGHAN, G. T., assistant surgeon-general, detailed to represent Service at meeting of the Association of Military Surgeons at Detroit, Mich., September 25-29, 1905—September 2, 1905.

AUSTIN, H. W., surgeon, detailed to represent service at meeting of the Association of Military Surgeons at Detroit, Mich., September 25-29, 1905—September 2, 1905.

GASSAWAY, JAMES, surgeon, to proceed to Guthrie, Okla., for special temporary duty—September 4, 1905.

IRWIN, FAIRFAX, surgeon, to report at Bureau, Washington, D. C., for special temporary duty—September 1, 1905. To proceed to New York for special temporary duty, upon completion of which to rejoin station at Philadelphia, Pa.—September 2, 1905.

BANKS, C. E., surgeon, to proceed to Jacksonville, Fla., for special temporary duty—September 2, 1905.

WILLIAMS, L. L., surgeon, to inspect the quarantine station at the port of Baltimore, Md.—August 29, 1905.

WOODWARD, R. M., surgeon, detailed to represent Service at the meeting of the American Public Health Association at Boston, Mass., September 25-29, 1905—September 2, 1905.

STONER, J. B., surgeon, granted two days' leave of absence from August 27, 1905—September 6, 1905.

LAVINDER, passed assistant surgeon, relieved from duty at New Orleans and directed to proceed to Natchez for special temporary duty, relieving Passed Assistant Surgeon Goldberger—August 31, 1905.

GOLDBERGER, JOSEPH, passed assistant surgeon, to proceed to Memphis, Tenn., for special temporary duty—August 31, 1905. To proceed to Bainbridge, Ga., for special temporary duty—September 4, 1905.

TROTTER, F. E., passed assistant surgeon, to proceed to Victoria, B. C., for special temporary duty—August 29, 1905.

MCLAUGHLIN, A. J., passed assistant surgeon, relieved from duty in office of American Consul at Naples, Italy, and assigned in office of American Consulate at Hamburg, Germany—September 1, 1905.

FOSTER, A. D., assistant surgeon, to proceed from Naples, Italy, to Trieste for special temporary duty—September 4, 1905.

ASHFORD, F. A., surgeon, relieved from duty at Ellis Island and directed to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—September 4, 1905.

ROEHRIG, A. M., pharmacist, to represent the Service at meeting of the American Pharmaceutical Association at Atlantic City, N. J., September 4-9, 1905—August 31, 1905.

RICHARDSON, S. W., pharmacist, to proceed to New Orleans and report to Surgeon J. H. White for special temporary duty—August 26, 1905.

Appointment.

Marshall C. Guthrie of North Carolina, commissioned as assistant surgeon, Public Health and Marine-Hospital Service.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

Practice of Medicine.

FOURTH SESSION (CONTINUED).

Food Stagnation.—CHARLES G. STOCKTON (Buffalo) said food stagnation was one of the most important of gastric disturbances. Distress and sense of weight, sometimes pain, together with eructations of gas, regurgitation of the stomach contents, and often vomiting occurred. Constitutionally, evidences of autointoxication and starvation usually existed. There are two kinds of cases, those in which stagnation resulted from depression of the motor functions without the presence of any actual obstruction, and those in which there was actual obstruction to the overflow of stomach contents, regardless of the kinetic energy of the gastric walls. Diagnosis was not difficult, and the condition might be expected when patients complained of eructations of food taken a long time previously, but it could be demonstrated only by the use of the stomach-tube. The motor power might be assisted by skilful massage over the region of the stomach, by trunk rotation and flexion, and by the alternate hot and cold douche over the epigastrium, and by external and internal faradization. Benefit followed the use of the simple carminatives, bitter infusions, and temporarily the diffusible stimulants. Failure or success depends more upon general management of the patient, upon proper rest, exercise, recreation, diet, mental state, etc., than upon mere local treatment. It used to be considered that dilation always occurred in cases of food stagnation, but this is now known not to be true. Dilation occurs only in persons who are predisposed to the development of this condition. The most important cause is a weakness of the muscular layer. The condition is prone to develop in members of the same family, so that there seems to be an hereditary weakness of the muscular wall of the stomach. It occurs particularly in those who overload their stomachs, who take large amounts of fluid with their meals, who eat very hurriedly, masticating poorly, and as a consequence, allowing large portions of food to reach the stomach which cannot be easily disposed of, and block the issue of food from the stomach. The eating of coarse food may produce a similar result. In motor insufficiency depending upon spasm of the pylorus from overirritability of tissue, whether from hyperchlorhydria, hyperesthesia, or simple erosion of the pyloric mucosa, surgery should not be considered. The proper treatment consists in lowering the acidity of the gastric secretions, soothing the gastric mucosa, and the selection of an unstimulating, liquid, or very soft diet, which was free from all irritating particles. Lavage, followed by soothing lavements of the mucous membrane is of great assistance. A stomach on which gastroenterostomy had been performed was by no manner of means as good as a normal stomach. But if an ulcer continued to give trouble, if pain and spasm frequently occurred, pyloroplasty is the best operation if the ulcer could be safely excised, otherwise gastroenterostomy. In benign hypertrophy of the pylorus, without ulcer, he advised operation, preferably pyloroplasty.

Tuberculosis on the North Pacific Coast.—WOODS HUTCHINSON (Portland, Ore.) said that a type of tuberculosis was seen in Oregon, Idaho, Washington, and Montana, presenting the following characteristics: 1. Remarkably rapid course (3 to 9 months). Weak and rapid pulse (105 to 145); sometimes not detectable at the wrist; wide range of daily temperature, more subnormal depression than elevation (morning not infrequently 95°, afternoon 101° to 103°). 3. Rapid infiltration and board-like consolidation, beginning in both apices and extending toward base, with almost total absence of cavitation; if cavities are present, they are small and scattered. 4. Marked infrequency of pulmonary hemorrhage. 5. Slightness or absence of cough or other symptom of pulmonary irritation; absence of hemorrhage. The bacilli resemble those of bovine tuberculosis. This type of tuberculosis was most frequent in the native born. He asked if this was a hitherto undescribed type, and was it due to climate, or to some special development of unusual virulence in the bacillus, or was the lung or heart chiefly at fault in tuberculosis, or was oxidation deficient or excessive in the tuberculous? He then gave the rationale of open-air treatment.

The General Practitioner and Hemoglobin Instruments.—M. HOWARD FUSSELL (Philadelphia) discussed the value of various hemoglobin instruments to the general practitioner. Fifty patients were taken unselected and studied by means of the Dare, the Fleischl and the Tallqvist scales. Each examination was made with at least two individuals, and frequently by three or four individuals. This was done so that the different instruments might be used upon the same case to discover any instrumental difference, and discern any individual difference, in the use of the different instruments. As a result of this study it was found that the variation of the amount of hemoglobin present was very slight. The personal error amounts to at least as much as the instrumental error, but neither of them are sufficient to vitiate the conclusions that may be drawn from them. It is a comparatively easy matter to learn to use any of these instruments, and Fussell pointed out how significant is the knowledge that may be obtained from them. In all cases of anemia the recognition of the amount of hemoglobin present gives very definite information and indications for the employment or nonemployment of iron therapy. This of itself would be sufficient to bring the instruments into much more general use than at present. The conclusions were as follows: (1) Any one of the instruments studied by them was sufficiently accurate for practical purposes; (2) no practitioner should neglect to use one of these instruments, and the Tallqvist scale was cheap and reliable; (3) the Tallqvist scale could be used for routine observation, and either of the other instruments for detailed or more accurate work; (4) the Dare instrument was just as accurate as the Fleischl, and took much less time to manipulate.

[To be continued.]

Obstetrics and Diseases of Women.

FOURTH SESSION.

Some Complications of Pregnancy Treated Surgically.—FRANCES D. DONOGHUE (Boston) considered appendicitis, ovarian tumors, uterine tumors, and enlarged tubes; emphasized the value of recognizing early deviations from the normal in these cases; considers surgery more important in the pregnant than the nonpregnant; high temperature is invariably fatal to the embryo in utero; abortion or premature labor frequently due to endometritis of hematogenous origin. Appendicitis is a frequent complication of pregnancy, and constipation, deviation of the organs, and congestion of the female organs predispose to this condition. In diagnosis, the usual signs are often obscure. Accelerated pulse and excessive temperature are exceptional. Leukocytosis is important, and local pain is of value in the later stages of pregnancy, especially when taken in connection with other signs. If there is cessation of pain without amelioration of the other signs, operation is indicated. Abortion, either from the conditions before or after operation, is important. The temperature and pulse with distention may be normal. Dulness in the flanks, gradually increasing, and the facial expression, are of importance. Pain in the right iliac fossa, which increases as labor progresses, should be looked upon as suspicious. The differential diagnosis between ovarian, tubal, or extrauterine pregnancy, is often difficult. Danger of torsion of an ovarian cyst cannot be ignored. Late torsion is the most common accident. Symptoms of torsion are, presence of a tumor and sharp stabbing pain. Ovarian tumors during pregnancy induce abortion in 17% of cases when not operated upon. When we have retarded menstruation, sharp, colicky pain, and presence of tumor in the region of the uterus, we should be suspicious of extrauterine pregnancy. Fibroids, when pedunculated, closely simulate accidents. They are difficult of exact diagnosis, except by operation. Fibroids are often found complicating pregnancy, and the danger from them depends upon their position. Unless the symptoms occur in the later stages of pregnancy, they should make us suspicious. Pedicle of the subserous variety may undergo torsion, and cause peritonitis to develop. Fibroids present in the uterus after 40, may give rise to mistakes in diagnosis. Induction of labor early in pregnancy, on moral grounds, is not just. When there is a history of wellmarked attacks of appendicitis, and when there is a gradual increase of discomfort in the right iliac region, operate. The treatment of uterine tumors in patients at or near term, calls for an operation to relieve the conditions, in order to prevent the birth of a living child.

Discussion.—MONTGOMERY (Philadelphia) was fully in accord with the general conclusions. Considered the existence of appendicitis in pregnant women a source of serious danger. The presence of chronic tubes, etc., an indication for early operation as the dangers from an early operation are far less serious than danger developing during the later stages of pregnancy. He spoke of one patient operated on during the seventh month who miscarried, but later bore two children. In myomas it is better to wait for nature's forces to see if they will not lift the tumor out of the way at the time of delivery. Many of these tumors are the source of trouble at the time of parturition, imperiling the life of the patient. In cases of fibroid tumor of large size it is better to open the abdomen and enucleate the growth. In ovarian tumors complicating pregnancy, especially when they are situated low in the pelvis, they are certain to cause trouble unless they are punctured through the vagina; but in these cases we are not aware of the nature of their contents; hence we may complicate the puerperium and have a peritonitis develop. If the tumor does not rupture, the pressure due to labor may cause a resulting necrosis, requiring operative interference to save the patient. BACON (Chicago) said that in all cases complicated by ovarian tumors, the tumors should be removed as early as they are diagnosed, except possibly we might watch very small tumors when diagnosed and act according to their development. There is great danger of their interfering with the puerperium. When discovered during labor it is hardly advisable to operate at once, even in cases of large tumors that fill the pelvis with much obstruction, as they may be displaced by change of position; but they

should be watched with care. Operate during the puerperium when symptoms indicate such a procedure, rather than operate in all cases. Experience with fibroids is against operation even in the early months. Complications are not as common as one would expect, unless the tumor is situated in the lower segment of the pelvis. CARSTENS (Detroit). Many patients have died as a result of the tumor or shortly afterward, and hence they should be removed, depending upon circumstances in each particular case. Where there is an ovarian tumor which is adherent in the culdesac, it must be removed early. If there is a fibroid in the broad ligament, growing rapidly, remove it; if in the situation of the anterior os, we can often enucleate it. There is no question as to the desirability of operation in cases of appendicitis and strangulated hernias. The patient stands the operation better during pregnancy than at any other time. In cases of submucous fibroids we may get too deep and produce an apoplexy of the placenta, with a later fatty degeneration and abortion resulting. In cases of subperitoneal, or fibroids high up, don't interfere. Only in rare cases are they absorbed, but it is better to operate in most all cases. DORSETT (St. Louis) emphasized Carstens' point, and said that in cases of incarcerated uterine fibroids behind the promontory of the sacrum, the tumors dip down into the mucosa, therefore we could lift the tumor out of the pelvis and no removal would be necessary, hence we should be conservative, especially when fibroids complicate pregnancy. Ovarian cysts may be mistaken for appendicitis. DONOGHUE stated that the end-results, following delivery for sloughing fibroids and twisted pedicle, are 100% mortality. He never punctured an ovarian cyst, and thought it better practice to remove them and not produce disseminating papilloma by puncture.

Discussion of Somers' Paper.—CARSTENS said that muscles never support anything, but the pelvic fascia which holds these muscles together tires out. A tear is seldom in the center and may be ragged, therefore all this talk about physiology, anatomy, and surgical technic is useless. There is no "only" correct way of applying a suture; it depends upon the circumstances. One must be an artist to restore a perineum. Muscles do not always come together unless we operate shortly after the tear takes place, but not after they have retracted. If you bring the edges together they may not unite or approximate accurately. Somers removes an abundance of normal elastic mucous membrane and submucous tissue, hence in a subsequent confinement we have not enough tissue left. If various muscles are retracted, Tait's operation is satisfactory, except it is too much like "butchery." We should attend to the approximation of fascia as well as muscles. MARCY (Boston) said that in the normal state the muscle has its multiple use, but only one in parturition. He recognized the importance of the fascia, therefore agrees with Carstens. In operating he saves a great flap, which Tait removed, to prevent infection. He next described his operation; said that the object of dissection was to get at the fixation points; preferred to bury every stitch. WAKEFIELD (San Francisco) agreed with Somers' views and Carstens' views, but thought Carstens had misunderstood Somers, the only difference being that Somers removes a little more tissue than Carstens. He stated that Somers drew particular attention to the value of fascia. FERGUSON (New York) said that fascial tissue, if subjected to continuous pressure, will stretch, hence the operation depends upon the muscles as well as the fascias, so that one can take the place of the other in supporting the perineum. CLARK said there was an absence of pain in 90% of the 50 cases he had operated on by Somers' method, and it was a simple matter to remove the sutures. Operation was better in fresh tears. Better institute drainage if there is infection. BACON (Chicago) said that the levator ani muscle was not the only element of importance, but that another essential part was the urogenital trigome structure, and this is not repaired properly by Somers' method; also, it will not bring the levator ani and its fascia together properly. He agreed with Carstens in his technic, but believed him wrong in saying that the essential thing is the fascia; he thinks both muscle and fascia important. ANDREWS (Chicago) thought the most important point was missed—that the perineum is no good unless it is in the proper place. There are practically no tissues in the pelvis. The tear does not happen all at once, but there is repeated stretching and multiple tears and separation of structures. Now, if you pick up the ends of the levator ani muscle, you no longer have the normal "shallow bowl" of the pelvic floor, but a "funnel-shaped" condition; therefore, you must so make your denudation and pass your sutures as to bring the structures forward. He thinks the proposition depends upon the way of passing your stitches, and prefers Tait's operation. KIEFFER (St. Louis) thought the reason for differences was due to lack of a definite idea of the relation of the parts. Normally there is very little interchange between the levator ani fibers until you get back to the rectum, otherwise we could not have the delivery of the child. We should try to replace the parts just as they were before the tear took place, hence there is no definite course to pursue. Unless you use a very small suture and pick up a small amount of tissue, you should go well out away from your suture, so that there is no danger of carrying in much tissue. SOMERS, in closing, said we were still evidently at sea as to the real necessary thing to be done in these cases. The anatomic functions and the dynamics of the perineum are not thoroughly understood. He does not maintain that one operation is better than another, but that we must lay down a certain definite principle basis, *i. e.*, an anatomic and pathologic basis before beginning repair. We can get a good-looking perineum by at least 40 different operations, the point being whether this condition lasts. With Emmett's, Hegar's, and perhaps Tait's operation after six months they have resolved the parts into the same condition as when found previously, as we have not utilized the anatomic structures, but the pathologic structures. It is essential in using his operation to consider that the sphincter action of the levator ani is the most important function of the perineum. No muscle is of any value apart from its fascia. Demonstration with lantern slides was as to the ultimate results when the tear was in one of the sulci and not in the median line. But the ultimate results in the median line are the same as a tear in the median line, as demonstrated by the occurrence of a rectocele. The suture described is not necessarily placed at right angles as shown in the illustrations. Tait and Hegar do not allow for a direct union of the ends of the levator ani. The suture proposed allows for swelling and the tissues accommodate themselves to the tissues. GALLANT (New York City) was next given time to demonstrate his uterine drain. He had modified an outbridge wire drain by placing silver sheaths on the back; recommended them for sterility and dysmenorrhea from obstruction. After miscarriage it could be removed and washed, and replaced monthly for six months. No bad effects. Brings about a rapid drop in temperature.

[To be continued.]

Diseases of Children.

FOURTH SESSION (CONTINUED).

The After-effects of Diphtheria on the Heart—A Preliminary Report.—FRANKLIN W. WHITE (Boston) stated that it is well known that in diphtheria the heart muscle and the nerves which control it are the seat of certain changes which more or less seriously disturb its function. The clinical signs of circulatory disturbances at the height of the disease and during convalescence have been carefully observed by many authors, but less is known of the after-effects of diphtheria poison on the heart. This paper is based on clinical study of 78 cases of diphtheria with heart complications after their discharge from the Boston City Hospital. The cases have been under observation from four months to two years to determine the frequency, importance and duration of subacute and chronic disease of the heart muscle following diphtheria. (The most of this paper consisted of statistics which were very valuable and interesting in themselves but hardly capable of being condensed into a brief report.) The general results are as follows: 1. Cardiac disturbance after diphtheria usually presents a picture of mitral insufficiency with irregular heart action and few symptoms. Occasional cases have a rapid pulse and cardiac irregularity without other signs. 2. Moderate disturbance of the heart is very common after diphtheria and in a large number of cases persists two to six months after the original illness. 3. In many cases the cardiac lesion does not clear up in the first half year, but lasts much longer. Some have ultimately recovered, others probably will not. The duration of the heart trouble is usually in proportion to the severity of the original illness. 4. The fact that children often have few heart symptoms after diphtheria must not mislead us as to the importance of injury to the heart. 5. Cardiac disturbance of long duration following diphtheria may be entirely recovered from. It may not be necessary to give up hope of recovery in any individual case. 6. The treatment consists in sufficient rest in bed and then watching the effects of exercise carefully given for several months.

Discussion.—G. R. CAMPBELL (Augusta, Me.) wished to emphasize the importance of rest. Too many doctors consider all cases well as soon as they are able to sit up. They should watch the heart muscle carefully. MCCLANAHAN (Omaha) said that since the introduction of the use of antitoxin for diphtheria, the number of recoveries with heart lesions seems to have increased. The question is often asked, if the antitoxin is not dangerous? He thought that a close quarantine was beneficial in undoing the injury to the heart. The child is not to be considered well when the membrane has disappeared from the throat. BUTLER (Chicago) said McClanahan had given a valuable hint with relation to the administration of diphtheric antitoxin. There is more danger when the antitoxin is administered late. If given within the first 24 hours there is usually no heart disturbance, but if administered later, fatal complications may result. A systolic murmur may be taken to indicate mitral insufficiency. Vagus inflammation and myocarditis usually appear only at the postmortem. A murmur may result from vagus neuritis. FAIRBANKS (Boston) said no doubt the cases recorded with heart disturbances from diphtheria have seemingly increased, but the chief reason is that with the administration of the antitoxin so many cases of severe character are now living. Before the time of antitoxin they would have died. Allowing the patient to get up too soon is very rash. It is sometimes the fault of the family physician who considers the clearing of the throat a sign that the case is well. The quarantine law which keeps them in several days is a blessing to children. In many cases in his

own practice, ten months after discharge from the hospital, he had detected enlargement and signs of mitral insufficiency. He prescribed at once sufficient rest with strophanthus and digitalis for a week, then exercise carefully and watch closely. The occurrence of mitral souffle after recovery as a sign of insufficiency is only relative and not absolute. We have not yet realized the value of the shock method of treatment. In many such cases the results have been marvelous. WAHRER said the first question that came to mind when seeing a heart lesion in a child is, What was the former disease? He suggested that at a future meeting of the section a paper should be presented on "Heart Affections Which Arise De Novo." He told of a case in his own service where a child had seemingly fully recovered, but had died upon a slight exertion. The prevention of chronicity is a hard question. GARRISON (Dixon, Ill.), emphasized careful dietary. BUTLER said he did not believe we could accept a systolic murmur as absolute evidence of cardiac disease. A mild carditis may cause the murmur. Watch for dilation. WHITE said he thought functional heart murmurs are rare in childhood.

[*To be continued.*]

Ophthalmology.

SECOND SESSION (CONTINUED).

The Ocular Symptoms of Affections of the Accessory Sinuses of the Nose.—W. C. POSEY (Philadelphia) said the general symptomatology was now well recognized and attention was called to the less striking manifestations and an endeavor made to perfect the ocular symptomatology. There was difficulty in diagnosing sinus affections by rhinologic examination alone. The ophthalmologist might render aid by early appreciating certain ocular conditions, such as edematous infiltration of the optic nerve, shown by lowering of visual acuity or by defects in field of vision, and ophthalmologically by dilation of retinal veins and choking of lymphatics around the central vessels. The significance of diminution in light sense was referred to and the orbital symptoms spoken of. The possibility of diagnosing the particular sinus affected was increased by noting the character of displacement of globe and position at which abscess points. There was a tendency for abscess of the frontal sinus to empty directly into the lacrimal sac. Palsy of the extraocular muscles usually attributed to rheumatism was not infrequently the result of sinusitis. Pseudomigraine, ophthalmoplegic, conjunctival, corneal and uveal symptoms, changes in refraction, asthenopia, headache and neuralgia, might all be due to affections of the accessory sinuses of the nose.

Discussion.—C. R. HOLMES (Cincinnati) said that you might separate the eye and the ear completely, in their study, but you cannot separate the accessory cavities of the nose from the eye, and he held that every oculist should be familiar with the diseases of the nose and accessory cavities. He had, as far back as 1896, published an article on "The Sphenoidal Cavity in its Relation to the Eyes." He found in these chronic cases a daily rise of temperature varying from 1° to 2°, though, to all appearances, the people might be well. In ethmoiditis, the disease often pointed to the outer canthus. In sphenoidal cases, the pain was generally referable to the temple. W. H. SNYDER (Toledo) called attention to the fact that simply probing through the nasal cavity might not always bring pus, even where the sinus was affected; there might be no opening. F. H. HILSCHER (Spokane) believed there were a great many ophthalmologists who had neglected this subject; he had had many cases of this kind that had been in the hands of competent oculists, and had had cases where pus was not discovered, but where there were pressure symptoms caused by the turbinates and septum. S. D. RISLEY (Philadelphia) had been surprised, after his attention had been called to the important relationship of certain obscure affections of the eye and diseases of the sinuses contiguous to the orbit, at how frequently they occurred, when it was considered that these sinuses drain into the nasal cavities and the frequency with which they become blocked, it was not so surprising. He had found choroidal disease frequent in these cases. He had recently had a case of exophthalmos of obscure origin, where it was only after probing the frontal sinus on that side that the cause was discovered. Study of these obscure cases was never complete until the sinuses had been investigated. LEARTUS CONNOR (Detroit) had observed these conditions for many years in a somewhat empiric manner, not only in the chronic organic lesions, but in conditions which had not reached that stage. It had been his habit for many years to investigate the sinuses in these obscure eye affections. EDW. JACKSON (Denver) referred to the difficulty of recognizing sinus disease, and had frequently referred such patients to expert rhinologists, and had them sent back with the report that there was nothing the matter. He had come to have more confidence in certain clinical associations of symptoms than in the ordinary rhinologic examinations. J. A. DONOVAN (Butte, Mont.) referred to the lack of accommodative power and defective vision in adenoid children, and thought the symptoms often due to pressure in ordinary congestive rhinitis. J. A. BRADFIELD (La Crosse, Wis.) reported a case seen four months ago, a lady of 32, referred to him for supposed glaucoma, in which the trouble proved to be large cystic middle turbinate. POSEY, in closing, said that it was not necessary to have pus to occasion these symptoms, but that simple congestion of the sinuses might occasion them.

[*To be continued.*]

Nervous and Mental Diseases.

THIRD SESSION (CONTINUED).

The General Conditions Associated with Insanity; Their Correlation and Certain Deductions.—H. A. TOMLINSON (St. Peter, Minn.) based his paper upon a statistical study of 2,366 cases admitted to the St. Peter's Hospital within the past nine years. He considered in detail the development of the human mentality from its embryologic state to its full capacity, remarking particularly upon the fact that the higher elements were the last developed, and if there was an arrest of development or defective development from any cause it was these higher centers that suffered, and also that when the mental system was attached by destructive or degenerative changes, it was these same higher centers, which were the last constructed that were the first to be degenerated or destroyed, and the destruction progressed in reverse order to the development. Appended to the paper were tables showing the results of analysis of the various secretions of the body, as well as examination of the blood and urine and other excretions. He also reported some cases in which the brains of the patients had been observed during life by means of trephined openings, and contrasted the conditions there found with those observed at the autopsy table. He did not favor the classification of Kraepelin and believed that the therapeutic measures should be directed to the physical factors producing the irritating cause.

Discussion.—G. R. CLARK (Dearborn, Mich.) believed that the classification of Kraepelin was one that was justified upon a psychologic basis. He felt that in many instances the nervous instability dated not from birth but from conception, and suggested that possibly, if we were able to obtain a fuller knowledge of the function and pathology of the various glands of the body, some of the problems would be cleared up. H. G. BRAINARD (Los Angeles, Cal.) felt that the basis of insanity was principally two general conditions, (1) nervous instability and (2) stress, and that the question of defective metabolism played a prominent part in the production of the manifestations. J. H. MCBRIDE (Pasadena) referred to the classifications of insanity by Kraepelin and Dercum, and viewed that of the latter as one of the best we have. TOMLINSON, in closing, stated that his objection to the classification of Kraepelin was that he used metaphysic terms to describe physical conditions.

Hygiene and Sanitary Science.

The Principles of Life.—MARSHALL LANGTON PRICE said the problem of hygiene in its ultimate form is the preservation, conservation and strengthening of those metabolic functions of the cell, whose sum total we recognize as the phenomenon of life; hence the necessity for hygienists to return to the study of the phenomena of cellular physiology. He demonstrates on theoretic grounds the existence of a vital principle, though of a different kind than that assumed by our ancestors. The author's view of cell life is a material, or chemic one. Certain of the cellular principals are permanent, and are constantly renewed, but the author concludes, more especially from the phenomena of old age, that another specific chemic body exists in the cell, limited in amount and not renewed after its formation in early fetal life. All the phenomena of senile decay can be explained by assuming the existence of a chemic body consisting of a central radicle and side chains. These side molecules are split off under the action of the appropriate physiologic stimuli. This body, Price has called bioplasmin. It is decomposed by splitting off successive N molecules, and becomes progressively more stable and difficult of reduction as the number of N molecules diminishes. An advanced stage of reduction, with consequent great stability, constitutes old age. Before arriving at the conclusion stated, the author advances three alternative theories, one of which must account for senility. These are, in brief: 1. That the degeneration of the cell is due to repeated inflammatory and toxic processes, by reason of which the specifically differentiated cells are destroyed and replaced by connective-tissue cells. 2. That the failure of the cell is a nutritive one. 3. That the failure of the cell is due to the loss of bacteriolytic and antitoxic functions. The first, or "inflammatory" theory of age, is the one adopted by Metchnikoff. He believes, as is well known, that age is a sort of autointoxication originating in the large intestine, due mainly to saprophytes. Metchnikoff's theory is rejected by the author, more because of its failure to consistently explain the phenomena of senility than direct opposition to the facts. These arguments against the inflammatory theory may be cited: 1. Since Metchnikoff's toxin affects all body cells, the germ and ovum must transmit a considerable proportion of toxin to their descendant cells; the latter cells would constantly receive additional toxin from the mother's blood; hence, in a few generations enough toxin would have accumulated to destroy the race. 2. Senile changes in various tissues and organs are independent of local inflammations and occur in tissues (such as the skin) never subjected to inflammations. 3. The power of reproduction and regeneration is always inversely proportional to the age of the organism and is not dependent

upon inflammations or toxemias, local or general. Price believes that the cellular deficiency known as senility is both in bactericidal and metabolic functions. In accord with Metchnikoff's view, he believes the primary failure in either case to be nutritive. The nutrescin (or N body) is essential both in metabolism and bacteriolysis. Price notes several signs of senility in a cell. They may be manifested as: (1) Loss of power of reproduction; (2) loss of bactericidal power; (3) inability to resist destruction or displacement by the more vigorous, less differentiated cells. The formation of bioplasmin involved a series of anabolic changes, but the primary step is the conjugation of the ovum and spermatozoon. These sexual elements furnish substances known as spermatoplasmon and ooplasmon, respectively The final body is absorbed as a zymogen (bioplasminogen). The power to absorb bioplasminogen is a function of the growing cell only. The native endowment of the organism is received during conception, and is never renewed the remainder of life. Practically the activities of the organism terminate while there is still a relatively large number of N molecules attached to the B radicle. The author shows in what degree this theory is in accord with observed pathologic and physiologic phenomena, and is led to hope that it may prove a useful conception in these sciences in the same way that the atomic theory has proved of value in the physical sciences. The isolation of bioplasmin from the body cells the author would consider a step in the direction of practical immortality for the human race. The problem would be to renew the supply of bioplasmin as it became exhausted. The many difficulties are clearly indicated. The primary difficulty would lie in the isolation of the principle, on account of its minute quantity and instability. The second difficulty lies in the presumption that bioplasminogen is only absorbed by embryonic or young cells. The first step toward the prolongation of life would be the use of stimulants that would cause the bioplasmin body to give up an additional number of N molecules, when the physiologic stimuli have become insufficient. The author advises that the investigation of this problem begin with the comparative analysis of the juvenile and senile cells. It is not too much to expect that our descendants may exceed the years of Methusaleh, which were 969—and he died.

[*To be continued.*]

Stomatology.

SECOND SESSION (CONTINUED).

Surgical Bacteriology of the Mouth.—A. H. LEVINGS (Milwaukee, Wis.) said the bacteriology of the mouth should play an important role. Here we find local manifestations of many diseases; influenza, smallpox, syphilis, scarlatina, measles, scurvy, etc., in some of which the specific organism may be found in the oral cavity. The frequency and variety of germs found is of interest. A great variety of germs gains entrance to this cavity, and the natural warmth and moisture, as well as the organic matter frequently present, make it a favorite seat for growth of bacteria. For the purposes of investigation, the subject is divided into: (1) Clean; (2) ordinary; (3) filthy; (4) tobacco chewers'; (5) mouths with distinct pathologic processes. The first group is from clean mouths, with well-preserved teeth. This is washed with normal salt solution and used for seed. In all cases the hanging drop showed thousands of bacteria; micrococci found in all. Most frequently find staphylococci, which was present in every case. In 15 out of 20 a micrococci test was made, while in six cases sarcinas were discovered. All shapes and sizes of bacilli were discovered. These produced colonies too numerous to mention. After being stabbed off on agar-agar, gelatin, milk, etc., thousands were discovered. In the nonpathogenic variety a large number were acid producers, many gas producers, and many species of putrefactive bacteria. Also a large number which could not be identified. In the second group the majority of microorganisms were putrefactive, and as they grow with greater activity, they kill the other germs. In the filthy mouths there is some pathologic process, such as scabies, suppurative wounds, and ulcers, millions of bacteria, and a much larger percent were virulent. The pneumococcus is present in 10 to 30 cases. Tobacco chewers' mouths are more filthy than ordinary filthy mouths. Tobacco has no influence upon the growth of bacteria. From the mouth in ordinary conversation 235 colonies are expectorated; for a minute, at a distance of five feet, during forced expectoration, 105 colonies; half a minute, at a distance of five feet, forcible expiration, 192 colonies. At a distance of 15 feet, after five forcible expirations, showed 15 colonies; at a distance of 10 feet, five forcible expirations showed 10 colonies; plates exposed a distance of five feet, coughed at five times forcibly, with one thickness of gauze, 35 colonies; three thicknesses, 8 colonies; examination of bacterial contents of special pathologic process. Scrubbing with water and brush reduces colonies from thousands to a few. Mild antiseptics have little effect, because secretions come rapidly and neutralize the antiseptic. If the mouth is rinsed well and then antiseptic applied practically, a sterile solution is obtained.

Discussion.—MARSHAL: Those who have had experience in handling fractures of the jaw, know that about 90% of all compound fractures of the jaw separate. I have operated upon those cases without any more disinfectant than washing out the mouth, but have learned from my experience that if not thoroughly clean, the mouth will be troublesome, and salivary deposits form. Thoroughly wash with antiseptic solutions, putting in proper appliances and followed by antiseptic treatment, often reduces materially the number of cases suppurating after injury. Most of these cases we do not see for from a few hours to several days after injury, and infection has progressed so far, it is impossible to correct them. SCHAMBERG: Frequently we see careful operators who have spent much time in preliminary preparations for operation, standing over a patient with abdomen opened and describe what is found there; it is quite likely that he frequently infects the abdomen.

The Treatment of Suppurative Affections of the Face and Neck, Emanating from the Mouth.—M. I. SCHAMBERG (Philadelphia) said early in the history of medical science, men began to follow nature's method of cleansing. Unaided, the vital forces will ultimately throw off pus. For a long time the use of poultices was considered proper treatment. Now it is prompt evacuation as soon as the presence of pus is determined. There is no place where a scar is more in evidence than on the neck, and yet how often does it occur. Unfortunately, relief from pain is often obtained by the application of heat in dentalgia; hence it is our duty to discourage the use of heat about the jaw for affections which may occur. A large proportion of diseases of the neck and throat emanates from the mouth, evidently due to the fact that the teeth, by virtue of their presence in the mouth, and disease may be present, and transmit disease to the deeper structures. It is true pus organisms may gain entrance through wounds, ducts of glands, etc., but these are unusual. Suppurative parasites and other deep-seated disease are usually handled intelligently by the general surgeon. Often patients present with swollen faces, necks, and suppurative foci in the superior and inferior maxillary regions; etiology obscure; and a careful examination of the mouth becomes necessary. A successful treatment of any suppuration is dependent upon recognition of the etiologic factor; a putrefying pulp in a tooth may be evidence of its presence. To treat suppurations properly taking place about the face and chest, regard should be given mouth conditions. Sometimes where the lymphatics have become involved, the glands are so badly overworked that they break down. Suppuration of neck in two cases seen by writer was so extensive as to suggest Ludwig's angina. In fact in most, if not all, of Ludwig's angina the avenues might be sought for in the mouth. Treatment is prevention and proper care of the mouth and teeth. If all mouths were to receive a reasonable amount of intelligent care in the hands of a competent dentist, supplemented by patient's oral cleanliness, much suppurative conditions about the head and neck could be avoided.

[*To be continued.*]

Pharmacology.

SECOND SESSION (CONTINUED).

Arbutin.—W. F. WAUGH (Chicago) said that the latest writers on arbutin, in France, have recommended that it be given in doses up to 60 gr. in 24 hours. Arbutin stimulates the renal cells and exerts a local, mild, antiseptic action. It is mostly excreted through the urine in a short time, without having undergone chemic change, a very small portion of it being broken up, forming hydroquinon after it has left the malpighian tufts, and the hydroquinon is again decomposed in the bladder. It is diuretic, astringent, mild antiseptic, and sedative for hyperesthetic conditions, all manifested most markedly along the urinary tract. It combats putridity and sepsis, acting alike on the tissues of the genitourinary mucosa and upon the urine contained therein. It corrects ammoniacal conditions of the urine. It is indicated in cystitis, acute or chronic, pyelitis, pyelonephritis, gonorrhea, and leukorrhea. It checks the loss of albumin in cases of albuminuria where this loss is debilitating; it sooths hyperesthetic irritability of the bladder not so quickly as hyoscyamin, hence it is especially suited for chronic catarrhal cases. It has been recommended in lithemia, gout, rheumatism, dyspepsia, nephritis, hematuria, scrofula, skin diseases, gleet, leukorrhea and ague; as a diuretic in dropsy, in menorrhagia, chronic dysentery, bronchorrhea, diabetes, as a substitute for ergot to cause uterine contractions; and in enuresis the substitution of arbutin for the plants containing it opens up a new area in the treatment of genitourinary catarrhs. The enormous quantity of tannic acid and of woody constituents necessarily taken with the ordinary preparations of these plants, disguised the effects of arbutin; caused gastric and intestinal distress, and sadly interfered with the absorption of the arbutin. It is beneficial in atonic dyspepsia, which so frequently accompanies the urinary maladies of old men. In acute affections, in catheter cystitis with fetid ammoniacal urine, arbutin should be given in full dosage, up to a gram or more daily. In all cases the dose should be given every half hour to insure continuous action. In chronic cases the doses may be increased beginning with 0.01 gm. every half to an hour, until the urine is free from blood, and then in sufficient doses to keep it clear. The darkening of the urine from arbutin must not be mistaken for that caused by overdoses of carbolic compounds like salol; if strong doses are unnecessary it is requisite to maintain constantly the organism under the influence of the remedy by frequent repetition; hence the doses should be

repeated every hour or two; ½ gr. to ⅔ gr. at each, 10 gr. to 20 gr. a day and night, and more if found desirable.

Discussion.—HALLBERG (Chicago) was pleased to see that there is some attempt to revive the native materia medica, and that we have thousands of plants indigenous to this continent that will furnish agents that will do good work without damage, far better than any of the greatest possibilities or conceptions, the benzol of the coaltar German chemists. FOSS (Phoenix) thought that much of the unsatisfactory results which have been obtained in the materia medica come from the use of the natural combinations found in the crude products, and in not eliminating the individual therapeutic agent in the medicinal plant, citing the case of this glucosid arbutin, its medicinal agency being nullified by the tannic acid found in the bark, but, the tannic acid eliminated, we get the benefit of the arbutin. COTTEL (Portland) asked how the essayist administered the drug (arbutin), stating that the diuretic properties are really largely due to the amount of water the drugs are given with. STERN said that diuretic has two meanings, one referring to the increase of the flow of water, and one to the increase of the excretion of solids; and, further, that it is not the amount of water alone, but the amount of solids that is suspended in the water which makes a diuretic. WAUGH said that he has found that arbutin increases the amount of water, and also to some extent the solid excretion, and that he simply used it in a capsule, usually followed by taking some hot water.

Sixteen Years' Experience with Formic Acid as a Therapeutic.—HEINRICH STERN (New York) stated that in dilutions of 1 to 3,000, formic acid suppresses the development of bacteria in weakly acid mediums like beer, and while in dilutions of 1 to 7,000, and 1 to 10,000 the bacteria are rendered more or less inactive, and that cultured as well as wild yeasts often become even more active in these dilutions. There is no authentic case of fatal formic acid poisoning on record. By its action on the muscular structure of the bladder it facilitates emission of the urine and it enhances the contractility of the muscles of the larynx. Formic acid has been employed in a similar way as cantharides; it has been turned to practical account in the treatment of atonic conditions of the urinary organs, in vesical weakness, in dropsy, paralysis, in gouty and rheumatic affections, in general where a stimulant of the mucous membranes, or a diaphoretic and diuretic agent is indicated. It is very often employed as an external remedy. It was and still is chiefly employed as an epispastic. Stern's experience with formic acid as a therapeutic agent, has been obtained by its internal administration mostly, or at least in such conditions where its rubefacient qualities—if at all—seemed to play an unimportant or secondary role. He has tested the therapeutic efficacy of formic acid in a comparatively large number of cases of gout, acute articular rheumatism, muscular pain, cancer, diphtheria, intestinal toxicoses, syphilis and phthisis pulmonum.

Discussion.—REILLY said that in cases of gout, this agent seems to relieve the condition perhaps better than most of the other agents we are accustomed to use, but that large doses are apt to disturb digestion. He recommends the essence of the medicine as a good vehicle for its administration. WAUGH, citing the fact that formic acid stimulates the growth of plants, remarked that it would be interesting to know whether formic acid so stimulates any of the tissues or organisms of the body as to greatly increase their power of resisting noxious agents, such as tubercle bacilli. STERN said that formic acid is produced all the time in the human organism. When we take formic acid, said Stern, sodium formate is produced in the stomach, but it is again excreted as formic acid therefore there is a double conversion.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 433.*]

Tinnitus Aurium and Hallucinations of Hearing; or the Relation of Ear Diseases to Auditory Hallucinations of the Insane.—W. SOHIER BRYANT (New York) read a paper on this subject. He said that hallucinations of hearing were much more common and of greater psychologic importance than other hallucinations, and that they were usually the primary ones. In the order of their importance, hallucinations were classified as hallucinations of hearing, of sight, of smell, and of touch. There was considerable evidence showing the association of ear diseases with auditory hallucinations. The results given by a number of observers, showed that in the majority of cases the patients were also suffering from ear disease. In many of the hallucination cases, tinnitus was also complained of; in fact, very few of the cases were free from disturbed aural function of the kinds which were usually accompanied by tinnitus. Without exception, unilateral auditory hallucinations occurred on the same side as the ear lesions. There was, therefore, good evidence that auditory hallucinations were often dependent on ear disease, and that some of the cases were due to stimulation of the auditory centers by peripheral tinnitus aurium. The gravity of the pathologic impressions depended chiefly on the degree of psychic instability; they varied from mere conscious illusions to hallucinations under the patient's control, and from hallucinations to dominant delusions. Bryant said that in susceptible, psychopathic individuals, hallucinations might be excited by the irritation of subjective noises. Improvement or cure of the coincident ear affection might logically be expected to cause an improvement or cure of the auditory hallucination.

Symposium—Diseases of the Accessory Sinuses.

Frontal Sinusitis: Diagnosis, Treatment and Results.—C. G. COAKLEY (New York) read a paper on this subject. He stated that in chronic suppurative frontal sinusitis the important symptoms were: 1. Discharge. 2. Frequent "colds." 3. Fulness and pain in the frontal region. 4. Dizziness and vertigo. 5. Kakosmia and anosmia. 6. Edema and redness of the upper eyelid, and bulging of the orbital wall of the frontal sinus. 7. Diplopia. 8. Fistula formation. Examination of the nose on the affected side usually revealed the presence of pus in the middle meatus, between the middle turbinate and septum. Multiple polypi should always cause an investigation of the condition of the accessory sinuses. Among other aids to the diagnosis were percussion, pressure, transillumination, probing the frontal sinus through the nasofrontal duct, irrigation, and skiagraphy. Coakley then described in detail the socalled "open method," which consisted in removing the entire anterior wall of the frontal sinus, thorough removal of the mucous membrane from all parts of the cavity, and the exposure and removal of the mucous membrane from the ethmoidal cells surrounding the nasofrontal duct. Granulations were then allowed to fill the lower portion of the nasofrontal duct, and the upper portion was packed with gauze until the cavity was completely obliterated. The speaker said his results with the "open method" had been so satisfactory that he had not as yet attempted the Killian operation. The indications for the external operation upon the frontal sinus were: 1. Chronic suppurative frontal sinusitis, associated with multiple polyp formation in the nose. These cases were always combined with an ethmoiditis. 2. In severe acute exacerbations of the chronic disease. 3. If intranasal treatment of the frontal sinus did not suffice to prevent the discharge from passing to the antrum, and if the odor and taste of the fetid discharge from the latter cavity annoyed the patient. 4. Very large frontal sinuses, with multiple septums, particularly those with recesses extending back over the roof of the orbit, could be but imperfectly irrigated. 5. Patients with narrow nasal cavities offered great difficulty in carrying out the intranasal treatment. 6. Patients who desired a rapid and permanent cure; neurasthenic patients, and cases in which a fistula leading into a frontal sinus had formed.

The Intranasal Route in Operating upon the Nasal Accessory Sinuses.—WALTER A. WELLS (Washington, D. C.) limited himself to this phase of the subject. He stated that while he favored the intranasal route for attacking the diseased nasal accessory sinuses, he did not wish to be understood that he practised that method exclusively or considered it all-sufficient for every kind of case; on the contrary, he clearly recognized that it had its objections and limitations, and often had to be superseded by the socalled external operation. The nasal route could, he thought, properly be designated as the conservative method, as it aimed to accomplish a cure with the least possible destruction of the healthy tissue, without producing any deformity, and, as a rule, without the necessity of resorting to a general anesthetic. A mistake, however, would certainly be committed if the conclusion was reached that, because conservative, it required less skill or an anatomic knowledge inferior to that necessary for performing the more radical operation. The external operation upon the frontal sinus, especially when it aimed at a complete obliteration of the sinus, was sometimes attended with such a hideous deformity that patients frequently decided to refuse to consent to it.

Further Experience with Radical Operations for Frontal Sinus Disease.—WOLFF FREUDENTHAL (New York) said that since his last report on the radical operation for empyema of the frontal sinus a year ago, he had operated on four additional cases. As to the indications for a radical operation in dealing with that condition, there were still strong differences of opinion, and extremists were found on either side. While some operated far too often, we were not justified in saying, as some did, that in former years, when radical operations were unknown, frontal sinus disease was treated without fatal results. The main question to decide was, could we, by operating, save a given case which would otherwise be doomed? The answer to this was yes, because we were now able to make a diagnosis of frontal sinus affections more readily than we could ten years ago. In some instances the possibility of meningeal infection was invited by postponing surgical intervention. On the other hand, there were thousands of cases of chronic empyema of one or more of the accessory sinuses, for the relief of which a radical operation was unnecessary. The fact should not be lost sight of that these radical operations were always dangerous, and had resulted in many serious and even fatal accidents. Still, there were cases in which such an operation was absolutely imperative.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE MECHANICAL IRRITABILITY OF THE FACIAL NERVE.

BY

ALFRED GORDON, M.D.,

of Philadelphia.

In the issue of *American Medicine*, July 15, 1905, Dr. W. R. Dunton calls attention to a symptom in the area of the distribution of the facial nerve, which in former years he considered as belonging to the semeiology of dementia præcox. Later experience has shown him that it was a mistake to give undue prominence to this symptom which he now believes may be present in toxic conditions of various origin.

The latter view I can corroborate by three personal observations. One concerns a middle-aged woman who in the course of a gastrointestinal disorder of old standing developed symptoms of tetany; among the latter Chvostek's sign (active contraction of the muscles of the face on the slightest tap made in the course of the seventh nerve) was the most prominent. As soon as the gastrointestinal tract improved, the sign disappeared. This phenomenon was observed by me three times during the exacerbations of the gastric symptoms. The facial phenomenon was therefore attributable directly to a toxic cause. In another case of acute morphin poisoning the exaggerated mechanical irritability was observed simultaneously with increased tendon reflexes of the lower extremities. My third case was one of tea intoxication: A man of 25 used this beverage to excess (15 glasses a day). In this case all the reflexes of the upper as well as of the lower extremities were exaggerated. Curiously and indeed significantly the mechanical irritability decreased considerably when the quantity of tea was diminished.

The three cases show with evidence that a toxic condition was in direct relationship to the facial phenomenon. Dr. Dunton is certainly correct in reasoning that this symptom is not to be considered as one of the physical signs of dementia præcox, but as an effect of a toxic condition to which category the affection undoubtedly belongs.

CASES OF TRICHINOSIS.

BY

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of West Grove, Pa.

Recently I was called to an Italian settlement between West Grove and Avondale, Chester county, Pa., to see an Italian woman, V. V., aged 28. She presented the following symptoms: Pronounced edema of upper and lower eyelids, rheumatic pains in arms, legs, back and muscles of mastication, difficulty in swallowing, slight conjunctivitis, heavily-coated tongue, constipation, profuse sweating, and a temperature of 103.5°.

I made a hasty diagnosis of acute muscular rheumatism, as I had noticed this woman going about in her bare feet, and the cellar of the house had two or three feet of water in it. I gave her a brisk saline purge and 10-gr. doses of salicylic acid every two hours. The next day the patient presented a very unusual appearance, one that I had never seen before. In addition to all the symptoms previously described, her entire head was swollen and edematous to almost twice its natural size, eyes almost closed, muscles of the face, arms, legs, back, hard and brawny; talking and swallowing were accomplished with difficulty; tongue and lips were very much enlarged; teeth covered with sordes and her temperature 104.5°. While examining this woman, the people in the next house left word for me to call. The second patient, S. V., presented exactly the same head appearances as the first, and complained of severe pains in the muscles of the face, arms, legs, and back. This patient's head appeared to be half again too large for his body.

S. V. called my attention to his wife and daughter; both had an acute conjunctivitis, edema of upper and lower eyelids, and complained of pain in the muscles of the arms, legs, back, and in the muscles of mastication. Their faces had not yet become edematous. From this house I visited two others and found L. B. and R. A. both presenting the same appearances. I began to suspect poisoning of some kind, particularly trichina. I called in my colleague, Dr. William B. Ewing, of West Grove, Pa., and we asked the most intelligent Italian, S. V., for a history of the cases and we got the following information: About three weeks previous he had a little company at his house and one of the delicacies most heartily eaten of was fresh offal raw ham that had been purchased at a near-by abattoir.

The ham was dried by hanging in the kitchen, but not cured or smoked. He stated that five or six days after the feast all of his guests were seized with vomiting and diarrhea; this lasted for three or four days; they attributed it to overindulgence in beer.

The men all went to work, but complained of pain, stiffness, and great muscular weakness, and finally had to quit work.

Unfortunately, they had eaten all of the suspected meat, hence I could not get a specimen for examination. We took a blood smear, and Dr. Ewing found a marked increase in eosinophiles, otherwise the blood was negative; we looked carefully for plasmodiums, but found none.

After carefully going over the cases again and excluding everything probable, we made a diagnosis of trichinosis.

The fact that they had all eaten the same uncooked ham, all took sick at the same time, and that none of the other Italians in the row, who were not guests at the feast, was sick, the acute gastritis and enteritis, edema of the upper and lower eyelids and face, brawniness of the muscles, pain and exhaustion, noninvolvement of the joints, high fever, difficulty in mastication and drinking, dyspnea, cough, profuse sweating, and marked increase in eosinophiles, all presented a perfect picture of trichina poisoning. After recovery these patients were much emaciated.

The following is the treatment which was successfully carried out: Calomel, .02 gm. (⅓ gr.), with epsom salts 4 gms. (1 dr.) every half hour until free purgation was established. This was followed by a capsule of codein sulfate, .02 gm. (⅓ gr.); salol and phenacetin, of each, .32 gm. (5 gr.), every two hours; glycerol, a tablespoonful every four hours; milk diet, whisky, and an occasional dose of morphin at night. The fever fell by lysis with profuse sweating. During convalescence the patients were extremely anemic, emaciated, and exhausted.

We followed out the treatment of Musser as regards the glycerol, but gave it in very much larger doses, without any unpleasant effects. A peculiarity of the pain in trichinosis worthy of mention is that codein, salol, phenacetin, morphin, etc., have very little, if any effect in relieving it.

THE PROFESSIONAL SECRET IN REFERENCE TO MARRIAGE.

BY

E. CASTELLI, M.D.,

of New York.

Much has been said about the professional secret, or, in other words, about the duty of secrecy in our profession and in our relations with society. No duty is certainly more sacred to the physician than that of the protection of the intimate events of his patient's life, or I might go even further, and say that our protection should extend to everybody whose secrets we may incidentally discover. How many times in our social intercourse we discover in the crowd the morphin fiend, the sodomite, the Lesbian, the syphilitic? This knowledge, coming to us through science, remains the patrimony of science, and as such, must be respected. So the duty of secrecy is to us wider than any other, because it must extend itself to society at large, and nothing can be more vigorously inculcated in the mind of the medical student than the principle that what we know about people should be held as sacred as the confession to the priest. But in every duty, contradiction may arise at any time when other duties become antagonistic, and this brings me to my subject: Our duty in regard to interference with marriage, when we know that the physical condition of either one or both of the contracting parties (our patients), renders them unsuitable temporarily or permanently for marriage. How far can we interfere with such marriage when we know, from our medical standpoint, marriage in such case is a serious mistake, and that the outcome of it will be the creation of a victim, and eventually give rise to the procreation of children not fitted for a normal life? Not many years ago, a leading physician in one of the European cities, for simply conscience sake, advised the father of a girl who was about to contract marriage, to break the engagement, because of the syphilitic condition of the bridegroom. Both bride and bridegroom were his patients. The engagement was broken, and the doctor a week after was shot by the expectant bridegroom. Was the doctor right in divulging this professional secret in

order to avoid a disastrous marriage? Five years ago, while at a watering place, I was consulted by an officer of a foreign army who was affected by impotency, following chronic spermatorrhea; no treatment until then had succeeded in improving his condition and none succeeded after. He became engaged to a lady, a dear friend of mine, who informed me of the event herself, and I said nothing as to what I thought of the marriage. Three years later the lady wrote me: "If you knew of Charles' trouble, why did you not inform me? Don't you know how humiliating it is for any woman to have a husband that is not a man like others." Was not the physician more conscientious who divulged the secret and lost his life, in order to save the future life of his patient? If we talk to the layman on the subject, he may say it is nobody's, not even the physician's business to enter the private life of people, any more than one would interfere with a woman marrying a drunkard, or a man marrying a morphin habitue, when all, without being physicians, know that by allowing such a marriage we create unhappiness, and that the consequences of the morphin habit reflect on the happiness of marriage in a like degree as other troubles.

Fils du lundi, as French physicians call the children of drunkards or the children of a morphin fiend, do not offer the best example of a human being fitted for life. So we may ask, must we restrict ourselves to keep rigorously and entirely every secret, or must we enter a wider field for the protection of people in regard to marriage? This is surely one of the most important problems of medical ethics, a problem which neither the profession nor the laity is prepared to meet. But to me it seems that, thus far, the education of people is not perfect enough to make people understand that marriage is the most serious act in life, that in marriage we find the greatest happiness or unhappiness, that sexual efficiency plays a great role in the congeniality of marriage; the divorce courts bring the reverse to light as one of the, not so rare, fundamental reasons of incompatibility in marriage. It is only natural that such a cause should be kept mysteriously hidden, as we have not yet been taught that sexual life is an acquired right, and we cannot be deprived of it, because the use of such a right constitutes a main necessity in the processes of evolution of the race. The field of marriage is too wide to be treated only incidentally in a discussion of medical ethics; and the profession, beside, is not yet ripe to undertake *cum grano salis* the solving of a problem of such importance. The recruitment of the physician of today is not serious enough to allow him the privilege of imposing his judgment on a problem of such importance. We need more conscience, more prestige, to gain the full confidence of humanity. The diploma is not a sufficient guarantee of our efficiency to decide upon subjects of so delicate character. Then what shall we do? Shall we drop completely the undertaking, in view of its difficulty? No; we can and must do a great deal. This is a question of high ethics, a question involving the moral standard of modern society, and cannot now be overlooked, in an epoch in which man and woman have conceived the idea that happiness in marriage is a right for which they must fight. Such a truth is proved by the increased divorce tendency, divorce often being nothing more than a rebellion of the fitted for marriage against the unfitted. The clergy can undertake the campaign, but will not succeed, because rationalism has taken the place of sentiment in the present generation. It is to the medical profession that the solution of this vital problem belongs. Let us enter the schools as teachers, let us teach children how to be fitted for marriage.

Physical and mental harmony are the bases of normal evolution of society, and marriage is the primary constituting element of society. Man alone or woman alone is incomplete, and more than incomplete when united, if unfitted for each other. We must teach what sexual life is, what the requirements of sex are, what is necessary for the accomplishment of its normal evolution, what are the hygienic rules to follow in order to insure a rational sexual life, and a normal power of procreation. Diseases and habits that compromise the future physical and mental value are contracted by both sexes in early life. The features of people physically unfitted for sexual life ought to be known. In this connection the following incident may be of interest: Not many years ago while traveling through one of the mountainous parts of Piedmonte, Italy, stopping over night in a small village inn, I was told of a suicide committed by a young peasant because the Military Medical Recruiting Board had declared him unfitted for military service. I thought it very strange that in a country where military service is compulsory, the privation of such a compulsion could constitute a serious disappointment and bring such disastrous consequences. It was only after having talked with the mayor and pharmacist of the place that I understood its meaning. The fellow declared unfitted for military service becomes the joke of the village, and no respectable girl is willing to marry him, because the saying is that "who is no good for the king is no good for a husband." This very simple fact shows that sound rationalism exists where man lives nearer nature, and that we protect him only when we force him to follow the rationalism of nature. Put a mark, I repeat, on the unfitted, and ask the law to do it. Make the physical examination of the contracting parties before marriage, compulsory; make it a law that before the church and the State sanction a marriage a competent and conscientious physician should give his consent. If notwithstanding the knowledge of unfitness of either party, people want to marry, we have performed our duty, and when the predictions of the physician will show their evidences, those at fault will only say, *mea culpa, mea maxima culpa.*

SIMPLE DEVICE FOR APPLYING VAGINAL TAMPONS.

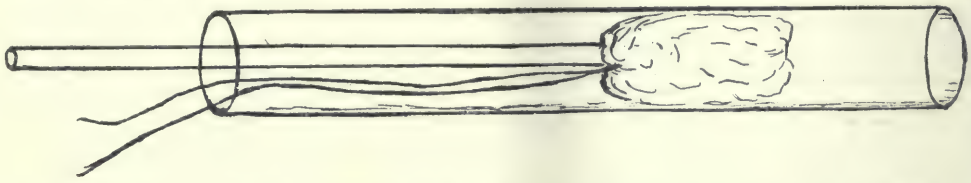
BY

WILLIAM E. QUICKSALL, M.D.,

of Philadelphia.

To the Editor of American Medicine:—I would like to bring into notice a simple device by which vaginal tampons may be very easily applied by the patient at home. I have used it with some success for over three years. Many patients are too poor to come to the office for local treatment as often as is necessary to secure good results, while others neglect proper treatment through false modesty or timidity. It is in these cases that such a method as that described below is of use.

I had tried the tampons put up in gelatin capsules, and possibly because I was unfortunate in my first cases, found at the start two patients who could not use them on account of pain and irritation. This glass tube applicator, which worked well in these cases, was the result of further thought on the matter.



A plain cylindric glass tube from a half to an inch in diameter, and about five inches long is made, with ends well smoothed. The patient can be shown how to fashion a tampon, and be instructed to drop the strings through the tube, when the tampon may be drawn into it. The chosen medicament is poured in and the whole allowed to stand upright until the wool is saturated, when the tube is inserted, and the wool pressed up through the tube by means of a long glass rod, and held in place by the rod while the tube is withdrawn over it. In this way a large quantity of boroglycerid, etc., may be held in the wool and applied, and the size of the tampon may be regulated to the order of the physician.

ORIGINAL ARTICLES

THE TREATMENT OF NONMALIGNANT STRICTURES OF THE RECTUM.[1]

BY

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The difficulty of deciding just what plan of treatment to adopt in a case of rectal stricture is often so great that no apology is needed for introducing the question as an important topic for discussion.

Probably the best statistics as to the relative frequency of stricture are those of Schede,[2] of Hamburg, who notes 38 cases in 52,245 surgical patients received in the Hamburg General Hospital. In the syphilitic hospital during the same period of time (13 years) out of a service consisting of 17,810 men and 18,780 women, 16 cases of stricture of the rectum were noted. The entire number of 54 cases of stricture, remarkable to relate, occurred in women, of whom the total number in the statistics above given was about 38,000.

In introducing for discussion the subject of stricture of the rectum, I want first to call attention to a class of cases which I think would be best designated as *pseudo-strictures*, or *phantom strictures*. I mean by this, instances in which there appears, at first sight, to be a well-defined stricture, but a more attentive examination shows that the bowel is quite normal. The proctoscopes which we are using today, although so helpful in many directions, are liable, in inexperienced hands, to lead us into this very error in diagnosis. Not infrequently a well-dilated lower bowel is found (knee-breast posture), ending in a little orifice surrounded by radiating folds, about large enough to admit a lead pencil. If there is a little delay during which this area is watched, and particularly if the position of the patient is changed so as to favor a little more gravitation of the viscera, the opening expands and the bowel is seen to be of normal caliber. Sometimes a succession of such openings can be followed on up the bowel with the proctoscope as the lumen opens up step by step.

Some years ago a woman came to me with a most obstinate constipation, and I discovered such a stricture high up in the bowel, apparently in the sigmoid; I made an abdominal section to resect it, only to find the bowel perfectly normal. I have at present under my care a patient who has had much treatment for stricture of the rectum when none at all exists, or ever has existed, and I am sure from the statements in my consulting room that there are many patients who are passing bougies day by day anxiously trying to dilate a stricture, who have nothing whatever the matter with them.

A prolific source of true strictures of the bowel is found in neglected cases of proctitis, diarrhea, and dysentery. I am so convinced of the importance of recognizing these causes of stricture that I feel it is more worth my while to dwell upon the subject of prophylaxis than to speak at any length as to the operative procedures for this disease. I have seen, for example, two cases in each of which the patient was seized with all the symptoms of diarrhea and dysentery, and so treated for several years. My invariable practice for many years in all protracted cases of this sort is to make a careful rectal examination, and on doing so I discovered that in each of these patients there was an ulcerative affection of the lower part of the rectum, extending up the bowel to the neighborhood of the promontory of the sacrum, and contracting the bowel to such an extent that the finger could not possibly be introduced. Had the attention of the physician been directed to the purely local character of the disease in these cases, suitable topical treatments might have readily done much to obviate the profound changes which can now never be corrected. I believe that most cases of chronic diarrhea and dysentery are similarly purely local in their origin and continuance, and that we are wrong in imagining that the entire colon is affected. It will at least be safer to assume this as a working hypothesis until the contrary is proved by our new methods of exploring the bowel. One thing is certain, and that is that the disease may often settle down in its chronic form as a purely rectal affection, involving only a limited part of the rectum. I had an example of this kind about three years ago in the person of a missionary returned from China. He told me that though now well, while in China he suffered from repeated attacks of dysentery. Suspecting what I would find I suggested that he allow me to make a local examination during a healthy interval, and I was rewarded by finding a marked ampullar proctitis which evidently gave rise to the recrudescences.

Topical Examinations and Treatment.—Two cases of chronic ulceration stand out vividly before me, one in a young woman in her teens, who had suffered from "dysentery" since a little child; the other in an elderly lady with "dysentery"; neither was ready for any radical operation, as there was still a good passage through the cylindrically contracted bowel from 1.5 cm. to 2 cm. in diameter. I therefore devised for these patients long, narrow rectal speculums, the size of a small finger, which I introduced as far as the upper limit of the area of ulceration, for the purpose as the speculum was withdrawn, of either making topical treatment of a solution of silver nitrate, or of packing the bowel with a narrow strip of gauze, saturated with a medicated solution of ichthyol or of silver vitellin. The pack left in the bowel in this way is either withdrawn by a thread left attached to it, or if the bowel is of larger caliber, it is left to be passed unconsciously with the next stool.

Another case was that of Mrs. J. M. A. (San. No. 979, September, 1900), aged 57, who had been previously treated by me for cystitis; she returned suffering from anemia, general weakness, and intense pain immediately following a bowel movement, although she experienced great relief when the lower bowel was completely empty. Examination showed a mucous proctitis, a tight ring behind the uterine cervix, and a stricture 5 cm. further up; both openings allowing a finger to pass. A series of curved dilators was used, which were hollow, so that by means of these a high enema of flaxseed was thrown into the bowel at the same time.

I count 44 such treatments on my records. While under this treatment her convalescence was interrupted by a severe attack of phlebitis.

She finally made a perfect recovery without any operation.

Another patient successfully treated by dilation was Mrs. M. W. (San. No. 1,788, December, 1904), aged 35, who entered my private hospital after many months of severe suffering and a desperate illness from an obscure pelvic inflammation associated with discharge of pus and blood from the bowel. I found, in examining her, a normal ampulla, but in attempting to inspect the upper bowel, I experienced some difficulty in discovering the entrance, which was in the shape of a small opening on the posterior wall, tight against the coccyx, and into which the extreme end of the finger could just be pushed. The free margin was sharp, and there seemed to be a capacious bowel above, filled with fecal matter.

The treatments in this case consisted in introducing a catheter through the orifice; doing so at first under inspection through a speculum in the knee-breast posture. After the catheter was carried in, the speculum was withdrawn and oil injected. In this way the bowels were emptied.

The treatments of the stricture, successful in relieving the accumulation and distress and in enlarging its caliber, have been by digital dilation. At first the well-oiled finger was slowly forced through the opening as far as seemed safe, taking care to avoid rupture. In this way the opening was in a few days made large enough to admit the finger with ease. When the finger was once introduced, traction was made upon the strictured area so as to loosen the fixed bowel. The result of this has been to increase the freedom of motion. In order to enlarge further the caliber of the opening, I next introduced the finger covered by 1 and then by 2 thick rubber finger stalls. This plan of treatment has proved immensely more satisfactory than an operation, to which the patient strongly objects. Her general health is markedly improved, and there is no longer any danger of an obstruction.

[1] Read before the seventh annual meeting of the American Proctologic Society, Pittsburg, Pa., May 5 and 6, 1905.
[2] Archiv für klinische Chirurgie, 1895, 1, 837.

When the stricture is annular and situated behind the cervix, a clever plan of treatment is that successfully applied by Dr. Guy L. Hunner, in a woman operated upon by another surgeon for a bad streptococcus infection, removing both uterine tubes and ovaries, but leaving behind a dense inflammatory infiltration of the cellular tissues of the broad ligaments and the uterosacral ligaments. This infiltration was the occasion of a complete obstruction of the bowel, for which the surgeon made an inguinal anus a few weeks after his original operation. She came in this condition to Dr. Hunner, who did an abdominal hysterectomy, and by removing the uterus, broke the inflammatory ring, as it were, in front and gave the bowel the room it needed for expansion. Following this, he did an end-to-end anastomosis to get rid of the inguinal orifice, and the result was the complete recovery of the patient.

One of my worst cases of stricture of the bowel was that of Mrs. K., aged about 35, first seen by me some eight years ago. She had an extensive pelvic tuberculosis, with an abscess reaching up to the umbilicus, and she looked like a decrepit old woman, wizened and worn out with pain and septicemia. I first made a vaginal opening behind the uterus and drained the abscess to get her into a better general condition to stand more active interference; this operation was followed by a recto-vaginal fistula. A year later I opened the abdomen and removed the uterus, the uterine tubes, and the ovaries, with large masses of granulation tissue, and five inches of the rectum, anastomosing the bowel end-to-end; the tissue in the lower segments was not altogether sound. I used a suprapubic as well as a vaginal drain. Although there was a fecal fistula, this cleared up spontaneously, and within a year there was no sinus at all; there was a great increase in weight and she appeared to be in blooming, perfect health. A year later there was a tuberculous area in the posterior wall of the bladder, which has been symptomatically relieved by mercuric chlorid instillations.

The difficulties of the resection of the bowel for inflammatory stricture are, as pointed out by Schede, far greater than resection for carcinoma, on account of the extensive, plastic infiltration of the perirectal tissues associated with contracted scar tissue and the disappearance of the natural elasticity of the parts. Tissues so easily torn are hard to detach from their surroundings and bring down so that sound tissues may be sutured together. When there are fistulas, the extensive inflammation surrounding these, only serve to add to the difficulty. In five out of nine of Schede's cases, a Douglas' culdesac did not exist.

In five or six cases the result was ideal, while in three or four there was incontinence as to flatus and stools.

In another case of extensive inflammatory disease associated with a fecal fistula, I amputated the bowel in its sound portion near the pelvic brim and then, being obliged to lose no time on account of the condition of the patient, I cut a longitudinal slit in the bowel behind the cervix, and pulled the upper end through the slit by means of sutures left long and drawn through the anal orifice and clamped there in order to hold the bowel in situ. The final outcome in this case was not satisfactory and I had reason to believe that the upper end of the bowel contracted.

In a patient for some years under my observation in the Johns Hopkins Hospital service, the bowel was contracted by a syphilitic stricture from the anal orifice up into the hollow of the sacrum to about the size of a lead pencil. I made several attempts to bring the upper bowel down and attach it above the sphincter so as to secure continence, but failing in this, I finally had to make an artificial anus in the left groin. I mention this case to draw attention to the class of cases in which the stricture begins within the realm of the internal sphincter and extends far upward. I do not believe that it is worth while to waste time in trying to secure control of the bowel when the external sphincter alone is available for this function. Schede in these cases has recommended denuding the lower portion of its mucosa and invaginating the upper portion into it, thus making a modified Hochenegg invagination operation. If there is an extensive stricture beginning near the outside and the tissues which can be brought down from above are not perfectly sound, I doubt if it is worth the effort.

What, then, in general, are the plans which should guide us in the treatment of rectal strictures situated in the distal portion of the bowel?

1. Painstaking prophylaxis, recognizing that many cases of socalled diarrhea and dysentery are, in reality, cases of chronic proctitis, which, if neglected, may go on to the formation of stricture. To say this, is to insist upon a more careful investigation of these affections. The treatments consist in rest, diet, keeping the upper bowel emptied, cleansing solutions and applications, healing applications and packs.

2. A stricture of moderate caliber may be cured by dilation with bougies; by the elastic pressure of a rubber bag, distended by air and made to distend in a uniform manner by a silk covering (Sweetnam's plan); and by digital distention and massage.

3. If a contracting bowel is watched and treated, the patient may go on for a long time, for years even, in great comfort, even though the disease is not cured and the parts are, both to the eye and touch, far from normal, and this is often better than surgical interference.

4. Resection of the bowel may be practised even when the disease extends over an area as long as 20 cm. A posterior incision with the removal of the coccyx, and sometimes of the last sacral vertebras, with the preservation of the anal sphincters and ampulla when possible, and an end-to-end anastomosis of the bowel, is the best procedure. I have not had experience with Hochenegg's invagination method.

5. It is sometimes worth while in the attempt to save the bowel when the local process persists in advancing, to make an artificial anus completely diverting the fecal current. The bowel may then heal and the extensive surrounding inflammation undergo resolution, when after some months or a year or more, and generally after a successful resection, the artificial anus may be closed.

In a high grade of tuberculous or syphilitic stricture, when an extensive area is involved, it is often best to make an artificial anus and extirpate the diseased bowel. I prefer to do this by amputating the bowel above first, and ligating such hemorrhoidal vessels of the lower end as are within reach, and then to complete the extirpation from below by an incision from sacrum to anus.

Advanced tuberculosis always demands extirpation, and syphilis calls, of course, for persistent specific treatments in addition to whatever local means may be employed.

THERAPEUTIC VALUE OF BACTERICIDAL SERUMS.*

BY

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In considering the therapeutic value of bactericidal serums, it is assumed this paper should consider the results obtained by the use of serums which have been produced under the supposition that they would exert a bactericidal action, or, at least, an action of an antibacterial character. Serums will, therefore, be considered in which bactericidal properties have not been demonstrated, or in which the existence of such properties is disputed.

Antistreptococcic Serum.—Without question the largest volume of laboratory and clinical investigation looking toward the serum treatment of any of the infectious diseases, except diphtheria, and tetanus, has been in the direction of a specific serum for the treatment of streptococcus infections.

* Read at a meeting of the Medical Association of the Greater City of New York, held April 10, 1905.

From its experimental aspect the problems involved in the production of an effective antistreptococcic serum, not only include practically all those concerned in the subject of immunity, but also those connected with the differentiation of bacterial species and races.

In a recent review of the literature on the subject, I[1] arrived at the conclusion that we have not as yet a decisive method of determining the relationship existing between cultures of streptococci obtained from varying sources, nor that we as yet fully understand the mechanism of the reactions which take place between streptococci and their immune serums either *in vitro* or *vivo*.

On one point the contributors to the literature are all practically unanimous, namely, that neither human serum nor that of convalescents from streptococcus infections, nor antistreptococcic serums, have any experimentally demonstrable bactericidal action as distinct from a phagocytic power on streptococci.

Considering, therefore, our very incomplete knowledge of these underlying principles, it is not surprising that the results obtained by the therapeutic use of the many and variously produced antistreptococcic serums are also most uncertain and variable in the extreme, even after we make due allowance for the personal equation in our judgment of the reports of such results.

Owing to our lack of definite knowledge on the relationship of streptococci there have existed two schools, one believing that all streptococci belong to one species, and the other that streptococci can be divided into numerous groups, and that an immune serum prepared by one strain has, at least, a greatly diminished antagonism to the others. The former group prepares serums with single cultures, the virulence of which has been artificially increased by their passage through animals, the socalled "tier passage," while the latter group prepares each serum with numerous cultures taken directly from man. Such serums are termed polyvalent.

Aronson, Marmorek in his earlier work, and Baginsky are supporters of the tier passage single species school, while Moser, Tavel, Menzer, and others support the polyvalent serum school.

Serums prepared according to both general methods have been used extensively clinically, and the reported results are so numerous that but a few examples can be referred to.

It should be borne in mind that reports do not always show whether the cases referred to have been known cases of streptococcus infections. In many instances infection by this microorganism is merely assumed.

Bumm[2] has reported the treatment in 67 cases of both localized and general infections with the antistreptococcic serum produced by Marmorek, Tavel, Menzer, and Aronson.

In summarizing his results he states that in the cases of general peritonitis and septicemic conditions the injections were rarely followed by favorable results, while in localized infections, especially of the endometrium, the use of very large doses up to 1,000 cc. produced beneficial effects.

Meyer[3] has reported the treatment of 69 cases of various forms of streptococcus infections with good results.

Tavel,[4] Anderson,[5] Steinhauer,[6] Walker,[7] Foulerton,[8] Pehan,[9] and many others have reported favorable results from the use of antistreptococcic serum in the pyogenic forms of infection. On the other hand, Olshausen and Falk,[2] in discussing Bumm's paper, and Stadelman, Plehn, and Karewski in discussing Meyer's communication, stated they failed to obtain such satisfactory results and are sceptical of the value of antistreptococcic serum in streptococcus infections. Horrocks,[10] Duncan,[11] and others hold similar views.

In 1899 a committee of the American Gynecological Society[12] reported a review of the literature of 354 cases of puerperal infection treated by antistreptococcic serum. Many of the cases were merely assumed to be caused by streptococci. The mortality was 20.6%, which the committee considers as unfavorable to the general use of the remedy in that condition.

Recently the interest in antistreptococcic serum has centered chiefly on its use in those specific diseases—scarlet fever, rheumatism, and smallpox—in which streptococci have been shown to be present in unusual numbers, some observers considering them to be possible etiologic agents in scarlet fever and rheumatism, and an important factor as the cause of secondary infections in smallpox.

Baginsky[13] used Aronson's serum in 62 cases of scarlet fever, in doses up to 29 cc. each. The mortality in these cases was 11%, as against 17% in the cases in which injection was not done.

Escherich[14] used the Moser polyvalent serum for scarlet fever in large doses, up to 200 cc. each, in 142 cases of that disease, and reports obtaining the most favorable results. The deathrate in one institution after the introduction of the serum injection was diminished from 12% to 9% and 6%. Escherich and his followers have administered large single doses up to 200 cc., and report no serious disturbances from them.

Moser,[15] V. Bokay,[16] Pospischill,[17] and Wlassjewsky[18] also report similarly favorable results from the use of this serum.

In the treatment of articular rheumatism, Menzer,[19] Schmidt,[20] and others have used a polyvalent antistreptococcic serum. The former observer anticipated the prevention of relapses, and those chronic rheumatic conditions such as endocarditis, which frequently follow acute attacks. He gave very small doses. His statistical tables are complex, and but weakly support his contention. Schmidt obtained satisfactory results only in subacute cases.

On the basis that streptococci were found in the circulating blood of 54% in a series of cases of smallpox, Perkins and Pay[21] administered antistreptococcic serum in nine cases of that disease, but without influencing its course in any way. Normal human serum was used as well in three of these cases, for the purpose of supplying sufficient complement for satisfying the immune bodies injected, but the results were negative.

Horder[22] reports the unique treatment in a case of chronic streptococcus endocarditis, in which the infecting microorganism was isolated from the patient's blood and was utilized in the immunization of both a donkey and a horse. The serums of these animals were administered to the patient, but with no beneficial results. Both fresh normal human serum and normal donkey serum were administered in conjunction with the immune serums, in order to supply the supposedly needed complement, but such injections availed nothing.

Antipneumococcic Serum.—To a large extent the preliminary remarks concerning antistreptococcic serums apply equally well to antipneumococcic serums, and the reports of the results from the administration of the latter indicate the same general variability and uncertainty as was seen in the use of the former remedy.

Two recent articles will serve to illustrate the general status of antipneumococcic serums.

Passler[23] reports the treatment of 23 patients with acute lobar pneumonia with Römers mixture of the polyvalent pneumococcus serums of horses, cattle, and sheep. The cultures used in the preparation of this serum mixture were obtained directly from cases of pneumonia in man. There were four deaths out of the 23 cases, but of these, three patients were moribund when injected. About half of the recoveries were by crisis after one or two injections of the serum.

Anders[24] has recently published a critical summary of the published reports on the use of antipneumococcic serum in 535 cases of lobar pneumonia, in which the mortality was 18.3%. With this author these results, as a whole, failed to carry conviction of the usefulness of the treatment.

Antituberculosis Serum.—With the serum therapy of tuberculosis two names are most prominently associated, Marmorek and Maragliano.

Marmorek[25] produces an antituberculous serum by a special method. He believes tuberculin is not the true toxin of the tubercle bacillus. He claims to produce the true toxin by growing certain tubercle bacilli in a glycerinated bouillon made from liver to which is added the serum of a calf which has been subjected to injections of guineapig leukocytes. The socalled true toxin produces in the animals treated by it an antitoxic serum, which is used in the treatment of tuberculosis in man.

Marmorek speaks of obtaining most favorable results in acute miliary, surgical and even in the most severe cases of pulmonary tuberculosis.

Other observers who report favorable results from Marmorek's serum are Jacquerot,[26] eight cases, and Frey,[27] nine cases, while Latham[28] and Goldschmidt[29] speak well of their results only in the most carefully selected cases in which treatment was carried on under the most favorable conditions.

Some of those who have obtained uniformly unfavorable results are Dieulafoy, Le Dentu, Monod, Hallopeau,[30] and Lemieux.[31]

In reviewing Marmorek's work, Borrel[32] states that he believes the virtue of the serum lies in its possible tuberculin content. He predicts that about the same results will be obtained by its use as followed the use of Koch's tuberculin, which in very carefully selected cases sometimes produces good results.

Maragliano's[33] serum is prepared by the repeated injection of the filtrate of young cultures of tubercle bacilli, as well as the use of aqueous extracts of killed virulent cultures. He claims his serum is antitoxic and bactericidal as well.

The most favorable results from the use of this serum, in properly selected cases, are claimed by its originator. The classes of cases in which good results are not looked for by him, are those in which there is general impairment of nutrition, and in mixed infections.

Maragliano quotes Mircoli as having collected the notes on the treatment in 2,899 cases in which his serum was used. Over 2,000 of these patients were in a febrile condition before treatment, and in 46% the fever disappeared under its influence. In the five groups into which the cases were divided on the basis of extent of lesion, fever, and purity of infection, the percentage of cure varied from 38% in the circumscribed nonfebrile cases to 6% in those in which there was cavity formation, while improvement occurred in from 36% to 54% in the cases in each class.

In opposition to the optimism of both Marmorek and Maragliano, Baldwin[34] considers that the present serums used in the treatment of tuberculosis act as nonspecific stimuli, and merely assist in the production of a high nutritional condition.

Antityphoid Serum.—Notwithstanding our fairly satisfactory knowledge of the character of the infection in typhoid fever, and the demonstration of marked bactericidal properties in the serum of typhoid convalescents, as well as in typhoid immune serums of animals, there have been very few attempts to produce a therapeutic serum for this disease.

The Jez extracts prepared from the tissues of immunized rabbits were shown by Walker[35] to possess no protective action for typhoid infection in these animals.

Einhorn[36] has, however, recently reported good results from their use.

Chantemesse[37] has prepared an antityphoid serum which he considers antiinfectious, antitoxic, and an exciter of phagocytosis. His reports on the treatment with his serum in 356 cases of typhoid fever in Paris show a mortality of 4.7%. In one particular hospital the mortality was 3.7% in 186 cases. In a total of 507 patients so treated, the mortality was 6%. In the Paris hospitals not using Chantemesse serum, the lowest mortality was 12%.

Josias[38] states that during a period of one year from March 1, 1902, the lowest typhoid deathrate in the children's hospitals in Paris was over 14%, while in one institution, using the Chantemesse serum, the mortality was only 4%. However, without a statement of the number of patients treated, these figures indicate but little.

Antidysenteric Serum.—In 1901, Shiga[39] reported the results obtained by the treatment in 300 cases of acute dysentery with his antidysenteric serum. From the customary mortality of from 16% to 20% a reduction of a third resulted from the serum treatment, and the duration of the disease was but half that in those not treated.

Kruse[40] reports equally good results in 80 cases with a mortality of 5%, and calls attention also to the shortening of the duration of the disease and convalescence.

Rosenthal,[41] of Moskau, reports excellent results from the serum treatment in 157 cases of severe dysentery. The mortality was 4.5%, whereas the regular mortality in the same hospital in untreated patients was 10%.

Kanel[42] has very recently reported the results obtained this past summer in Moskau in the treatment of 130 paients with acute dysentery with a mortality of 3%. He states that the serum had no influence on the temperature, but a very decided improvement in the socalled stool curve occurred, as well as in the clinical symptoms.

In this country antidysenteric serum has been used chiefly in the severe summer diarrheas of children.

Holt[43] reports its use in 83 cases with rather disappointing results.

Antiplague Serum.—Although bubonic plague will probably never occur in more than a few isolated instances in this country, it may be well to consider the results obtained from its treatment with antiplague serums.

Lustig and Galeotti[44] report a mortality of 53% in 175 of the earliest cases in India in which Lustig's serum was used, while the mortality in the untreated patients for the same period was 94%, according to official statistics.

These authors quote from a report by Polverini, which shows that of 475 patients treated in various institutions in India the deathrate was 60%, while the mortality in untreated patients during the same epidemic varied from 80% to 85%. Polverini,[45] in a more recent report, strongly supports the claims of Lustig as to the efficiency of his serum.

Calmette and Salimbeni,[46] in the Oporto epidemic, obtained a reduction in the deathrate from 54% in the untreated patients to 14% in those treated with the Yersin serum, but this epidemic was mild in comparison with those occurring in India. Many doses were given intravenously with good results.

Duprat[47] has reported results of the use of serum prepared according to the Roux-Yersin method in 45 cases of plague in Brazil with but 9 deaths. Those patients receiving large doses of over 100 cc. did better than those receiving smaller amounts.

In this country Novy[48] speaks favorably of the use of large doses of the serum intravenously.

A report issued from Kitasato's Serum Institute in Japan shows nearly a 50% reduction in mortality in 56 unselected alternate cases from the use of a serum prepared in that institute. The cases occurred in an epidemic in Formosa in 1901.

Antianthrax Serum.—Concerning the serum treatment of anthrax infections in man, Legge[49] has given us a most exhaustive and critical summary of the work of Sclavo and those who use the latter's method of preparing this serum. He states that Sclavo and Sobernheim produced an effective serum by the treatment of sheep and asses with anthrax bacilli injected subcutaneously, while at the same time or previously anthrax immune

serum was given intravenously. According to these workers, this serum acts effectively as a prophylactic and as a therapeutic agent in cattle as well as in man.

In 164 cases of external anthrax in man in which Sclavo's serum was used the mortality was about 6%, as compared with 24% for all other cases occurring in Italy.

Legge believes the serum is harmless, even in large doses of 30 cc. to 40 cc., or even more, when used intravenously. The clinical details recited by him are convincing as to the favorable action of the serum as a therapeutic agent.

Bandi[50] has also reported the results obtained by the use of a serum prepared by him after Sclavo's method on two severe cases of anthrax in man. Large intravenous doses up to 150 cc. were administered, and both patients recovered promptly.

Garzia[51] has reported the intravenous and subcutaneous use of Sclavo's serum in 4 cases confirmed by bacteriologic examination, with recovery in all.

It is quite evident from this somewhat fragmentary review that in no one of the diseases considered has there yet been demonstrated an entirely satisfactory serum therapy. However, sufficient beneficial results have been obtained with some of the streptococcic, dysenteric, plague, and anthrax antiserums to warrant at least some hope of better results when our knowledge of these infections, and their etiologic agents, has become materially increased.

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International Medical Congress at Lisbon, April 19, 1906. The American party will sail April 7, on the North German Lloyd steamer "Konig Albert" for Gibraltar, visiting Algerciras, Seville, Cordova, etc., spend a week in Lisbon during the Congress and return to New York on Wednesday, May 9. This trip may be made comfortably in a first-class steamer both ways, all expenses paid, including board and lodging while in Lisbon, for $300. A number of side trips are being added and tickets will be good returning through Europe if desired at a slightly increased cost.

GASTROJEJUNOSTOMY FOR BENIGN STENOSIS OF THE PYLORUS.[1]

BY

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The treatment of diseases of the stomach by surgical methods has, in the past five years, been the subject of widespread study and investigation. Not only has operation been resorted to in gastric affections long recognized as surgical, such as carcinomatous and other tumors of the stomach, and mechanical obstruction at the cardiac and pyloric orifices, but more recently, operation has also been employed in those affections which have been regarded as strictly medical, such as simple gastric ulcer and gastric hemorrhage. In fact, in a number of instances, operation has been successfully resorted to for the relief of the symptom, hemorrhage, no attempt being made to reach directly the cause of the bleeding. The object of the present communication, however, is not to review this interesting and instructive subject, but simply to add to those cases already reported, another illustration of the beneficial results of surgery in certain gastric diseases.

The history of the case is as follows:

J. A., male, aged 44, engineer. Both father and mother died at an advanced age. Family and personal history negative. In the fall of 1900, while engineer of a steam shovel, he received a severe blow in the epigastrium from a long lever connected with the machinery. The blow was sufficiently strong to knock him down, but was followed by no apparent bad results. In May, 1901, while at work, he had a sudden attack of weakness, and was compelled to lie down for three or four hours. When he raised up, he was seized with vertigo and nausea, vomiting a large quantity of clotted blood and also bright blood. There was only the one hemorrhage, and at the end of two weeks he returned to work. Eighteen months later, November 28, 1902, he had his second attack of hematemesis, and was incapacitated for work for a month. During 1903, he suffered considerably from digestive disorders, with vomiting, the matter vomited frequently containing articles eaten several days before, but showing no blood. Toward the latter part of 1903, his digestion began to improve, and he gained in strength and flesh, so that by Christmas he weighed 172 pounds, a gain of 30 or 40 pounds. This improvement, however, continued for a short time only, and in the early part of 1904 he again began to suffer from indigestion, vomiting almost every day, bringing up large quantities of partially digested food. There was a great deal of gaseous distention of the stomach, but very little pain. He rapidly lost in flesh and strength, but continued at his work until August 19, 1904, when I saw him for the first time, a few minutes after an attack of hematemesis. He had vomited about three quarts of sour, partially digested food, containing a large quantity of blood. Examination showed great dilation of the stomach, the lower border extending two inches below the umbilicus. No tumor could be detected and very little tenderness was present. The bowels were moved only at rare intervals under the influence of laxatives, and very little fecal matter was passed.

The case was clearly one of ulceration of the stomach with marked dilation due to stenosis of the pylorus. The history of the case extending, as it did, over a period of three and a half years, the rapid improvement between the attacks of hemorrhage and the failure to find a tumor, warranted the belief that the stenosis was due to cicatricial contraction following the healing of nonmalignant ulceration. The hemorrhage was not repeated and in the course of two weeks, the patient was able to be about.

Operation was advised as the only means of affording permanent relief and to this the patient agreed, but desired to postpone its performance until the winter when he would not be able to pursue his occupation. After recovery from the effects of the hemorrhage, the patient was instructed in the use of the stomach-tube and thereafter, the stomach was washed out daily. He returned to his work, but in October was compelled to give it up on account of increasing weakness and was soon confined to bed from inability to assimilate sufficient nourishment. It seemed as though nothing passed the pylorus.

In considering the treatment of pyloric stenosis, several operations suggest themselves. Digital divulsion of the pylorus, as proposed by Loretta, which was the first operation performed for the relief of this condition, has now been abandoned. Pyloroplasty, while overcoming

[1] Read at the Meeting of the Philadelphia County Medical Society, April 12, 1905.

the narrowing of the pylorus, is open to the objection that in cases of marked dilation it does not permit free drainage from the dependent portion of the stomach, and also to the further objection that in many cases the ultimate results have not been all that could be desired. Finney's operation of gastroduodenostomy, in which the lower portion of the pylorus is included in the incision, would seem theoretically the ideal measure for the relief of benign contraction of the pylorus, as it provides a free communication in the normal position, not liable to subsequent contraction, and also probably permits sufficiently free drainage. However, in cases such as the present one, in which the patient is greatly prostrated from inanition, the time required for its performance is a serious objection to its adoption. The operation which has most frequently been employed in these cases, and which has given the most satisfactory results, is gastroenterostomy, either in its anterior or posterior form. The anterior operation while simpler of performance, causes more disturbance of the position of the small intestine and does not afford the free drainage that is secured by the posterior operation. A consideration of these points led me in the present case to adopt posterior gastroenterostomy.

Operation was performed November 4, 1904. A four-inch incision in the median line exposed the pylorus, which presented as a smooth, dense, thickened ring. There were no nodules, no enlarged glands and no adhesions. The stomach wall seemed to be somewhat hypertrophied. The omentum and transverse colon being brought through the incision, the posterior wall of the stomach was made to present against the transverse mesocolon by the left hand carried above the stomach. The mesocolon was then torn through and the most dependent portion of the greater curvature of the stomach exposed. The commencement of the jejunum was next located, and a point about four inches from the duodenojejunal fold selected, and it, with the posterior wall of the stomach brought into the incision, the omentum, transverse colon and remainder of the stomach being returned to the abdominal cavity. These two points were then united by means of a large-sized Murphy button, reinforced by a continued peritoneal suture. The parts were then returned to their normal position and the wound closed.

Recovery from the operation was uneventful. There was no vomiting or other symptom referable to the stomach. After 48 hours, liquid diet was allowed, to which solid food was soon added. On the twentieth day after operation the patient returned to his home. During the five months since operation, he has continuously improved in strength and flesh. His weight which in November was 125 pounds, is now 165 pounds, a gain of 40 pounds. He is working every day. He is able to eat and digest all varieties of food and suffers no inconvenience from his stomach. He has vomited only twice since the operation. On both occasions the amount was small and followed indiscretions in diet. There has also been a considerable reduction in the size of the stomach. The bowels are moved regularly and freely. The button, although sought for, has not been found. It has probably dropped back into the stomach, but I have not had an opportunity to verify this supposition by a röntgen-ray examination. However, it has given rise to no symptoms.

ACUTE PROSTATITIS.

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By reason of the suffering endured by the patient and the possibility of its leading to grave secondary consequences, acute inflammation of the prostate gland is justly regarded as the most formidable complication of gonorrhea. The statistics of Segmund show parenchymatous prostatitis to be a most serious affection; out of 114 cases reported, death occurred in 34 and urinary fistula resulted in 10 cases.

Acute prostatitis may occur at any period during an attack of gonorrhea; but, as a rule, it is encountered about the beginning of the terminal stage of the disease, the end of the third and beginning of the fourth week. Very often it precedes or occurs in conjunction with epididymitis, the frequent association of the two conditions being due to the close anatomic relations of the posterior urethra, prostate gland, and common ejaculatory ducts.

As regards the frequency with which the complication occurs, it is rather difficult to give any exact figures, owing to the confusion that has existed in the past as to what conditions constituted acute prostatitis.

Segmund stated that in every case of gonorrhea lasting for any great length of time there was a decided swelling of the prostate gland. Montagnon claims that the gland is attacked in 70% of the cases of posterior urethritis. Finger, while declining to give any figures, is of the opinion that the gland is affected in a large proportion of the cases. I believe, while it is probably true that the prostate gland becomes affected in a large majority of cases of posterior urethritis, it is equally true that the process in most of these cases is merely congestive and not inflammatory in character. Fürbringer says the symptoms referred to as those of prostatitis might well be attributed to inflammation limited to the prostatic part of the urethra.

Acute prostatitis is encountered in one of two forms, follicular and parenchymatous. In the former, the follicles of the gland are primarily affected, many of them frequently breaking down, coalescing, and forming minute abscess cavities throughout the gland. A much more serious condition is acute parenchymatous prostatitis, in which the entire structure of the gland is involved in the inflammatory process, and, unless resolution takes place, becomes the seat of a large abscess formation.

Etiology.—While it is only proper to recognize tuberculosis as a possible predisposing cause in cases of acute prostatitis, it is, at the same time, perfectly safe to say that the predisposing cause in the vast majority of cases is gonorrhea.

The direct exciting cause is not always easily ascertained. I do not share the belief of some that the strenuous administration of antiblenorrhagic balsams is responsible for the complication. Chief among the exciting causes should be considered the indiscriminate efforts to irrigate the whole urethra by hydrostatic pressure with a meatus nozle. Sexual excitement during an attack of acute gonorrhea may often act as the exciting cause in producing an attack. The use of a hand syringe when the posterior urethra is involved, it should also be borne in mind, is a very frequent cause of this complication.

Symptomatology.—The symptoms of acute prostatitis are, as a rule, so marked that the physician's attention is at once directed to the prostate gland as the source of the severe train of symptoms. In every case of gonorrheal epididymitis one should be on the constant lookout for the onset of acute prostatitis. As a rule, the patient's attention is first attracted to a vague and ill-defined sense of fulness in the rectum possibly not amounting to actual pain. The bowels are constipated, there is present a more or less constant desire to go to stool, which is unrelieved by administration of laxative or rectal enemas. As the affection advances, what was earlier a vague sense of rectal fulness, gives place to a marked bearing-down pain and throbbing in the rectum. Along with these symptoms there is usually a decided rise of temperature. Very often, to add still further to the distress of the patient, there is retention of urine requiring the use of a catheter; indeed I have come to regard this condition, occurring during an attack of gonorrhea, as an almost positive indication of the presence of acute prostatitis. The course of the affection is, in the majority of cases, toward recovery by resolution, which takes place, as a rule, in from two to three weeks, the prostate at that time approaching the normal both in size and consistency, although it is doubtful whether the gland ever regains its normal condition absolutely, after an attack of acute inflammation.

As shown by the researches of Greene and Cumston, it appears highly probable that the enlarged prostate of

advanced age may have its origin in inflammatory changes produced by acute or chronic prostatitis in earlier life. It is, naturally enough, rather difficult to arrive at any exact data regarding this point, as patients affected with senile hypertrophy of the prostate are not wont to possess very retentive memories regarding the sexual disorders of their youthful days. In the severe forms of parenchymatous prostatitis, when resolution fails to take place and suppuration occurs, the resultant abscess generally involves a large portion of the structure of the gland. The formation of an abscess should be suspected when, in addition to all the other symptoms mentioned, the patient develops chills, hectic fever, and marked throbbing in the rectum. Rectal examination, under such circumstances, will usually reveal a large, fluctuating tumor, occupying the position of the prostate gland. The small follicular abscesses do not produce such pronounced symptoms and their presence is determined chiefly by detecting, on palpation, sharply defined areas of softness and tenderness over the surface of the gland.

Diagnosis.—While the clinical symptoms, in most cases, are sufficiently striking to enable the physician to infer the presence of acute prostatitis, the only way to ascertain this fact definitely is by rectal examination. In every case of acute gonorrhea, in which the posterior urethra is involved, the rectum should be examined from time to time, to determine whether there is any enlargement or marked tenderness of the prostate.

Treatment.—At the onset of acute prostatitis the patient should at once be ordered to bed, as it is impossible to tell at this time whether the case will prove to be follicular or parenchymatous in type. The bowels should be opened every day by a saline laxative; opium and belladonna suppositories should be placed in the rectum two or three times a day and salol and urotropin should be administered by the mouth. All local urethral treatment should be abandoned and rectal irrigations should be employed two or three times daily. As a rule, irrigations with very hot water give the most relief to the patient. These can very well be given by means of the ordinary fountain syringe. The rectum should be fairly well distended, the patient retaining the hot water as long as possible, finally passing it out. This maneuver should be repeated twice at each treatment. I prefer the fountain syringe to Kemp's rectal irrigator, as there seems to be much less risk in its use of causing further damage to the gland.

At the end of a week or ten days, when the acute inflammatory symptoms have begun to subside and the prostate, while still enlarged, is no longer tender on rectal palpation, gentle massage of the gland with the index finger will be found of considerable value as an aid in bringing about resolution. This form of treatment, while very effective, must be gently applied at first, otherwise there is danger of epididymitis, a complication which I have seen on several occasions as a result of rather vigorous massage.

In carrying on this procedure the patient should, first of all, pass his urine in two glasses, a note being made as to the appearance of the urine in each glass. The anterior urethra is then washed out with a solution of silver nitrate, 1 to 8,000, and the bladder subsequently filled with the same solution. Holding the silver solution in the bladder, the patient leans over a chair or a table and the physician strips each lobe of the prostate lightly with the index finger about five times.

The patient is now instructed to pass into a glass the silver solution which has been retained in the bladder. In this way the posterior urethra is thoroughly irrigated, the distended follicles of the gland are emptied, and the contents washed out from the urethra along with the irrigating fluid. This treatment should be employed twice every week for a month or six weeks, at the end of which time complete resolution will have taken place in the majority of cases. In many cases, however, the course of the affection is much more protracted, developing into a condition of chronic prostatitis, requiring for its cure a much more prolonged period of treatment. In addition to the line of treatment just described, suppositories containing .6 cc. (10 m.) of ichthyol inserted into the rectum at bedtime will be found of some value in aiding to bring about resolution. As there is no known remedy having a direct action upon the prostate gland, the indications for the internal administration of remedies must be general in character, depending upon the needs and physical condition of the patient.

In acute parenchymatous prostatitis, in which the suffering of the patient is much greater than in the follicular variety, the prostatic "cooler" has been found to afford the greatest relief. This ingenious instrument, being hollow and furnished with an intake and outflow tube, allows, when inserted into the rectum against the prostate, a constant flow of cool or cold water about the gland. This is accomplished by having two large pails, one standing on the floor, which receives the water as it leaves the cooler by the outflow tube, the other pail, filled with cool water, can be placed on a chair beside the bed. A rubber tube, long enough to reach to the bottom of this pail, is attached to the intake tube of the instrument.

By the process of siphonage, a constant current of water is kept circulating around the prostate gland. This plan of treatment can be pursued almost indefinitely. One of my patients employed it for an hour at a time three or four times daily. The temperature of the water can easily be changed to suit the patient; but, as a rule, quite cold water will be found to give the most relief.

When the symptoms, such as repeated rigors, hectic fever and fluctuation on palpation, point unmistakably to the formation of an abscess in the prostate gland, surgical intervention is imperatively indicated. As a rule, this is easily accomplished by passing a bistoury through the perineal center, with the cutting edge upward, to the apex of the prostate, which is opened and the external wound enlarged as the knife is withdrawn, the finger in the rectum acting as a guide during the maneuver. Occasionally, when the pus is deep seated, it becomes necessary to make a semicircular incision in the perineum, reaching the body of the prostate by blunt dissection.

It is not always, however, an easy matter to determine positively the presence of an abscess in the prostate gland. I recall, with considerable chagrin, an instance occurring in consultation, when a large abscess ruptured into the urethra about three hours after I had positively stated that there was no pus present.

Spontaneous rupture of a prostatic abscess is the rule in the majority of cases, the most frequent and favorable outlet being through the urethra. Finger says that out of 133 cases, the abscess ruptured into the urethra in 64; into the rectum in 43; the perineum in 15; the ischiorectal fossa in 8; the inguinal region in 3.

The subsequent treatment after spontaneous rupture is similar to that employed in acute follicular prostatitis: Gentle massage of the prostate gland, together with silver nitrate irrigations. When the abscess has ruptured into the rectum, hot rectal enemas of normal saline solution should be employed twice daily, in addition to other lines of treatment.

A rather unusual sequel of prostate abscess occurred in a case under my care in the University Hospital some years ago, in which, after spontaneous rupture into the urethra, the patient developed a chronic pyemia, attended by the formation, at intervals, of large abscesses in various parts of the body, complete convalescence requiring a period of three months.

The first International Congress of Psychiatry, Neurology and the Care of the Insane will meet at Amsterdam from September 3 to 8, 1907, under the presidency of G. Jelgersma, of Leyden. The general secretary is J. Van Deventer.

EMOTIONAL SHOCK AND FRIGHT AS CAUSES OF EPILEPSY.

BY

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The casual student of epilepsy may hesitate to believe that epilepsy is so often due to emotional shock and fright as reliable data conclusively show.

Féré declares it is beyond doubt that in predisposed subjects a fit may be immediately provoked by a more or less intense shock to the nervous system, and that such states are associated with an overexcitability favorable to the evolution of convulsive phenomena. At the menstrual periods these emotions act even more powerfully by reason of the nervous susceptibility which accompanies this physiologic condition. The convulsive discharge may occur immediately after the emotion is experienced, or be delayed for some time after.

The nervous depression succeeding emotional shocks may last a good while, and the attack may supervene during the asthenic state, occasionally long after the initial cause. An epilepsy which manifests itself in connection with fright may become definitely established and the fits may thereafter appear without apparent exciting cause.

In some instances the attack invariably recurs when the same exciting influence is applied; for instance, the sight of a corpse, of a precipice, of blood from an injury, etc.

Of all the immediate causes of epilepsy the most potent are physical fright, excitement, anxiety. To these are ascribed more than a third of those in which a definite cause is given. Of the three forms of emotion, fright takes the first place. The relation of this cause to age is very distinct. It is effective chiefly in early life, when emotion is so readily excited, and is most powerful at the transition from childhood to adult life, while after middle life it is almost inactive. The female sex is notoriously the more emotional, and accordingly the disease results from fright in a larger proportion of women than of men, although the difference is, perhaps, less than might be expected—61% of women and 39% of men. It is notorious also that this difference between the sexes increases as life advances. In childhood one sex is almost as emotional as the other, but with puberty men become far less emotional than women. The influence of fright as a cause of epilepsy is in strict harmony with this fact. Under 10 the sexes suffer equally. Between 10 and 20 the male suffers less than the female, as 3 to 4; between 20 and 30, as 3 to 13, and over 30 the only cases due to this cause occur in women.

Predisposition usually exists. Hence, in speaking of fright as a cause of epilepsy, it must be remembered (as already stated) that its effects are only that of the exciting spark.

"The exact form of fright varies, of course, in different cases, but the list is instructive. In several cases, the cause was some stupid, practical joke—a pretended ghost, children shut up in dark cupboards, an alarm of fire or burglars. In a few cases, the patient had watched other persons in fits. Alarm during severe thunderstorms was another cause. One case was that of a soldier, who had his first fit a few hours after being terrified, while on sentry duty at night, by the unexpected appearance of some white goats on the top of the adjacent walls of a cemetery, which he mistook for emissaries from the graves." (Gowers.)

In a study of 1,323 cases, I found emotional shock or fright to have been the cause in 62, or 5.5%. Of these, 22 were men, in a total of 814, and 40 were women, in a total of 509, being about 3% among the former and nearly 8% among the latter, showing such causes to be nearly three times as active among women as among men.

During the first 10 years of life, there were 14 cases due to this cause among 814 men, and 15 among 509 women, which demonstrates the greater susceptibility of females even at this early age.

Some writers state there is no difference in the sexes during the earlier years, but such is not my experience. During the second 10 years, only 7 cases occurred among the same number of men, whereas there were 25 among the women. After 20 years, there was one case only in either sex. It seems, therefore, that emotional shock most often leads to epilepsy in the female sex, and is most apt to be active about the age of puberty.

It is interesting to note the influence of heredity in these cases at the three age periods mentioned. Under 10 some hereditary influence was present in 5 boys and not present in 9. Between 10 and 20 it was present in 2 and not present in 3, while it was not present in a single case after 20, thus making it a factor in 7 cases only out of 22 among the men. Under 10 it was present in 10 girls and not present in 4; between 10 and 20 it was present in 14 and not present in 11, while it was noted in only 1 case after 20 (and that at the forty-fifth year), thus making it a factor in 20 cases out of 40 among the women.

The character of the emotional shock of fright is indicated in the following: "Fright from seeing an escaped lunatic"; "frightened by a drunken father"; "from seeing blood"; "from a dog bite"; "from being chased by a cow," etc.

As an illustration of the type of case in which emotional shock produces epilepsy, the following is a typical instance:

L. L. had the first convulsion when she was a girl of 9, due "to seeing an escaped lunatic." She has always been "very emotional and easily excited." She had 7 or 8 attacks at first every 24 hours, which condition persisted for some years; then they dropped to 4 or 5 a day until 1896, when she was 24. At that time they began to appear several days apart. At first they were entirely petit mal in character, but later changed to grand mal, with no aura. She has always fallen in such a way as to injure her face, having several times fractured her nose, and more than once her lower jaw. If there ever was an element of hysteria in her attacks it disappeared completely years ago, for she is a typical epileptic at this time, bearing in her face the only physical signs pathognomonic of the disease—a mass of scars acquired through repeatedly falling and injuring the same place—a part of the only true facies epileptica.

It sometimes happens that when the disease is caused through undue excitation of the psychic centers, the reapplication of the same excitation will produce an attack. There is now under my care a girl of 14 whose epilepsy appeared when she was 12, and was caused through fright on hearing the fire-alarm, and seeing the fire-engines go by in the night. While under my care there have been two occasions when she has heard similar alarms, and each time she had an attack.

This is a logical result for the unconscious association of ideas, and the results they produce are as definite in action as it is possible for memory associations to be.

A man who sat in Ford's theater in Washington the night Lincoln was assassinated saw the assassin enter the box in which the President sat; saw the flash of the pistol-shot, and witnessed the confusion that followed. Immediately in front sat a lady who wore a bunch of heliotrope on her dress—a flower of intense perfume. He caught the odor of this flower at the moment he saw the pistol fired and heard the noise, and for 30 years thereafter, when he told me the story, he never smelled the odor of heliotrope without seeing the whole tragic scene reenacted as distinctly as it was presented to him on that fateful night.

So it is that the sensory stimulation of any center or faculty that is organized into a definite action may be produced indefinitely under the reapplication of the same or similar causes.

"There is," says Thomas Watson, "another very singular occasional cause of epilepsy that deserves to be mentioned, namely the sight of a person in a fit of that disease."

Watson asserts that this fact has been noted time and again; that patients who already have the malady will fall in a convulsion at the sight of another one; that those who were previously affected may acquire the disease in this way; and even that the disease will "now and then run through a boarding-school or through the ward of a hospital."

Watson speaks of the possibility of these attacks be-

ing due to imitation, or to feigning, or most likely to hysteria, but finally declares they are epileptic.

I dissent unreservedly from the view of this writer that epilepsy may become epidemic in schools and in hospitals. Instances of the kind that Watson mentions should unquestionably be classed as due to hysteria; I do not for a moment doubt the power of an epileptic attack to excite a seizure *in another epileptic*, though it is comparatively rare. The constant association of epileptics, sensitive at first in this way, with other epileptics who have frequent seizures, causes them in time to lose such sensibility entirely.

Shortly after a large number of epileptics of all types and characters had been brought together very nearly 100 of them had to eat in a common dining-room. A violent seizure occurred at one of the dinner tables one day; the table was knocked over, and crockery and chairs smashed amid great noise and confusion. In a few seconds four other epileptics were in convulsions.

But it was not long before the occurrence of a fit in this room lost all power of causing attacks in others. It is the primary shock that does the damage.

A nurse reported an instance in which a man had a violent attack at midnight and awakened his companions about him, three of whom at once had epileptic convulsions. None of them were hysteric in any degree, the shock of sudden fright having brought on the attacks.

I recall two instances in which a young woman went into convulsions at the sight of a companion so affected, the attacks in both instances having occurred at night.

It has also been observed that when epileptic men and women meet in the same room for religious worship, or amusement, both sexes have more attacks proportionately than when one or the other attends alone. The reason for this is found in the psychic stimulation of passion, a recognized exciting cause in some cases.

According to Mosso, Pinel always began the examination of a patient by asking him whether he had not had some fright or great vexation. The same author states that through the vivid impressions, emotions may produce, the same effects may be sustained, as, for instance, through a blow on the head or some physical shock. Fear causes the loss of consciousness, sight, and speech.

Beger reports the cases of two perfectly healthy old men, one 65 the other 70, who had epileptic fits immediately after being frightened, though they had never suffered in that way before, nor were they predisposed to such a disease.

Kohts, in his account of the maladies caused by fright during the siege of Strasburg in 1870, gives a minute description of the cases of paralysis agitans and of convulsions which he observed; while we find numerous references in Hack Tuke's "Dictionary of Psychological Medicine" to the emotional state as a cause of epileptic attacks.

CHORIOEPITHELIOMA MALIGNUM, WITH REPORT OF A CASE.

BY

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We are all very familiar with cancer of the uterus, and we know that a sarcoma is occasionally found. But there is a third growth, first called deciduoma malignum, which has been deemed exceedingly rare, Ladinski in 1902 being able to find only ten cases described in this country. Is this growth infrequent simply because it has escaped our notice? As we become acquainted with the symptoms and course of this disease, can many of us look back and say that a certain case that was not understood at the time, was not probably a deciduoma? At any rate, many of the old pathologic specimens, which had been classified as cancer of the uterus, have, on reexamination, been found to be chorioepithelioma (Cullen).

The attention of the profession was first called to this disease by Sänger in 1888. He detailed the case of a woman, aged 23, who aborted at eight weeks, and died seven months later. At the autopsy there were found in the uterus, four peculiar reddish tumors which had given rise to metastatic growths in the lungs, diaphragm, rib, and iliac fossa. Histologically, he considered the cells identical with those of the maternal portion of the placenta; and therefore named the growth, deciduoma malignum.

Marchand, in 1895, published his observations, which have been confirmed by subsequent pathologists; and it is now generally accepted that the growth is from the fetal, and not from the maternal part of the placenta. Hence the name should be chorioepithelioma malignum. The fertilized ovum makes its way through the tube into the uterus and buries itself in the thickened endometrium, which is now called the decidua. The outside layer of the ovum, the chorion, becomes covered with villi, which eat into the decidua, cutting into the fine capillaries and causing the maternal blood to flow out into the blood spaces, in which the ends of the villi can float. These chorionic villi often sink into the muscular tissue of the uterus, and even in normal cases, pieces may float away in the maternal blood stream to distant parts of the mother's body (Poten). To show how deeply the villi may penetrate the uterus, it may be stated that in some cases of hydatidiform mole, the villi cut through to the peritoneal surface, producing fatal peritonitis, or even break through the peritoneum producing intra-abdominal hemorrhage (Williams). The villus has a central stroma which supports its bloodvessels, and this stroma is covered with epithelium consisting of two layers, the cells of Langhans, internally, and the syncytium externally. These two layers of cells may undergo cystic degeneration, appearing as grape-like masses of thin-walled vesicles, the hydatidiform mole; or, they may become malignant, producing chorioepithelioma, or, both processes may be combined. Poten and Vassmer have reported a case in which the vaginal metastases of chorioepithelioma have appeared while a mole was still in the uterus.

Nearly half the cases of chorioepithelioma are preceded by a hydatidiform mole, 40% of 128 cases recorded by Ladinski. This raises the question whether every mole is not liable to be followed by malignancy; and whether every chorioepithelioma is not preceded by some condition of degeneration like the mole. The cause of the mole has been supposed to be an inflammation of the endometrium; but twin cases of pregnancy have been recorded in which one ovum was perfectly normal and the other was a mole (Kahn-Benzinger). Furthermore, in about a fifth of all cases, chorioepithelioma follows pregnancy at full term, when the possibility of a mole is probably out of the question, and even the ordinary endometritis must be excluded; and cases are recorded of both hydatidiform mole (Otto, Wenzel) and chorioepithelioma (Ahlfeld, Marchand) arising in the ovum of extrauterine pregnancy. We are thus left in the dark as to the cause of the formation of the mole, and have no light shed on the origin of chorioepithelioma malignum. All that we know is that while nearly half the cases of chorioepithelioma are preceded by the expulsion of a mole, most moles are benign—a very small proportion being followed by malignancy. Findley,[1] however, found that 16% of 200 cases of mole became malignant. In about half the cases of chorioepithelioma, the trouble has made its first appearance as a growth in the vagina or on the vulva; in the other half, hemorrhage has been the first sign.

The first class is represented by the case of Williams,

[1] *American Medicine*, September 12, 1903, p. 451.

which was one of the first to be described, in which a tumor appeared on the vulva a week after full term normal labor. This small painful nodule increased in size, so that two weeks later it was as large as a hen's egg. It soon broke down and produced foul discharges. The patient died six months after labor. The nature of the growth was not suspected during life, but autopsy showed metastases in lungs, kidneys, spleen, and ovary; while a small tumor was found in the uterus.

My case is as follows, and represents the half of all cases beginning with hemorrhage:

Mrs. V., aged 35, mother of three children; youngest, aged 7, was first seen by me September 12, 1903, in consultation with Dr. Oberlander, of this city. Three years ago she had a miscarriage at three months. The family history was good, no tumors or malignant growths or tuberculosis being known. She had menstruated regularly until the last of 1902, when she passed over a period. In January, 1903, she had a profuse discharge, expelling pieces. She suffered very little pain, but believed there was a miscarriage. After this time, the flow became more and more frequent, and her periods lasted 10 or 12 days. For the past 12 weeks she had a continuous flow, which was generally quite free. The patient had become very anemic and had been confined to bed for some time. Six weeks before (August 1), Dr. Oberlander gave chloroform and cureted, removing a large mass of tissue. The patient, however, soon began to bleed again, and I was therefore asked to see her September 12, 1903. I found her extremely pale and weak; cachectic in appearance. The cervix was smooth and soft, and the uterus freely movable and enlarged to the size of a four-months' pregnancy. The bloody discharge was thin and dark, without odor; and there was no excoriation.

On September 15, 1903, the patient was anesthetized and the uterus was dilated. I expected to find the uterine canal stretched over a large, symmetric, submucous fibroid tumor; and I hoped to be able to stop the hemorrhage, temporarily, by thoroughly cureting, doing a hysterectomy later. I was amazed to find the uterus full of a soft, friable, dark material, seeming to be loosely attached at the fundus. It appeared like a dried down, full-term placenta. I told the husband that we were successful in removing the tumor and that his wife, in my judgment, would rapidly recover. The material was sent to a pathologist, who reported that he found only placental cells and blood clot, and no evidence of malignancy. The patient rapidly recovered strength and went home, and I expected to hear from her no more.

On December 13, however, I was called again, and made the following notes:

Operation September 15, three months ago; no bleeding for a month; some blood for about a day, October 15, November 1, and November 15. She had a very profuse hemorrhage November 26, December 6, and December 12, and there has been some blood most of the time for three weeks.

Examination showed the uterus freely movable, enlarged again as in a four-months' pregnancy. Discharge was thin, almost black, quite profuse; no excoriation and no odor. Blood: Red corpuscles, 2,500,000; white, 6,000; hemoglobin, 40%.

The patient was profoundly weak and anemic. As I had the history of such a rapid recovery of strength after the previous curetment, I advised that it be repeated, and followed later by a hysterectomy. December 15, I dilated the uterus and removed about a quart of brittle, dark tissue, which looked exactly like the previous material. The rapid recurrence of this placenta-like growth made me sure this must be a case of socalled deciduoma malignum.

The tissue was sent to a pathologist, who made the following statement: Placental tissue and blood clots, no cancer cells. The pathologist admitted the clinical diagnosis was plain, and it was probably a case of deciduoma malignum.

The patient was kept in bed, and it was hoped that she would recover sufficiently to undergo a hysterectomy. However, realizing the probability of metastatic growths, I did not have much hope. My intention however, was, to operate at once on the appearance of blood. January 6, 1904, in the night, without previous bleeding, she had a hemorrhage, and in a few minutes lost all the strength she had gained in three weeks. I at once had her taken to the operating-room and, without anesthetic, removed a similar mass of tissue. This was taken to Dr. H. S. Steensland, Director of the Pathologic Laboratory of Syracuse University Medical College, and the next day he reported that it was a case of chorioepithelioma.

The hemorrhage of January 7 took away my last chance to operate. The day before this hemorrhage, three weeks after the last curetment, the patient was in a fair condition and might have recovered from a rapid vaginal hysterectomy. After this time, her condition became desperate; she panted for breath, and was waxy white, and in a few days she again had a very profuse discharge. January 16, there was another hemorrhage, and my hand on the abdomen showed that in the nine days the uterus had again filled and was above the umbilicus. I again emptied the uterus. The hemorrhage stopped and the uterus contracted rapidly.

She died from anemia January 21, five days later.

Dr. Steensland's report of the examination of specimen and of the autopsy is appended.

Remarks.—My patient succumbed to hemorrhage from the original growth. Other patients are killed by metastases, which are found in about 70% of all cases (Dorland). The first symptom may be a hemiplegia (Krewer's case), and death may be caused by the brain growth before the physician has had any suspicion of uterine trouble. Generally death is caused by the hemorrhage from the original tumor, together with the mischief done by the metastatic growths in the lungs, brain, etc. Strange to say, in my case no metastatic growths could be found.

The case differed from cancer of the uterus in several important particulars. The patient at no time suffered pain. The uterus was always freely movable, and there were no enlarged glands. The discharges were always sweet, and they did not excoriate, although they finally became dark and almost watery. The age of the patient was 35. The average age in the cases collected by Ladinski was 32, which he shows is the average age of reproduction, and differs greatly from the average age of women having cancer, which is 54.

The case is remarkable on account of the more and more rapid recurrence of a large amount of newgrowth. In January, 1903, she passed large pieces of tissue, possibly a mole. August 1, Dr. Oberlander removed a large amount, and September 15, I cureted away nearly a quart, and this was repeated December 15, January 7, and January 16. The uterus was thus emptied five times. The condition and amount of the contents were apparently the same each time. The growth had extended through the uterus to the peritoneal surface, and the autopsy showed that the last curetment had dug away the tumor at one point, exactly to the peritoneum. It is remarkable that the growth had not caused peritonitis or rupture (Jakubasch, Krebs), and it was fortunate that the curet never perforated. As in many of these cases, a small ovarian cystoma was found at autopsy.

My patient lived about a year from the probable abortion. In Dorland's cases nearly 80% died within six months of the first manifestation of trouble, and in 60% the first symptoms appeared during or within four weeks of labor. However, this is not a hopelessly malignant disease, as in 20% of the cases recorded by Dorland and in 40% of the cases collected by Ladinski the patients recovered.

I find no record of the recovery of a patient left to nature, but I presume that there have been many such; that many women have had malignant hydatidiform mole and chorioepithelioma, and that the diseased tissue has come away and its presence has not been suspected. I am led to this belief by the fact that the original tumor may disappear from the uterus, leaving only the metastatic growths, which have been produced in the vagina, lungs, etc. (Pick, Busse, Krewer, Schmauch). Now, if the original tumor should disappear without metastases having been formed (and metastases are absent in about 30% of the known cases), the patient would recover without any suspicion of having been sick. Furthermore, it is possible that the patient might recover in spite of some metastases. In Ladinski's case the lung symptoms disappeared after removal of the primary growth, and some patients have recovered after removal of the metastatic growth in the vagina, when the surgeon had no reason to suspect a growth in the uterus, or the curet proved the uterus free from trouble (Schlagenhaufer).

The patient, then, has a fighting chance against the disease. Patients have recovered after incomplete operations on the original tumors and the metastatic growths (Noble, Fleischmann); others, after vaginal or abdominal hysterectomy, when the trouble seemed to be confined to the original tumor; and several have recovered, even after the removal of the original growth and the vaginal

metastases (Lomberg and Mannheimer, Freund, Poten and Vassmer, Pehan).

There is something, then, about their degree of malignancy that differs from that of the ordinary cancer of the uterus. They resemble more the socalled semi-malignant growths—as papillary ovarian tumors, which kill if they are left alone, but which are often overcome, even by an incomplete operation. Or else the malignancy differs very markedly in different cases. Or perhaps the difference is in the persons attacked. McFarland imagines that there is a struggle between the invading chorion, on the one hand, and the maternal defenses on the other; and that when the mother lacks the necessary resistance, she is overcome by the invading chorionic epithelium. Possibly the opposite is true, and the fault is with the ovum, which, on account of some inherent weakness, as inherited disease, is not able to withstand the attack of the maternal forces.

One thing is certain, there is a battle, and the mother has defenses. In Dorland's 51 cases the mortality was nearly 80%. In 124 of Ladinski's cases which include Dorland's cases, the mortality was less than 60%, showing a great improvement as more was known of the disease, making its earlier recognition possible. The great drawback to success has been, that we have not been familiar enough with this trouble, and have made our diagnosis too late to give the mother the necessary help.

PATHOLOGIC REPORT BY H. S. STEENSLAND.

Surgical case No. S. U. So4. 3.—January 7, 1904. Specimen consists of grayish tissue resembling placental tissue about 1.5 cm. in diameter; a mass of yellowish, necrotic, hemorrhagic tissue 1.5 cm. in diameter, and blood clot, in all about 4 cm. in diameter.

Microscopic examination shows the typic structure of deciduoma malignum.

Diagnosis: Deciduoma malignum (chorioepithelioma) [Marchand]).

Autopsy No. S. U. 04. 5, January 22, 1904; body of a well-developed, well-nourished woman; no metastases about the vulva or apparent on external examination of any part of body; body embalmed.

Peritoneal cavity: Peritoneal surfaces smooth and glistening; mesenteric lymph-nodes not enlarged; lesser peritoneal cavity without evident lesion; gallbladder free, moderately filled; tubes and ovaries free; uterus extends to a point 12 cm. above symphysis, and is free.

Pleural cavities: Each pleural cavity contains about 50 cc. clear, slightly reddish liquid.

Pericardial cavity contains about 75 cc. of similar liquid.

Heart: Valves and cavities without evident lesion; myocardium yellowish-red.

Lungs: Reddish-gray, somewhat increased in consistency. On section there escapes a large amount of slightly frothy liquid; bronchial lymph-nodes black.

Spleen measures 17.5x8x5.5 cm., soft; on section trabeculas and lymph nodules not evident; pulp considerably increased in amount; no tumor nodules evident.

Uterus 12.5x9x4.5 cm.; somewhat irregular in form. The fundus projects markedly above the base of the left tube. Over the apex of this projection, over an area 1.3 cm. in diameter, the wall is greenish in color, and extremely thin, consisting at this point only of the peritoneal layer. On opening, the uterus mucosa is smooth, except in the cornua. Arising from the wall in the right cornu is a foul, irregular mass, 3.5 cm. in diameter, arising from left cornu a similar mass 2 cm. in diameter. A third nodule, somewhat isolated from that in the right cornu consists of placenta-like tissue.

The following organs cut into gross serial sections 1 cc. to 2 cm. thick present no evident tumor nodules; heart, lungs, spleen, pancreas, liver, kidneys, adrenals. Gastrointestinal tract, bladder, vagina, without evident lesion. Left ovarian vein obliterated with a red thrombus. Microscopic examination of the thrombus shows no tumor tissue. Head not examined.

Anatomic diagnosis: Deciduoma malignum in wall of uterus; no metastases found; thrombosis of left ovarian vein; edema of lungs.

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Outpatients a Detriment to a Hospital.—According to the *British Medical Journal*, Sir Edmund Hay Currie, the secretary of the Hospital Sunday Fund, has forwarded to the secretaries of the 80 hospitals in London having outpatient departments, a resolution of the Distribution Committee, to the effect that the committee is of opinion that the serious increase in the number of outpatients (many of whom have trivial complaints) is detrimental to the welfare of hospital and patients, inasmuch as they are a burden to the funds of the hospitals and prevent the hospital staff from giving the necessary attention to serious cases. The committees of the hospitals are invited to express their opinions on this subject, and if they agree, to suggest a remedy before the end of the present financial year.

THE OPERATIVE TREATMENT OF CLEFT PALATE AND THE CAUSES OF FAILURE.[1]

BY

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Though the operation for the closure of a cleft of the hard and soft palate is not regarded as an undertaking of much magnitude, the successful closure of this deformity means much to the patient—almost as much as the repair of a torn sphincter ani muscle. Successful repair, however, does not invariably follow operation, indeed failure is not uncommon.

What are the causes of failure and how may they be avoided?

As you are aware, one of the cardinal principles of surgery is, that tissues must be brought together with little or no tension, if primary wound healing is to be secured.

In cleft palate, the result is almost certain to be good if accurate approximation of the cleft can be secured and maintained without tension. With this object in view, we should consider the treatment not only during

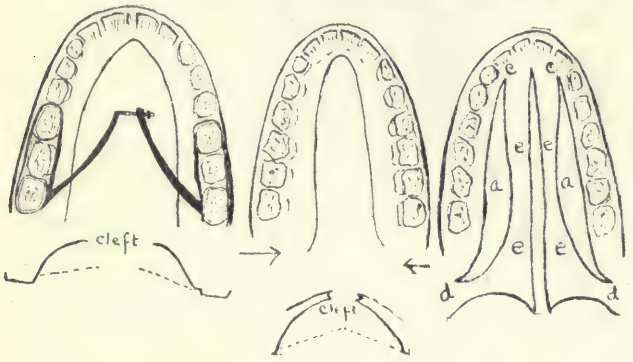


Fig. 1. Fig. 2. Fig. 3.

Fig. 1.—Before approximation of alveolar arches. Fig. 2.—After approximation by mechanical device. Fig. 3.—a, a, Relaxation incisions.

operation, but before, and after the operation proper, has been carried out.

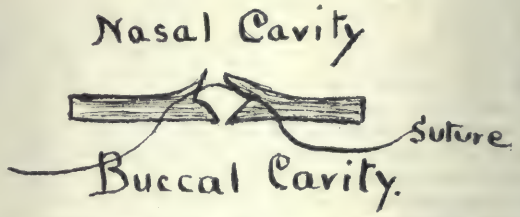
1. *Prior to Operation.*—Proper preparatory treatment, beyond doubt, contributes largely to the success of the operation. This consists in attaching to the three upper posterior molar teeth on either side, a ring or clamp, from the inner sides of which project a small threaded rod on one side to engage in a small nut attached to the other side (see Fig. 1). This device is placed in position by the surgeon or dentist from three to five months before operation, and the screw tightened a little once or twice a week. The effect of this is to draw the alveolar arches together very markedly, thus decreasing the width of the cleft, while at the same time the palatine arch is increased in height (see Fig. 2). The child complains somewhat of this metal bridge in the mouth for the first few days, after which time it seems to cause no annoyance. I submit one of the devices for your inspection, and would disclaim any originality in connection with it. Dr. C. M. George, dentist, who made it and first used it for me, states that he saw it in an old number of a dental journal. The increase in the height of the palatine arch, while diminishing the working space somewhat, does not do so to such an extent as to interfere with the necessary instrumental manipulation. The device is removed a day or two before operation, to be again placed in position several months after operation, when union has become firm and strong.

[1] Read before the Pittsburg Academy of Medicine, November 29, 1904.

It is now used to expand the alveolar arches to their normal position. Personal experience has demonstrated the value of this procedure, which I have not seen mentioned in connection with the treatment of cleft palate.

2. *During Operation.*—Paring the edges of the parts that are to be brought into apposition, may necessitate undue tension when the sutures are inserted, and is, therefore, to be avoided if possible. Splitting the edges of the two sides sacrifices no tissue, permits broader surfaces to be apposed, and thus favors union (see Fig. 4). Due allowance must be made for the subsequent swelling and edema of the parts when tying or shotting the

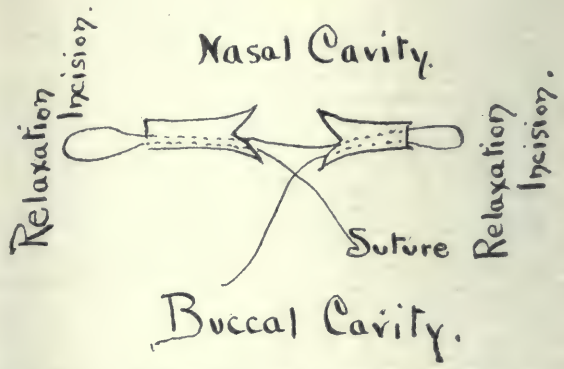
Fig. 4



sutures. The accurate adjustment of the edges and of the sutures demands the most careful attention.

3. *After Operation.*—Disregard of another wellknown surgical principle—the fact that wounds in healing tend to contract—is also productive of disastrous results. If the lateral relaxation incisions along the alveolar border, which gape widely when the flaps are approximated, (a, Fig. 3), are left to take care of themselves, they heal, as do most wounds of the mouth, with remarkable rapidity, contracting and pulling strongly upon the sutures. Devitalization of tissue from tension, and separation of the flaps in the median line, follows. They should, therefore, not be permitted to unite until all

Fig. 5.



danger from contraction has passed. Packing these incisions firmly with strips of iodoform gauze, prevents healing and contraction and holds the flaps in their new position toward the median line, after the manner of a splint, without interfering with their vitality.

To recapitulate, the preliminary narrowing of the cleft by approximation of the alveolar arches, splitting, instead of paring the edges of the flaps, and packing of the relaxation incisions, enable the operator to obtain good approximation without tension, a surgical desideratum under all circumstances, but deserving especial attention in this operation.

The vitality of the flaps is endangered if the relaxa-

tion incisions are carried too far forward. Fortunately, this is the narrowest part of the cleft, and, as a rule, an attachment sufficiently broad to maintain nutrition can be left.

A word or two as to the technic of the operation in general. While opposed to the use of chloroform under almost all circumstances, as a dangerous anesthetic, it must here be substituted for ether as soon as the operation proper begins. Chloroform anesthesia may be maintained, without interfering with the operator, by means of a sterile pad of gauze, held in a long, narrow forceps several inches from the mouth and nares.

A long silk suture passed through the tongue and held by an assistant, serves to keep that organ out of the way effectually.

A marked Trendelenburg posture, with the patient's head just above the knees of the operator, who sits facing the head of the table, prevents the blood from entering the trachea or esophagus, and affords the most advantageous position for the operative manipulations.

On account of the small working space available, considerable difficulty is encountered in making incisions at the proper angle. To overcome this, a knife with a very small blade and a thin, flexible shank of copper, such as I show you, has been devised by Dr. Buchanan. It is most valuable, and greatly facilitates the operation.

Proper postoperative treatment ranks next in importance to approximation without tension. In this connection, the withholding of all nourishment by mouth, both liquid and solid, as well as water, for two or three days after operation, has much to do with the favorable progress of the case. During this period, nutrition is maintained and thirst diminished by means of enemas of salt solution and one of the prepared liquid foods, administered every four to six hours. The addition of tincture of opium to the enema, aids in its retention and serves to quiet the patient. If deemed necessary, there is no objection to the use of morphin hypodermically. Talking is absolutely prohibited, in order that the parts may be kept at rest.

Frequent irrigation of the suture line and the relaxation incisions, as well as the nares, with the patient lying upon the back, is required to keep the parts clean. Any mild antiseptic solution, such as Thiersch's solution, may be used for this purpose. The gauze packing should be removed from the relaxation incisions at least once in 24 hours, and replaced after thorough cleansing.

Bequests to Medical Charities.—Miss Ellen Priscilla Bradley, of Eastbourne, Eng., has left £1,000 to Guy's Hospital, £200 to the Mother Superior of St. Mary's Hospital and Home, Queen's Square, Brighton, for the general purposes of that institution, and £100 to Princess Alice's Hospital at Eastbourne.

A Novel Claim.—It occasionally occurs, says *The Lancet*, that a claim for compensation is made by a patient in a case of asserted malpractice when our sympathy with the medical man does not prevent us from understanding the methods of reasoning which have led the patient to believe in the justice of his claim. But a claim which has just been made in all seriousness against the Blairgowrie town council is absolutely unrivalled for its lack of logical basis. The claimant was formerly a public official in Blairgowrie and he demands from the town council £2,320, being at the rate of £80 per annum since 1876, in consequence of blindness alleged to be due to the treatment of a medical gentleman, now deceased, who was at that time chief magistrate of the burg.

The Birthrate for Massachusetts.—Chief Charles F. Pidgin, in charge of the census now being taken, is making a special inquiry to determine the truth of the theory of race suicide. There will be a special enumeration of all married women in the State to learn the exact birthrate. The questions will relate to age at marriage, number of children born, date of birth of first child, number of children of mother's and grandmother's family. It is believed these statistics when compiled will show that the birthrate is about one child in each family every three years. The question of the occupation of women also is being inquired into to see if this has any influence on the birthrate. It is believed this is the first systematic inquiry in any State in reference to race suicide.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 9, 1905. [Vol. XLV, No. 11.]

1. Ocular Symptoms of Affections of the Accessory Sinuses of the Nose. WILLIAM CAMPBELL POSEY.
2. Acid Intoxication and Late Poisonous Effects of Anesthetics: Hepatic Toxemia; Acute Fatty Degeneration of the Liver Following Chloroform and Ether Anesthesia. (Concluded.) ARTHUR DEAN BEVAN and HENRY BAIRD FAVILL.
3. The Principles of Life. MARSHALL LANGTON PRICE.
4. Description of an Advancement Suture, with Collective Suggestions Regarding Operations on the Ocular Muscles. MARK D. STEVENSON.
5. The Value of the Various Forms of Hemoglobinometer. M. HOWARD FUSSELL and MARIUS B. MARCELLUS.
6. A Study of the Metabolism of Atrophic Infants and Children. A. H. WENTWORTH.
7. The Pathologic Effects of Alcohol on Rabbits: An Experimental Study. JULIUS FRIEDENWALD.
8. Pulmonary Streptothricosis: A Report of Two Cases and a Review of Those Hitherto Reported from a Clinical Standpoint. THOMAS G. ASHTON and GEORGE WILLIAM NORRIS.

1.—See *American Medicine*, Vol. X, No. 12, p. 474.
2.—See *American Medicine*, Vol. X, No. 6, p. 220.
3.—See *American Medicine*, Vol. X, No. 12, p. 474.
4.—See *American Medicine*, Vol. X, No. 9, p. 347.
5.—See *American Medicine*, Vol. X, No. 12, p. 472.

6.—The Metabolism of Atrophic Children.—A. H. Wentworth, after pointing out the possible sources of error, avoidable and unavoidable, in such research, reports the details of his investigation, the methods of analysis and controls, which were very careful and complete. The study included two observations of four days each, on each of two children; in one case a postmortem was obtained several months after the last study, but while metabolism observations have established a number of important facts, such as failure of absorption of certain kinds of food, they do not explain the causes of this failure. What has been done shows that the cause or causes of infantile atrophy are not to be discovered by metabolism investigations, and that this must be left to other lines of research.

7.—The Pathologic Effects of Alcohol on Rabbits.—J. Friedenwald says the results of a study of the effects of alcohol on rabbits has been already given by Professor Welch in the two-volume work of the "Committee of Fifty," on "The Physiologic Aspects of the Liquor Problem." One hundred and twenty rabbits were utilized, and the observations extended over a period of several years. The smallest weekly dose was 20 cc., the largest 50 cc. The animal that lived longest consumed over 10 liters of absolute alcohol, another consumed over 18 liters of whisky. There was a marked difference in the susceptibility of different animals, some dying after a few doses, others surviving for years. Young and small rabbits and pregnant females seemed most susceptible. The animals usually gained somewhat in weight at first; this was followed by a stationary period, and then a rapid fall preceding death. During intoxication, the temperature fell 1° to 1.5°. The blood-examinations showed a fall to half the normal in the percentage of hemoglobin, but no marked change in blood cells till just before death. The gastric free hydrochloric acid decreased under the influence of the alcohol, and in some cases albumin and casts were found in the urine; in some cases in which these were not found, the autopsy revealed kidney lesions. Alcohol evidently has a marked tendency to produce abortion in rabbits. Out of a series of 38 pregnant rabbits, 20 died of septicemia following abortion, and the organism of rabbit septicemia was found in all, though they had been thoroughly isolated from one another. Of the rest, nine had constant abortions, none coming to full term. Three had normal deliveries, but the young all died a few days after birth. Complete autopsies were made in all cases. The lesions found were fatty degeneration of the heart muscle, which was lacking in animals killed after cessation of the use of alcohol, showing that it was not a permanent condition; fatty lesions of the liver and kidneys were also observed in some cases, and occasionally liver cell necrosis, singly or in groups. The experiments failed to produce satisfactorily genuine hepatic cirrhosis, though the liver was found more or less cirrhotic in a few instances. Fatty degeneration of the kidney tubules, thickening of the vessels, and atrophy of the glomeruli were noted in

a number of cases; in others, no changes were observed. Evidences of gastric ulcerative processes were seen in a few instances, congestion was more common. The intestines were usually normal. The testicles frequently showed a diffuse fine deposition of fatty granules in the epithelium of the tubes and interstitial cells. The most notable changes in the brain, as reported by Dr. Berkley, were atrophy of the cortical cells, which was apparently quite marked.

8.—Pulmonary Streptothricosis.—T. G. Ashton and G. W. Norris report two cases of streptothricosis of the lungs and review the literature of the condition. They remark that one reason that this condition is not more often recognized is because it is not readily demonstrable by the ordinary carbol-fuchsin method of sputum examination. The microorganism has been found in many cases only after the Gram method has been employed, hence, in suspected tuberculosis, when the tubercle bacillus is lacking, recourse should be had to this method. Of course, the mere presence of the streptothrix in the sputum or tissues does not necessarily prove it to be the primary infection. It may be secondary, but there are cases in which this has been shown to be the main and probably the sole agency. The tendency to metastasis, especially in the acute bronchopneumonic type, is remarked, the skin and brain being the most frequent localities, but other tissues and organs have also been involved. Clinically, streptothricosis of the lungs appears in two forms, the acute bronchopneumonic form, pyemic in its later stages, and the chronic form, first described by Flexner, which is, clinically, almost identical with pulmonary tuberculosis. In both cases reported, the patients were treated by stimulation and nourishing diet, and one decidedly improved and left the hospital. The other, under the same treatment, became progressively worse, the infection being apparently more virulent.

Boston Medical and Surgical Journal.

September 7, 1905. [Vol. CLIII, No. 10.]

1. Causes of Disability after Fractures of the Lower Leg and Ankle. FREDERIC J. COTTON.
2. The Applied Anatomy of the Frontal Sinus. HARRIS P. MOSHER.
3. Some Interesting Features Connected with the Outbreak of Smallpox at North Adams, Mass., in 1904. LYMAN A. JONES.
4. A Study in Abnormal Psychology. (Concluded.) GEORGE M. PARKER.

1.—Causes of Disability after Fractures of the Lower Leg and Ankle.—F. J. Cotton is convinced that avoidable disabilities are due to (1) failure to restore the general long axis of the leg, whether local deformity is much or little; (2) mechanical damage to the ankle-joint or change in its plane; and (3) loss of motion from rigidity in muscles and tendons. He presents a study of 47 cases, followed to something like end-results, in which the disabilities were due to displacement of the bone ends, change of axis of the leg, damage to joints, interfering with their mechanism; arthritis (traumatic), static flat-foot (not from deformity, but following overuse of atrophic muscles), and to contractures. Displacements which do not preserve the general axis of the leg are commonly in the direction of valgus. The symptoms are those of flat-foot plus rigidity. Deviation in the opposite direction lessens the chance of a flat-foot strain. Backward bowing impedes the action of the tendo-achilles; forward displacement causes considerable clumsiness in gait. The writer considers stiffness after fixation as due to some reflex action, aggravated by long disuse, and tending to permanent shortening of the muscle. He allows, after two to four weeks, daily removal of apparatus and gentle active motion of the ankle-joint. Passive motion is more likely to do harm. [H.M.]

2.—Applied Anatomy of the Frontal Sinus.—H. P. Mosher describes the pyramidal form of the sinus, its size increasing with age, the character of its mucosa and its circulation, the varieties in type, the outward and backward prolongations and those into the crista galli and root of the nasal bone, the differences in size owing to deviations of the median septum, the incomplete or partial septums which interfere with drainage, the character of the anterior and posterior walls and of the floor, and he explains why puncture of the floor is rarely feasible. He notes the surgical importance of the posterior internal angle of the sinus, and points out the exact location of the pulley of the superior oblique, showing how this may be avoided in breaking through the roof of the orbit; he calls attention to the several avenues of possible infection, and describes methods of probing and catheterizing the nasofrontal ducts. [H.M.]

4.—A Study in Abnormal Psychology.—G. M. Parker reports a case in detail in which mental shock caused an acute narrowing of the field of consciousness, excluding nearly all else in the first and recurrent attacks. As time went on these attacks came and went with no traceable associative bonds, and concomitantly there appeared more of automatism. In a short time there was marked retroactive movement; a large part of past experience was lost. The amnesia meant accrement about the new nucleus, increase along the lower level at the expense of the upper normal level. Erosion of personality is not a bare descriptive term; it represents an actual condition. Although in this case we see no second personality, *per se*, it is evident that there was a stripping off of that which goes to make up personality and relation. The experimental hypnoid work, by its reclamation of the dissociated content, by the resynthesis thus obtained, by the reestablishment of the normal stream of consciousness, has afforded the final proof of an organized subconscious state bearing the mark of growth and development. [H.M.]

Medical Record.

September 9, 1905. [Vol. 68, No. 11.]

1. Sciatica and Its Treatment. WILLIAM M. LESZYNSKY.
2. A Scientific Classification of the Methods of Modifying Cow's Milk for Infant Feeding. GODFREY ROGER PISEK.
3. Kernig's Sign and Its Pathogenesis. G. B. HASSIN.
4. The Mechanics of Dorsal Pott's Disease. JOHN C. SCHAPPS.
5. The Ear Complications of Cerebrospinal Meningitis. CHRISTOPHER J. COLLES.
6. Ectopic Gestation Complicated by Mental Disturbance. FRED G. HODGSON.
7. Eye Injuries Due to Blows from the Corks of Ginger Ale Bottles. CHARLES GRAEF.

1.—Sciatica and Its Treatment.—William M. Leszynsky remarks that pain in the course of the sciatic nerve is common, but genuine sciatic neuralgia is rare. Most of the cases are really perineuritis or interstitial neuritis, while others are symptomatic of interference with nutrition of the nerve by some extrinsic lesion. The causes of sciatica are exposure to cold, overfatigue of the legs, and pressure on the nerve from habitual sitting, in persons whose metabolic processes are impaired by rheumatism, gout, diabetes, or alcoholism, injuries from lifting heavy weights, horseback or bicycle riding, sewing-machine work, etc. Sciatic pain occurs in diseases of all neighboring organs that are associated with compression of the sciatic nerve or sacral plexus. Such are tumors and inflammation in the pelvis, or of the spinal meninges, vertebral caries, uterine disease, pregnancy, parturition, malignant disease of rectum, hemorrhoids, hardened feces, sarcoma of femur, etc. It may result from fracture or dislocation of the thigh. It is rare from lead, mercury, or syphilis. Anemia, chlorosis, and hysteria have little influence in producing it. It may develop suddenly from exposure, or slowly when symptomatic of other diseases. The diagnosis is based on pain or tenderness over the nerve trunk, which radiates to the foot or toes, and diminution or loss of the achilles tendon reflex. When degenerative, it is accompanied by paralysis, atrophy, vasomotor disturbances, etc. In the treatment of sciatica the first thing is the diagnosis of the cause and its removal when possible. In acute cases heat by the hot wet pack, combined with rest and fixation, and hot saline enemas, relieve pain. The bowels should always be moved by enema, and calomel given to unload the bowel and eliminate poisons. Morphin or opium suppositories are always indicated to obtain sleep at night. Massage, if gentle, is useful. Linear cauterization is of value in relieving pain, as is the ice-bag at times. The continuous galvanic current in either direction is useful at the end of a week. It is more useful in mild, subacute or chronic cases. Mild cases will yield to hot packs, massage, and rectal irrigation. In subacute or chronic cases a modified rest cure is essential. Drugs are useless. Daily massage and passive movements and systematic exercises are useful. Hydrotherapy, in form of local wet pack, Scotch douche, etc., is

most valuable. Static or faradic electricity in the form of the brush is useful.

2.—Scientific Classification of the Methods of Modifying Cow's Milk for Infant Feeding.—Godfrey Roger Pisek classifies the principles involved in the methods of feeding now in vogue, so as to show the effects of the use of these methods. He divides the methods of infant feeding into seven groups. The first group contains all methods that affect the quantitative composition of milk—dilution, with fat and sugar addition, and whey and cream mixtures. To insure proper growth and development the infant needs as much tissue and energy foods as are found in human milk. The energy foods in cow's milk are in the same quantities as in human milk, but the tissue foods are in larger amounts. To reduce the quantity of proteids the milk is diluted, and to bring the energy and fat foods up to normal, sugar and fat must be added, otherwise the proteid must supply the energy. If this is not done the infant fails to gain in weight and strength as it should. If the amount of sugar is too great, as in condensed milk, the excess of energy food is converted into fat, and the child gains in weight; it is supposed to be growing, but in reality it is being stunted and deprived of its natural rights, for proteids are needed for true growth, as well as mineral salts for the bones. Whey feeding, with casein removed, can be used only temporarily, as it supplies no solid matter for the stomach to act on. The second group includes methods that inhibit rennet action and formation of curds by the use of alkalies. The normal reaction of mother's milk has been found to be acid. The alkalies prevent the formation of curd in the presence of soluble lime salts. The alkali is always in excess of the amount necessary to neutralize acidity. The effect of any alkali prevents the rennet action, and retards the action of the gastric secretions. Group three includes methods that retard rennet action and neutralize the acid of the gastric juice. Here basic compounds are formed with the casein, and all gastric digestion is prevented. Enough alkali is used to neutralize sour milk. Group four consists of methods which precipitate casein by acids. If sufficient acid is present it combines with the free casein and produces an insoluble precipitate like that of sour milk. Group five includes methods that profoundly alter the character of the milk—peptonizing, adding citrate and oxalate of ammonium, potassium, or sodium. They all prevent formation of rennet curds; the milk remains fluid. Group six contains the methods that indirectly alter milk—sterilizing, pasteurizing, boiling, etc. They prevent the action of the rennet ferment, or render it slower than normal. In group seven are placed the methods that alter the curds mechanically, as by addition of cereal gruels. The gelatinized starch of the gruel makes the curd of the milk softer and more easily digested.

3.—Kernig's Sign and Its Pathogenesis.—G. B. Hassin reviews the published observations relating to this sign, and draws the following conclusions regarding its causation: In Kernig's sign we have, first of all, to do with stretching of the sciatic nerve. In the healthy state this stretching seems not to produce any pathologic conditions; but in disease when the nerve itself is affected or the nerve roots are affected—which undoubtedly takes place in acute meningitis—the stretched, affected roots react correspondingly; the posterior roots by producing pain, and the motor roots by producing contraction of the corresponding muscles, in the case of the sciatic nerve, the flexor muscles. The pain arising from the stretching of the posterior roots makes the patient instinctively keep away from further stretching of the posterior roots, as it happens, for instance, in dislocations when the muscles respond with strong contraction to any active or passive movements in the dislocated joints, so that his explanation may be held, at least, as the simplest one we have for the understanding of the mechanism of Kernig's sign. The occasional occurrence of the sign in typhoid fever may be explained by the fact that the meninges are frequently affected in typhoid fever, so that the sign is due, not to the fever, but to the concomitant meningitis. Regarding other published cases in which Kernig's sign was present in the apparent absence of meningitis, it is hard to prove that in those cases the meninges were not affected, so that, commonly, Kernig's sign may be considered as a standard sign of inflammatory meningeal lesions, and, as being due to irritation of the spinal roots, produced by the stretching of the sciatic nerve.

4.—The Mechanics in Dorsal Pott's Disease.—John C. Schapps analyzes the factors concerned in the production of the deformity in dorsal Pott's disease, and lays particular stress on the sternal protrusion. The weakest point is the front of the chest, and without the sternal protrusion the spinal deformity cannot possibly take place. During the earlier stages of the disease, treatment in the recumbent position by some such apparatus as the Bradford frame is necessary, and the best and quickest results are obtained by treating the spine with the same gentleness as if it were fractured or otherwise acutely affected. The upright position should be deferred until the acute stage has passed, and the change should be a gradual and careful experiment. It is a fallacy to suppose that the spine can be fixed by a brace attached to the back. Other fallacies are belief in the efficiency of spinal leverage and the means of securing vertical relief.

5.—The Ear Complications in Cerebrospinal Meningitis.—C. J. Colles shows from the published statistics of more recent observers that it is exceedingly common, and states that both European and American statistics prove that a fifth to a sixth of all cases of acquired deafness are due to cerebrospinal fever alone, while at times the proportion caused by this disease has been much greater. The opinions of authorities vary, however, as to the aural affection itself and the seat of the lesion. Some consider that the lesion is a central one, but it is more probable, and is now generally accepted, that an inflammatory condition of the labyrinth is the causative factor. The pathology of the lesion is described, and reference is made to the frequent occurrence of acute otitis media in cerebrospinal fever as another, though less important, cause of deafness. The prognosis of the deafness is stated to be a very grave one, and treatment is unsatisfactory, though good results have been reported from the reduction of the labyrinthine pressure by the use of pilocarpin. Of 11 cases of cerebrospinal meningitis recently examined by the author, in only two were subjective or objective evidences of ear disease to be detected.

New York Medical Journal.

September 2, 1905. [Vol. LXXXII, No. 10.]

1. Resuscitation, by Manipulation of the Heart, of a Patient Apparently Dead from Shock. WILBUR S. CONKLING.
2. The Mephisto of the Pale Brotherhood of Disease; a Study of Masked Rheumatism, Based, not on Books, but Experience. GEORGE F. SOUWERS.
3. Notes on the Tropic Diseases of the Angola Highlands. (Concluded.) F. CREIGHTON WELLMAN.
4. Six Lectures on the Diseases of the Blood. JOHN M. SWAN.
5. End-results in Surgery of the Kidney, Based on a Study of 90 Cases, with 123 Operations. (Concluded.) ALBERT VANDERVEER.
6. A Contribution to the Surgery of Perforating Gastric Ulcer. (Concluded.) A. B. MITCHELL.
7. Some Heart Points for Medical Examiners. R. ELLIS.
8. Further Research in Tuberculosis. J. D. GIBSON.

1.—Resuscitation by Manipulation of the Heart.—The case reported by W. S. Conkling is that of a man of 47, who suffered from a very large wound of the chest, caused by razor or knife. He was in severe shock, as he had lost large quantities of blood. He was given a small amount of ether and the muscles and ribs sutured. Near the close of the operation the man apparently died. The author passed his index finger into the wound through an opening in the pericardial sac and manipulated the heart for a period of 40 to 60 seconds before he felt the slightest pulsation, then in from 3 to 5 seconds he felt another pulsation. The pulse gradually gained strength and the patient's recovery was uneventful. It is believed by the author and others present that it was at least two minutes from the cessation of the heart's action to the commencement of the manipulation. [C.A.O.]

3.—Diseases of the Angola Highlands.—F. C. Wellman gives a *précis* of his observations on the pathologic conditions occurring in the highlands of West Central Africa, extending over eight years. Among diseases discussed are malaria, filariasis, relapsing fever, trypanosomiasis, dysentery, ankylostomiasis, ascaris lumbricoides, tænia, chronic diarrhea, leprosy, yaws, multiple fibromas, ringworm, leukodermia, beriberi, endemic neuritis, hemoglobinuric fever, endemic hematuria,

etc. The diseases appearing from an examination of the sputum are almost nil. He has seen cases among natives closely simulating tuberculosis pulmonalis, but a careful examination of the sputum always negatived the diagnosis. There is, however, a distinct and peculiar affection of the chest very common throughout the whole country, to which the native name vonulo is applied. It is a nervous affection of the bronchi and bronchioli, depending on a peculiar diathesis. Sleeping-sickness does not occur in this immediate district, but is a scourge in some parts of the province. Local affections, such as hemorrhagic bullas, marginal ulceration of the gums, veldt sore, climatic buboes, keloids, goiter, tropic phagedena, myasis, and snake bites are discussed. Smallpox, chickenpox, mumps, influenza, and whoopingcough are also found here. Gonorrhea and syphilis have been introduced from the coast by whites and civilized blacks. They are on the increase. [C.A.O.]

5.—See *American Medicine*, Vol. X, No. 5, p. 182.

6.—Gastric Ulcer.—A. B. Mitchell offers a contribution to the surgery of perforating gastric ulcer. He takes up in some detail the symptoms, diagnosis and surgical treatment, and gives a report, in part, of 14 cases operated on in Ulster, with 7 recoveries; his own operations amounting to 6, with 3 recoveries. [C.A.O.]

7.—Heart Points.—R. Ellis gives some heart points for medical examiners. He says that a musical ear is of great value in heart examinations. Most murmurs are functional or cardiorespiratory. Advanced heart lesions may show no hypertrophy, no dilation, but merely a diseased valve, with signs of heart muscle degeneration. Cardiorespiratory murmurs disappear after a full expiration. Relative murmurs, from hearts weak after acute disease, disappear when the heart muscle recovers its normal tone. Limit all murmurs to one diseased valve, if possible, since postmortem examinations usually show one diseased valve, with relative leakage at another valve. An aortic regurgitation may produce four murmurs, with but one diseased valve. Each murmur must have its own maximum intensity and its own area of diffusion. An organic murmur is not always attended by the expected changes in the heart, in the pulmonary and peripheral circulation. The pulmonary second sound is usually greater than the aortic second until at the age of 30; about the same until 60, and less than aortic second after 60. Severe exercise, or acute disease, may temporarily enlarge a cardiac orifice without impairing the valves in the least. Postmortem records show that about half of all valvular lesions are recognized during life. The tricuspid valve is very seldom diseased, though it often leaks to relieve overtension in the right ventricle. A pulse that intermits occasionally, may be considered physiologic, but an irregular, intermittent pulse is almost always pathologic. First, study the heart as a pump muscle, then study the valves, then the vessels, and last, the nonorganic murmurs. [C.A.O.]

8.—Tuberculosis.—J. D. Gibson lays great stress on the early recognition of this disease, and he says that of all the single diagnostic measures the röntgen ray is the most positive. Nutrition is the first thing of importance in the treatment of all cases of tuberculosis. In the prebacillary stage, or the stage of emphysematous lightness with atelectasis, pulmonary exercises are of great benefit, increasing the amount of oxygen absorbed and the blood supply to the pulmonary tissues. In this stage, also, the röntgen ray and electricity are useful. With the electric spark or discharge we are able to make all the ozone and oxygen for inhalation that the patient can stand. [C.A.O.]

Medical News.

September 9, 1905. [Vol. 87, No. 11.]

1. The Recognition and Treatment of Pancreatic Inflammation. CARL BECK.
2. The Care of the Infant. HENRY P. DE FOREST.
3. The Pneumococcus as a Factor in Hemoptysis. LAWRENCE F. FLICK, M. P. RAVENEL and J. W. IRWIN.
4. Dermoid Cysts of the Mediastinum. (Continued.) ROGER S. MORRIS.
5. The Country Practitioner. B. R. RILEY.

1.—See *American Medicine*, Vol. IX, No. 20, p. 808.

2.—Care of the Infant.—H. P. de Forest gives a list of articles the mother should have in readiness for herself and the infant and the preparations which should be made for various obstetric accidents. If the cord is about the child's neck and there is any difficulty in its removal, he advises letting it alone and hastening the delivery. If there is danger of tearing the placenta loose, the cord may be cut between two artery forceps. He describes his own methods of artificial respiration, which permit at the same moment immersion in a hot bath and without change of position, mouth-to-mouth insufflation. For rhythmic traction on the tongue he uses a strand of silk passed through the posterior angle of the raphe, which, in case of necessity, can be held in the operator's teeth and used in connection with his method of artificial respiration, which is as follows: Place the thumb and index finger of the right hand on each side of the neck, with the head to the right, the baby on its back. The right or further arm is then grasped well in the axilla between the index and middle fingers, the ring and little fingers giving the spine support. The thighs are grasped from beneath by the left hand, the index finger between them. The thighs are well flexed over the abdomen during firm counter-pressure upon the back with the right hand to prevent the nostrils from being depressed below the surface of the bath. Inspiration is secured by overextension of the legs and neck, the back supported as above. He discusses the treatment of atelectasis, cephalhematoma, paralyses, fractures, the cord, eyes, mouth, nose, genitals, etc., and the feeding during the first few days. [H.M.]

3.—Pneumococcus as a Factor in Hemoptysis.—L. F. Flick, M. P. Ravenel and J. W. Irwin report a series of bacteriologic studies of the ejected blood of a number of cases of hemorrhage, in all of which the pneumococcus was found. The streptococcus was also present in most of these, but the pneumococcus was the vastly predominating organism in all but one. If the latter is responsible for the hemorrhages in tuberculosis, we shall have to change our views about both the etiology and treatment of hemoptysis, and shall probably be able to prevent hemorrhages to a much greater degree than in the past. The writers allude to several cases of hemorrhage following the introduction of a case of pneumonia into the same institution. [H. M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Aconitin: Its Unreliability in Practical Therapeusis.—The subject of internal administration of aconitin has recently been very thoroughly discussed by M. Alfred Martinet.[1] As this alkaloid enjoys the lofty reputation of being probably the most dangerous drug in the whole domain of the materia medica, the rules and regulations which are to govern its employment should represent the best of pharmacologic wisdom. M. Martinet reminds his readers that even Gübler himself, who helped so largely to popularize the use of aconite in cases of inveterate neuralgia, candidly stated his experience that aconite was the most capricious and unreliable remedy in the materia medica; that it sometimes displayed energies of a dangerous and startling type, while in other cases it manifested a degree of inertia which was actually ludicrous. That unreliability must, of course, be largely due to the uncertainty of the strength of the preparation used. This most important feature necessarily varies with the geographic origin of the plant, the portion of the same utilized for pharmaceutic purposes, its age at the time of gathering, and all the various conditions of the process of preparation—technical detail, personal equation of the laboratory operator, etc. In addition to these various disturbing factors, M. Martinet indicates with special emphasis the variable tolerance of the individual. But even after allowing for

[1] La Presse Médicale, April 29, 1905.

all these recognized factors of uncertainty, the unique unreliability of aconite preparations has still to be reckoned with. In this feature, aconite presents a very striking contrast to digitalis—the plant whose energetic physiologic properties are so readily suggestive of comparison. This dangerous uncertainty of aconite (and its powerful alkaloid) has had the effect of causing many physicians to abandon its use. M. Martinet has undertaken to oppose this rejection of a very valuable therapeutic agent. He bears the most enthusiastic testimony to the value of aconite in excruciating neuralgias of the trigeminal nerve. He instances, among other recent items of evidence, a case which he had an opportunity of observing in the clinic of M. Nélaton. The patient had had all three branches of the afflicted nerve resected in succession, but the facial neuralgia remained as agonizing as before. Extirpation of the gasserian ganglion was decided on as a last resort. The trial of aconitin was suggested, and before the day had ended the patient was able to declare himself "in paradise." The operation was, accordingly, postponed—indefinitely! The dangers which accompany the administration of aconitin can be guarded against in all cases, according to M. Martinet, by the use of a reliable preparation; and, while beginning with small doses, to carefully estimate the tolerance of the individual patient, the cumulative action of the alkaloid being always present to the mind of the physician. He asserts that by carefully observing the onset of the characteristic symptoms, the tolerance of the individual can be estimated with mathematic accuracy. (Those are, of course, sensations of cutaneous tingling, formication, and numbness; feeling of distention, increase in volume of the lips and tongue, then of the face and neck, next of the digital extremities, and, finally, of the limbs, with slowing of pulse and respiration.) They are the warning outposts of aconitin intoxication and always demand its immediate disuse, which is followed by their disappearance after an interval of one to three hours. Only some little physical and mental asthenia are then recognizable; and we are assured that by respecting the initial indications, all dangerous consequences of the use of this very powerful drug will in every case be avoided.

REVIEW OF LITERATURE

Meningococcal Septicemia.—Martini and Rhode,[1] write of a patient who was barracked in a hulk in which a man died of cerebrospinal meningitis two months before the onset of his disease. The hulk had been carefully disinfected before the last patient entered. The disease began with a chill, which was followed by fever, headache, backache, vertigo and general malaise. There was no rigidity of the muscles. The following day an exanthem appeared over the body except on the face. The spots were at first small, but later became larger and ecchymotic. On the second day of the disease cultures from the blood of the patient were made from which diplococci were isolated similar to those found in the cerebrospinal fluid in epidemic meningitis. On that day rigidity of the neck developed, and later the diplococcus was isolated from the fluid obtained at lumbar puncture. Cultures from the blood yielded the same organism the second time. A second lumbar puncture relieved the symptoms considerably. The bacteriologic examination was not carried out because of contamination, but during a third attempt at lumbar puncture the organisms were obtained from the thick substance aspirated; fluid was not present. The patient got well. To the authors' knowledge this is the first time *Diplococcus intracellularis meningitidis* was isolated from the blood. [J. F.]

Diagnostic Importance of Early Hemorrhage in Typhoid Fever.—Zuccola[2] believes that in the beginning of the typhoid infection we should commonly observe trifling hemorrhages, and that the feces frequently, at the end of the second week or start of the third, will show hemoglobinic pigment. At the end of the disease, too, there is a tendency to slight reappearances of bloody feces. (It is not made clear under what treatment, dietary or hygienic, these manifestations may occur, or whether paratyphoid or a mixed infection might not be responsible.) [T.H.E.]

Onset of Fear and of Pain in Cardiac Disturbance.—G. R. Wilson[1] says night terrors in children are sometimes of cardiac origin and accompanied by arrhythmia of the pulse, probably secondary to digestive disorder. In only one of his cases of paroxysmal fear was there organic disease. The derangement of the heart was generally irregularity and slowing from cardiac inhibition. He supposes the impulses produce vascular disturbances in the cortex and are misinterpreted into fears in exactly the same way as incoming stimuli are misreferred into pains in the arm, leg, testicle, etc. By explaining to patients that these attacks are due to cardiac irregularity, their distress of mind is greatly alleviated. [H.M.]

Symmetric Sarcomatous (?) Tumors of the Temporal Region and of the Buccal Mucosa (Chloroma ?).—The case to which Buschke[2] refers, had been treated with the iodids and with mercury before coming under his care. He found the left buccal mucosa covered with ulcers, which were irregular in outline and had undermined and infiltrated edges. Some of the ulcers were very small, the size of a pinhead, and were aphthous-like. Palpation of the surrounding tissue revealed evidence of an infiltration. The part was not very tender to the touch, but chewing gave rise to some inconvenience. In each temporal region was a tumor, the outlines of which were indefinite both to inspection and to palpation; they were hard, firmly attached to the underlying structure but not attached to the skin. The functions of the temporal muscles were little if any disturbed. The microscopic examination of the ulcers revealed a diffuse infiltration of lymphoid cells in the deeper portions, and superficially a necrosis. No bacteria or fungi were found in the sections. The absence of a syphilitic history and the fact that the condition was not relieved by the administration of mercury and the iodids rule out a luetic infection, while the absence of bacteria and fungi rule out tuberculosis and actinomycosis. He argues that with such an extensive local sarcomatous lesion there surely ought to be metastasis. He is strongly inclined to believe that he is dealing with a case of chloroma, although there is absence of greenish-tinged tissue and the blood changes. Under the treatment of arsenic the tumors disappeared and the ulcerations healed, but there was still an excess of large lymphocytes and transitional leukocytes in the blood. [J.F.]

The Minor Value of Kernig's Sign.—Arnaldo Amaducci[3] reviews the literature, and speaks interestingly of various forms of meningitis. The sign may appear in typhoid of the cerebrospinal type. The work of Moizard and Grenet is quoted. After all is said it remains true that: (1) The sign is not pathognomonic of any meningeal inflammation, or even of one special form of it; (2) taken by itself, it may have origin in purely peripheral disturbances; (3) Galli is especially in error because the mechanical and physical changes he asserts, *e. g.*, changes of internal pressure, are not constant in meningitis. The writer inclines to the view of the American, Herrick. [T.H.E.]

Observations Concerning Epidemics of German Measles.—In the epidemics of German measles observed by H. Bahrdt[4] there were many points in which the cases differed from each other and comparatively few of similarity, especially between the cases of the different epidemics. The only points in common were: The small size of the epidemics, the age of the patients, all of them being young children, the absence of grave symptoms and complications, and the fact that many exposed to the disease escaped. They differed from each other in the color and the appearance of the eruption, the time of eruption and the amount of the exanthem, the place of predilection and the size of the individual lesions. The type of fever and the duration of the exanthem varied very much also. About 25% of the patients had Koplik spots, but none had them before

[1] Berliner klinische Wochenschrift, No. 32, 1905.
[2] Il Policlinico (Rome), August 20, 1905.

[1] Medical Press and Circular, June 21, 1905.
[2] Berliner klinische Wochenschrift, No. 32, 1905.
[3] Il Policlinico (Rome), August 6, 1905.
[4] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 940.

the exanthem appeared; many had a distinct enanthem. The cervical glands were rarely enlarged and complications were very few in number. In spite of these many differences, Bahrdt does not consider them different diseases or even different types of the same disease. He warns against describing new infectious fevers, so long as their etiology is unknown to us, believing a new variety only to be properly considered, if all others are positively excluded. [E.L.]

Epidemic Cerebrospinal Meningitis.—In Silesian Prussia, there has been a severe outbreak of this disease, so that interest is general, and many writers, among them Michaelis,[1] discuss the etiology. In the cases which have occurred among soldiers, the microorganism of pneumonia seems to have played an important part. Pneumococci obtained from these cases injected into guineapigs have reproduced the typic manifestations of meningitis. Schuetz notes in horses who have taken long railway trips a similar disease and recovers *Meningococcus intracellularis*. Kirchner remarks that the failure to obtain the specific microorganism in true cases may be due to the fact that it is of feeble resistive power and goes out in the storm created by its own development. Hübner denies this. He believes it has a high resistive power, and should be found as late as the thirty-third day of the disease. The differentiation between tuberculous and epidemic attacks present difficulties, for the eruption is not constant in the latter. Cytodiagnosis must be relied upon. In the tuberculous form we find a prevalence of lymphoid cells and leukocytosis, which is absent in the other. No specific germs may be discoverable. Isolation is necessary. In the treatment it is well to order frequent hot bathing and to have free ingestion of liquids, as well as the injection per rectum of saline solution. Recent discussion turns on the path of infection, and by some the lymph tracts are suspected, but this is not a general opinion. It is interesting to know that in epidemics there is a tendency to increase on the part of cases of true tuberculous meningitis not easily explainable. [T.H.E.]

An Epidemic Simulating Influenza.—R. A. Dunn and M. H. Gordon[2] describe an epidemic occurring in the East Herts district of England. The disease was of sudden onset, with moderate fever, frequent sore throat, and enlarged cervical glands, headache, and myalgic pains, drowsiness, weakness and debility, nasal discharge, with sneezing and lacrimation. Herpes, chills, or chilliness, and vomiting were occasional symptoms. This is the picture of the "influenzal" type. A "scarlatinal" type was also observed in this same epidemic, characterized by an onset much like scarlet fever, with the angina, coated tongue changing to "strawberry" tongue, an erythematous and punctate rash appearing within 24 hours, disappearing in one to three days, and followed by a branny or lamellar desquamation. This form differed from scarlet fever in the absence of high fever and the presence of itching from the rash. A third, "cerebrospinal" type was also observed, resembling epidemic cerebrospinal meningitis in many ways, but differing in the mildness of the cases and the absence of herpetic or purpuric rashes. Bacteriologic investigations of this epidemic showed the persistent presence in all forms of a non-Gram-staining diplococcus. This organism was identified as *Micrococcus catarrhalis* of Pfeiffer, an organism found at times epidemically in bronchitis, bronchopneumonia, and other similar affections. It is important to distinguish this organism from some of greater pathogenicity, such as *Diplococcus intracellularis*; the distinction may be made by certain reactions described in detail. [B.K.]

Conditions Favoring the Formation of Acetone.—G. Satta[3] discusses the relations of this metabolism. Inanition causes an increase of acetone formation. When the carbon element is deprived, we find an increase of acetone, diacetic ethers, and oxybutyric acid. The ingestion of carbohydrates reduces the elimination of acetone. This effect arises from some relation of the fat producing the acetone to the proteid metabolism. [T.H.E.]

Sprue and Spurious Dysentery.—C. Begg[4] describes sprue as a tropic disease characterized by continued diarrhea, bulky, pale motions, out of all proportion to the food taken, with resulting emaciation. Most men treat it by diet and rest instead of by germicides. The writer has used santonin successfully, believing that the cure depends on a by-product formed by the action of light on the drug, the white santonin being absolutely useless. The liver is shrunken and the abdomen is often large and tumid in contrast with the wasted limbs. A postmortem has shown nothing abnormal in stomach, duodenum, cecum, or rectum, but destruction and infiltration of the esophageal mucosa and the surface of the intestine shut off by a layer of mucoid material and finally destroyed. Hence patients with perfect digestion and good appetities are starved from inability to absorb the food. In order to carry the santonin past the stomach, olive oil serves better than anything else. When the color of the feces improves, opium and proper diet will delay the progress of the food and aid absorption. Bloody stools diagnosed as dysenteric have been caused by sprue, by mucous colitis, and simple neglected diarrhea. A germicide is the first treatment indicated. Cleansing and disinfection of the intestinal canal is the keynote of success in all intestinal cases. Diet, rest, and change of air act simply by increasing resistance. [H.M.]

A Case of Mixed-cell Leukemia.—C. H. Browning[1] reports a case of leukemia, in which the differential count showed 38% polymorphonuclear neutrophiles, 12.8% myelocytes and transitionals, 4.5% eosinophiles, 40.7% large lymphocytes, 4% small lymphocytes, 0.2% mast cells. The total number of leukocytes was 98,300 per cubic millimeter. The great increase in myelocytes and large lymphocytes classes this case as one of mixed-cell leukemia. Myeloid leukemia is due to a hyperplasia of myeloid tissue; but the unknown causative agent is irregular in its action. Hence, any of the various granular types may predominate, or a mixed-cell blood picture may result from the reversion of many of the cells to the condition of the nongranular undifferentiated leukoblast, or from the hyperplasia of such nongranular cells normally present in the marrow in small numbers. In myeloid leukemia a mixed-cell blood picture may result from a reversion of myeloid cells to the embryonic nongranular type; while in lymphatic leukemia the same picture may result from a reactive or mechanical disturbance of myeloid tissue, owing to lymphoid hyperplasia, with the passage of myelocytes into the circulation. The author leaves the question open, whether the lymphoid and myeloid tissues may be simultaneously affected in a way similar to what occurs in lymphatics and myeloid leukemias, respectively. If such occurred, we would have a mixed leukemia in the strictest sense. [B.K.]

Diabetes Mellitus in a Child.—S. Frontini,[2] reporting the case of a girl of 11, believes that lesions of the pancreas, and especially of the islands of Langerhans, should be held responsible. At necropsy, was found cerebral hyperemia and edema, pulmonary edema, myocardial anemia, parenchymatous nephritis, follicuious enteritis, acute splenic tumefaction, degenerative hepatitis, atrophy of the pancreas, and persistence of the thymus body, curious in a girl of her advanced age. The author regrets that better study at necropsy of children is not the rule. [T.H.E.]

[1] Il Policlinico (Rome), July 9, 1905.
[2] British Medical Journal, August 26, 1905.
[3] Il Policlinico (Rome), August 13, 1905.
[4] Journal of the Royal Army Medical Corps, July, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Primary Carcinoma of the Vertebras.—Cancer of the osseous body axis may appear secondary to mammary infection, but primary disease is rare.[3] In 1894 Piskowski collected 19 cases. Raymond and Nageotte[4] in 1896 added to these 9 more instances. Péhn and Coste[5] in 1904 report an additional case. This last occurred in a man aged 56, who had during several

[1] The Lancet, August 19, 1905.
[2] Il Policlinico (Rome), August 20, 1905.
[3] Editorial, Il Policlinico (Rome), July 16, 1905.
[4] Journal of Neurologie, 1896, Nos. 1 and 2.
[5] Lyon Médical, October 9, 1904.

months peculiar girdle pains and lost weight steadily, after which at a clap he was seized with paraplegia, affecting the lower extremities, almost apoplectiform in character. Just before the attack the patient complained of a sharp, lancinating distress in the lumbar region. Both motor and sensory tracts were immediately involved. Urine was retained and the reflexes disappeared. After two days violaceous patches developed over the sacrum and the internal aspect of the left thigh. Moist rales in the pulmonary and bronchial tracts. Calomel in a single dose of 0.10 gm. was injected, in the supposition of medullary suffusion as the result of syphilitic arteritis. Death occurred in three days. The carcinomatous neoplasm was found at the level of the eighth and ninth dorsal vertebras. The rapid and lethal development of the disease should be remembered, for in many cases of sudden death the physician may be in doubt as to diagnosis in the absence of a necropsy. [T.H.E.]

Appendicostomy.—J. P. Tuttle[1] traces the development of this operation, whose object is the utilization of the appendix for irrigation and medication of the colon in chronic ulcerative and mucous colitis. Weir stitched the tip of the appendix to the skin. This left the greater part of it in the abdomen with the danger of causing acute flexure of the intestines, etc. Dawbarn was the first to pull the cecum into contact with the parietes, and this method is followed by most surgeons. The writer describes his own modifications of the technic. The operation is one of comparatively little danger, can be quickly done, affords ample access for irrigation, and the disagreeable features of artificial anus are practically eliminated. He prefers cold water in the different types of colitis, as it is the logical destroyer of the germs peculiar to these diseases, and it has proved successful in every case of amebic dysentery in which it has been applied directly to the affected seat. He gives a table of 21 cases collected. The operation may be done under cocain if there are no complications. There is no necessity to open the appendix until after the peritoneal cavity has been closed by adhesions. After the first ten days the patient can carry out the treatment for himself. He is not confined to his room or excluded from society. [H.M.]

Interscapulothoracic Amputation for Malignant Disease of the Upper Extremity.—E Jeanbrau[2] reports a case of osteosarcoma of the upper part of the humerus, involving also the soft tissues and axillary glands. An interscapulothoracic amputation of the whole extremity resulted in a cure, and the patient lived for over a year, dying of some undetermined cause at the end of that time. Shock is avoided in this extensive operation by a preliminary ligature of the subclavian artery, and by avoiding tension on the brachial plexus before cutting through it. In the same number, Jeanbrau and Riche[3] give a survey of 188 operations of this character, with the duration of life after operation. The operative mortality has fallen from 29.16% before 1887 to 7.84% since that date, owing to the introduction of the Berger-Farabeuf technic. The average duration of life after operation has been three years, a remarkable result, in consideration of the fact that the patients only consent to operation at a very advanced stage of the disease. Complete cure is possible, as witnessed by 24 cases, who have had no recurrence after five years. Berger[4] reports three new cases of interscapulothoracic amputation. The Berger-Farabeuf operation, referred to above, consists in a preliminary ligation of the subclavian artery and vein, practised through a resection of the middle third of the clavicle. Berger now proposes to simplify this procedure by a resection of the whole inner half of the clavicle, and a separation of the outer half up to the insertion of the deltoid. This gives a much better access to the subclavian vessels. The author divides all cases into three classes: (1) Those with tumor of the superior extremity of the humerus; (2) those with tumor of the scapula; (3) those in which both bones are involved, or in which the tumor has started in the soft parts. The operation is less serious and has a more favorable prognosis in the first class of cases than in the others. The author concludes that this operation should be proposed from the start in all cases of malignant disease of the superior extremity of the humerus. A limited extirpation of the growth, or a resection of the head of the humerus, may be proposed only with tumors of small size and little malignity, such as myxomas or chondromas. The larger operation may be necessary in some cases of chondroma, where the tumor has reached an enormous size. In malignant tumor of the scapula, the axilla, or shoulder-joint, the amputation is only justified in cases where the preservation of the extremity is incompatible with a complete extirpation of the growth. [B.K.]

Radical Operative Treatment of Chronic Gastric Ulcer.—A. Krogius[1] finds socalled palliative methods inefficient; hemorrhage and perforation have followed repeatedly. He relates 6 such cases briefly; in 5 he had performed gastroenterostomy; in 1, pyloroplasty; 3 patients had died of hemorrhage, the others of perforation, 1 to 23 days after the primary operation. The indications existing in these cases pointed clearly, according to the modern rules of the profession, to the palliative measures, and the complications could not in the least be foreseen. In other cases the symptoms of the ulceration are never bettered, or return in their old form at some subsequent period; a gastroenterostomy predisposes the patient to the production of a peptic ulcer of the jejunum, and in reality many such cases have been reported after gastroenterostomy operations. He concludes, therefore, that the dangers which the retention of an open gastric ulcer brings with it, outweigh the slightly increased immediate danger of the resection. This is also true of active ulcerations producing a stenosis, inasmuch as the palliative methods still leave the uncured ulcer behind; in cases of stenosis, the gastric ulcer having cicatrized, the simpler methods may be employed. In profuse hemorrhage from ulcers, the patient's life being threatened, it is better to risk interference than to look on while the patient bleeds to death. When a hemorrhage has been recovered from, he advises a radical operation in the interval. [E.L.]

Simultaneous Ligature of the Internal Carotid and Internal Jugular.—The operation is given by Achille Boari,[2] who had a case of traumatic hemorrhage and destruction involving the artery named. Recalling the advice of Ceci, he determined to include the vein in the operation, and the successful outcome has proved the exactitude of Ceci's reasoning that the circulation is more equably reestablished in this manner. [T.H.E.]

Gangrene of the Scrotum.—A. D. Whiting[3] classifies cases according to cause into those due to bacteria, to interference with the circulation, to heat or cold, and to injury of the trophic nerves. The symptoms vary with the cause. The prognosis should be guarded. Of 93 cases, 23 died. The testicles almost invariably retain their functions if the patient recovers. The most effective treatment is prophylactic. Interference with free flow of the urine must be corrected, wounds antisepticized, scrotal swellings incised, except when due to noninflammatory edema, when the underlying cause must be treated. Gangrenous tissue should be removed with strict antisepsis, with special attention to recesses in which pus might collect. The testicles will be covered by granulation tissue which will form a sufficiently useful scrotum, or a larger one may be formed by a plastic operation. Castration should never be done unless the testicles are gangrenous. Even when this is suspected, it is better to wait until nature throws off the sloughing portions before sacrificing the entire testicle. [H.M.]

Operative Results in Diffuse Peritonitis Following Perforation of Gastric or Duodenal Ulcers.—During the last five years Wiesinger has operated upon 16 individuals suffering from general peritonitis after perforation of gastric or duodenal ulcers. The outcome of these operations is discussed in detail by P. Bonheim.[4] All of the patients were operated upon as soon as they arrived at the hospital, no matter whether their condition was good or bad. Nine of the patients recovered, 7 died. Of the first 5 patients, 4 died, of the last 11, only 3; the last 5 patients recovered without a hitch. Bonheim be-

[1] American Journal of Surgery, June, 1905.
[2] Revue de Chirurgie, Ann. xxv, No. 8, p. 153.
[3] Ibid., p. 160.
[4] Ibid., p. 187.

[1] Archiv für klinische Chirurgie, 1905. lxxv, 817.
[2] Il Policlinico (Rome), August 20, 1905.
[3] Annals of Surgery, June, 1905.
[4] Deutsche Zeitschrift für Chirurgie, Vol. lxxv, No. 5, 389.

lieves this to have been due to the very large amounts of saline infusion injected into the veins of the patients both during and after the operation. It has been shown experimentally that peritonitis produces a variety of internal hemorrhage through the inflammatory dilation of the mesenteric and peritoneal vessels. The body thus loses most of its blood, the heart pumps itself empty, and the pulse gets small. The intravenous injection serves to keep the vascular system full, and maintains the work of the heart. The injections are continued until the cervical veins are distinctly filled. The chances of recovery are very small after the first 24 hours. The operative method used by Wiesinger does not differ from that employed generally; after the larger masses of fibrin are removed from the intestines with gauze, the abdominal cavity is cleansed with large quantities of warm normal saline solution; even when the intestines had been taken from the abdomen in toto no bad results were observed from this. The perforation is not always found with ease; it may be necessary to separate adhesions between stomach and liver, and to pull the stomach far forward. He always closes the perforation by inverting the ulcer and sewing through healthy serosa, or inverting omentum into the opening and sewing it to the stomach. He never excises the ulcers. A large tampon is placed over the closed ulcers and the abdominal wound closed layer by layer. [E.L.]

Syphilis of the Third Generation.—C. F. Marshall[1] reports a case of transmission of syphilis to the third generation. The grandmother had scars of multiple gummas about both knees. The mother had a gumma of the popliteal space and extensive destruction of the palate. Her first child had distinct saddle nose and frontal bosses. A consideration of the evidence presented by other writers shows that the degenerative or dystrophic effects of syphilis are transmissible to the third generation and possibly further, only to die out with sterility. Although difficult to prove, the transmission of virulent hereditary syphilis to the next generation is scientifically possible, as the signs of late hereditary syphilis may be delayed until the procreative age. Reinfection of a hereditarily syphilitic genitor increases the virulence of the disease and its fatal effects on the offspring. [B.K.]

Diaphragmatic Hernia in an Infant.—Smith[2] reports the case. The patient died at the age of 2, after a period of fever, stupor, and convulsions. Necropsy showed the hernia behind the liver, and just to the right of the esophageal opening. The tendinous portion of the diaphragm here was thinned and distended to look like a large hen's egg. Within the sac was most of the stomach. There were no adhesions and the tumor was quite reducible. [T.H.E]

Technic in Goiter Operations.—Riedel's[3] goiter operations number 622 now, and 223 of these were performed under local anesthesia. His technic is as follows: A semicircular incision is made from ear to ear, beginning 1 cm. below the auricle; 1½ in. above the lower border of the flap (base of neck) the long muscles of the neck are cut through, and the whole flap dissected upward to above the hyoid bone. The operation is performed under eucain anesthesia. The subcutaneous structures are filled with about a pint of freshly sterilized eucain solution, 1 to 1,000; the structures should be filled with it to almost a bursting point; after the skin is dissected up, the muscles should also be infiltrated with the solution. The bloodvessels, no matter how small, should be at once ligated, as the hemorrhage becomes freer with the wearing off of the eucain. The recurrent laryngeal nerve must be carefully looked for and pulled aside, after which the thyroid should be carefully loosened and dissected away from the neighboring structures. A small part of the thyroid should be left behind to prevent development of the cachexia strumipriva; this is best left on the right side, because of the position of the recurrent nerve. The dissection is best done from above down and from right to left. The wound is drained at both lower corners and then sutured. Before the operation, all adult patients are given a hypodermic injection of morphin. Children and carcinoma patients are given a general anesthesia; he finds that the operation is performed with much greater ease and satisfaction under local anesthesia, however, and the larger the goiter, the more benefit from local anesthesia. His results are very good, except in malignant cases. Sarcoma especially, has a bad prognosis; if carcinoma is removed early enough, recovery can occur; he advises early operation in all cases, but particularly in families having a carcinomatous history; if a goiter in such families turns to a carcinoma, the patient is doomed, operation or no operation. [E.L.]

Congenital Hypertrophic Stenosis of the Pylorus.—W. J. and J. R. Harper[1] report a case that is remarkable, chiefly on account of its recovery without operation. The chief symptoms of the condition are persistent vomiting of all food, usually starting about two or three weeks after birth, with obstinate constipation, progressive marasmus, visible peristalsis and dilation of the stomach, and often a palpable tumor in the pyloric region. Convulsions often occur as a result of the absorption of toxic material from the stomach. The successful treatment of this case consisted in the administration of small quantities of peptonized milk at frequent intervals, with a daily injection of a half pint normal saline solution. The authors also recommend lavage of the stomach twice daily, and abdominal massage with codliver oil.

The Origin of Malignant Growths; Treatment of Malignant Ulcerations by Balsam of Peru.—P. F. Eve[2] leans toward the theory which bases the origin of cancer on cell proliferation. He reports his results in foul fungous ulcerations with balsam of Peru, in which healing has occurred slowly but effectually. His view is that the balsam exerts some influence which changes the cancer cells into mature cells. If this theory is correct, then there is not a shadow of a doubt that both carcinoma and sarcoma are due to cell proliferation. [H.M.]

Malignant Disease of the Larynx: Total Laryngectomy.—Wallace I. Terry[3] reports that a man of 42, a farm laborer, about 5 years ago noticed beginning hoarseness; this continued for 3 years in about the same degree, but 2 years ago became decidedly worse. He was placed upon iodids in increasing doses up to 60 gr., 3 times a day, and during all the while the patient grew worse. He was admitted to the hospital and a low tracheotomy, followed by a laryngotomy, under cocain anesthesia, was done and a tumor mass, including the vocal cords, which were affected, was removed. Microscopic examination showed epithelioma. Three months later dyspnea having recurred, the patient was again operated upon, a laryngotomy under local anesthesia being done, and a number of small tumors from the upper and middle portion of the larynx removed. Microscopic examination again showed malignant disease. Nine days later the patient began röntgen-ray treatment, which, however, was discontinued without improvement, and 3 weeks after the second operation a third was performed, and complete laryngectomy was done after the method of Keen of Philadelphia. The operation is described in detail. The patient was furnished with a Glück phonation apparatus, and made a good recovery. Recurrence is expected by the writer. He states that he should have done a total laryngectomy at the first operation. [A.B.C.]

The Condition of the Bloodvessels during Shock.—J. D. Malcolm[4] maintains that it is a mistake to suppose that a fall of blood-pressure indicates absolutely that the vessels are dilated. On the contrary, a contraction of an individual vessel always reduces the pressure within that vessel, and the effect on other parts of the vascular system is not invariably the same. Shock is of nervous origin. An injury to a nerve causes contraction of the arterioles throughout the body. If the irritation is sufficiently severe and persistent, the contraction tends to increase and extend to larger vessels. The blood is forced into the central warmer parts of the body, the vessels of which probably relax on account of the physiologic necessity for the conservation of heat. The veins of the internal parts are possibly enlarged more than the arteries, and there is an increased

[1] The Lancet, August 26, 1905.
[2] Il Policlinico (Rome), August 13, 1905.
Deutsche medicinische Wochenschrift, 1905, xxxi, No. 22, 857.

[1] The Lancet, August 19, 1905.
[2] American Journal of Surgery, June, 1905.
[3] Annals of Surgery, June, 1904.
[4] The Lancet, August 26, 1905.

pressure in the portal system, but there is no loss of tone in any part of the vascular system. If the vessels in the splanchnic or other large area lose their tone, death must follow, as if from hemorrhage. During these processes the blood must be subjected to pressure, and the blood plasma is forced out of the vessels into the tissues, thus raising the specific gravity of the blood. The treatment of shock must be directed toward preventing the ill-effects of the local irritation, relaxing the vessels as soon as possible, and keeping up the blood-pressure in the superficial vessels until physiologic relaxation occurs. Nerve blocking by cocain, the administration of morphin, and perfect anesthesia are important measures in combating the first indication. Warmth, nitroglycerin, and alcohol are useful in dilating the vessels, as are also friction and the use of rubefacients. In order to keep up pressure in the vessels, hemorrhage must be avoided. The injection of saline fluids is of temporary assistance, as the fluid is soon expelled into the tissues. Pressure on the abdomen, bandaging the limbs, the use of adrenalin, ergot, and strychnin are beneficial for a time; but they increase the work of the heart to an enormous extent, and may contribute to death from heart failure. [B.K.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

The Spa Treatment of Circulatory Disorders.—Since the introduction of the Nauheim treatment for heart disease, there has been a tendency to recommend this resort and its methods rather promiscuously. L. Williams[1] insists that this line of treatment has only a limited field of application, and that other health resorts may also be beneficial in circulatory diseases. The principal effect of the Nauheim treatment is to increase the blood-pressure and thus stimulate the heart. The cases that are best suited to such treatment are those of dilation and weakness of the heart without valvular disease, such as occurs after influenza or typhoid fever. Many functional and neurotic conditions of the heart also respond to this treatment. In valvular disease, with or without compensation, the Nauheim treatment only increases the peripheral resistance to an already overacting heart, and may do great injury. The object of treatment in such cases should be to lessen the work of that organ. This may be done by a careful regulation of diet and exercise, and by promoting adequate excretion. It is possible to do this at home, but there is the danger that the patient will not adhere strictly to his instructions. It is in such cases that a sojourn at some health resort, under the supervision of a competent physician, is of the greatest value. Patients with broken compensation, however, are best treated at home. Many socalled functional disorders of the heart depend upon increased vascular resistance, and it is especially these cases that are amenable to the regulating treatment of a health resort. The particular resort is not of much consequence, but in a general way it may be said that any spa, at which gout is treated, is suitable. [B.K.] [The Nauheim treatment, like all else in therapeutics, must be "mixed with brains." It tends to diminish, and not as Williams states, to increase peripheral resistance. It is very useful in mitral diseases, especially stenosis, provided there is still a sufficient quantity of good, muscular fiber to respond and that there is not a high degree of arteriosclerosis. S.S.C.]

Experimental Contribution to the Treatment of Cholelithiasis.—By experimentation on dogs W. Bain[2] finds that gallstones introduced into a normal gallbladder become dissolved in a comparatively short space of time—eight to nine weeks. When a mild degree of cholecystitis is set up, the gallstones do not disappear, although there is always a reduction in weight. Ichthoform, cholelysin, olive oil, and calomel have no effect in resolving calculi that have been introduced into a gallbladder with inflamed mucous membrane. His experiments with sulfur water (that of Harrogate being used) coincide with the clinical observations that gallstones may be dissolved even in the presence of inflammatory changes. He also finds that a mixture of urotropin and iridin has a marked effect in dissolving the calculi of an artificially produced cholelithiasis. [B.K.]

Etiology and the Specific Therapy of Hay-fever.—Dunbar[1] tells us that if the blood-serum of horses injected with pollen be introduced subcutaneously, a local reddening and swelling results, but if the serum be placed upon the conjunctiva, no such changes are seen. These statements are based upon results of the treatment of several hundred cases of hay-fever. He has seen instances in which, after the application of the toxin pollen, the antitoxin failed to prevent inflammatory reaction, and this he explains by the fact that the tears and the mucus dissolved the toxin before the antitoxin could act. In every case, however, in which the antitoxin failed at first to prevent the reaction, the symptoms disappeared in a very short time—10 to 15 minutes—and the mucosa was then insensible to the pollen for some time after. Dunbar thinks it unnecessary to find a method by which the antitoxin can be used subcutaneously, since local application answers the purpose very well, except in severe instances of hay asthma or in the bronchitis frequently seen in America. Should the nasal mucosa be so swollen as to occlude the passages, the antitoxin can be applied to the conjunctiva, from which point it is carried to the nasal mucous membrane by way of the lacrimal canal. He uses the dried or powdered serum and finds that from 1 gm. to 3 gm. is sufficient to allay the attacks and free the patients of the distressing symptoms. During the hay-fever season, he advises patients to sleep with the doors and windows of the room closed, and since the mucous membranes are most sensitive in the morning he advises the use of the antitoxin, called pollantin, before getting out of bed (*sic*); the attacks come on so soon as the patient begins to move about and after coming in contact with cold water. The toxin of goldenrod and that of ragweed seem to him nearly identical, if not absolutely so. During the fall of 1904, after having passed through the hay-fever season of Hamburg, he arrived in Scotland just as the season began, but by the use of the pollantin he remained free from attacks; the same results were experienced while traveling in America during the hay-fever season. [J. F.] [Dunbar's advice to take the medicine "before getting out of bed" means to lie down again for 15 or 20 minutes after using it. This allows it time to become dissolved and effective. For the same reason, the recumbent position should be assumed for 10 or 15 minutes after applications in the course of the day. S.S.C.]

Treatment of Cerebrospinal Meningitis (Epidemic) with Diphtheria Antitoxin.—From his experience, Hirsch[2] concludes that in severe cases in which there was no doubt of the diagnosis the serum was of great value; it shortened the course of the disease and hastened recovery. There are other doubtful cases in which the results are not so gratifying; were it not for the epidemicity he would question the diagnosis of these cases. [J.F.]

Treatment of Acute Summer Diarrhea in Infants.—J. A. Coutts[3] withholds milk and gives a purgative, preferably calomel, when a case of acute gastroenteritis is seen in the first stages. After the vomiting and diarrhea have persisted for some time, a purgative is of doubtful advantage, and the treatment is that of these two symptoms, together with the collapse that usually accompanies them. The vomiting is best checked by washing out the stomach, by means of a tube introduced through the nose. This may be followed by the administration of $\frac{1}{10}$ gr. to $\frac{1}{8}$ gr. cocain, repeated once only, if necessary. This treatment is supplemented by a mustard poultice over the epigastrium, and the administration of bismuth carbonate and sodium bicarbonate, in doses of 5 gr. each. For the diarrhea, the author recommends $\frac{1}{4}$ gr. each of gray powder and Dover's powder every four hours. For persistent diarrhea, without vomiting, zinc oxid is recommended, supplemented by daily irrigation of the large bowel. The collapse is best treated by hypodermic injections of strychnin in large doses, together

[1] The Lancet, August 5, 1905.
British Medical Journal, August 5, 1905.

[1] Berliner klinische Wochenschrift, Nos. 29 and 30, 1905.
[2] Wiener klinische-therap. Wochenschrift, No. 30, Jhrg. xii, 1905.
[3] The Lancet, July 29, 1905.

with mustard baths. Enterocylsis may also be employed, a little whisky being added to the saline solution. For the first 24 to 48 hours, milk should be substituted by albumen water, raw meat juice, and like preparations. Whey may be tried, or a highly diluted, unsweetened, condensed milk. As soon as possible, however, cow's milk in proper dilution should be resumed, being boiled or sterilized. Even in healthy infants, it is better to lengthen the intervals of feeding and lessen the strength of the milk mixtures during hot weather. [B.K.] [Condensed milk should never be used. Bismuth salicylate is often preferable to the carbonate or nitrate. Benzonaphtol is also highly useful as an intestinal antiseptic and mild diuretic. S.S.C.]

NERVOUS AND MENTAL DISEASES

J. H. W. RHEIN. ALFRED GORDON.

EDITORIAL COMMENT

Treatment of the Insane in General Hospitals.—The progress made in the treatment of insanity has not been, perhaps, very rapid. It is difficult to get away from the old idea that insanity is incurable, and it may be that this is one of the reasons that any innovation in the treatment of mental disease is not received with open arms. It has been pretty well proved, mainly by the experience in Germany and Scotland, that mild forms of insanity may be successfully treated outside insane asylums and in properly conducted wards in general hospitals. The advantages of this method are not difficult to understand. The escape from the stigma that pursues one that has been committed is not the least of these; but still more important is the fact that patients can be placed under proper treatment in the early stages of the disease, at a time, perhaps, when commitment would not be justifiable and when resistance would probably be offered by the family to such a step. Sir John Batty Tuke[1] writes strongly in favor of the establishing of wards for the treatment of the insane in English general hospitals. Wards for the reception of socalled "nervous cases" were established at Glasgow in 1890. From 1899 to June, 1904, there were 1,345 admissions. Of these patients, 183 were sent to asylums, 86 died, and 1,052 were discharged, recovered or relieved. The average stay of these patients in the wards was 25 days. Tuke calls attention to the value of such wards as a clinic for the students of the Medical School of Glasgow. Such wards, by diminishing the number of admissions to insane asylums, would materially lower the expense to the community of caring for the insane in asylums. Irreparable harm is often done to mildly insane patients, when admitted to an asylum. Such patients may be admitted for a short time only, and may come away with a vivid memory of the harrowing sights witnessed while confined in a ward with persons in whom the mental disease has progressed much further. In treating these patients after their discharge from the asylums, great difficulty is encountered in combating this unpleasant memory, which is often so deeply rooted as to act as a predisposing cause for subsequent attacks of mental derangement.

Regeneration and Transplantation of Nerves.—Recently nerve transplantation has been employed to relieve Bell's palsy, anterior poliomyelitis, and the local palsies of hemiplegia. This surgical procedure is still in its infancy, and no absolute deductions can yet be drawn from the results thus far obtained. However, the results of experimentation upon animals, added to the somewhat limited experience with human beings, permit us to entertain some hope that good may be derived from such operations. Many experiments upon animals have demonstrated that—at least in animals—when one motor nerve, supplying one muscle group, is switched over to a motor nerve functionating another group of muscles, the first nerve may innervate the second group of muscles. Fleurens, in 1824, was probably the first to practise nerve crossing. He joined the proximal end of one nerve of a cock to the distal end of another nerve, and noted coordinating movements in the muscles supplied by the divided nerves. Basil Kilvington[1] has recently published the results of his studies along these lines, and his conclusions are valuable and interesting.

He finds (1) that two opposing groups of muscles may be functionated by a single nerve that has previously supplied one of these muscle groups; (2) that when the central end of one nerve is joined to the peripheral end of two nerves, more fibers are found in the peripheral nerves than in the central—showing that the fibers of the central nerve divide in going to the distal trunks; and (3) that in some cases branches from one nerve fiber supply opposing muscles, thus interfering with the restoration of delicate movements.

The result of his experiments lends weight to the argument in favor of attempting nerve transplantation in the human subject. This surgical operation should be confined to those cases in which the paralysis is localized to certain few muscle groups, and is contraindicated when there is paralysis of opposing muscles and when it is extensive.

Dementia Præcox.—When Kraepelin clinically described a symptom-complex that he termed dementia præcox, he succeeded in crystallizing the somewhat indefinite views previously held about diseases of the mind developing during puberty and early adult life. Under this title may be included the cases of hebephrenia and catatonia described by Kahlbaum, Joffroy, Hecker, and Christian. While dementia præcox is recognized by many eminent alienists, a few of the standard works on insanity fail to mention it. There is no doubt, however, that there are many cases that answer closely to the description of Kraepelin. On the other hand, it is a mistake to include under this title all forms of insanity developing during the first third of life. This is especially true, because a diagnosis of dementia præcox stamps the prognosis as hopeless. The early development of dementia should be looked upon as an important diagnostic symptom, and when this is absent, great caution should be observed in making a diagnosis of dementia præcox.

Pathogenesis of Herpes Zoster.—Trophic disturbances are not uncommon in tabes, but a zoster eruption is quite rare. The literature on the subject is very meager, only a few cases are on record (Henoch, Charcot, Westphal, Bernhardt, Head). Rauschke[2] reports an interesting case.

A woman of 66 in the course of two or three years developed the classic symptoms of tabes: Blindness, bladder disturbances, optic atrophy, Argyll-Robertson pupils, loss of tendo-achilles reflex, diminution of knee-jerks. The patient also suffered from attacks of gastric crises. The first eruption of herpes zoster appeared simultaneously with the first gastric crisis; the second occurred at the time when symptoms of disturbed function of the bladder made their appearance. The author discusses at length the pathogenesis of the affection.

According to some, herpes zoster is due to a disease of the spinal ganglions, while others believe it is the result of a peripheral neuritis and others still think the spinal cord is at fault. Head's conception of the origin of herpes zoster is very interesting. He found associated with the usual changes in the cord in tabes, inflammatory conditions in the spinal ganglions. He therefore puts the question, is herpes directly caused by tabes or is the latter only a predisposing factor. Head finds a certain relationship between the localization of the eruption and the inner organs. Rauschke, basing his conclusions upon these data, finds an explanation for the two outbreaks of herpes zoster in his case. The first attack appeared with the first gastric crisis. The stomach, according to Head, is in relation with the seventh and

[1] Brain, Spring, 1905.

[1] British Medical Journal, April 29, 1905, p 985.
[2] Centralblatt für Nervenheilkunde und Psychiatrie, No. 188.

ninth thoracic segment; the area of the skin affected with the herpes was at the level of sixth and seventh vertebras and is supplied by the sixth thoracic segment. Although this skin area does not correspond exactly to the segment of the stomach, it is nevertheless in the close proximity. Individual varieties in this respect are admitted by Head himself. The second outbreak of eruption occurred simultaneously with bladder disturbances which consisted of frequent micturition. The depressor of the bladder is in relation with the eleventh and twelfth thoracic segment; the eruption was at the level of the second and third lumbar vertebras, which corresponds to the eleventh thoracic segment of the cord. The occurrence of the eruption at the time of the appearance of gastric and bladder symptoms and their mutual relationship as to the localization is an important fact from the standpoint of the pathogenesis of herpes zoster. There can be no doubt that the origin of the latter may be central.

REVIEW OF LITERATURE

New Symptoms in Angina Pectoris.—G. A. Gibson[1] relates a case of angina pectoris presenting some hitherto undescribed symptoms. The patient was a man of 45, and presented as the first symptom of angina pectoris, pain in the chest and left arm, and breathlessness on exertion. It was found that the arterial pressure was always high, varying from 160 mm. to 170 mm. Hg. The pressure was raised during the paroxysm of pain, and the pulsation of the heart was regular and not rapid. The patient complained of constant pain over the back, extending down to the ninth intercostal space, and in front, extending down over the clavicle as far as the eighth intercostal space. It also involved the outer aspect of the left arm and forearm; and in the hand, it was felt in the thumb and in the index and middle fingers. The skin of the chest, back, arm, and forearm, on the left side, was hyperesthetic to every form of stimulus, while absolute anesthesia was present in the radial portion of the left hand, with the exception of a small area on the palmar surface, the size of a three-penny piece. The sternomastoid, trapezius, pectoralis, deltoid, and supinator muscles were more tender on the left side than on the right; elsewhere, there were no sensory disturbances. The triceps and supinator jerks were increased on the left side, while the myotatic irritability in the deltoid and in the muscles of the outer aspect of the left arm and forearm were increased. The faradic and galvanic excitability were also increased. The left arm was weaker than the right, the dynamometer registering 50 on the left side and 130 on the right. The circumference of the arm and forearm was less on the left side than on the right. Another interesting symptom was the prominence of the left eye, the pupil of which is larger than that of its fellow. While numbness of the arm has been observed in angina pectoris, the anesthesia described is unique. The wasting of the muscles, the author believes, to be analogous of the conditions found in arthritic muscular atrophy. [J.H.W.R.]

Centrifugal Conduction of Sensory Nerves.—The belief in existence of centrifugal sensory fibers, which stands in some relation with vasodilator and trophic nerves is, according to Kohnstamm,[2] based upon the following facts: 1. Effect of electric currents upon central sections of posterior roots when other posterior roots are irritated (Gotch, Horsley, Mislawsky). 2. Inflammatory symptoms of the eye, resulting from irritation of sensory trigeminal neurons. 3. Dilation of cutaneous blood-vessels through irritation of posterior roots, viz., sensory end-nerves (Stricker, Bayliss). 4. Cases of reflex herpes zoster, caused by irritation of inner organs. 5. Cases of herpes zoster as result of inflammation of spinal ganglions. 6. Loss of hair after the extirpation of the second cervical ganglion. [A.G.]

The Medical Treatment of Insanity.—Robert Jones[3] claims that the general principles of therapeutics, namely, the hygienic, prophylactic and therapeutic measures, apply to the treatment of insanity with perhaps even greater force than to that of general disease. It is very important to sustain the patient's strength with appropriate foods, such as raw meat, beef juice, peptonized beef tea, the yolk of eggs, milk and cereals, and, if there is delirium and exhaustion, the dry wines. Insomnia may be prevented by selecting proper food materials, as well as relieving secondary conditions, such as pain, uneasiness and mental anxiety. The author believes that sedatives should be employed. In treating insanity, it is important to remove abnormal conditions of the organism. He advocates the treatment of patients at home as long as possible, and at least for six weeks before committing them to an asylum. He uses venesection in cases of delirium with a full, bounding and firm pulse, and with symptoms of sthenic inflammation. Antimony combined with morphin, in his experience, is effective in cases of furious excitement. He has abandoned the use of hot baths in treating maniacal patients. He approves of the employment of the galvanic current passed through warm water in which the patient is immersed. In treating insomnia, he advises the use of paraldehyd, which, however, is contraindicated in phthisis or other bronchial affections. He employs amylene hydrate, sulfonal, trional and tetronal. Hyoscin is useful in cases of acute motor excitement. The best drug for insomnia, he claims, is the bromids, the only contraindications for which are poor circulation and anemia. Opium is useful to relieve acute mental depression, especially in old persons, but it is contraindicated in maniacal states. Jones advises the hypodermic administration of strychnin and digitalis in cases of exhaustion from acute insanity. Laxatives and purgatives in free doses are absolutely essential. In cases of acute insanity, he advises first the isolation of the patient in a quiet, dark room; then forced feeding, control of the motor excitement, tepid baths, the reduction of the fever, keeping up the strength, and, finally and of great importance, combating the insomnia. [J.H.W.R.]

The Tendo-achilles Jerk in Diphtheria.—J. D. Rolleston[1] has investigated this reflex in 100 cases of diphtheria during the time that the patients were bedfast, varying from the twentieth to the sixty-third day from the onset of the disease. It was affected in a considerable proportion of all the cases, although the extent to which it was affected was in direct relation to the character of the initial faucial attack. In all cases of diphtheric paraplegia the jerk is abolished completely. Its absence may be merely the expression of motor weakness. The tendo-achilles jerk is liable to be affected in the early stages of the disease; and, like the knee-jerk, it may remain absent after the diphtheric paralysis has disappeared. It may be unequally affected on the two sides and it is usually brisk before disappearing. Like the knee-jerk also, it may reappear on one side before it does so on the other. [J.H.W.R.]

Distal Arm Reflexes.—W. V. Bechterew[2] called attention to the importance of comparing the reflexes of the arm in deciding their significance. If a reflex is present on one side and absent on the other, or if the difference between the two sides is more or less marked they may be looked upon as of some diagnostic value. Nikitin, upon examining for the pectoral, humeroscapular, biceps, triceps, and lower radial and ulnar reflexes in v. Bechterew's clinic, found these reflexes unlike in degree on both sides in a very small percentage of the cases. These reflexes were found on one side in 2% (ulnar reflex to 9.3% (humeroscapular) of the cases. The diagnostic value of the arm reflexes is seen especially in affections of the peripheral or central motor neurons. In affections of the peripheral neurons these reflexes are lowered or absent, and this is to be determined by comparison with the healthy side. Destructive affections of the central neurons produce to a greater or less degree, increase of these reflexes. [J.H.W.R.]

Sensory Disturbances of Cerebral Origin.—There is a considerable amount of literature on the clinical and anatomic aspects of sensory disturbances in hemiplegia, but the disaccord is as great as ever. Schaffer[3] considers cerebral sensory disturbances clinically under three groups: 1. On the hemiplegic side there are irregularly distributed anesthetic or hypoanesthetic areas. 2. To the hemiplegia may be added a superimposed hemianesthesia which presents two subvarieties: (*a*) A

[1] Brain, Spring, 1905, p. 52.
[2] Centralblatt für Nervenheilkunde und Psychiatrie, 1905, No. 189.
[3] Journal of Nervous and Mental Disease, June, 1905, p. 366.

[1] Brain, Spring, 1905, p. 68.
[2] Neurologisches Centralblatt, May 1, 1905, p. 392.
[3] Centralblatt für Nervenheilkunde und Psychiatrie, 189, 1906.

total hemianesthesia which may be confounded with a hysteric hemianesthesia; (*b*) hemianesthesia which may not be uniform; the loss of sensation in the distal ends (hand and leg) gradual decreasing toward the proximal ends, where it becomes normal or hyperesthetic. 3. In bilateral hemiplegia there may be an anesthesia covering the entire body. As to the anatomic localization he sides with Dejerine and Long, according to whom the motor and sensory fibers of the internal capsule are intermingled, and reports two cases. In the first there was destruction of the knee and of the anterior two-thirds of the capsule; clinically there was a hemiplegia superimposed by a complete hemianesthesia. In the second case the cause of hemiplegia and hemianesthesia was a softening of the posterior third of the capsule. The cases, therefore, show that the posterior portion of the internal capsule is of a sensorimotor nature. He recalls a third case in which the condition was clinically and anatomically similar to the first two. The pathologic findings lead the author to the conclusion that whenever only one portion of the posterior limb of the capsule, is diseased, the hemiplegia and the superimposed hemianesthesia will not be complete, while in cases with total destruction the motor and sensory phenomena will be complete. Although this view is not shared by all, the accumulating facts are strongly in favor of it. [J.H.W.R.]

Delirium Tremens.—M. Reichardt[1] calls attention to the pathognomonic significance of the following symptom in delirium tremens: He claims that if one gives a patient suffering with this disease a blank sheet of paper and asks what he sees thereon, he will describe, without suggestion, numerous and heterogeneous hallucinations. Reichardt cites four illustrative cases. [J.H.W.R.]

Specific Antitoxin of the Blood-serum in Epileptics.—Ceni[2] reports his further investigations on the subject of the antitoxins. His experiments had for their object the determination of the relationship of the antitoxic properties of the blood-serum to the degree of affection. He therefore injected in epileptic individuals a mixture of serum and specific antiserum. He made three series of experiments: (1) With the blood-serum of ordinary epileptics during various phases o the disease; (2) with the blood-serum of graver cases of epilepsy (status epilepticus); (3) with serum of epileptics whose condition became aggravated from injections of specific antiserum. A careful and critical review of the results obtained led to the following conclusions: 1. The antitoxic effect of the blood-serum of epileptics as compared with the specific antiserum does not modify in the least the various phases of the ordinary form of the disease. 2. In serious cases of epilepsy, or still more in the periods of aggravation (status epilepticus, etc.), the antitoxin is markedly reduced and even disappears. 3. When the experiments are conducted with antiserum or highly toxic serum of epileptics, there is an aggravation of the condition, and at the same time diminution of the antitoxic power of the blood-serum in comparison with the specific antiserum. [J.H.W.R.]

A New Foot Reflex.—V. Vitek[3] described a new reflex. Percussion of the plantar surface of the foot over the first and second metatarsus causes a slight plantar flexion of the foot. He claims that this is present in a large percentage of healthy subjects, and is analogous to the patellar and tendo-achilles reflexes. This reflex was increased in cases of spastic spinal affections, and also in cases of neurasthenia and hysteria. In two cases the foot was extended instead of flexed. In normal conditions this does not occur. To develop this reflex the foot must lie vertical to the bed or chair, and the toes should be slightly extended dorsally. The muscles should be also relaxed. [J.H.W.R.]

The Pathologic Anatomy of Dementia Præcox.—G. Doutrebente and L. Marchand[4] describe a case with autopsy. The pia was thickened, and there was evidence of old hemorrhage. The inflammation was especially marked around the sulci. Embryonal cells were found, and there were some newly-formed vessels. The vessel walls were thickened. The pyramidal cells were almost all pigmented, and some appeared atrophied. The chromophilic granulations in the region not invaded by pigment were still visible. The nuclei were for the most part eccentric, and the nucleolus colored well. Throughout the cortex numerous round cells were found surrounding the pyramidal cells. They were not especially numerous around the vessels. They appeared to be lymphocytes. There was also an intense neuroglia sclerosis. The cerebellum and medulla oblongata were intact. The author concludes from a study of the few cases reported with autopsy, that there are two varieties of lesions met with: (1) That affecting the meninges and the different tissues of the cortex, and (2) lesions affecting exclusively the pyramidal cells. [J.H.W.R.]

Juvenile Tabes.—E. Hirtz and Lemaire[1] tabulate 46 cases and add a personal observation. They admit the clinical existence of this disease, although anatomic descriptions are lacking. Clinically, the disease begins usually with incontinence of urine, fulgurant pains or amblyopia. Incontinence of urine is most frequently the first symptom. The ataxia is usually slight, and the pains are rather rare. They believe that hereditary syphilis of the central nervous system rarely causes infantile tabes. It is an exceptional affection in the young, although the examples of this disease are becoming more frequent. [J.H.W.R.]

Neurofibromatosis of the Skin and the Central Nervous System.—Scoczynski[2] reports the history of a patient of 35 who presented nodules in the skin when a child. At the age of 24 there was loss of hearing, then blindness, immobile pupils, nystagmus, left facial paralysis, atrophy of the left half of the tongue, atrophy of some groups of muscles of the upper and lower extremities. Later the patient developed mental disturbances. Finally he died of aspiration pneumonia. At the autopsy numerous small tumors were found in the dura of the brain, at the base of the brain, in the medulla, pons, cerebellum, also in the eighth nerves. Far more numerous than in the brain were the tumors in the spinal cord, where not one root was spared. On microscopic examination pressure on the nervous system rather than real degeneration of nerve fibers was found. The tumors were seen to originate in the epineurium, while the nerve fibers pass around the tumors without showing pathologic changes. [A.G.]

Tuberculous General Paralysis.—Klippel[3] described a case of general paralysis of tuberculous origin in a man of 33, who died at the end of three years. The autopsy revealed the presence of caseous tubercles in the temporal lobe, the optic thalamus, and the cerebellum. In the immediate neighborhood of the tubercles there existed a tuberculous inflammatory lesion in the meninges and nervous tissue. He claims that his case proved the possible tuberculous origin of general paralysis. It is not a morbid entity in which the cause and the lesion are always the same. He concludes that general paralysis is a clinical syndrome characterized by an ensemble of symptoms and by an evolution of symptoms, which are the same when different pathogenic agents act upon the brain under certain conditions. These pathogenic agents may produce under other conditions different symptoms. [J.H.W.R.]

Diagnosis and Prognosis of the Ménière Symptom-complex.—By Ménière symptom-complex, v. Frankl-Hochwart[4] means difficulty in hearing, tinnitus, dizziness, and vomiting, which may be of apoplectiform character. He reports 6 cases under this heading, in 4 of which there was paralysis of the nervous mechanism; of hearing in 1 case, associated with paralysis of the facial nerve; and in another, involvement of the fifth nerve. The apoplectic type of traumatic origin was observed in 13 cases, of which 3 were the outcome of caisson disease, and the other 10 resulting from more or less severe concussion of the skull. He discusses the differential diagnosis of aural vertigo and other forms of vertigo the result of refraction anomalies; paralysis of the eye muscles; endogenous and exogenous poisonings; chemic substances (toxins), and intercirculatory disturbances, etc. Ménière symptom was observed complicating tabes and progressive

[1] Neurologisches Centralblatt, June 16, 1905, p. 551.
[2] Centralblatt für Nervenheilkunde und Psychiatrie, No. 189.
[3] Neurologisches Centralblatt, 1905, May 1, p. 402.
[4] Revue Neurologique, April 15, 1905.

[1] Revue Neurologique, March 15, 1905, p. 265.
[2] Centralblatt für Nervenheilkunde und Psychiatrie, 1905, No. 188.
[3] Revue Neurologique, April 15. 1905, p. 377.
[4] Neurologisches Centralblatt, May 1, 1905, p. 416.

paralysis. He calls attention to the difficulty in differentiating between Ménière symptom complex and the vertigo of arteriosclerosis. He quotes 2 cases of polyneuritis cerebralis Ménièriformis, a disease which v. Frankl-Hochwart described in 1895. The symptoms are acute unilateral facial paralysis with paralysis of the acoustic nerve, vertigo, tinnitus, vomiting, and not rarely an intercurrent involvement of the fifth nerve. Pseudo-Ménière disease may be found in epilepsy, hysteria and neurasthenia. As to the prognosis, he claims that few of the apoplectic cases of traumatic origin become materially better. In 74 cases with involvement of the middle ear, or labyrinth, the vertigo was cured in 40 cases, improved in 21, and remained unimproved in 13 cases. The tinnitus and the disturbance of hearing remained unchanged in most cases. The therapeutics of this disease consist in the local treatment of the ear affections, and especially the general treatment, *i. e.*, rest, associated with the administration of bromids and iodids, baths, high climate, and galvanization of the head. [J.H.W.R.]

Delusions of the Insane.—Robert H. Chase[1] has examined 150 patients with the view of studying the character of their delusions. He believes that a delusion primarily originates in a prevision of the vital feelings rather than of the intellectual activities. He divides delusions into those originating in a sense of adequacy, those originating in a sense of inadequacy, and those due to a morbid change of the ego. Delusions of inadequacy are the most frequent. The delusion originating in a disturbance of the vital feelings and the false idea appearing later, are the result of an effort on the part of the patient to reconcile himself to himself. Genuine delusions are limited in number, although the false ideas springing therefrom are numerous. Chase believes that delusions, as a rule, are not transient and changeable. [J.H.W.R.]

Vitiligo and Neuroglia Tumors of the Central Canal of the Cord.—L. Ferrio[2] claims that a number of published observations demonstrate some relation between vitiligo and nervous diseases. He describes a case in a man of 29 who, beside intense vitiligo, presented no trophic alterations, muscular atrophies, or gross alterations of sensation. The patient died before a complete examination of the nervous system was possible. The autopsy revealed the presence of a neoplasm extending from the conus terminalis to the first cervical segment, and consisting of an accumulation of cells, the nuclei of which were arranged in layers and whorls. The cells were irregular in form, resembling in some instances the form of the neuroglia cell. The cells were surrounded by fibrillary substance, which took the carmin stain faintly. They contained an irregular nucleus, which colored intensely with carmin or hematoxylin. This neoplasm was limited to the gray commissure and never invaded the white substance. The central canal was obliterated. There was no other degeneration nor any hemorrhage. [J.H.W.R.]

Abdominal Reflex in Typhoid Fever and Appendicitis in Infants.—J. A. Sicard[3] found, in 26 cases of typhoid fever in children, altered abdominal reflexes in 22 cases. This reflex is lowered or lost upon admission, and remains so during the fever period. Upon the day of the fall of the fever, or two or three days before, the reflex returned to the normal. In two cases this phenomena was of short duration only, while in two other cases the reflex remained normal during the whole course of the disease. In appendicitis the right abdominal reflex is either absent or only feebly present, while on the healthy side it remains normal. The return to normal of this reflex is a favorable indication. [J.H.W.R.]

Dementia Præcox.—M. Dide[4] takes some exception to the descriptions of Kraepelin. He believes that there is an affection, described by Morel, to which the name of dementia præcox may be given, and which is due to arrested development of the brain following puberty. He believes this to be a rare form, and corresponds to the simple form of the German authors. He prefers to give to the different mental diseases described by Kraepelin the name of subacute or chronic toxiinfectious psychosis, the primary form consisting of the hebephrenokatatonic states, and the secondary form consisting of the paranoid cases. The primary toxiinfectious psychosis is a clinical entity, beginning usually at the age of 25, manifesting itself by alternations of anxiety, stupor, and incoherent agitation. The origin of the condition may be found in the presence of an intestinal toxiinfection. Tuberculosis plays also an important role. The frequency of this form is about 10 in 100 of inmates of asylums. In the secondary form clinical manifestations appear rather later. In this form tuberculosis plays a less important part. Among patients of this category are the "déliriants dégénérés" of Waignan. [J.H.W.R.]

Convergent Spasm and Tabes.—Hans Curschmann[1] describes a case of tabes presenting a slight bilateral paralysis of the abducens, a slight horizontal and rotary nystagmus, but what was of particular interest, a convergence spasm in looking to the left, upward and inward, which was associated at the same time with a narrowing of both pupils. Curschmann calls attention to the rarity of nystagmus in tabes, and cites a number of statistics to prove this assertion. For instance, Leinbach did not find this symptom once in 400 cases of tabes, in which 26.5% suffered from some disturbance of the eye muscles. The spasm of convergence is still more rare, and is usually a symptom of some functional neurosis, especially hysteria. [J.H.W.R.]

Sympathetic Disseminated Choroiditis.—Henry Coppez[2] cites two cases. The affection is characterized by the appearance of small, round, yellow spots at the periphery of the choroid. Usually they are discrete, but sometimes they are confluent. They are found near the branches of the retinal vessels, which frequently pass through them. The surrounding parts are commonly very little involved. The papilla is slightly hyperemic, and the veins more or less dilated. The vitreous body remains transparent. The iris presents no special symptom, and there is little or no injection around the cornea. These spots disappear entirely after a few months, or are followed by atrophy; while others persist without modification. The prognosis is favorable, the majority of the cases ending in recovery. Treatment consists in the use of atropin and mercurial inunctions, and the patient should be confined in a dark room. Very few cases of this disease have appeared in literature. The author has been able to obtain only eight references.

The Operability and Symptomatology of Brain Tumors.—G. L. Walton and W. E. Paul[3] have studied 424 cases of brain tumor, which they classify under three headings: The operable, the inoperable, and the doubtful cases. The operable cases include the well-defined tumors that may be removed without infringing upon the brain substance. These tumors are endotheliomas, and usually arise from the dura. The inoperable cases include the tumors that involve the brain, the basal ganglions, the pituitary body, or the middle lobe of the cerebellum. The doubtful cases are the gliomas and the nonencapsulated sarcomas occurring at or near the surface of the brain, in regions accessible to the surgeon's knife, as well as the subtentorial tumors and cysts. Of the 424 cases studied, 7% were operable; 80%, inoperable; and 13%, doubtfully operable. The present day classification of brain tumors is simple, when compared with the table of Bernhardt, who described 25 distinct varieties. Almost all the tumors may be included under (1) growths of the nervous system (glioma); (2) growths of the connective-tissue (fibroma, sarcoma, endothelioma, angioma, angiosarcoma, osteoma) (3) growths of the epithelium (carcinoma, cholesteatoma); (4) the infectious granulomas; and (5) the parasitic cysts. The authors found that convulsions—accompanying, as they do, tumors situated in every position—give little help in locating the tumor. Convulsions are found more frequently in tumors of the frontal region, and less frequently when the tumor involves the basal ganglions. Headache and vomiting were present in a large number of the cases. Mental symptoms, including loss of memory, stupor, delusions, excitement, etc., were found in 97 cases. Every form of pupillary disturbance was recorded. In 123 cases the reflexes were increased; in 27, diminished, and increased

[1] Journal of Nervous and Mental Diseases, July, 1905, p. 454.
[2] Revue Neurologique, March 15, 1905, p. 283.
[3] La Presse Médicale, 1905, No. 3.
[4] Revue Neurologique, April 15, 1905, p. 381.

[1] Neurologisches Centralblatt, January 1, 1905, p. 10.
[2] Journal Médical de Bruxelles, August 17, 1905.
[3] Journal of Nervous and Mental Diseases, August, 1905, p. 481.

on the opposite side to the tumor in 13 cases. In one case only was the knee-jerk increased on the side of the tumor. The deep reflexes were lessened in 31 out of 135 cases, and increased in 53. The superficial reflexes were lessened in 12 out of 21 cases.

Functional Nervous Disturbances in Telephone Attendants after Electric Shocks.—G. W. Wallbaum[1] reports having treated a number of patients, who received electric shocks while connecting individuals "calling up," with the parties they wanted to talk to; before the operators had time to make the connection, the individuals repeatedly made and broke the connection, thus sending a slight shock through the operators each time. Usually these shocks are hardly noticed by the operator, they amounting to only 5 to 10 volts. Occasionally, however, the shock is very severe and some of the girls acquired serious disturbances of the nervous system. The cases teach the necessity of choosing the operators very carefully; girls coming from families in which nervous diseases of any kind are hereditary, should not be employed; the same is true of girls having lost one of their parents from some chronic disease; in such instances both the circulatory and nervous systems should be carefully inquired into. The symptom-complex of the condition is about as follows: The patients often faint, go off into clonic convulsions; have hysteric crying spells; their extremities, especially those of the affected side, swell up; there are disturbances of sensation, etc. Later the patients complain of headache, vertigo, neuralgic pain, especially during wet and cold weather, tonic and clonic spasms, abdominal cramps and different varieties of paralyses. They also suffer mentally, this manifesting itself chiefly in their inability to concentrate their thoughts during conversation. Some type of cardiac disturbance was noted in every case, and all of them presented features of hysteria. He considers the entire syndrome one of hysteria and warns against permitting the patients to return to their work for a long time, after the accident, even though a perfect recovery seems to have taken place. Suggestion therapy is the best means to cure the paralyses; the neuralgias require the static current; faradism is contraindicated. The ordinary headache remedies produced no result whatever, but cold compresses, static electricity and trional (the latter in severe cases) were of service. Simple and carbonated baths with massage were also useful. [E.L.]

Syndrome of Brown-Séquard in Hysteria.—Carlo Alberto Crispolti[2] reports a case at length, one occurring in a carter, aged 36, who has, since adolescence, been grossly addicted to the use of alcohol, chiefly in the form of wine. Drunkenness may incline to hysteria in males more frequently than has been admitted, and the use of alcohol should be inquired into when cases of hysteria are discovered in males otherwise without observable neuropathic taint. The writer concludes: 1. There is a form of hysteria occurring in individuals free of neuroticisms, which is due to chronic alcoholic overindulgence, and which should be termed alcoholic hysteria. 2. Cases of hysteria occur in which, latent for a time, the symptoms develop without any observable exciting cause. These attacks may be acute, fulminating, and impossible to account for, unless we accept some antecedent or "determining" cause. Alcoholism may fill this role. 3. Hemiplegia of the spinal type and a crossed hemianesthesia (syndrome of Brown-Séquard) may become a part of the clinical manifestation of this form of hysteria. [T.H.E.]

Muscular Reflexes in Nervous Diseases.—W. M. Bechterew[3] draws attention to the diagnostic importance of testing the muscular reflexes or the mechanical excitability of the muscles, manifesting itself in contractions under mechanical irritation, such as the stroke of a percussion hammer. Even in health these reflexes show considerable individual variations. The author has noted that muscular people show a smaller degree of this reflex irritability than those whose muscles are poorly developed. In pathologic cases it is important to know that in lesions of the peripheral neuron we find increased muscular reflexes, together with loss or diminution of the tendon reflexes. At the same time the muscular contractions are slow and sluggish, as in the reaction of degeneration. In fact, whenever we find this phenomenon we may safely predict the reaction of degeneration. In older cases of peripheral neuron lesions, when atrophy has taken place, the muscular reflexes gradually become weaker, but the sluggish contractions remain as long as the electric reaction of degeneration is present. Speaking of lesions of the central neuron, the author could not observe this sluggishness of contraction, although the muscular reflexes were markedly increased. The increase in such cases is different from the increase in peripheral neuron lesions; in central lesions there is marked increase of tendon reflexes, which are diminished or lost in peripheral lesions. These general remarks are followed by details pertaining to special lesions. [L.J.]

Tumor of the Pons.—Giovanni Biancone[1] reports a case and remarks that there are many on record, which are chiefly included in the monographs of Couty, Moeli and Marinesco, Van Oodt, and Schlesinger. The very complex syndrome is inconstant, and diagnosis becomes more an art than a science. A prognosis must be guarded, for cases are usually fatal. [T.H.E.]

A Combined Form of Hereditary Nervous Diseases.—R. Bing[2] reports a case combining the features of Friedreich's hereditary ataxia with one of the hereditary muscular dystrophies. The picture of the former condition was a classic one, the chief symptoms being a static and locomotor incoordination, beginning in the lower extremities. Westphal's sign, disturbances of speech, nystagmus, intention tremor, and Romberg's symptom. The foot deformity, typical of Friedreich's ataxia, was present to a certain degree, and sensory disturbances developed while the case was under observation. The muscular dystrophy was represented by pseudohypertrophic phenomena in the region of the shoulder girdle and upper extremities. These latter symptoms have never been described as a part of Friedreich's disease, and as they differ materially from the atrophic phenomena of hereditary ataxia, they must be regarded as a separate process. At autopsy the typic lesions of hereditary ataxia were found, namely, degeneration of the posterior columns in the spinal cord, the direct cerebellar tract, and Gower's tract; also chronic pachymeningitis and leptomeningitis, degenerations in the medulla and cerebellum. The muscular changes in the upper extremity were those of progressive muscular dystrophy, while those of the lower extremity greatly resembled those found in the peroneal type of hereditary muscular atrophy. The author believes that this case points to a close association and possibly common etiology of all these hereditary neuropathies. [B.K.]

A Suggestion for the Observation of New Paths in the Spinal Cord.—J. Mackenzie[3] thinks that the manner in which pain spreads often shows unmistakably that there must be paths independent of segmentation. The pain of angina pectoris may begin over the breast, pass to the armpit, and down the arm, never affecting any area except those in which the anterior branches of the upper four or five dorsal nerves are distributed. Hyperesthesia also shows that these nerves are affected, making it evident that the spinal cord has been stimulated along a longitudinal and not along a transverse path. The pursuing of a longitudinal rather than a segmental path is also seen in strong contractures of the musculature of the digestive tract, in which the pain does not follow the anatomic course of the peristaltic wave, but descends by some peculiar course in the spinal cord. A curious feature is the tendency of pain to radiate upward rather than downward. The writer has found after biliary colic, hyperesthesia as high as the armpit above, while downward it extended only a little below the liver. [H.M.]

Ischialgia.—Silvio Gavazzeni[1] reports a case of a man aged 46, who has done hard, laboring work all his life, several times being affected by rheumatism or, possibly, gout—the history is obscure. The etiology is concerned with the possibility of syphilis or chronic meningeal sclerosis. The neurilemma of the sciatic nerve may afford a site of metastasis. [T.H. E.]

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[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 18, 709.
[2] Il Policlinico (Rome), August Medical Section, 1905.
[3] Obosrenie Psychiatrii, May, 1905.

[1] Il Policlinico (Rome), August Medical Section, 1905.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 199.
[3] Medical Press and Circular, May 31, 1905.

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BERNARD KOHN
HELEN MURPHY

Legal Medicine
JOHN MARSHALL

General Surgery
J. CHALMERS DACOSTA
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LAWRENCE HENDEE
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Treatment
SOLOMON SOLIS COHEN
L. F. APPLEMAN

Nervous and Mental Diseases
J. H. W. RHEIN
ALFRED GORDON

Laryngology, Etc.
D. BRADEN KYLE

Ophthalmology
WALTER L. PYLE

Dermatology
M. B. HARTZELL

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The transmission of infection by flies has been so long recognized by the profession that it is a painful surprise to find it denied. The investigations into the dreadful conditions of military camps, both in this country in 1898 and later in South Africa, have conclusively proved that the theory is true in typhoid fever and bacillary dysentery and have left no reasonable doubt in many other infections. Dr. J. O. Cobb,[1] of the Public Health and Marine-Hospital Service, has called attention to almost identical conditions as to the tubercle bacillus in our cities, and there is not the slightest doubt, after reading his evidence, that we must consider the fly as one of the agents which carries this bacillus from host to host. When it was discovered that this organism did not very well survive drying, the danger of being infected by the dried sputum in the dust of city streets was found to be somewhat less than once believed, and though street cleaners and scrub women are known to be infected more than other people, yet there was quite naturally a reaction against the extreme measures to prevent expectoration in the streets. Dr. Cobb's article therefore was not only timely, but was of great importance, in that it proved the necessity of continuing the warfare against the spitting nuisance in public places. Recently some men have claimed that expectoration is a sanitary necessity, but it is more likely to prove to be only a bad habit, which ladies do not contract. In addition, a few have even put forth the old claim of personal liberty to spit where they please, whether it kills other people or not. The knowledge that flies do get at the live bacillus before it is dried and doubtless carry it to foods which then infect a new host, will go far in supporting our efforts to restrict the dangerous liberties of dangerous men.

The denial of the infectious agency of flies can therefore be based solely upon the idea that minute organisms are never the causes of disease. A contributor and subscriber has called attention to a remarkable article of this nature written by Dr. Thomas J. Mays, published in the New York *Sun* of August 29. It appears to be a general denial of the germ theory of infectious diseases, and though it acknowledges the benefit of this theory in a limited way, it is very painful reading, not only from its antagonism to one of the best proved facts of modern times, but also from its many inaccuracies. Mays details a few illustrations of yellow fever which are intended to show that mosquitos do not transmit this infection, yet every case he mentions can best be explained on the assumption that these insects have been the carriers. He states that this theory has never been given the crucial test of an extended practical trial and that the old methods of fighting the disease regardless of mosquitos have been repeatedly successful. Both of these statements are quite inaccurate. Not only did the Havana sanitary campaign prove that mosquitos are at fault, but every other campaign has been unsuccessful until cold weather came on, unless the mosquitos were incidentally eliminated in other ways. It is deplorable that any physician should promulgate ideas so opposed to proved medical facts and doubly deplorable that they are evidently intended to cast doubt upon methods of public sanitation proved to be necessary. The position of any infected man is sad at the best and the restrictions now placed around the tuberculous no doubt savor of the ancient attitude to the leper, but that is no reason for allowing him to spread the disease broadcast, bringing others to his unhappy fate, if it can be avoided.

Opinions of the minority should always receive careful and respectful consideration to avoid those sorry exhibitions of prejudice when the majority happens to be wrong. Yet it is only rarely that men like Jesty, Semmelweiss, Holmes, Auenbrugger, and Jenner, are in fact the prophets crying out in a wilderness of ignorance. As a rule, the men who place themselves in opposition to the whole scheme of things in general, are building theories without a basis of fact. It is the part of wisdom for those of us who think differently than all the rest of mankind, to suspect that the others may be right and ourselves wrong. Before opposing new ideas or committing ourselves to revolutionary opinions, it is necessary to look at the facts, and this does not seem to have been done by Dr. Mays. It is proper to examine his facts, if he has any to present, but those he has published do not authorize any opinions opposed to those held by the medical profession. It is quite evident that he is far from being a modern prophet, patiently bringing proofs of new ideas, or an Aaron preventing us following after false gods. We can repeat that this opposi-

[1] *American Medicine*, March 25, 1905.

tion to well-proved facts is painful reading and dangerous to the public welfare.

The Arsenic Craze in New Orleans.—It is too often necessary for public health officials to turn their attention from urgent tasks long enough to silence some misguided or impudent quack whose pretenses augment the public peril. Dr. Joseph H. White, Assistant Surgeon-General of the United States Public Health Service, in charge of the yellow fever campaign at New Orleans, has been obliged to take notice of the empty claims of Dr. Reginald Leach, of Minnesota, who proposed to immunize the whole population of New Orleans against yellow fever by small doses of arsenic. We congratulate Dr. White upon his speed and thoroughness in disposing of a pretender who had caught the public ear and bred a popular insanity, which, in itself, constituted a public menace. The whole story is told in New Orleans *Times-Democrat* for August 23, this paper having lent its powerful aid to the suppression of Dr. Leach. It appears that Surgeon-General Sternberg, of the United States army, made an adverse report on Leach's arsenization theory about 14 years ago. In 1898, Leach had a bill presented in Congress, proposing a commission to investigate his theory. During the cholera scare in New York, in 1892, Dr. Leach failed in an attempt to get a trial in cholera of his specific. In New Orleans, he succeeded in making quite an impression. It is said that something like 7,000,000 pills "prepared under the direction" of this deluded man, were sold to the people of New Orleans, before the exposure, which drove Dr. Leach back to Minnesota.

A Prophylactic Cocktail.—After acknowledging the public service of the *Times-Democrat* in the suppression of Dr. Leach, one notes with great regret that this paper is one of several southern newspapers which printed in the guise of news. a fake interview with a Dr. Hartman, a graduate of a wellknown Philadelphia school of medicine who prefers inethical methods to legitimate practice, the owner of a "sanitarium" in Columbus, O., and a very rich man through the sale of a cocktail mixture under the trade name of Peruna. The *Times-Democrat* (at regular advertising rates) advised its readers that Peruna is a reliable preventive of yellow fever, and should be taken daily while yellow fever is prevailing. When taxed with complicity in fraudulent advertising, the common refuge of newspaper men is to say that they have no ready means of recognizing the frauds among those who apply for space. For the benefit of the *Times-Democrat* and other confederates in the wretched liquor business of "Peruna," we refer to the September number of *Ladies' Home Journal*. On page 15 one finds two letters. One of them is a Peruna testimonial, dated from the House of Representatives, Washington, on February 4, 1899, addressed to the Peruna Medicine Company, and signed by Congressman George H. White, of North Carolina. The other letter is also signed by Congressman White, who says that the Peruna testimonial is "an absolute falsehood and forgery." On the same page is an illustration of a simple experiment, which anyone may repeat, showing the alcohol strength of Hostetter's Bitters, Peruna, and Lydia Pinkham's Vegetable Compound, as compared with beer. While a tablespoonful of beer will keep a Welsbach mantle incandescent for 20 seconds, the same quantity of Hostetter's Bitters will keep up incandescence for 4 minutes; Peruna for 2 minutes and 40 seconds; and the Pinkham stuff for 2 minutes and 35 seconds. Last April quite a sensation followed a raid of the temperance people in Maine on a department store owned by the governor of that State. A very large quantity of liquor was said to have been seized in that raid, but the newspaper accounts did not state, and it was not generally known, that Peruna was the brand on much of the liquor in that stock.

Governmental control of this illicit liquor traffic will be inaugurated on December 1 next, when a new ruling of the Commissioner of Internal Revenue will go into effect. This ruling is to the effect that on and after that date the manufacturers of these intoxicating preparations masquerading as medicines must take out licenses as rectifiers and liquor dealers, and that druggists handling them will have to pay the retail liquor license. The rule authorizes collectors of internal revenue to impose the special tax upon manufacturers of every compound composed of distilled spirits, even though drugs are declared to have been added thereto, "when their presence is not discoverable by chemic analysis or it is found that the quantity of drugs in the preparation is so small as to have no appreciable effect on the liquor. The same ruling applies to every alcoholic compound labeled as a remedy for diseases and containing, in addition to distilled spirits, only substances or ingredients, which, however large their quantity, are not of a character to impart any medicinal qualities to the compound." Congratulations are due to those medical journals, the prominent weekly lay journals, and to the sane and efficient workers of the Woman's Christian Temperance Union, who have assisted in bringing about this consummation. An internal revenue stamp upon these preparations would aid materially in classifying them in a manner calculated to prohibit their use by those who seek indulgence of a secret vice without incurring the opprobrium of their "moderate steady drinking." The preparations at which the measure is particularly aimed have had immense sales in prohibition communities, figures collected in Massachusetts recently showing that one compound, with a high percentage of whisky, had been bought to the extent of 300,000 bottles in a year in prohibition communities of one New England State.

The attitude of nostrum manufacturers is naturally that of high indignation, and already strong influence is being brought to bear on the question. It is, of course, well known that the great strength of the patent medicine abuse lies in the value of its advertising to country newspapers, and in their power over Congressional representatives. Contracts have been made with local newspapers containing a proviso that they would become void on the passage of pure food laws. It has long been the aim of the reformers to require pub-

licity for the formulas of all socalled "patent," really secret medicines, so that opiates and other dangerous admixtures might be revealed. The influence of country advertising has impeded all such legislative efforts. This ruling of the Treasury, however, does not reach the greatest evil, since the freer the whisky is from noxious drugs, the greater its liability to be taxed. The measure is a reversal of the practice of the department, which has heretofore accepted the sworn statements of the manufacturers as to the ingredients. Hereafter this will be determined, not by the declaration of the manufacturers, but by the government chemists, who will go into the open market and buy proprietary articles under suspicion. The department refuses to make known the ones which it believes will be subject to this tax on December 1, but by that time a list will be prepared. The manufacturers of these articles are preparing, it is said, to change their formulas by adding enough comparatively harmless drugs to bring their products within the scope of exemption, thus circumventing the law. The department holds that whisky itself has medicinal properties, and that any compound to escape taxation must have other medicinal properties than those of the distilled spirits.

An Apology for Texas Quarantine.—*The Texas State Journal of Medicine* complains that *American Medicine* has raised its voice, as certain secular papers have done, in criticism of the "Texas shot-gun quarantine." "Texas," our contemporary says, "has had no rabid quarantine. Armed guards are necessarily placed on the border to encourage many to enter the detention camps who otherwise might not be so disposed." Dr. Tabor recently received a telegram from Dr. Souchon, of New Orleans, congratulating him on the effective and reasonable quarantine adopted by Texas, which is itself sufficient answer to ignorant and unjust criticism of Texas "regulations." In the editorial complained of, the reference to Texas quarantine was completed in 34 words; space enough to be both ignorant and unjust. We said: "In Texas all the possibilities of sanitary government, for good or evil, are entrusted to one man, and he has aimed at New Orleans a kind of quarantine that is best described as rabid." Possibly it was unjust to speak of the Texas quarantine as rabid. The word rabid suggests teeth and claws, but we did not expect to be taken so literally, for we understand that firearms are used "to encourage" those who hesitate at the gateways of Texas quarantine. The usual phrase, "shot-gun quarantine," is certainly more definite. It is not surprising that Dr. Souchon, of Louisiana, has sent an appreciative telegram to Dr. Tabor, of Texas. Very likely he has demeaned himself as gracefully toward Governor Vardaman, of Mississippi. In 1903 Louisiana operated against Texas a quarantine as efficient and as reasonable as that which Texas has now brought to bear on Louisiana. Louisiana, Mississippi, and Alabama were not infected from Texas, and were therefore satisfied with their quarantine operations in 1903 and 1904. In 1905, Texas has not been infected from Louisiana, and credits her exemption to the quarantine, while Alabama and Mississippi have lapsed from the praise of quarantine, though steadfast in its practice. Difficult as it is to realize the need of armed men in such work, we dare not say that Texas should omit any of her stringent regulations. "The appearance of one case of yellow fever in a prominent city of Texas," our contemporary says, "would cost that city a quarter to a half million dollars in business. So long as the laws of Texas grant such large and independent authority to counties to establish and maintain quarantine at their discretion, in case yellow fever shall gain entrance, it is not improbable that unnecessary and unreasonable restrictions might be inaugurated."

The Condition of Public Health Work in Texas and Other States.—To defend such perils as these, Texas is perhaps right to detain passengers from infected territory for six days, and to put armed guards over all through passengers while traversing the State. Fifteen detention camps are needed on the State border, so they say. There are but six, and many of these are overcrowded. Fords, ferries, bridges and wagon roads are patrolled by armed men. We may admit that all these things are necessary for Texas, and for Mississippi, and a little later perhaps for Louisiana, but the spectacle is, nevertheless, worthier of the Fourteenth century than of the Twentieth. Such methods would not be necessary if Texas had 10 or 15 years' experience in real sanitary government. It is for want of a modern public health service that Texas must resort to such clumsy and uncertain defenses. The circumstance that all the quarantine power of Texas is vested in one man does not bring Texas into contrast with other Gulf States. That is a very minor distinction, and our remarks do not imply a definite criticism of Dr. Tabor, who is as good as the other players at the ancient game of quarantine. In four of the Gulf States the scheme of sanitary organization contemplates but one disease—yellow fever. One might as rationally conceive a fire department equipped against only such fires as are caused by lightning. Of course, then Boards of Health cannot handle yellow fever, or any other serious problem in hygiene.

Experience and Work in Sanitation Necessary.—When Texas and certain other States set daily tasks in State medicine, their health officials will learn its practice. They need to know something about the people whom they are supposed to defend, about their soil, water-supplies, and disposal of waste, to know when and how the people are sick, and the time, places, and causes of death. They might be exercised in the practical restriction of typhoid fever, malaria, diphtheria, smallpox, tuberculosis, dengue, and uncinariasis. A few years of training against the two familiar agents of death would fit the Boards of Health to deal intelligently with yellow fever, and would, beside, strengthen in the public mind that rational faith, without which the operations of Boards of Health can hardly be effective. In these four States professional intelligence is no doubt adequate to the needs of the people, but intelligent physicians cannot become skilled hygienists, except by the practice of hygiene, and this practice they cannot have in the public health service as now organized in

Alabama, Mississippi, Louisiana, and Texas. These four by no means complete the list of States lacking a rational conception of sanitary government, but these are the States on which public interest is now centered. They do not represent what is good in American hygiene. They illustrate the appalling extremities to which States may be driven for want of the appliances and methods of modern hygiene.

The Rate Cutter in the Nostrum Traffic.—The *Druggists' Circular and Chemical Gazette* has an editorial clearly epitomizing the long history of the cut-rate traffic in nostrums by the retail druggist, which exposes many interesting phases of the affair. As we all know, the business of the druggist has been deplorably demoralized, starting first from the domination, at least partial, of the nostrum makers. The cut-rate stores and druggists, in order to attract trade and attention to themselves, taught the nostrum guzzlers that the profits of the retail pharmacists had been inordinate, and that the "cutter" was the true friend of the public. The yellow newspapers joined, and the poor, old-fashioned druggists soon found themselves in a sad plight, worsened by the fact that the greedy nostrum syndicates sold their concoctions to the cutters at wholesale rates, while to the noncutters, higher rates were charged. These were therefore forced, regardless of cost, to sell the nostrums at the cut rates, and the cutters naturally turned upon the proprietors who had befriended them; they filled their stores with imitations of the nostrums. Thus first arose the awful cry of SUBSTITUTION! with a capital S, and doubly underscored by the nostrum makers, echoed and reechoed by chemists, doctors, wholesalers, and manufacturers. The medical journals, in adding their denunciation of "substitution," brought the ethical propietaries, and even the prescription department, under suspicion. Lastly, the physicians became so aroused that they began largely to dispense their own drugs, and so the poor druggist was doubly deserted, and found himself most literally between the devil and the deep sea. "Through all of this," says the *Druggists' Circular*, "the honest druggist has stood, but with his income cut down, his integrity clouded, his word doubted, and his advice spurned, even after it has been asked. Now, the nostrum people are on their knees before him, willing to grant any kind of terms that will satisfy him and keep up their own business."

The profession's attitude in this crisis of the druggist is to be determined. How many physicians permit their patients to go to the cut-rate degenerate druggists, who started the degradation of their profession, or even to those who were later forced into the wretched competition? How many are insuspicious of their claims that they "Make a Specialty of Physicians' Prescriptions," "No Substitution in Our Prescription Department," etc.? The *Circular* admits that in his partial fall the better class of druggists was largely prevented from being ruined by the help of the physician who advised or allowed his patients to go to the druggist to have prescriptions filled, thus serving to some extent to keep up the confidence and respect of the public. Shall the physician still permit this, despite the fact that his druggist has his windows and shelves filled with all the clap-trap frauds of the nostrum makers? The country physician has long adopted the habit of dispensing all or most of his drugs himself, and many city physicians have adopted the same custom. Shall still more do so, or shall the plan be checked where it is, or shall there be a return to prescription-giving with some, with little, with much, or with absolute interdiction of the renegade druggist? In the first place, it must be confessed that usually there can be no thoroughgoing success in guiding the patient possessed of the prescription to the certainly reputable druggist, who has refused to go into competition with the doctor in selling nostrums, in substituting, etc. In some cases such guidance is possible, but, as a rule, it is not. The best physicians will doubtless continue more and more to dispense their own drugs, the few needed, unless the pharmacists heroically reorganize their business on a basis of professional decency and ethicality. It, of course, works hardship, at least at first, to the high-minded druggists, of which there remain, thank Heaven, a few examples in every city. (Is there one left in any country place or city with less than 100,000 inhabitants?) What is needed is a blacklist, or, perhaps better, a "whitelist," prepared by a joint committee of medical and pharmaceutical societies, acting on the part of the leading bodies, societies, or associations of both professions.

Secrecy in the doctors' prescription, it is said is one of the chief causes of the mischief between the two professions. It comes about in the following way:

> The pretense of the nostrum men that doctors do not want patients to know what they are taking has just enough truth in it to create mischief. To certain neurasthenics, hysteric cases, and to cases of uncertain diagnosis, placebos may be given. These the doctor would not care to have his patients know he was giving. Unfortunately this class of patients is the very kind whose suspicions could most easily be aroused by nostrum circulars which cry out that doctors dare not tell patients what they are taking. The distribution of such circulars is likely to cause druggists to be annoyed by cranks, neurasthenics, and hysterical people demanding him to tell just what has been ordered. In some cases this will lead to ill will. Patients will be offended if satisfactory answers are not given, and the doctors will be offended if satisfactory answers are given. There is a chance that the druggist will alienate both the customer and the doctor. Every customer thus lost and every doctor thus offended will injure the druggist. Doctors may be forced to put up this type of prescriptions in their own offices and thus be led into general office dispensing. But this is sure to react upon the nostrum man, and may finally seal his doom. The lessened profit of the prescription desk must be made up at the retail counter, and the nonsecret remedies will be forced, with increased persistence, into competition with the secret ones. The more successful the new move of the nostrum people proves to be the more certain will it become the means of forcing out of existence the remedies they are producing.

This last, to be sure, from the medical standpoint is a consummation most devoutly to be wished, and we may well smile with *Schadenfreude* at the pass which the avarice of these wretches has with the fine irony of fate brought upon themselves. As to the supposed necessity of any secrecy in the doctors' prescription, we think it mostly nonsense. If the hysteria and neurasthenia

doctor cannot find out what caused or what will cure the diseases of his patients, he should supply his placebos from his own jars. For the rest, why should not every prescription be written in plain English, or in chemic terminology? Then let the druggist who refills, or in any way abuses the confidence of the physician be henceforth proscribed.

A Practical Discussion.—It is good to hear a true note above the din about pure foods. It comes from an unexpected quarter, but the right one nevertheless. The *Delineator*, believed by men to be wholly devoted to feminine raiment, the *Palingenia Virgo* of the news stands, is saying the best things to be found in popular literature about foods, and the voice is that of Mrs. Mary Hinman Abel, who is far and away the most competent among recent writers in this field. Twelve articles are promised, and the first appeared in the September issue. The title of the series is a welcome departure from the prevailing scarehead: "Safe Foods and How to Get Them." The matter of safe food for the family, Mrs. Abel says, is not too difficult for the woman who can learn bridge or golf. For practical mastery of the art of foraging she does not need books on the chemistry or physiology, nor handy implements for determining the quality of milk, nor a large contempt for the morals of grocers and milkmen. She may remain everlastingly ignorant about calories, and yet become an expert buyer of food by the same easy and natural training which has made civilized woman everywhere expert in the purchase of dress goods. She must abandon the telephone and pass-book, and must go into the shops and markets with all her housekeeping senses on the alert. She must know what defenses the law provides against unsafe or fraudulent foods, and how far these defenses may be trusted. In this way she can give honest dealers a chance to set up good standards of value in food, and may make the grocer and the milkman as subservient as the drygoods merchant to her intelligent discrimination. The local conditions of production and sale of foodstuffs, if investigated by women's clubs, can afford much useful knowledge, and they may afterward bestow this information in quarters of official repose. Mrs. Abel tells in a spirited way how some Portland (Oregon) women took the food and dairy commissioner on a bewildering tour through a part of his own official territory, and what came of this memorable excursion.

The question of safe milk is taken up by Mrs. Abel in the October number. Starting with the milk of a model dairy, which, without the use of preservatives other than cold, can make a journey of three weeks, remaining sweet and wholesome, she shows that the milk supplied to nearby cities can be produced under conditions just as satisfactory in a practical way without materially increasing its cost. The essentials of the problem are all known, and the only difficulty is in the ignorance of the milkman, a great difficulty and likely to give way no faster than progress is made against the ignorance and apathy of the people. The average milkman knows but one way of getting milk from a cow, and this is, as Dr. Mackenzie says, "an unscientific inoculation of a pure or almost pure medium with unknown quantities of unspecified germs." When the dairyman knows how to milk his cows, the initial difficulty will have disappeared, and the dairyman will begin to study the art of milking wherever his customers have trained their senses to note the signs of dirty milking. In her next article, Mrs. Abel will consider the methods used by Boards of Health, by private organizations and by dairymen, to safeguard the general milk supply. There will be three articles on milk, so that Mrs. Abel will hardly have space for a consideration of spices, catsups and jellies. So much the better. A good discussion of the really important foodstuffs, such as this article about milk leads us to anticipate, will send many a physician to the sewing room for a half hour's reading, and may cause inquiry which we have made, being ignorant, whether the *Delineator* is a real ephemerid or may survive to become a real book. Mrs. Abel's articles are certainly viable.

BOOK REVIEWS

Saunders' Pocket Medical Formulary.—By WILLIAM M. POWELL, M.D. Seventh edition. Philadelphia and London: W. B. Saunders & Co., 1905.

The seventh edition of this work has been carefully and fully revised. Many obsolete formulas have been eliminated and over 460 new and valuable ones added, which embody a large number of approved new remedies. These have been selected from the works and private practises of the best medical authorities. In its new edition, this formulary is thoroughly representative of the most recent therapeutic methods, and its convenient size and mechanical get-up make it one of the most desirable works of its kind.

Food Preservatives.—By R. G. ECCLES, M.D., with an introduction by E. W. DUCKWALL, M.S. New York: D. Van Nostrand Company. 1905.

In this book of 202 pages the author discusses the advantages and proper use of food preservatives by presenting what he denominates the practical versus the theoretic side of the pure food problem. The question is thoroughly considered, with very numerous references to literature, and on the whole, is an admirable presentation of the view that food preservatives are not the harmful substances so many writers and investigators assert them to be. A book of this kind is needed to counteract some of the claims made by the other side of the question, and as such can be heartily commended. We believe the author has gone a little beyond the happy mean in minimizing the effect of preservatives, but this is a matter of opinion more than a question of actual facts. He shows the right spirit when he advocates labeling preserved foods; he believes the labeling should not be so alarming to the consumer as many of the pure food advocates would have the latter regard it. Those who are interested in the question should read this book.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Appendicitis.—Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technic of Operation, Complications, and Sequels.—By JOHN B. DEAVER, M.D., Surgeon-in-Chief German Hospital, Philadelphia. Third edition, thoroughly revised and enlarged, containing 64 full-page plates, 8 of which are colored. P. Blakiston's Son & Co., Philadelphia, 1905.

The Johns Hopkins Hospital Reports.—Vol XII. Johns Hopkins Press, Baltimore, 1904.

Der Wert des Rontgenverfahrens in der Chirurgie.—Von PROF. DR. CARL BECK, in New York. Verlag von Leonhard Timion Nf., Berlin, 1905.

Beasley's Book of Prescriptions.—With an Index of Diseases and Remedies. Rewritten by E. W. LUCAS, F.I.C., F.C.S., Pharmaceutical Chemist. With an introduction by ARTHUR LATHAM, M.A., M.D., F.R.C.P., Senior Assistant Physician at St. George's Hospital. Eighth edition. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $2.00 net.

AMERICAN NEWS AND NOTES

GENERAL.

Test of Mosquito Theory.—Captain Ross, of the Revenue Cutter Service, rode six miles in an automobile with a patient known to be suffering from yellow fever, in order to test the mosquito theory. Captain Ross has just returned from the yellow fever district. While he was stationed at Gulfport, a soldier outside the town came down with the disease, and this journey was made to get the patient where he could be cared for. Captain Ross went into the hospitals to see patients and came into close contact with the disease, suffering no ill-effects. He took the necessary precautions against mosquitos, and is fully convinced of the "mosquito theory."

Personal.—Three prominent Chinese surgeons have arrived on their way to attend the conference of military surgeons at Detroit. They are Dr. Ho Kan Yuen, of the navy; Dr. Ying Young Tsui, of the army; and Dr. Wang Pang Chung, of the South China army.—**Professor Boyce**, of England, who has been in New Orleans following the yellow fever outbreak, has sailed for Belize. He expects to supplement there the information he has gathered in New Orleans concerning yellow fever. He has seen many interesting cases, and in this connection it is said by physicians that there have come to the Emergency Hospital during the present visitation typic cases of yellow fever that have not been seen since 1878.—**Major L. L. Seaman**, M.D., LL.B., who, in his book "From Tokio through Manchuria with the Japanese Army," was the first to show by facts and figures the almost incredible foresight shown by the Japanese in the prevention of sickness among the troops on the battlefield, has just returned from his second trip to the seat of war. One of his objects was to study Japanese hospital conditions on the firing line.—**Battle & Co.** have just issued the seventh of a series of 12 illustrations of the "Intestinal Parasites," and will send them free to the physicians, on application.—**S. Suzuki**, surgeon-general of the Japanese army, is coming to Detroit to attend the meeting (September 26) of the Association of Military Surgeons of the United States. He comes at the request of President Roosevelt, who invited Japan to send a representative to this important meeting. He will bring with him a number of stereopticon views taken at the hospital in Sasebo, showing the havoc wrought on Jap and Russian anatomy by modern war devices.

NEW YORK AND VICINITY.

Typhoid Fever Still above Normal in New York.—According to Health Commissioner Darlington, the number of deaths from typhoid reported for the week ending September 16 was 23. The number of new cases, on the other hand, was much smaller than in any week during the month of August. Dr. Darlington is of the opinion that the disease in the city will become normal in a very short time.

New Jewish Hospital.—The roof of the new Jewish Hospital of Brooklyn was completed last week. About a year ago, chance threw a desirable building in their way. This was the Memorial Hospital for Women and Children, on Classon avenue, extending from St. Marks avenue to Prospect Place. A good sum of money was assured to back the enterprise, and the building of two additions was begun almost immediately. The new wing, together with the complete remodeling and refurnishing of the whole building, will cost $150,000. Of this total, $100,000 is in hand and the remaining $50,000 is to be secured by a fair, to be held in the hospital building the last week of November.

The Harvey Society Lectures.—The first lecture of the recently organized Harvey Society will be given by Professor Hans Meyer, the distinguished pharmacologist of the University of Vienna. Professor Meyer will speak in German, upon the subject "Die Theorie der Narcose." The lecture will be held October 7, at 8.30 p.m., in the New York Academy of Medicine. The second lecture will be given on October 14, at the same hour and place, by Professor Carl von Noorden, of Frankfort, the wellknown authority on diabetes. His lecture is upon "Modern Problems of Metabolism," and will be delivered in English. Other lectures of the course will be given by Professors L. F. Barker, Howell, Lee, Levene, Mendel, Minot, T. H. Morgan, Novy, Park, Theobald Smith, and J. C. Webster. It is hoped that the Harvey Society may be of use in furthering the wider diffusion of knowledge of the medical sciences. The Harvey Society cordially invites those interested to attend these lectures.

PHILADELPHIA, PENNSYLVANIA, ETC.

Typhoid in Scranton and Nanticoke.—Director Edgar, of the Department of Public Safety, of Scranton, to guard against such an outbreak of typhoid fever as is now raging in Nanticoke, has directed the police to locate all the families in the city using well water, for the purpose of having a bacteriologic test of the water used therein. There are 16 cases of typhoid in the city. Only 14 cases of typhoid fever were reported in the stricken town of Nanticoke last week. Dr. Johnson, of the State Health Board, and the trained nurses, are gradually getting the best of the situation. Dr. Johnson has appealed to the residents of Luzerne county to help. He says there is only $25 on hand to fight the plague.

Camden a Healthy City.—The report of the Camden (N. J.) Board of Health for the month ended September 16 shows a decrease of 9 cases in contagious diseases reported during the corresponding month of last year. Of the 18 cases for the month, only 3 were of typhoid fever. The healthy condition of the city is attributed to the good water and improved sanitary conditions.

The Philadelphia County Medical Society, at a stated meeting held in June, 1905, adopted a resolution conveying a request that all medical schools furnish their senior class with a special course of lectures or addresses upon the subjects of "Medical Ethics" and the "Business Aspect of the Practice of Medicine," and including the recommendation that graduates promptly join the local county medical society.

SOUTHERN STATES.

Board of Medical Examiners for Texas.—The next regular meeting will be held in San Antonio, Texas, on October 17, 18, 19.

Talbot Medical Society.—The Talbot County (Md.) Medical Society held a meeting in the courthouse at Easton, Md. There was a large attendance of the physicians of Talbot county and several from Baltimore city and Philadelphia. The members and visitors were entertained at dinner by Dr. Julius A. Johnson, president of the society.

City and State in Fever War.—As a result of the friction caused by the State quarantine in Georgia against yellow fever infected points and the "open door" policy of Atlanta, two State inspectors, Frank Meador and Thomas Lynch, were arrested, charged with violating the rules of the city Board of Health. They refused to unlock the doors of a Pullman car which came in from New Orleans. A temporary injunction was secured by the State Board of Health against interference with the State quarantine by city authorities.

The Yellow Fever Situation.—The heavy report from New Orleans last week is attributed to the fact that every 10 or 12 days there is a marked increase in the number of new cases, recrudescence of fever from fever not originally known. The success in wiping out cases of infection in certain localities, after the original focus in that locality has been discovered and properly treated, has been the source of a renewal of confidence in the ultimate outcome. Among the new cases is Dr. C. M. Shanely, of Barataria, the physician who is in charge of the district of Upper Barataria, Jefferson Parish. The fever situation in Florida showed improvement again last week, only eight cases being reported to the State Board of Health. Only one new suspicious case was discovered, and that is in the infected district. Five persons afflicted with genuine yellow fever arrived in Cincinnati, Ohio, last Thursday, over the Queen & Crescent Line, on a train carrying 200 refugees from Lake Providence and Tallulah, La. When the train reached Lexington several persons who were sick attempted to escape, but were caught by the police and forced back onto the train. They were taken to the Branch Hospital on their arrival in Cincinnati. Annoyed by the frequent bringing to light of hidden cases of yellow fever in New Orleans, Dr. White is now serving notice on the public that he and his staff hereafter will relentlessly prosecute those who may be guilty of hiding new cases. The attitude of the federal authorities heretofore has been one of benevolent toleration, but since appeals go unregarded, resulting in a menace to the whole community, sterner measures have been decided upon.

WESTERN STATES.

Bread and Water Diet Cruel.—Oscar Erickson, who was sentenced to 20 days in the county jail at Lincoln, Neb., on bread and water, has secured from the Supreme Court a writ of habeas corpus, on the ground the punishment was cruel and unusual.

Mortality of Michigan during August.—For the month of August, there were returned 2,797 deaths to the Department of State, an increase of 315 over the number recorded for the preceding month. The deathrate rose from 11.5 in July to 12.9 in August. By ages, there were 687 deaths of infants under 1 year; 236 deaths of children aged 1 to 4, and 702 deaths of elderly persons aged 65 and over. Nearly the entire amount of increase for August was due to the high rate of mortality of infants and children under the age of 5. Important causes of death were as follows: Tuberculosis of lungs, 165; other forms of tuberculosis, 38; typhoid fever, 59; diphtheria and croup, 22; scarlet fever, 3; measles, 4; whoopingcough, 19; pneumonia, 51; diarrhea and enteritis of infants, 422; cancer, 141; accidents and violence, 231, including in this number 47 deaths from drowning. There were 2 deaths from tetanus and 6 deaths from smallpox during the month, 2 of the latter occurring in Grand Rapids, 1 in Saginaw, and 2 in Jamestown township, Ottawa county.

CANADA.

Will Not Collect Medical Fees.—It has been the custom of the railway companies in Canada to deduct from the wages of their employes a small sum for medical attendance. The amount deducted was 50 cents on salaries under $100 per month, and $1 on salaries exceeding that. Doctors were appointed by the companies, whose duty it was to attend all men needing their services, to furnish all medicine free, and pay hospital expenses. For this service they received the money collected from the men. The employes of the Canadian Northern have not been satisfied with this system for some time, and as a result of an agitation started a few months ago, they organized an association for the purpose of receiving the monthly fees and attending to the medical needs of the members. A Winnipeg, Man., physician was appointed the medical chief of this organization, and it is said a secretary-treasurer was to be appointed at a salary of $150 per month. Last month the railway companies were notified to pay the monthly fees collected for September and thereafter to the officer of the association. The manager decided that the company could not act as collectors under the circumstances, and promptly gave orders that no more fees were to be deducted from the men's wages. There the matter rests so far as the company is concerned, and if the men decide to maintain their own system of medical attendance, their officers will have to collect fees direct from the members of the association.

FOREIGN NEWS AND NOTES

GENERAL.

Doctors Boycott Assembly.—A congress of doctors held at Moscow last week decided to boycott the National Assembly by not participating in the election. This is the first professional body to take this step.

Applause for a coroner's jury upon its giving a verdict seems strange to us. We do not recall having read a report of anything of the kind in this country. The *British and Colonial Druggist*, however, in a recent issue, concluded a long report as follows: "The jury then retired, and, after a very short consultation in private, they returned and gave the following verdict: 'The children died from exhaustion after vomiting and diarrhea set up by taking liquozone. (Applause.) We wish to add our deep sympathy with the parents, and also think that some representation should be made to the proper authorities to have some better supervision over the patent medicines.'"

Cholera under Control.—The official bulletin issued at Berlin, September 18, said there were 10 fresh cases of cholera and 5 deaths from noon Saturday to noon Sunday, and 3 new cases and 1 death from noon Sunday to noon today, making the totals 202 cases and 77 deaths. The new cases are 1 each at Rastenburg, Lebus, Posen, Schubin, Czarnikau, and Breslau, 2 each at Stettin and Graudenz, and 3 at Marienburg. A certainty seems to exist now in the health office that the danger of cholera spreading has been overcome, and that the number of new cases announced from day to day will dwindle until the infection ends. Four suspicious cases of illness in Berlin were sent to the Cholera Observation Barracks, but none of them proved to be cholera. The Spanish post officials have been ordered to quarantine ships coming from Hamburg and Antwerp, and to adopt precautionary measures against their crews and cargoes. It has now been established that a fatal case of cholera occurred among raftsmen from Byelostok, on the Narev river. All the members of the crew have been isolated and other precautionary measures have been taken.

OBITUARIES.

E. J. McCallum, aged 85, September 7, from heart disease, at his home in Tiffin, Ohio. He was graduated from Jefferson Medical College in 1853. He was a member of the American Medical Association and the Ohio State Medical Association; an honorary member of the Northwestern Ohio and Seneca County medical societies, and was the oldest practitioner of Seneca Co., Ohio.

John G. Park, aged 67, August 29, after an operation for gallstones, at his home in Worcester, Mass. He was graduated from Harvard Medical School in 1866. During the Civil war he served as a surgeon in the navy. He was superintendent of the State Lunatic Asylum for five years, and of the Worcester Insane Hospital for 11 years.

Simon M. Whistler, aged 63, August 17, at his home in Harrisburg, Pa. He was graduated from the University of Pennsylvania, department of medicine, in 1866. He was a member of the Medical Society of the State of Pennsylvania. He served as acting assistant surgeon of the army during the Civil war.

Jacob S. Ammon, aged 68, September 5, at his home in Reading, Pa. He was graduated from the University of Pennsylvania, department of medicine, in 1868. He served as surgeon during the Civil war, and was for a time vice-president of the Berks County Medical Society.

Joseph H. Green, aged 72, September 6, at his home in Troy, Ohio. He was graduated from the medical department of the University of Cincinnati in 1860. During the Civil war he served as a surgeon, and was one of the oldest practitioners of Miami County.

Frederick W. Billart, aged 73, September 4, from intestinal obstruction, at his home in Chrisney, Ind. He was allowed to practise under the Years of Practice Act, Indiana, in 1897; was a practitioner of Indiana for more than half a century.

John H. Rhodes, aged 45, August 30, suddenly, at his home in Jackson, Miss. He was graduated from Louisville Medical College, Louisville, Ky., in 1880. He was city physician and a member of the State Board of Health.

Charles I. Roseberry, aged 74, September 14, at his home in Easton, Pa. He was graduated from the University of Pennsylvania in 1860 and from the New York Homeopathic Medical College and Hospital in 1861.

William W. Bass, aged 95, July 21, at his home in Dorchester, Boston, Mass. He was graduated from the Berkshire Medical College, Pittsfield, Mass., in 1835, and served as surgeon during the Civil war.

William B. Cooper, aged 70, September 6, from acute nephritis, at his home in Kokomo, Ind. He was graduated from the Medical College of Ohio, Cincinnati, in 1860.

John W. Spencer, aged 60, September 14, dropped dead while out walking, near his home in Westville, N. J. The cause of death was paralysis of the brain.

Joseph R. Smith, aged 87, August 30, at his home in Birmingham, Ala. He was graduated from the Transylvania Medical College, Lexington, Ky., in 1841.

William R. Owen, of Sublette, Ill., August 27, at Minneapolis, Minn. He was graduated from the College of Physicians and Surgeons, Chicago, in 1889.

John K. Johns, aged 75, September 13, at his home near Easton, Md. He was one of the most eminent physicians of Talbot County.

Charles F. Dilley, aged 75, September 3, at his home in Spickard, Mo. He was graduated from Rush Medical College, Chicago, in 1863.

FOREIGN.—**Kevin I. O'Doherty,** aged 81, recently, at his home in Brisbane, Queensland. He obtained his medical degree in Dublin **Ernst Theodor Schweigger,** recently, at his home in Berlin. He was an eminent oculist, and was professor of ophthalmic diseases at the Berlin University. **Cyril Henry Cayley,** aged 40, July 31, from tetanus, at his home in Bombay, India. He obtained his medical education at Cambridge. He went to India 10 years ago, on plague duty, and was a divisional health officer up to the time of his death. **William Fuller,** aged 90, August 29, at his home in Oswestry. He was a Bachelor of Medicine of Trinity College, Dublin. **Farquhar Matheson,** aged 66, August 23, at his home in London, England. He graduated from the University of Aberdeen in 1868. He devoted his energies to diseases of the ear, nose, and throat; was one of the surgeons of the Royal Ear and Throat Hospital, Surgeon to the British and Foreign Musical Society, honorary aural surgeon to the Royal Caledonian Society, to the Royal Scottish Hospital, and a fellow of several scientific societies.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the three weeks ended September 16, 1905:

	SMALLPOX—UNITED STATES.	Cases	Deaths
California:	Los Angeles.....Aug. 26-Sept. 2...	1	
	San Francisco.....Aug. 26-Sept. 2...	2	
District of Columbia:	Washington.....Aug. 26-Sept. 2...	9	
Massachusetts:	Lowell.....Aug. 26-Sept. 2...	1	
Michigan:	Grand Rapids.....Aug. 26-Sept. 9...	1	1
New York:	New York.....Aug. 26-Sept. 2...	1	
	SMALLPOX—FOREIGN.		
Africa:	Cape Town.....July 22-29.....	7	
Brazil:	Bahia.....Aug. 6-12.....		3
	Rio de Janeiro.....July 27-Aug. 20..	32	12
Cuba:	Santiago Province..Aug. 29-Sept. 5...	2	1
Ecuador:	Guayaquil.....Aug. 1-22.....		5
France:	Paris.....Aug. 19-26.....	17	9
Great Britain:	Newcastle-on-Tyne..Aug. 16-23	1	
India:	Calcutta.....July 29-Aug. 5....		3
	Madras.....July 29-Aug. 4....		6
Mexico:	City of Mexico.....Aug. 12-26.....	15	9
Russia:	St. Petersburg.....Aug. 6-19.....	7	
Turkey:	Constantinople.....Aug. 6-20.....		7
	YELLOW FEVER—UNITED STATES		
Florida:	Pensacola.....Aug. 29-Sept. 12..	38	6
Louisiana:	Ascension Parish ...To Sept. 10.....	44	3
	Ass'mption Parish..Aug. 26-Sept. 11..	13	
	Caddo Parish.....To Sept. 9.....	4	1
	East Baton Rouge Parish.....Sept. 9.....	1	

Louisiana:	East Carroll Parish..Aug. 14-Sept. 12..	106	9
	Iberville Parish.....To Sept. 11.....	14	6
	Jefferson Parish.....To Sept. 11.....	215	27
	Lafayette Parish.....To Sept. 12.....	7	
	Lafourche Parish ...To Sept. 10.....	332	35
	Madison Parish.....Aug. 14-Sept. 10..	87	12
	Orleans Parish.....July 21-Sept. 18..	2406	328
	Plaquemines Parish.To Sept. 11.....	54	7
	Rapides Parish.....To Sept. 3.....	7	
	St. Bernard Parish..To Sept. 12.....	33	1
	St. Charles Parish ...To Sept. 12.....	94	16
	St. James Parish.....To Sept. 9.....	6	
	St. John the Baptist Parish.....To Sept. 11.....	149	14
	St. Mary Parish .....To Sept. 11.....	478	18
	St. Tammany Parish.. .....To Sept. 11	2	1
	Terebonne Parish...To Sept. 9.....	90	3
Mississippi:	Anguilla, vicinity...Sept. 6.....	1	Imported
	Gulfport .....Aug. 15-Sept. 11..	53	
	Gulf Quarantine ....July 22-Aug. 26...	57	1
	Mississippi City.....Aug. 22-Sept. 11..	40	
	Natchez .....To Sept. 11.....	23	

YELLOW FEVER—FOREIGN.

Brazil:	Rio de Janeiro.....July 30-Aug. 21...	10	5
Ecuador:	Guayaquil.....Aug. 1-22.....		2
Guatemala:	Gualon.....Aug. 19-26.....Present		
Honduras:	Puerto Cortez.....Aug. 18-25.....		2
Mexico:	Tehuantepec.....Aug. 27-Sept. 2...	1	
	Tezonapa.....Aug. 27-Sept. 2...	2	
	Vera Cruz.....Aug. 27-Sept. 2...	4	1
Panama:	Bocas del Toro .....Aug. 18-25.....	1	
	Colon .. ..Aug. 19-26.....	2	
	Panama.....Aug. 19-26.....	5	2

PLAGUE.

Africa:	Port Elizabeth.....July 29-Aug. 5...	1	
Brazil:	Rio de Janeiro.....July 30-Aug. 20..	10	2
India:	General .. ..July 15-27.....	2578	1810
	Calcutta .....July 29-Aug. 5...		14
Panama:	La Boca..... Aug. 6		1

CHOLERA.

India:	Calcutta..... July 29-Aug. 5...		15
	Madras .....July 29-Aug. 4...		6
Japan:	Kobe.....July 29-Aug. 12..	2	

Changes in the Medical Corps of the U. S. Army for the week ended September 16, 1905:

NEWLOVE, GEORGE, contract surgeon, is granted leave for two months, with permission to visit the United States, and with authority to apply for an extension of one month.

CASS, WILLIAM E., contract surgeon, is granted leave for four months, with permission to visit the United States.

The following-named medical officers are relieved from duty in the Philippines Division, to take effect at such time as will enable them to comply with this order, and will proceed on the transports to sail from Manila about the dates set opposite the names of the officers, to San Francisco, Cal., and upon arrival report by telegraph to the military secretary of the army for further orders: Lieutenant-Colonel Wm. B. Davis, deputy surgeon-general, October 15; Lieutenant-Colonel Wm. H. Corbusier, deputy surgeon-general, January 15.

COLE, First Lieutenant CLARENCE L., assistant surgeon, so much of orders of August 29 as directs him to report to the commanding officer of Companies C and D, first battalion of engineers, to accompany that command to the Philippine Islands, are so amended as to direct Lieutenant Cole to accompany the command to San Francisco, Cal., and upon arrival at that place and after completion of his duty with the command, to proceed on the transport to sail from San Francisco about October 5 to Manila, P. I., for assignment to duty.

PERSON, THOMAS, sergeant first class, Fort Du Chesne, upon expiration of the furlough for three months authorized August 23, will report at Fort Sheridan to relieve Sergeant First Class William A. McGuire. Sergeant McGuire will be sent to the depot of recruits and casuals. Fort McDowell, reporting to the commanding officer, who will send him to Manila, P. I., for assignment to duty.

Orders of August 30, relating to Sergeant First Class Elmer J. Britton, Washington Barracks, and Sergeant First Class Harry T. Brown, Fort Greble, are revoked.

VAUGHAN, MILTON, contract surgeon, is relieved from duty at Fort Crook, to take effect at such time as will enable him to comply with this order, and will proceed to his home, Little Rock, Ark., not later than October 31 for annulment of contract.

GARDNER, FLETCHER, contract surgeon, leave granted March 29 is extended twenty-four days.

A board of officers to consist of Major Charles Richard, surgeon; Captain William H. Wilson, assistant surgeon; First Lieutenant George H. Crabtree, assistant surgeon, is appointed to meet September 18 at Governor's Island, N. Y., for the physical examination of First Lieutenant John J. Reilly, assistant surgeon, to determine his fitness for tropic service.

REILLY, First Lieutenant JOHN J., assistant surgeon, will proceed to Governor's Island, N. Y., and report September 18 to Major Charles Richard, surgeon, president of the board of medical officers for examination to determine his fitness for tropic service.

RENO, First Lieutenant WILLIAM W., assistant surgeon, is relieved from duty at Fort Myer, and will proceed to Fort Riley for duty, relieving First Lieutenant Charles C. Billingslea, assistant surgeon. Lieutenant Billingslea will proceed to Fort Myer for duty.

FAUNTLEROY, Captain POWELL C., assistant surgeon, is relieved from duty at Madison Barracks, and will proceed to Fort Porter for duty, relieving Major Harry M. Hallock, surgeon. Major Hallock will proceed to Madison Barracks for duty.

WALL, FRANCIS M., contract surgeon, will, upon being relieved from duty at Fort Fremont by Contract Surgeon Francis A. Halliday, return to his proper station, Fort Oglethorpe.

KOYLE, FRED T., contract surgeon, is granted leave for one month.

The following-named medical officers are detailed to represent the medical department of the army at the fourteenth annual meeting of the Association of Military Surgeons of the United States, to be held at Detroit, Mich., September 26-29: Colonel Valery Havard, assistant surgeon-general; Major William C. Borden, surgeon; Major Charles M. Gandy, surgeon.

The following-named assistant surgeons are relieved from duty in the Philippines Division, to take effect at such time as will enable them to comply with this order, and will proceed on the transports to sail from Manila about the dates designated after the names of the officers to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders: First Lieutenants Samuel E. Lambert, December 15, 1905; William H. Moncrief, December 15, 1905; William T. Davis, December 15, 1905; Charles F. Morse, December 15, 1905; Clarence H. Connor, December 15, 1905; Nelson Gapen, December 15, 1905; Louis C. Duncan, December 15, 1905; Philip W. Huntington, December 15, 1905; Cary A. Snoddy, January 15, 1906; Samuel J. Morris, January 15, 1906; Harry S. Purnell, January 15, 1906; John W. Hanner, January 15, 1906; Horace D. Bloombergh, January 15, 1906; Leon T. LeWald, January 15, 1906; Robert L. Carswell, February 15, 1906.

The following-named assistant surgeons are relieved from duty at the stations designated after their respective names, to take effect at such time as will enable them to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about the dates specified to Manila, P. I., and report to the commanding general, Philippines Division, for assignment to duty: First Lieutenants Wm. Roberts, Fort Hamilton, November 5, 1905; Frank C. Baker, Presidio of Monterey, November 5, 1905; Robt. M. Blanchard, Fort Thomas, November 5, 1905; Wm. E. Vose, Fort Sheridan, November 5, 1905; Frank T. Woodbury, Plattsburg Barracks, November 5, 1905; Edmund D. Shortlidge, Army and Navy General Hospital, Hot Springs, Ark., November 5, 1905; Geo. F. Juenemann, Fort Ringgold, November 5, 1905; Samuel M. De Loffre, Fort Schuyler, November 5, 1905; Walter C. Chidester, Fort Lawton, December 5, 1905; Jas. F. Edwards, Fort Leavenworth, December 5, 1905; Wallace DeWitt, Fort Washakie, December 5, 1905; Robt. B. Grubbs, Fort Wright, December 5, 1905; Chas. R. Reynolds, Army General Hospital, Washington Barracks, December 5, 1905; Frederick A. Dale, Fort Walla Walla, December 5, 1905; Patrick H. McAndrew, Jefferson Barracks, December 5, 1905; Allie W. Williams, Fort Greble, January 5, 1906; Jas. I. Mabee, Fort Casey, January 5, 1906.

KENNEDY, JAS. S., contract surgeon, will, upon the abandonment of Fort Grant, proceed to Fort Omaha for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended September 16, 1905:

WAGGENER, J. R., medical director, detached from the Navy Yard, Mare Island, Cal., and ordered home to wait orders—September 8.

ANDERSON, F., medical director, detached from the Marine Barracks, Washington, D. C., September 12, and ordered to the Navy Yard, Mare Island, Cal., for duty as medical officer of that yard and in command of the Naval Medical Depot—September 9.

MCCLURG, W. A., medical inspector, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Marine Barracks, Washington, D. C., September 18—September 9.

MCCORMICK, A. M. D., surgeon, ordered to the Naval Academy—September 9.

LORNDES, C. H. T., surgeon, detached from the Naval Academy and ordered to the Texas—September 9.

DUNN, H. A., passed assistant surgeon, ordered to the Naval Proving Ground, Indian Head, Md., September 15—September 14.

The following assistant surgeons have been ordered to report at the United States Naval Medical School, Washington, D. C., September 30, for course of instruction: F. M. Shook, O. M. Olson, R. A. Warner, F. H. Brooks, E. O. J. Eytinge, P. R. Stahlnaker, F. S. Sellers, C. D. Munger, B. Elmore, H. T. Nelson, N. S. Hathaway, J. B. Mears, E. R. Marshall—September 14.

FARWELL, R. O., assistant surgeon, detached from the Brooklyn and ordered to duty on the second torpedo flotilla on the Worden—September 13.

HART, C. C., acting assistant surgeon, ordered to the Glacier—September 13.

Changes in the Public Health and Marine-Hospital Service for the week ended September 13, 1905:

BANKS, C. E., surgeon, to proceed to Montgomery, Ala., for special temporary duty—September 9, 1905.

GUITERAS, G. M., surgeon, granted leave of absence—September 9, 1905.

ROSENAU, M. J., passed assistant surgeon, to proceed to New Orleans for special temporary duty in connection with the investigation of the cause of yellow fever—September 11, 1905.

STANSFIELD, H. A., passed assistant surgeon, relieved from duty on Isthmus of Panama, effective August 23, 1905—September 7, 1905. To report to the Director of the Hygienic Laboratory, Washington, D. C., for duty—September 11, 1905.

TROTTER, F. E., passed assistant surgeon, to rejoin his station, San Francisco, Cal.—September 12, 1905.

SWEET, E. A., assistant surgeon, relieved from duty at New Orleans and directed to proceed to Fort Stanton, N. M., for duty and assignment to quarters—September 11, 1905.

MCMAHON, R. L., acting assistant surgeon, granted leave of absence for thirty days from August 15, 1905—September 9, 1905.

MARSH, W. H., acting assistant surgeon, granted leave of absence for twelve days from September 19, 1905—September 7, 1905.

MASON, W. C., acting assistant surgeon, granted leave of absence for nine days from September 16, 1905—September 7, 1905.

QUIGLEY, F. L., acting assistant surgeon, granted leave of absence for seven days from September 4, 1905, under paragraph 210 of the regulations.

RODMAN, J. C., acting assistant surgeon, granted leave of absence for one and a half days from September 13, 1905—September 13, 1905.

SAFFORD, M. V., acting assistant surgeon, granted leave of absence for three days from August 29, 1905, under paragraph 210 of the regulations.

SILL, R. H., acting assistant surgeon, granted leave of absence for seven days from September 30, under paragraph 210 of the regulations.

WALERIUS, H., pharmacist, granted leave of absence for seven days from September 2, 1905, under paragraph 210 of the regulations.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

Practice of Medicine.

FOURTH SESSION (CONTINUED).

Coccidioidal Granuloma.—W. OPHÜLS (San Francisco) said a peculiar form of oidiomycosis existed in California, of which so far no case had been described in people who had not been in the State except the very first case of this form of infection, which was observed in Buenos Ayres. The parasite in coccidioidal granuloma differed from the various fungi described in blastomycetic dermatitis, by the absence of budding during its development in the tissues, by its multiplication by endosporulation, by certain differences in its growth on artificial culture mediums. There were now on record 10 cases of coccidioidal granuloma, to which he could add three new cases. In one of the cases a very remarkable feature was that tubercle bacilli and no other parasites were found in the adrenals, while no tubercle bacilli, but many oidiums could be demonstrated in the meninges. A great variety of lesions was produced by the parasite, and a great variety of organs was affected, the clinical symptoms depending entirely upon the localization and intensity of the disease. So far no typic clinical picture could be given, but sometimes there was a striking resemblance to tuberculosis. The most characteristic manifestations were nodules consisting of granulation tissue and suppurative processes of a chronic character. The infection produced either submiliary, miliary, or larger nodules, which resembled tuberculosis very closely. These nodules might caseate. Later the caseous material might liquefy, and cavities containing pus-like material might be produced in this way. The cases have been found at considerable intervals in San Francisco, in people coming from the country who had no apparent relation to one another. It seemed quite possible that the oidium occurred in nature, and caused infection only occasionally. The trouble might be primarily an animal disease, and only occasionally transmitted to human beings, but it had not been as yet possible to adduce any evidence in support of this theory.

Thyroid Disease in California.—HERBERT C. MOFFITT (San Francisco) was of opinion that affections of the thyroid were more common in San Francisco than in other large cities of the United States. Of the young women entering the University of California in 1904, 5% had enlarged thyroids. Since January 1, 1905, he had noted moderate enlargements in 75, and large goiters in 8 patients, out of 546; 14 cases were in men. This gave a percentage of 15.2 in individuals nearly all of whom were native born, or who had lived in California for years. Of myxedema, there were 53 cases from San Francisco, and 83 throughout the State. Thirteen had decidedly large thyroids, the myxedema resulting from changes in old goiters. Twice the condition resulted from operation on goiter. Emphasis in the description was laid chiefly on skin, voice, and mental changes and disturbances in locomotion. Three women had frequent epileptiform attacks which did not yield to thyroid medication, although the skin and mental conditions improved. Endeavor had been made to distinguish between myxedema of thyroid and of mixed thyroid and parathyroid origin. Some attributed considerable influence to the parathyroids in determining sexual and mental changes. He had records of 61 cretins now living in the State and all native born. In a majority of them there was absence of palpable thyroid enlargement. Exophthalmic goiter appeared to be much more common in the country about San Francisco bay than in other parts of the State. His list included 33 wellmarked cases of exophthalmic goiter, excluding *formes frustes.* Of these, 9 were in males and 24 in females; 7 occurred in patients with goiters of years' standing. He had seen enlargement of the thyroid with nervous symptoms and tachycardia, the result of masturbation in young men. The senseless administration of thyroid extract in large doses for obesity, arteriosclerosis, and other cases of supposed thyroid insufficiency should be discountenanced. In myxedema and cretinism it was usually not necessary to give large doses of a good thyroid preparation; in cretinism he began with 1 gr. daily, and rarely went beyond the 5 gr. Preparations representing the whole gland could not wholly be replaced by the active principle iodothyrin. It was very difficult to judge of the efficacy of any method of treatment in an affection notoriously so uncertain in course and symptoms. From the evidence at command, it was not possible to say that the parathyroids were in any way influenced in Basedow's disease. The possible influence of the thyroid as an etiologic factor in the very common arteriosclerotic and renal affections of California should be remembered.

Officers.—Chairman, Herbert C. Moffitt, of San Francisco; secretary, J. S. Miller, of Chicago. Alternate to House of Delegates, George Dock, of Ann Arbor.

Obstetrics and Diseases of Women.

FOURTH SESSION (CONTINUED).

Pulmonary Tuberculosis as an Obstetric Complication.—C. S. BACON (Chicago) said that from 1% to 1½% of all pregnant women have tuberculosis; average duration of the disease is five years. Tuberculous involvement of the genital organs is a frequent cause of sterility. Formerly pregnancy was considered to be curative. In most cases pregnancy has a detrimental effect on the disease. In the later stages of pregnancy we have pressure helping. Labor is an unfavorable factor in the disease, and the puerperium is always a critical period. Effect on the pregnancy is slight; abortion is common. When there is emaciation, etc., there is less tendency to abortion than in kidney and other diseases. We may have infection of the fetus, but it will probably be born free from tuberculosis if abortion does not occur. Generally it is the puerperium which shows the marked unfavorable effects of the disease. He next mentioned the French treatment of the condition, *i. e.*, a tuberculous girl should not marry; if married she should not become pregnant; and if a mother she should not nurse the child. He stated it was not proper to prevent tuberculous persons from marrying by legislation, but it was better to educate the people. He advocated artificial sterilization in cases of tuberculosis. Better to do a vaginal resection of the tubes, leaving the ovaries when possible or necessary. When a probability of a cure of the disease remains, some means may be found to prevent conception. In considering tuberculous gravida, it depends upon the circumstances of the patient, as to whether she should decline to continue the pregnancy; if hygienic conditions are unfavorable, and if complicated with kidney and certain other diseases, we should do an abortion before the twentieth week, under ether anesthesia. We should observe the following rules in dealing with these cases: (1) Patient should live in open air; (2) should be well fed with good nutritious food; (3) should be kept free from exhaustion. After the period of viability is reached we have rapid failure of nutrition, hemoptysis, exhaustion, uncontrollable cough, dyspnea, etc. In these cases we may do an abortion, postponing this to the thirty-sixth week. Do not use the bougie method. May do vaginal cesarean section if necessary. Oxygen should always be provided in these cases, strychnin and oxygen being used in the management of a tuberculous patient. Postpartum hemorrhage is not common, but may call for subcutaneous injection of normal salt solution. The puerperium should receive much attention. Child should not be kept in the same room with the mother; a wet nurse should be obtained when necessary. He considered the management before and after labor important, as also the free use of oxygen in the treatment of the tuberculous.

"Maternal Syphilis."—GEO. S. WHITESIDE (Portland Ore.) said hereditary syphilis could come from the father alone, the mother alone, or both together. Maternal syphilis without paternal disease is rare, while the reverse is common. Disease is very frequent in innocent young wives pregnant for the first time. It is a common disease, and a serious menace to marriage. This disease should always be borne in mind in all gynecologic cases. The mother may miscarry or bring the child to term. He considered mercury by inunction the best treatment or with chalk, for the mother. We should treat the infant for two months after all signs have vanished. His general conclusions were: 1. To look oftener for syphilis. 2. In pregnant syphilitic women give mercury promptly and fearlessly. 3. Give the child mercury. He cited cases to illustrate basis for his conclusions.

Discussion of papers of Bacon and Whiteside.—BERTOLS (San Francisco) reported a case coming under her notice 3½ years ago. Mother with tuberculosis. Many bacilli found in sputum, clinical picture of pulmonary tuberculosis. Patient was given nutritious diet and treatment as advocated at that time. Her child was born at term presenting the symptoms of tuberculosis. Child was placed on the bottle and fed artificial milk; kept away from mother. Child died at the end of two months. Autopsy showed general tuberculosis. Woman is still alive and much improved. TAUSSIG (St. Louis) said tuberculosis was a complication of great frequency. Few general practitioners recognized the justification of inducing an abortion or premature labor in these cases. Every case is different and should be judged for itself. We should consider: 1. The site and stage of the tuberculous process. In cases of advanced pulmonary tuberculosis in which the life of the mother cannot be prolonged, do not produce an abortion. 2. No gain in weight of the mother. 3. State of the pregnancy—more inclined to interfere in the first half than in the latter half of pregnancy. 4. Social condition of the patient. Hygienic treatment of the uterus most necessary. DAVIS (Chicago) said we are almost always too ready to promise relief to the woman. Much safer never to produce an abortion. Many patients having syphilis, have obtained it not through their husbands, but through their fathers. The statement that two months' treatment in a child brings about a cure, she claims has much to do with the prevalence of the disease. HENRY (Omaha) protested against the idea of producing an abortion because the woman has tuberculosis; should try to help out the mother, but never take the life of the child. CARSTENS (Detroit) thought we could do more by education

than by all other methods, such as laws, etc: should not sterilize a woman who has tuberculosis; it is not justified even to operate on a woman in that condition, and it is only rarely justified to produce an abortion in tuberculous women. He has been called upon to operate for all sorts of things, which he entirely cured by the use of mercury. When we have obscure cases, think of syphilis. DONOGHUE (Boston) said we should not subject a woman to a serious operation; considered an induction of abortion an absolute confession that we have no treatment for the patient. We sacrifice what may be a useful life by producing an abortion. The proposition of conception should be left entirely with the parties directly concerned. BACON, in concluding, stated that it was difficult to tell whether the child is born with tuberculosis, or whether the disease is acquired after birth. Even in the incipient stage of the disease, tuberculosis progresses rapidly during pregnancy. Patient is not necessarily condemned to death by inducing an abortion. If permissible, it is surely in order here. WHITESIDE said that inheritance of syphilis in the mother from her father, has nothing to do with the child, as there are no cases on record of transmission to the third generation. It makes no difference how long you keep up treatment in the child, it may not prevent the occurrence later of iritis, bone and nerve lesions, etc.

[To be continued.]

Diseases of Children.

FOURTH SESSION (CONTINUED).

A Report of a Case of Imperforate Rectum with Absence of Anus.—EDWARD H. SMALL (Pittsburg) reported the following case: October 25, 1903, R. K., male, was born under my charge. Mother has previously had four children, all normal, had no anus at all to be seen. A raphe ran from the base of scrotum to the tip of the coccyx. There was a slight dimple in the median line at the back over the center of the sacrum. The base of the penis was drawn toward the scrotum, making it longer anteriorly than posteriorly. The mother attributed the malformation to a felon she had had seven months before the child's birth. When the child was 30 hours old, he was placed in the exaggerated lithotomy position and without anesthesia a trocar a fifth of an inch in diameter and two and a half inches long was thrust by J. A. Hawkins into the perineum where the anus should have been, and directly in to where the rectum was supposed to be, into the hollow of the sacrum. When the trocar was about all introduced, a lack of resistance was noticed. The stylet was then withdrawn and meconium came out through the canula. After cleansing thoroughly, the opening was enlarged, sufficient to admit the little finger of the operator and a 20 French catheter was introduced and secured by a safety pin. Then the parts were dressed. In five hours, the baby was resting quietly. Morning and night for twelve days, the wound was dilated with the little finger and at each dilation the rectum seemed to descend nearer the perineum. The catheter was left in five days. After twelve days, meatus sounds were used to dilate instead of the finger. At the end of a month, sounds were used but once daily. At the end of two months the rectum had descended almost to the perineum. The baby is now 20 months old and the movements of his bowels are normal. The anus is funnel-shaped, with a good working sphincter, but it is about half an inch higher than the normal location. It is now dilated but once a month and that is without pain. Jacobi says there are several ways in which this malformation may occur. The anal orifice in the fetus is formed from an invagination of the outer surface, the tube thus formed meeting and uniting with the rectum. The septum is absorbed and the lumen becomes complete. Sometimes the septum is not absorbed. It may exist at the anal orifice itself, obstructing the bowel at its very entrance; or again, the anus itself may be normal, yet this septum may exist unabsorbed some distance up the bowel, an inch or an inch and a half. Again, the two tubes may not meet at all, but may be separated by areolar tissue (as in my case), or they may meet sidewise and so touch only at one point. The great objection to the use of the method described above is the danger from sepsis. In my case, antisepsis was as carefully adhered to as possible. The firm attachment of the bowel to the surrounding tissues aided greatly. Some of the fibers of the sphincter and levator muscles must have been present, and some areolar tissue between the bowel and the perineum must have been absorbed, allowing them to come together. My case well supports Bodenhammer's dictum, when he says that in the newborn, time and long experience have taught us that nature is more capable of greater adaptation than in adults, and that in young childhood original defects of development are subsequently compensated for, if art will only give a helping hand to nature in accomplishing her purpose.

Officers Elected.—Chairman, W. C. Hollopeter, Philadelphia; secretary, William J. Butler, Chicago; member of House of Delegates, C. F. Wahrer, Fort Madison, Ia.

A resolution was passed by the section, empowering the chair to appoint a committee of three to investigate the number of hours devoted to the teaching of pediatrics and the methods used in the various medical colleges of the United States, and to report at the next meeting of the section. Chair appointed Snyder, chairman; Cook, and Wahrer.

Ophthalmology.

SECOND SESSION (CONTINUED).

The Extraction of Uncomplicated Immature Senile Cataract.—A. E. BULSON, Jr. (Fort Wayne, Ind.). The speaker said that if the sclerosing process was interfered with there is a loosening up of the lamellas and a molecular disintegration, resulting in a cloudiness of the lens fibers. Called immature cataract when cloudiness does not extend throughout lens mass. This should be differentiated from the sclerosed lens of advanced years. Extraction of a fairly clear sclerosed lens is no more complicated than extraction of mature cataract. Extraction of immature cataract presented difficulties which often deterred operators, but ultimate results in uncomplicated cases properly operated on warranted the procedure when patient could not follow vocation, and months might be required for complete opacification. The combined operation preferred, with large corneal section, and large opening in the capsule; objections to preliminary iridectomy, with or without effort to produce artificial ripening, and extraction later, were that the double operation puts the patient to added risk which is unnecessary in order to accomplish satisfactory results, and the artificial ripening of immature cataract was not followed by sufficient advantage in the subsequent extraction to warrant its adoption. Difficulties in removal of soft lens substance were overcome by employment of irrigation of the anterior chamber with normal salt solution by Lippincott's method. Iritis, either from trauma produced by the irrigation, or the swelling of remaining cortical substance, was anticipated by early and prolonged use of atropin. Dionin, in 5% or 10% solution, or occasionally in fine powder, immediately after closure of corneal wound, to promote resorption of lens debris, and by such practice secondary operations were very greatly lessened in number. Bulson reports satisfactory results in a large number of extractions of immature cataracts in his own practice, and gives the opinions of 65 prominent American operators who answered a letter of inquiry on the subject.

Discussion.—Prof. J. HIRSCHBERG (Berlin) said that von Graefe had advocated the extraction of unripe cataracts, he had followed, and then the operation had been advocated by Sweigert. He did not advise the removal, if the other eye was normal or had good vision. S. D. RISLEY (Philadelphia) asked Prof. Hirschberg if he would consider it justifiable to remove a cataract, traumatic or otherwise, in a man at work among machinery, if the other eye was good, because of the danger in his work from the blind side, Prof. Hirschberg replying that he would. W. C. POSEY (Philadelphia) thought the paper would be the means of keeping a great many individuals from remaining blind unnecessarily, it being now the practice of a great many ophthalmologists to wait until the cataract is fully ripe. He had always followed Prof. Hirschberg's teaching to remove the cataract as soon as the vision in the good eye fell so low as to interfere with the ordinary duties of the person. C. R. HOLMES (Cincinnati) wished to substantiate what had been said with regard to the removal of unripe cataracts. It had been his practice for 12 or 13 years to remove cataracts when the exigencies of the case demanded it. BULSON, in closing, said that he had been surprised to find that a small percentage of prominent operators refused to operate on immature cataracts at any stage. He had grown to look upon iritis as one of the necessary complications of ordinary removal of immature cataracts; sometimes, only a very slight reaction, and sometimes severe; never one that was not easily controlled by atropin and dionin.

Endotheliocylindroma of the Orbit, with Report of a Case; Removal, with Preservation of the Vision and Motility of the Eye.—JNO. E. WEEKS (New York) made reference to reported cases of cylindroma and to the frequency of their occurrence. The histology and pathology of these growths were fully considered, and two cases reported. Taking into consideration the fact that these tumors contain hyperplastic tissue, which develops largely from mesoblastic tissue, but that epiblastic tissue is always present and may preponderate, it was evident, the writer said, that the tumors are "mixed tumors." But, that since the peculiar hyaline change that takes place in mesoblastic formations in these growths is often so striking a feature, he believed, with Verhoff, that the term, cylindroma, should be retained.

THIRD SESSION.

Rat-tail Tendons for Sutures in Eye Surgery.—KASPAR PISCHAL (San Francisco) demonstrated his method of securing the tendons from the fresh rat tail, and said that they made strong, absorbable suture material. The absorbability of the sutures was, he said, especially in children, a great advantage.

Iritis Tuberculosa as Diagnosed and Treated by Koch's Tuberculin.—W. A. GAMBLE and E. V. L. BROWN (Chicago) reported the apparent cure of a marked case of iritis tuberculosa, with complete absorption of the nodes, by the use of injections of small doses of Koch's tuberculin in T. R., as advocated by Professor von Hipple. They also obtained repeated characteristic local and general reactions upon the use of 4 mg. or 5 mg. doses for diagnostic purposes. The report is the thirty-fourth detailed report in the literature. The authors advocate very strongly the diagnostic use of tuberculin, and recommend further attempts for therapeutic purposes.

Discussion.—A. E. BULSON, Jr. (Fort Wayne) had had the pleasure to see the case, and he had been one of the first to suggest the use of tuberculin for diagnosis. He advocated the use of larger doses for diagnostic purposes, 6 mg. to 9 mg. In his own case the original dose had been 10 mg., in a child 4 months old. Keeping the temperature for three or four days previous to the use of the tuberculin was of importance, and the possibility of syphilis should also be taken into consideration.

[*To be continued.*]

Hygiene and Sanitary Science.

Some Experiments in Feeding Cultures of Bacillus Typhosus.—JAS. CARROLL (Assistant Surgeon U. S. Army) conducted a series of experiments at the Army Medical School in Washington, in the endeavor to make a satisfactory antitoxin, and to devise some means of immunization against typhoid fever. The method of Wright, of Netby, produced a marked local reaction and edema, with occasional severe systemic symptoms. The desire to avoid these disturbances led Carroll to make a thorough endeavor to produce the desired results by feeding. Rabbits were selected because of the agglutinating power of their blood. Forty-three rabbits were experimented with, for a period extending over about a year. Three methods were used: (1) Feeding dead agar cultures; (2) feeding dead bouillon cultures; (3) inoculation with dead bouillon cultures. Some of the animals after immunization by these methods, received the living bouillon cultures intraperitoneally. The weights of the animals were charted, and also the agglutinative power of their blood. The endeavor was made to determine the dose necessary to produce the maximum result. In the animals treated, an extremely variable agglutinative power of the blood developed. In one animal one part of blood agglutinated 3,000 of culture; a greater degree of agglutination than is developed in the human blood during an attack of typhoid fever. The higher degrees of agglutination were generally transient. The weight remained stationary generally; in one animal it increased greatly during the experiments. In the animals who died of snuffles (of which there were several) the weight declined. In a large percentage of the animals fed with the dead bouillon agar cultures for varying periods, there was little or no increase in agglutination when the dead bouillon culture was inoculated intraperitoneally. The doses given, ranged from 1 cc. to 10 cc., administered at intervals of three days, varying to one day and one week intervals. The curve of agglutination never remained level, but showed great fluctuations from day to day. Some of the animals, after an extensive treatment with dead typhoid cultures, were inoculated with a dose of living bacilli many times greater than that required to kill the immunized rabbits. Though these animals did not possess blood of great agglutinative powers, all survived the inoculation. Carroll's inference from these observations is in accord with those of other observers, that the degree of immunity of an animal is not in proportion to the agglutinative power of its blood. He concludes that we have a method easy of application, free from pain and unpleasant consequences, which promises to give immunity against the typhoid organism. In conclusion, Carroll quoted Cole's theory as to the nature of the immunity conferred by an attack of typhoid fever. This power Cole believes to be due to the development of a bacteriolytic power of the epithelial cells of the intestine, which, following an attack, possess the power of dissolving the bacteria and liberating their toxins, which then call forth a normal antitoxin in the blood.

Stomatology.

SECOND SESSION (CONTINUED).

The Etiology of Teeth Corrugations.—G. LENNOX CURTIS (New York) said: Often peculiar spots, opaque markings, lateral corrugations, resembling rings, occur; they are not always present in all of the members of the same family. They are sometimes lateral, sometimes longitudinal. We cannot always find these markings on teeth and nails of same individual at same time. There is very little in textbooks in reference to this. They have at least an etiologic place in literature, and this alone is worthy the attention of those interested in cause and effect. They point to abnormal and interrupted changes in nutrition when the enamel is soft and impressionable, and consequently have no direct connection with the present condition, but they serve the important point of confirming past disease, knowledge of which is necessary to a complete history of the case. Cross lines indicate autointoxication as in gout and rheumatism; longitudinal lines point to intestinal indigestion, especially found in colitis and hemorrhoids. It has occurred to me that corrugations on teeth in young children might have occurred because the mother suffered from an attack of rheumatism during gestation. I afterward found this to be correct. From these facts I conclude the principal causes of corrugations upon the teeth and nails: 1. Intoxication from absorption of ptomains, etc., from intestinal fermentation. These interfere with normal functional activity, clog emunctories, pollute the blood stream and produce substances called rheumatic fibrin. Fibrin may also be due to prodromal stage of disease. Some claim that leukocytes produce fibrin. Nails may exhibit similar marks. Lines on nails will disappear if the system is kept free from autointoxication. When these are absent it is reasonably sure patient is not suffering from indigestion or traumatism. Size and coarseness of markings determine severity. Position on nail determine time. If near end, three or four months ago; if near middle, four to six weeks; if near base, few days to weeks. The position of angular interruptions in longitudinal lines indicates period of time since attack occurred. It is interesting to note how thin and brittle the nails become in certain stages of rheumatic affections.

Discussion.—M. H. FLETCHER (Cincinnati). The markings on the nails are an established guide to physicians and I have always understood they were looked upon as being especially indicative of disorders of the alimentary tract; however, it is a known fact that any acute wasting disease which so reduces the assimilative processes of the body that destructive metabolism is present for a period of one or more days, will show transverse corrugations in the nails, the number, size, and depth of these being determined by the severity and length of time that destructive metabolism is present. Pneumonia, pleurisy, or an acute attack of any kind will show these markings as surely as derangement of the alimentary tract.

[*To be continued.*]

Pharmacology.

THIRD SESSION.

Officers Elected.—Thomas F. Reilly, chairman; William Frick, of Kansas City, Mo., vice-chairman; C. S. N. Hallberg, secretary, and Heinrich Stern, delegate.

The Uncertain Origin and Variable Quality of Vegetable Drugs and the Inadequate Instruction in Materia Medica in Medical Colleges and Its Bearing upon Medical Practice.—ALBERT SCHNEIDER (California) commented on the variability of vegetable drugs from absolute worthlessness to many times the specified pharmacopeial strength, citing as an instance cinchona bark, the alkaloidal strength, in nature, varying between 0% and 25%. This variability also exists in such familiar and highly important drugs as belladonna, aconite, digitalis, pilocarpin, ergot, coca and many others, though perhaps in a lesser degree, yet to such an extent that manufacturers have adopted methods of testing and standardizing the more important vegetable drugs. The retail druggist follows the very meager directions of the United States Pharmacopeia, aided perhaps by a reference to some dispensatory. While reliable manufacturers can and do place upon the market, accurately standardized preparations, it does not follow that they are such when they reach the physician and patient. Their value may have become reduced or lost due to the destructive chemic changes which are steadily taking place. Perhaps the most satisfactory and most practicable method would be for the retail pharmacist to make the preparations from drugs which have been carefully tested and standardized by reliable wholesale dealers. Laboratory courses have practically monopolized the curriculum, largely because they are generally presided over by competent salaried men who have the ability and the time to develop the courses and endeavor to key the work of students to the top notch. Consequently the courses which were from the first looked upon as being essentially lecture courses, given by authorities who offered their services free and who failed to compel the students to do efficient work, were gradually crowded out. Naturally the courses in materia medica and related subjects suffer among others. Courses of instruction in such schools of medicine are ill-suited to the needs of the general practitioners.

Discussion.—C. F. WAHRER said that he was glad to see that the work of the section had culminated in the practical measure of the organization of the Council on Pharmacy and Chemistry, and that the work of this council has already indicated that the reformation if not the solution of the problem of the proprietary medicine question is now approaching. W. D. CALVIN (Ft. Wayne, Ind.) spoke with reference to the laboratory, stating that ten years ago they were compelled to examine the drugs, to formulate and to fill prescriptions, and it was one of the best courses, and that since that time the course has been improved. We have more than 50% too many medical colleges in this country, and most of them are not founded on the right principles. He commended the preparatory education demanded by our larger institutions, and their paid teachers who give their whole time to the work. He questioned the propriety of exhibiting proprietary remedies which do not state the component parts or the amounts of the various ingredients, while papers are read before the Association condemning this very thing. S. M. MCDONALD (San Francisco) stated that the condition of the drug business of the present day is largely brought about by the public and also by the physicians, defending the prescribing by the druggist of preparations for such ailments as diarrhea, but stating that no conscientious druggist would diagnose a disease or prescribe, considering the therapeutics of a case, and also in the case of renewing prescriptions, he said they have to do it. He contended that there were black sheep in every department of pharmacy as well as medicine, and the right kind of druggist would soon become known.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston, Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 476.*]

Results of Operations by Way of the Maxillary Route for Combined Disease of the Maxillary Antrum, the Ethmoid Labyrinth and the Sphenoid Sinus.—T. PASSMORE BERENS (New York). The operation was described as follows: A postnasal tampon was first inserted, and the tongue held forward by a ligature passed through its tip. An opening was then made into the antrum through the canine fossa, and enlarged until the anterior lateral wall was almost completely removed. The bony nasoantral wall was then entirely removed, the mucous membrane on its nasal side being as far as possible preserved. The ethmoid cells and the turbinate process of the ethmoid were then removed. The sphenoid was opened, either through its ostium or through the posterior ethmoid cell; this opening was then enlarged until as much as possible of the anterior wall had been removed, and the cavity of the sphenoid was examined and its diseased contents removed. The field of operation was illuminated by means of a headlight worn by the operator. Instrumentation was further aided by the insertion deeply into the nostril of the little finger. This combination of the sense of sight with the sense of touch did much toward removing the feeling of uncertainty with which operations on the deeper structures of the nose were usually approached, and was a strong recommendation for the selection of this, rather than the intranasal route. Bleeding during the operation was usually controlled by gauze tampons dipped in adrenalin solution, although a resort to artery forceps to catch the sphenopalatine vessels was occasionally necessary. He emphasized the fact that this operation was designed especially for the relief and cure of those cases of chronic multiple sinusitis involving the antrum and ethmoid, or antrum, ethmoid and sphenoid, and was not meant to be commonly performed for disease limited to the ethmoid or sphenoid, or for mild or ordinarily acute conditions.

The External Operation for the Relief of Ethmoiditis.—LEWIS A. COFFIN (New York) said his preference for the external operation over the intranasal operation was based on the following reasons: (1) By the intranasal method the middle turbinate had to be sacrificed; (2) the intranasal operation was long drawn out and painful; (3) there were certain parts of the ethmoidal tract that could not be reached by the intranasal method.

[*To be continued.*]

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

Tenth Annual Meeting, Held at Buffalo, N. Y., September 14, 15, and 16, 1905.

[Specially reported for *American Medicine.*]

Officers.—The following officers were elected: President, Casey A. Wood, Chicago; first vice-president, J. A. Stucky, Lexington, Ky.; second vice-president, Alvin A. Hubbell, Buffalo, N. Y.; third vice-president, Emil Mayer, New York; secretary, Geo. F. Suker, Chicago, reelected; treasurer, Otto J. Stein, Chicago, reelected. The place of next meeting will be decided by Council.

President's Address.—PRESIDENT LOEB, after referring to the rapid rise of specialism, its divisions and subdivisions, devoted the rest of his remarks to the medicolegal aspects of certain cases of diseases and injuries and complications of the nose, throat and ear. The physician is called upon to give his opinion and advice in certain cases as an expert in court. There are essential differences between the testimony of experts and that of ordinary witnesses. Fractures of the nose or involvement of the accessory sinuses, may be the bone of contention in court. He cited several cases in point.

Vice-president's Address.—DERRICK T. VAIL (Cincinnati, Ohio), first vice-president, spoke of the medicolegal aspects of ophthalmologic cases, and said that expert testimony implied an accurate and detailed knowledge of the science of ophthalmology, coupled with abundant practical experience and a complete understanding of the plaintiff's condition. He cautioned against examining patients cursorily, as this may lead to a wrong diagnosis. Illustrative cases were cited. Every tissue and organ of the body should be carefully examined before expert testimony is given in court in regard to a given case. Cases of simulation called for great skill on the part of the oculist. He pointed out and emphasized the importance of the expert using simple language in court. Answers to questions should be short, pointed, and given in understandable English, at all times, if possible.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE HUMANE USAGES OF WAR.

BY

LOUIS LIVINGSTON SEAMAN, M.D.,

Late Surgeon-Major, W. S. V. E.

To the Editor of American Medicine:—My attention has just been called to an article under the caption of "The Humane Usages of War," in your issue of August 19, together with a protest from a group of Russian physicians, said to have been addressed to the Japanese Chief of Military Sanitation in Port Arthur, and published in the *Novoe Vremya* of St. Petersburg, May 11, 1905.

Your editorial comment on this "protest" has been most liberal, but, as further bearing on the situation, I submit certain extracts[1] from a chapter on "Port Arthur," written last June, for my forthcoming book on "The Real Triumph of Japan or the Conquest of the Silent Foe."

They describe the conditions existing at the time of, and directly following the capitulation of the fortress, and supply perfectly the motives for the "protest" of the Russian surgeons; and, in fairness to Japan, I hope you will find space for them in your next issue. The "protest" is in keeping with the mutiny threatened at Hamadera, in Japan, at the time of my visit there in May last. At this beautiful resort on the shores of the Inland Sea, 28,000 fat, healthy Russian prisoners were comfortably quartered. So many liberties were granted them that one could hardly regard them as being in captivity, and further to save their pride, the Japanese guards were rarely to be seen, although, of course, they were in prompt evidence when required. Because an order had been issued requiring the Russians to assist in the preparation of their own food, they threatened to wreck the kitchens, and created such a violent disturbance that several of them had to be shot before it was quelled.

In another section of the same compound, Japanese instructors were actually teaching ignorant Russian peasant soldiers how to read their own language.

When the "gentle reader" remembers how entire train loads of Red Cross and hospital supplies, blankets, etc., were looted in Moscow before they could be shipped to the front, and, also, that nearly half the suicides in the Japanese army in the late conflict occurred among men threatened with certain capture, and who preferred death to the knout or the Siberian salt mines, he can reach his own conclusions as to the motives that inspired this "protest."

THE CLIMATE OF FORT HUACHUCA, COCHISE COUNTY, ARIZONA.

BY

ISAAC W. BREWER, M.D.,

of Fort Huachuca, Ariz.

At a time when tuberculosis and its treatment by outdoor life is receiving so much attention from the profession and the general public, it is not out of place to present a few remarks on the climate of a region that is especially adapted for the outdoor life.

The southeastern portion of Arizona is a broken country, crossed by numerous mountain ranges, between which are extensive valleys, most of them being from 3,000 to 5,000 feet above sea level. It is part of the "arid region," and according to Glassford's[1] charts has a mean precipitation of about 15 inches, and a mean temperature of from 60° to 65°.

According to Moore's charts,[2] the mean relative humidity in summer is between 30% and 40% and the mean sensible temperature (temperature of the wet bulb thermometer) in summer is between 60° and 65°.

The following record of evaporation in inches for the year

[1] See Special Articles, p. 534, this issue.

ending January, 1888, at Fort Grant, Arizona, is taken from Glassford:[1]

January	5.2
February	4.8
March	6.4
April	9.2
May	10.2
June	13.8
July	12.4
August	10.5
September	9.0
October	7.9
November	7.2
December	4.6
Total	101.2

The clearness of the air is remarkable and the sun shines nearly every day. During the winter months the higher mountain peaks are covered with snow and there are occasional snowstorms in the valleys. Excepting in sheltered places, the snow rarely remains in the valleys more than 24 hours.

The winter nights are quite cold, but the days are delightful, and the invalids can sit out in the sun all day. There are three great drawbacks to this region: (1) The high winds and dust storms that prevail in spring and early summer; (2) the lack of water, and (3) the poor accommodations and lack of good food.

The subject of wind in this region has been much exaggerated. There are days when the winds are very high, and occasionally there are dust storms. Very few accurate records of the wind velocity have been kept. Moore[3] publishes the following table of mean velocity in miles per hour:

AT STATIONS IN ARIZONA.

	Prescott	Fort Apache	Fort Grant	Yuma
January	5.5	5.2	6.6	6 3
February	7.2	6.2	7.5	6.8
March	7.1	6.9	7.0	6.2
April	9.0	8.5	7.7	7.1
May	8.6	8.0	7.4	6.6
June	8.8	7.6	7.0	6.2
July	6.9	6.0	6.0	7.0
August	6.2	5.6	5.8	6.1
September	6.2	6 1	7.2	4 8
October	6.3	6.3	6.9	4 6
November	5.3	5.2	6.6	5.4
December	6.0	5.1	6.5	5.8

Fort Grant is situated in the region under consideration.

Southeastern Arizona is watered by three rivers, the Gila, which flows through the northern portion of the section, and its tributaries, the San Pedro and Santa Cruz rivers.

In the San Pedro valley, artesian water is reached at about 300 feet. In the Sulphur Spring valley, good water is obtained at from 30 to 100 feet, and in the Gila valley, it may be had at no great depth. This feature of the country has not been developed.

In the mountains, there are many small brooks of running water that last even in the dryest years. After leaving the mountains, they usually sink in the sand.

Excepting in the larger towns like Tucson, Bisbee, and Douglas, there are practically no accommodations for invalids. It is not advisable to reside in the towns, as the sanitary conditions are not very good, and young men, especially, are subject to many temptations in a new country which many are unable to resist.

Fresh vegetables and fruits are brought from California and Phoenix, but where there is water, they may be raised in abundance. A sanatorium located in this region should be in the mountains, and have sufficient ground and water to raise all the fruit and vegetables required.

The object of this paper is to set forth some of the local conditions of this region, as shown by the records kept at the post hospital at Fort Huachuca, and to call attention to a region that is admirably suited for the establishment of a sanatorium.

Fort Huachuca is situated on the northern slope of the Huachuca Mountains in the mouth of Huachuca cañon and according to the Geological Survey Benchmark is 5,042 above sea level.

The mountains rise abruptly from the plain and are several thousand feet higher. On the lower levels they are sparsely clad with live oaks and manzanita bushes, while higher up are found pines and junipers. There are permanent springs in all the larger cañons on the north side.

North and east of the post is an extreme plain sloping down to the San Pedro river, which at Charleston, a point 14 miles distant is 1,000 feet lower. Beyond the river are the Dragoon mountains in elevation somewhat lower than the Huachucas. The plain is limited on the north and west by the Whetstone, Mustang, and Galiura ranges, while to the east and southeast are the Mule Mountains, and the Sierra de San José.

The plain is alluvial with many areas of gravel and larger stones brought down from the mountain. The soil is very fertile, and when there is sufficient water, vegetables and fruits grow luxuriantly.

Before the ranges were overstocked, grass was abundant, but recently pasturage has been very poor, excepting during wet years when there is an abundance of gramma grass. In the river bottoms there are a few cottonwood, sycamore, and willow trees.

The meteorologic records begin in 1886, and have been carried on to date. They consist of readings of the maximum and minimum thermometers and rain gauge, and observations of the direction of the wind and amount of clouds. The following table shows the records of the temperature observations:

	Temperatures			Daily Range		
	Mean	Maximum	Minimum	Mean	Greatest	Least
January	44	72	7	23	41	3
February	46	75	14	28	49	5
March	52	87	16	26	32	6
April	59	90	29	30	49	9
May	68	102	32	29	36	15
June	77	103	37	29	40	14
July	78	104	48	23	38	11
August	74	99	47	22	34	9
September	71	99	39	24	36	7
October	63	99	32	26	37	10
November	54	80	15	28	43	5
December	46	84	7	26	40	1

The following table shows the position of the maximum and minimum thermometers for each day from January 1, 1895, to December 31, 1899:

	Maximum temperature—Number of days					Minimum temperature—Number of days		
	Above 100	90–100	75–89	40–74	Below 40	Above 40	32–39	Below 32
January	0	0	0	150	5	22	70	63
February	0	0	0	139	2	33	71	37
March	0	0	17	137	1	70	68	17
April	0	0	91	59	0	118	28	4
May	0	13	116	26	0	147	7	1
June	3	78	67	2	0	150	0	0
July	0	49	103	3	0	155	0	0
August	0	27	126	2	0	155	0	0
September	0	21	122	7	0	150	0	0
October	0	1	85	69	0	135	20	0
November	0	0	20	129	1	67	61	22
December	0	0	5	142	8	21	74	60
Total	3	189	752	865	17	1,223	399	204
Percent	00.2	10 4	41.2	47.3	00.9	67.0	21.8	11.2

The highest temperature recorded was 104° in July. Temperatures of 102° to 103° have been recorded in May and June. These temperatures are not so keenly felt as are similar values in the East. Owing to the extreme dryness, and the great evaporation from the surface of the body, the appreciable temperature is from 10° to 20° lower. One may walk or ride in the sun during the heat of a summer day without suffering inconvenience, provided the eyes are protected from the glare by tinted glasses. The records of the post hospital show but one case of sunstroke since 1884. Hot nights are unknown.

The minimum temperature 70° was recorded in January and December. Such low temperatures are rare and of short duration. The winter nights are cold but the days are pleasant. From 1895 to 1899 there were 451 winter days; during that period the maximum temperature was below 40° on 15 days, from 40° to 74° on 431 days, and above 75° on 5 days. During the same

period the minimum temperature was above 40° on 76 days, between 32° to 39° on 215 days, and below freezing on 160 days. The mean daily range of temperature was 26°, and varied but little from month to month, the greatest daily range record was 49° and the least 1°. Frosts of sufficient severity to destroy vegetables are liable to occur as early in the fall as the first week in November, and as late in the spring as the last of April.

The records of the force of the wind are unsatisfactory. Some of the observers have carefully noted the days on which high winds have occurred, while others omitted this item.

The register shows 46 days on which such winds were noted in a period of three years, or less than two a month. Sand storms occur in the spring, but they are infrequent and of short duration. During the past three years there have been about nine such storms. There is practically no alkali in the Huachucas, and the dust is not as irritating as where alkali is found.

At night there is usually a light movement of air from the mountains, and by sunrise it is usually calm. The wind begins to blow down the canyon about 10 a. m., reaching its maximum, probably from 15 to 20 miles per hour, during the heat of the afternoon and gradually subsiding toward sunset.

In the following table for the period from January 1, 1900, to December 31, 1904, is shown that during the year there are on an average 263 clear, 55 partly cloudy, and 46 cloudy days. Precipitation falls on an average on 43 days.

Average number of clear, partly cloudy, and cloudy days, and days with 0.01 in. of precipitation, 1900 to 1904:

	Clear	Partly cloudy	Cloudy	Precipitation 0.01″
January	24	4	3	3
February	20	5	3	3
March	23	4	4	2
April	20	3	7	1
May	25	4	2	1
June	24	3	3	1
July	17	6	8	9
August	15	10	6	11
September	19	7	4	5
October	27	1	3	3
November	25	3	2	2
December	24	5	2	2
Annual	263	55	47	43

The following table shows the average cloudiness for each month for a period of six years:

January	2.0	July	3.2
February	1.8	August	3.2
March	1 3	September	2.0
April	1.4	October	1.1
May	1.4	November	1.6
June	1.2	December	2.4

Haze is rare. The fogs which are occasionally noted during the rainy season are of no great depth and are of short duration.

The precipitation in this region corresponds to the Arizona type, having a principle maximum in the summer and a secondary maximum in the winter. The summer rains, which amount to 59% of the total precipitation, are mostly in the form of local thunderstorms. They begin in June and reach their maximum in July and August. April and May are the months of minimum precipitation. The average annual precipitation is 16.06 inches. In 1891 the total for the year was 10.84, while in 1896 and 1898 over 21 inches fell. The following table shows the precipitation in inches by months for the 19 years ending December, 1904:

	January	February	March	April	May	June	July	August	September	October	November	December
Average	1.03	0.94	0.88	0.25	0.20	0.46	3.78	4.29	1.92	0.74	0.77	0.80
Max'mum	3.68	2.39	2.71	1.29	1.39	1.81	8.04	8.99	4.68	3.86	2.78	3.37
Minimum	0.10	0.00	0.00	0.00	0.00	0.00	0.89	1.66	0.15	0.00	0.00	0.01

Snow falls on the mountains as early as November; on the higher peaks it frequently remains until May. From 1900 to 1904 the snowfall in the post averaged as follows: January, 0.4 in.; February, 3.2 in.; March, trace; December, 0.2 in.; total for year, 3.8 in.

In the preceding paragraphs it has been my endeavor to show some of the local features of the climate of the mountain region of southeastern Arizona. Anyone who has had experience with sanatorium patients knows that without congenial occupation and pleasant surroundings little can be accomplished.

The region under consideration, while not possessing the attraction of some of the northern resorts, offers much in the way of amusements. There are many beautiful cañons that can be explored on horseback. Camping out is delightful during a great part of the year. Those who are able, and have the desire to hunt, will find pleasure in trailing the deer and bear which are found in the mountains. On the plain, rabbits and quail are abundant and in the fall ducks are occasionally found. The general government is making plans for a large reservoir on the San Pedro river and when completed it will no doubt be stocked with fish, thus adding angling to the other attractions of the region. Those who must lead a quiet life will be interested in the many beautiful flowers and strange plants that grow on the plain and the mountain slopes. The region abounds in small animals and beautiful birds. The scenery, while not to be compared with Colorado, is beautiful. The shadows on the mountains and plain and the sunsets are studies in color that cannot be reproduced.

Tuberculous patients have been coming to this region for years; they came in wagons long before the railroad was built. Many have recovered; some have succumbed to the disease very rapidly because of their inability to cope with the hardships incident to a residence in a new and undeveloped country; others unable to stand the monotony of the life have taken to cards and drink.

In many of the towns there is a growing sentiment against taking patients in hotels, and although the proprietor usually only refuses advanced cases, this is an unnecessary hardship, and tends to discourage the patient.

A first-class sanatorium is needed in this region. It should be conducted on broad principles, and provide accommodation for all classes.

Most of the mountain land belongs to the United States, and although most of the water rights are occupied by squatters, there are still remaining a few to which the national government retains title; these might be secured through an act of Congress.

During a residence of two and a half years I have had opportunities of studying the effect of this climate upon tuberculosis. Patients coming here during the early stages usually recover very quickly. Many who do not come until the disease is well advanced, recover. The climate does not seem suitable for patients suffering from rheumatism, neurasthenia, or advanced cases of tuberculosis.

A sanatorium in or near the Huachuca mountains would have the following advantages: (1) A climate suitable for outdoor life during the entire year; (2) pleasant surroundings; (3) proximity to two railroads, connecting it with the markets of the East and California; (4) good water-supply; (5) fertile soil capable of producing fine fruits and vegetables; (6) isolation, and consequent freedom from the temptations that are found in cities.

Much of the data used in this paper have been obtained from the meteorologic register kept at the post hospital, for access to which I am indebted to Major F. A. Winter and his successor, Capt. W. D. Webb, both of the Medical Department of the United States army.

I am also indebted to the chief of the weather bureau and to the director of the Arizona section of the weather bureau for certain data not recorded in the hospital register.

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Aid for Medical Women.—The late sanitary expert, Dr. Gobunrek, left 250,000 marks, to be lent without interest to women who study medicine in Germany and Austria.

ORIGINAL ARTICLES

DIGITALIS IN THE TREATMENT OF VALVULAR DISEASE OF THE HEART.[1]

BY

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In the present discussion we are interested chiefly in the action of digitalis on the circulatory apparatus. Digitalis acts on the pneumogastric nerve, the nerve endings and muscle fibers of the heart muscle, and on the vasomotor centers, lessening the number of beats per minute and increasing the length of diastole, strengthening the contraction of the muscle and causing a rise in arterial tension. The ultimate effect of digitalis on the heart is therefore to increase the amount of work done and also to lengthen the time during which the ventricles dilate. In the case of digitalis, more than with almost any other remedy, the therapeutic uses and the counterindications are directly derived from the known physiologic action of the drug. The only difficulty we encounter is the antagonism between the action of the drug on the peripheral vessels and its effect on the central muscle; for, while it increases the force of the ventricular contractions, it also heightens the arterial tension and thus augments the resistance to the heart.

The immediate effect of digitalis on the heart is to enable the muscle to do the largest possible quantity of work with the longest possible period of rest, and to relieve the distention in the cavities of the heart due to regurgitated blood by lengthening the period of relaxation and thus allowing them to evacuate their contents more completely; the ultimate effect of a continued course of digitalis is to produce hypertrophy and thereby bring about compensation. As soon as compensation has been established, there is no more occasion for exhibiting the drug, in fact; it does harm by overstimulating an already hypertrophied organ.

It is important in this connection to distinguish carefully between actual and functional hypertrophy. A heart may be actually hypertrophied and yet be unequal to the task imposed upon it in the presence either of any unusual exertion or of a valvular defect calling for special effort on the part of the muscle to neutralize the effects of regurgitation or stenosis. In such a case digitalis may be indicated, perhaps in smaller doses, in spite of the existing hypertrophy. The important thing to determine in an individual case is the relation between the strength of the cardiac muscle and the amount of work required of it. The art of properly using digitalis consists in knowing how to determine this relation and meeting the indications by adjusting the size of the dose and the length of administration.

It is evident, therefore, that in any case of valvular disease the precise nature of the valve lesion is of minor importance compared with the dynamic state of the circulatory apparatus at the time the case presents itself for treatment. Digitalis has no direct effect on the valves, nor does it act on the diseased condition of the organ; it is merely a stimulant to the heart muscle. Broadly speaking, digitalis is most useful in mitral lesions, and its administration calls for greater conservatism in aortic disease. This is the accepted teaching among most authorities and in the main holds good; although in special cases digitalis may, at least temporarily, be indicated even in aortic insufficiency.

The theoretic objection to giving digitalis in *aortic insufficiency* is that the diastole is lengthened and the quantity of blood which regurgitates into the left ventricle therefore increased; but the enlargement of the left ventricle in aortic regurgitation is due less to the regurgitant stream, for which there is plenty of room in the cavity (Butler), than to the necessity of expelling the extra amount of blood, and for that reason digitalis may be useful in aortic insufficiency as well as in other valve lesions.

In *mitral insufficiency* the beneficial action of digitalis is readily understood. It increases the force of the cardiac contractions; the blood is propelled more rapidly and a greater quantity of it therefore enters the aorta, thus relieving the hypostatic condition in the lungs and more remote organs of the body.

In *mitral stenosis* the drug, theoretically at least, acts chiefly by lengthening the diastole and thus affording more time for the distended left auricle to empty its contents into the ventricle.

In *aortic stenosis* the occasionally beneficial action of the drug is more difficult to explain. In this condition the heart is usually hypertrophied and the pulse is apt to be slow, so that the drug would seem to be counterindicated. Lengthening of the diastole would appear to subserve no good purpose, yet from clinical experience we know that the drug may do good in these cases also; although it may here be remarked that aortic stenosis as an independent condition is distinctly rare and the relief occasionally observed after digitalis in such cases probably depends on the fact that other valvular lesions present at the same time predominate over the aortic stenosis.

The truth is, as von Jürgensen says, digitalis acts by forcing the heart temporarily to exert itself for its own good. The mere strengthening of the cardiac contractions tends to increase the nutrition of the myocardium. The venous blood in the walls empties itself more completely, and more blood enters the coronary arteries. The latter arise from the aorta just above the free borders of the right and left semilunar valves; hence, while the column is being propelled into the aorta, that is, during systole, the coronary arteries probably receive only a relatively small quantity of blood, but when the column rebounds against the closed semilunar valves, the pressure is momentarily increased and the blood is then forced into the vessels. Hence a moderate degree of arterial tension is necessary for the proper filling of the coronaries and the maintenance of the heart's nutrition, and this probably explains why digitalis may do good in cases of aortic disease, especially aortic regurgitation.

In any form of valvular heart disease digitalis is indicated during the stage of dilation and beginning loss of compensation; the cardiac contractions are strengthened, the dilated ventricle is enabled to expel its contents, and the embarrassed mechanism is temporarily relieved, thus giving time for hypertrophy to develop and for the heart to adjust itself to the new conditions.

The three *counterindications* to the use of digitalis are hypertrophy with established compensation, degeneration of the myocardium, and high arterial tension. In the first case the drug is counterindicated chiefly because it is not needed and, not being needed, causes overstimulation and distress.

The chief counterindication to digitalis is fatty degeneration of the heart, and in advanced cases, when the cavities are much dilated, it must be used with great caution. Dujardin-Beaumetz gives the following rule: "When in a patient digitalis administered methodically and managed with care produces no amelioration on the part of the heart and pulse; when, above all, the quantity of urine is not augmented, be persuaded there is a fatty degeneration of the heart and immediately cease the employment of the remedy." It is to be remembered, however, that a diseased heart possesses fibers of unequal efficiency and such a heart is wasteful of its energy. Digitalis under these conditions acts chiefly on the pneumogastric nerve. The inhibitory action of the

[1] Read at the meeting of the Northwestern Medical Society, May 1, 1905.

nerve throws out the weaker fibers and, while bringing the healthy, vigorous fibers into action, gives the former sufficient time to recuperate. The heart gains strength through its own exertions, because it receives more blood. If, as is believed, digitalis also acts directly on the muscle, its effect on the weaker fibers is neutralized by the action of the pneumogastric, while at the same time it acts as a further stimulus to the healthy fibers. Once the pulse has become constantly small, irregular, extremely weak and frequent in a case of protracted heart weakness, digitalis always fails and may do harm. As has been said, the heart is only just able to meet the demands of life, and a change in any direction may prove injurious or even fatal.

The third counterindication, high arterial tension, is found chiefly in the middle-aged and in arteriosclerosis generally; but even under these circumstances digitalis is advised by some authorities, in combination with some vasodilator agent. Butler advises opium for this purpose, although the wisdom of giving opium for any length of time is always open to question. It seems to me that we possess in nitroglycerin a drug which meets the indication much more satisfactorily, as its administration can safely be kept up for a considerable length of time.

There exists some difference of opinion among authorities as to whether or not digitalis has a socalled *cumulative action*. The German writers on diseases of the heart make quite a point of this feature, and insist there is some danger of intoxication if the drug is given for any length of time. V. Jürgensen gives digitalis in rather large doses for a period of six days, and then withholds the drug for at least two weeks before giving it again. He advises 2 gm. (30 gr.) of the powdered leaves during the first two or three days, and 1 gm. (15 gr.) during the succeeding two or three days. He prefers the infusion and, taking the strength as 1.5%, or about .45 gm. (7 gr.) to 30 cc. (1 oz.) of infusion (Wood), it will be seen that his doses are quite large, 12 cc. (3 dr.) of the infusion four times a day during the first three days, and half that dose, 6 cc. (1½ dr.) four times a day during the succeeding period of three days.

On the other hand, Wood says in regard to the cumulative action of digitalis: "When digitalis is administered persistently, its first evident influence may be suddenly developed after a long delay. It is said that sometimes the first symptom of this socalled cumulative action is severe syncope followed by paraplegia, vomiting, diarrhea, delirium, general insensibility, and death. Such cases must be extremely rare; usually a sudden drop of the pulse is the most serious effect, provided the administration of the remedy is at once suspended. It is a matter of much importance to determine when this cumulative action is to be expected. It is probably connected with slow absorption and elimination, and is much more prone to occur when there is no diuretic effect. It is also very apt to appear after tapping; the sudden removal of pressure from the vessels leads to the picking up by the tissues of serum—saturated it may be with digitalis principles—and also to the rapid absorption of any digitalis which may be in the alimentary canal." He adds, however, that it should be a general practice "in the persistent administration of digitalis to interrupt its use occasionally so as to allow a clearance of the system." Hare expresses practically the same opinion. Potter, in speaking on this subject, says: "During the use of the drug for any length of time, the muscle of the heart is so strained by overstimulation that on suddenly assuming the erect position the cardiac energy may fail, more especially if the doses are administered too close together to admit of elimination of one before the ingestion of the next. This is the explanation of the socalled cumulative action of digitalis, which is not now generally recognized in the sense in which the term was formerly applied. Another explanation is that it may stop its own excretion by arresting renal circulation and the secretion of urine through extreme contraction of the renal vessels, and thus may really accumulate in the blood."

Other writers might be quoted to show that this cumulative action in the sense of an accumulation of the drug in the system, followed by an outburst of increased activity, is no longer feared. Butler says outright that the drug can be given for months without ill-effect, and in these words, I think expresses the general opinion among American therapeutists. I have given the drug in moderate doses, say .6 cc. (10 m.) three times a day, if not for months, certainly for weeks, without any ill-effect other than digestive disturbance, which sometimes necessitates a temporary interruption of the treatment.

Although the dispensatory recognizes only the powdered leaves, the fluid extract, the extract, the tincture and the infusion, Merck's German digitalin, when given in sufficiently large doses, may also be mentioned as an efficient remedy. The dose of 2 mg. ($\frac{1}{30}$ gr.) which is usually recommended, seems to me much too small to produce the desired effect. It is well to begin with 3 mg. ($\frac{1}{20}$ gr.); but if the expected effect does not take place within the usual time, say about 36 hours when the drug is given by the mouth, no hesitation need be felt in increasing the dose up to 5 mg. ($\frac{1}{12}$ gr.) or even 8 mg. ($\frac{1}{8}$ gr.). Digitalin also has the advantage that it can be given hypodermically.

In conclusion, it may be said that digitalis still ranks as one of the most reliable heart stimulants and heart tonics in spite of the many substitutes that have been brought forward from time to time. Among these, strophanthus is the most important; it is said to be free from the disadvantage of a cumulative action, and not to reduce the frequency of the heart-beat. While but little has been added to our knowledge of the drug during recent years, we have probably learned to apply it with more accuracy to the conditions in which it proves of most value.

DIVERTICULUMS OF THE ESOPHAGUS, WITH REPORT OF CASES.[1]

BY

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Ectasies or enlargements of the esophagus are of two kinds, entirely distinct in their causation and pathology, namely: (1) Dilation or diffuse enlargements involving more or less the entire periphery of the tube and due usually to organic or spasmodic stenosis; and (2) diverticulums, localized bulgings or saccular protrusions originating from a circumscribed portion of the wall of the esophagus.

Systematic knowledge of diverticulums of the esophagus dates from the classic article of Zender and von Ziemssen.[2] Since then numerous papers have appeared, embodying reports of cases, etiologic, and pathologic studies, methods of diagnosis and treatment, etc. The most complete and most comprehensive work on the subject is the 206-page monograph by Dr. Hugo Starck, "Die Divertikel der Speiserohre," Leipzig, 1900. Diverticulums of the esophagus are divisible into two varieties sharply distinct in their origin and course—pressure diverticulums and traction diverticulums.

Pressure diverticulums are those produced by the esophageal pressure, involved in swallowing, acting upon a circumscribed area of weakening in the esophageal wall. They are uncommon, and occur less frequently than traction diverticulums. They may be single or double. They are rounded or oval saccular protrusions communicating, by a circumscribed round or slit-like

[1] Read before the eighth annual meeting of the American Gastro-enterological Association, held at the Academy of Medicine, New York City, April 24 and 25, 1905.

[2] Vol. viii of von Ziemssen's Cyclopædia of Practical Medicine, 1878.

opening, with the lumen of the esophagus. In size they are from insignificant bulgings to large cavities with a capacity of several hundred cubic centimeters. Their walls vary in structure in different cases. Occasionally there may be a fairly complete muscular layer throughout. In some cases the muscular layer is thinned, sparse, partial or interrupted. In most cases, however, muscular tissue is entirely absent from the diverticulums, the wall being formed of a hernia-like bulging of the mucous membrane through a cleft or defect in the muscular wall of the esophagus. The esophageal diverticulums, that give rise to perceptible clinical symptoms and come under observation and treatment, are practically all of the pressure variety. The determining factor in the formation of pressure diverticulums is the existence of a weak place or defect in the wall of the esophagus, which in the course of time is converted into a protrusion by the pressure exerted during deglutition. Various explanations have been offered as to the original causation of the weak places in the gullet wall. The theories offered may in general be divided into two classes: 1. Those assigning a congenital or developmental origin. 2. The mechanical, traumatic and inflammatory hypotheses. The etiology is still under discussion, awaiting final settlement. It is quite possible that in different cases different primary etiologic factors are involved.

According to the congenital theories, the diverticulums originate in points where there has been a defect or abnormality of development, as at the middle of the esophagus, where this canal is finally separated from the respiratory passages, or in clefts in the upper part of the esophagus, or in pouches in the pharyngeal region, similar to pouches which are normal to some species of animals. The general trend of opinion seems to be rather opposed to the genetic theory of diverticulum formation except, perhaps, in some of the diverticulums that develop entirely in the vicinity of the bifurcation of the trachea.

According to the mechanical theory, the points of weakness that serve as starting points for the formation of the diverticulums are produced by traumatic, inflammatory or cicatricial conditions. These may act, either by causing a diastasis or splitting of the muscle fibers of the esophageal wall, through which a hernial protrusion of the mucous membrane takes place, or by causing an area of weakness followed by a general bulging involving the muscular as well as the other tunics. One of the most common causes alleged is the lodgment of solid bodies in the esophagus such as to produce diastasis, or traumatic or inflammatory weakening. The lodgment of a mass of very hot food, with tissue injury from the heat, has been assigned as a cause in at least one case. Localized inflammations from any cause are supposed to be capable of producing the determining weakness. Ulcers, as from swallowing caustic substances may directly produce areas of weakening, or be followed by cicatrices which, instead of contracting and causing stenosis, may become thinned and stretched and weakened so as to yield to the internal pressure in the same manner as a ventral hernia may result in the cicatrices of abdominal operations. Wounds and injuries, as from the use of sounds, may result similarly. Stenosis may, at times, be influential in the production of diverticulums, though contractions of the esophagus are more apt to be secondary to diverticulum formation. Finally, preexisting traction diverticulums may serve as starting points for the development of pressure diverticulums.

The esophagus in its course presents three points of narrowing, one just below the cricoid cartilage, one just above the cardia and one in the middle of the esophagus near the bifurcation of the trachea. These points of narrowing are supposed to have special bearings on the formation of diverticulums, since at these points objects are most likely to lodge, injuries are more apt to occur, and the esophageal pressure is the greatest.

With regard to location, while pressure diverticulums may occur in any part of the esophagus, they are divisible into two wellmarked classes: (1) Those at the junction of the pharynx and esophagus; (2) those below the cricoid cartilage. The most frequent site of diverticulums is the pharyngoesophagus, at the level of the cricoid, and proceeding from the posterior or lateral aspect of the wall. In 99 out of 121 cases, or 82%, which Starck was able to collect in 1900, the site was at this point. There are two anatomic factors that are regarded as especially favoring the formation of diverticulums in this region, one is, that just below the cricoid is situated the most constricted portion of the esophagus; the other, that there is an area of muscular weakness posteriorly and laterally opposite the cricoid, the fibers of the constrictor muscles here running transversely only, without any longitudinal fibers to give additional support, so that traumatic diastasis of the transverse fibers is more easily accomplished. Males are overwhelmingly more subject to this variety of diverticulums than are females. In 86 of Starck's cases, 67 were in males and 19 in females. The trouble develops in the later years of life, especially in the period from 40 to 60. Only five patients were under 30. Esophageal pressure diverticulums proper are those situated below the region of the cricoid. They may rise from any level of the gullet, but most often rise in the middle third near the bifurcation of the trachea, and oftener in the lower than the upper third (Starck). They proceed from the anterior or lateral aspects of the esophagus, not from the posterior. They are the least common of all the varieties of diverticulums of the esophagus. Starck, in 1900, collected only 20 cases. The later years of life (after 30), are more prone to the incidence of the disease, though cases have been observed at the ages of 3, 6, 18 and 21. The two sexes are nearly equally affected—14 males and 11 females in Starck's series.

Traction diverticulums are pouches or eversions produced by traction from without, or cicatrices or bands adherent to the esophageal wall. They are the commonest form of the esophageal diverticulums, occurring, it is said, in from .5% to 4% of all adults. In shape they are conical and pointed, the apex being the point where the traction is exerted. They are small in size, ranging up to 20 mm. in length, and 3 mm. to 18 mm. in diameter. They are usually directed upward from the point of entrance into the esophagus, sometimes stand at right angles with it, least frequently are directed downward. In the great majority (nearly four-fifths) of the cases the diverticulums occur singly; in about a seventh they are double; occasionally three or four, or even five or six diverticulums are present in the same esophagus. The walls of the diverticulums may consist of mucous membrane only, or there may be more or less complete muscular coat also; cicatricial fibrous tissue may also be present. Males are more subject to the condition than females. Of 164 cases, 95 were in males and 69 in females.

Traction diverticulums are situated nearly always at the middle of the esophagus, in the vicinity of the bifurcation of the trachea, with some preference for the right side. The great majority of them result as a sequel of inflammation of the tuberculous, anthracic, or other condition of the bronchial glands situated at the bifurcation of the trachea. The cicatricial contraction following such inflammation, through adhesions to the esophageal wall, produces traction diverticulums of the latter. Pulmonary lesions, tuberculous, interstitial pneumonia, pleural or pericardial inflammation, or other local conditions, involving esophageal adhesions and contractions, may in a similar manner produce traction diverticulums. A developmental origin for these diverticulums seems also to have been demonstrated in a few of the cases; the final embryonic separation of the esophagus from the respiratory passages takes place near the bifurcation of the trachea, and the persistence of genetic adhesions or bands between the gullet, and the

trachea may determine the formation of traction diverticulums at this point.

On account of their symptomless development, the age of incidence of traction diverticulums has not been definitely determined. It has been suggested that as tuberculosis of the bronchial glands is a disease of early life, these diverticulums probably develop in the young, but at autopsy a majority of the cases are found in subjects over 30; a few cases having been observed from 1¼ to 10 years, and many cases from 10 to 30.

On account of their small size, traction diverticulums produce no manifest symptoms and rarely if ever have they been diagnosticated or even suspected during life; they are first found at autopsy. However, while ordinarily harmless and symptomless, they are subject to possible accidents and conditions that may lead to grave results. The principal danger is that of perforation of the diverticulum, which is said to occur in 10% of the cases. This accident may be brought about in various ways, as by lodgment of foreign bodies causing direct rupture (fishbones) including inflammation and ulceration; or by the lodgment and stagnation of food causing infection and setting up an inflammation. The perforation may take place in the trachea or bronchi, pulmonary cavities, the mediastinum, pericardium, etc., with consequent infections and inflammatory conditions, as local abscesses, pulmonary gangrene, pleurisy, empyema, pericarditis, pneumopericardium, etc. These diverticulums may form starting points for carcinoma or tuberculosis; also for the formation of pressure diverticulums.

Mixed and False Diverticulums.—Cases of mixed diverticulums have been observed in which pouches obviously primarily produced by traction had undergone enlargement by pressure within the esophagus. Such cases arouse the suspicion that pressure diverticulums of the middle portion of the esophagus may similarly start from traction diverticulums, the second enlargement of the sac effacing the evidences of the primary traction causation.

Abscess cavities and similar ulcerated spaces in adjacent organs, ulcerating into, and forming a communication with the esophagus, such as pulmonary cavities, cancerous ulcerations, retropharyngeal abscesses, etc., present conditions simulating the diverticulums. Such form the class of false diverticulums.

Symptoms and Clinical Manifestations.—Small diverticulums run a symptomless course, with no suspicion of their presence, until discovered at autopsy. Large pressure diverticulums exhibit serious clinical manifestations and may come under the attention of the physician. Their development and course are gradual and protracted, extending over months or years.

The initial symptoms observed in the upper diverticulums, aside from whatever history there may be of the lodgment of foreign bodies, etc., are those of irritation, expectoration of mucus, irritable cough, hawking, or a slight difficulty in swallowing. In the diverticulums situated lower, the earliest symptoms are usually a sense of dull, vague pressure, and a dull pain or burning during swallowing. In the fully developed condition, difficulty in swallowing is one of the chief symptoms. The dysphagia is caused by the food passing into the diverticulum; by the fact that the diverticulum, when filled and distended by the food, may, by pressure against or distortion of the esophagus, obstruct the passage of food into the stomach; or by occasional development through nonuse, of contraction or stenosis of the esophagus below the mouth of the diverticulum. The patient feels the food lodge or go astray; he may be able to force it down only with great difficulty or effort; or may become quite unable to swallow certain kinds of food. Usually solid foods or large masses give the most trouble; exceptionally fluids are swallowed with greater difficulty than solids. The dysphagia may be constant and occur at every attempt at eating; or, especially in the early stages, it may be occasional, intermittent, occurring only at the beginning, or at the end of the meal.

Regurgitation of food is an important symptom, the necessary consequence of the failure to force swallowed foods into the stomach. Regurgitation may take place immediately after swallowing the food; or it may be delayed for a variable period up to one or even to 24 hours. In some cases it is accomplished with great ease and no effort, often, abruptly and unexpectedly; in other cases there is violent effort and straining, as in vomiting. Some patients acquire the ability to empty the filled diverticulums at will; in some it is brought about by changing the position of the body.

The character of the regurgitated material varies according to the length of time it has been retained in the esophagus. Food immediately regurgitated returns unchanged. If it remains in the diverticulum for a sufficiently long time, bacterial growth occurs, causing fermentation, etc. Salivary digestion only can take place. Mucus, sometimes in large quantities may be mixed with the food material. The specific gastric elements, hydrochloric acid, rennet, etc., will necessarily be absent from material that has never reached the stomach, and the determination as to the presence or the absence of these elements will have an important bearing on the diagnosis. The stagnation and fermentation of the food in the diverticulums is apt to produce inflammation and ulceration of their lining tissue. In the high diverticulums, the odor from the stagnant food is a common and disagreeable symptom.

Pain from distention of the diverticulums is a common symptom, especially in those situated low down. In pharyngoesophageal diverticulums, pain is sometimes absent. It arises from the distention and dragging of a heavy, filled sac, irritation of ulcers or inflamed areas in it, or pressure on neighboring organs. The pain may be sharp and severe, or there may be a dull sense of weight and pressure. Pressure of the distended diverticulums on the heart may cause palpitation; on the trachea or bronchi, dyspnea; on the cervical bloodvessels, cephalic congestion; on the laryngeal nerves, apnea, etc.

Diverticulums situated in the cervical region may be manifested by a tumor, visible and palpable in the neck region, appearing or disappearing according as the sac is full or empty. In many such cases this is a conspicuous symptom, yet it may be absent with quite a large diverticulum. Peculiar sounds of a murmuring, gurgling, rattling or bubbling character, occurring on swallowing fluids or solids, on the entrance of air, or in changing position, are common symptoms, especially in the high diverticulums. These sounds are due partially to the movement of air bubbles associated with the food matter.

In the diverticulums situated at the upper limit of the esophagus, the proximity of the seat of dysphagia to the glottis gives the tendency and danger of food matter being inspired into the respiratory tract. Many patients are compelled to exercise constant care to prevent this accident, the slightest carelessness or forgetfulness often resulting in inspiration of food, followed by violent coughing paroxysms to expel it. One of the commonest terminal complications of this form of diverticulum, is pneumonia and pulmonary gangrene, caused by inspiration of foreign matter into the respiratory passages; this, especially in patients suffering from malnutrition, sets up infectious pulmonary processes that prove fatal.

With impairment of the power of swallowing, and failure of food to reach the stomach, conditions of starvation, malnutrition, and emaciation are occasioned, which constitute the most serious aspect of esophageal diverticulums, and the greatest menace to health and life. Starvation symptoms appear in a large portion of the cases, and emaciation and asthenia may reach the most extreme degree. Death from starvation has been the most common cause of death in the recorded cases,

and is the outcome the patient must expect unless relieved by treatment.

Physical Examination.—In the diagnosis of diverticulums of the esophagus, the aim is, not only to determine the existence of diverticulums, and to differentiate them from diffuse dilation, stricture, carcinoma, etc., but also, to determine their number, position, size, condition of the sac (inflammatory processes, etc.), and the patency of the esophagus below the sac. Exploration by means of the esophageal sound or stomach-tube reveals much important information. By the sensation imparted to the fingers when the point of the tube enters the diverticulum, the position, direction and distance of the opening from the teeth can be judged. By similar sensations, the contact of the end of the tube with the bottom of the sac can be judged, and the depth of the diverticulum thus determined. The capacity of the sac can be measured by the amount of fluid that can be introduced into, and withdrawn from it. By filling the sac with fluid that will stain or mark the tube, its depth can be determined, by the distance to which the tube is stained. The patency and passability of the esophagus below the diverticulums should also be determined by the sound or tube, entry into the stomach being demonstrated by the withdrawal of fluid containing specific gastric elements (hydrochloric acid, rennet, etc.); by palpation in the epigastrium; by forcing air into the stomach; auscultating over the cardia during the act of swallowing. By percussion over the seat of the diverticulum during the act of drinking liquids, the area of dulness may be accurately determined.

Two tubes may be passed simultaneously; after one tube is passed into the diverticulum, a second tube is passed alongside and so guided into the stomach or into a second diverticulum. By the introduction of two tubes into different cavities they may with certainty be explored separately, and their independence of each other demonstrated.

By having one tube fenestrated in the Rumpel double-tube test, it can be determined whether the enlargement of the esophagus is a circumscribed diverticulum or a diffused dilation. A stomach-tube, with opening along its sides for a distance of 14 inches, is introduced into the stomach; that it has entered the stomach is to be demonstrated by the character of the fluid withdrawn through it or through a smaller tube passed through it for the purpose. A second tube is introduced alongside the first into the esophageal ectasis. Fluid colored with eosin, cochineal, or other distinctive matter is poured through the esophageal tube into the sac. If the esophageal enlargement is a diffuse enlargement, some of the fluid will escape through the lateral openings into the stomach, and will flow out through the smaller stomach-tube. If the fluid does not escape from the smaller stomach-tube, it shows the enlargement is a circumscribed diverticulum, the walls of the esophagus being in close contact with the fenestrated tube so as to prevent escape of the colored water.

Determination of the clinical characters of material regurgitated, or removed from the cavities involved, is important in diagnosis. The contents of a diverticulum, or of a diffuse esophageal dilation, is composed of mucus and food particles in varying amount, with at times traces of blood, but with no hydrochloric acid or ferment. In rare instances, traces of hydrochloric acid, rennet, and pepsin may be found in those cases, in which there is hyperchlorhydria with regurgitation of fluid from the stomach, which passes into the sac. Inspection and palpation may reveal evidences of tumor, varying according to the fulness or emptiness of the sac, in diverticulums in the cervical region. By auscultation of the deglutition sounds, abnormal sounds caused by the diverticulum formation, and perhaps, absence of the swallowing sounds at the cardiac orifice, may be detected that will be of diagnostic value. By percussion, comparing results when the sac is full and when it is empty, the diverticulum can sometimes be outlined. A pathognomonic sign is the appearance, and gradual decrease of a circumscribed area of dulness over the site of the diverticulum while fluid is being introduced into it; and the gradual decrease in this area of dulness when the individual reclines toward the opposite side, showing the gradual emptying of the sac. The use of the esophagoscope may show the opening into the sac and yield information as to the presence of inflammation, ulceration, etc., in the surface of the parts involved. Transillumination, by the introduction of an electric light into the diverticulum, may show its position and extent, although as yet this method of examination has not been of much service. The diverticulum may be filled with a bismuth mixture, and then subjected to a röntgen-ray examination, which may afford some information as to its locality, shape, and size.

Treatment.—In accessible esophageal diverticulums in the cervical region, surgical procedures for radical cure are available. Starck, in 1900, collected 20 operative cases. In 18 of these cases the sac was resected, with a mortality of 5, one from aspiration pneumonia, two from secondary hemorrhage, two from cervical phlegmon. In the later cases, the mortality was far less than in the earlier cases, so there is reason to believe with perfection of technic, the mortality may be brought to a lower figure. In two of the cases, the sac was obliterated by invagination, with successful outcome. The establishment of a fistula from the borders of the diverticulum of the skin, to afford drainage for the sac, has also been proposed, and once done (in this case death resulted from pneumonia).

In nonsurgical cases, the conditions may be palliated, by keeping the diverticulum empty, and cleansed, by irrigation. Astringent or antiseptic applications, or irrigations may also be employed to relieve inflammation and ulcerative conditions in the sac. By relieving the sac of irritation and distention, its conditions may be much improved, and it may undergo material decrease in size. While amelioration of the trouble may result from these measures, radical relief cannot often thus be counted on. As the greatest trouble in these cases arises from starvation, so the greatest results of treatment, often amounting to symptomatic cure, may be obtained from proper nutrition. When dysphagia is only moderate, a sufficient amount of food can sometimes be introduced into the stomach by natural deglutition; by careful selection of easily swallowed foods; careful eating; and by keeping the esophageal passage open and straight by the sound, or bougie. In cases, in which the power of swallowing is greatly impaired or entirely abolished, gastrostomy and feeding through the fistula affords one method of keeping up nutrition. It has been performed in a few instances, but usually, probably on account of the enfeebled condition of the patient when undertaken, with immediately fatal results. In cases in which the esophagus is entirely impermeable, gastrostomy may afford the only means of maintaining nutrition, beside affording an opportunity for retrograde sounding. When dysphagia is extreme, and the esophagus passable by the stomach-tube, a far better method of feeding is by gavage, which the patient can learn to perform for himself. An entirely adequate amount of food can thus be introduced into the stomach without excessive discomfort, through the natural passages instead of a troublesome artificial fistula, and without the necessity of a formidable operation. While this method of feeding is less pleasant, and less sociable than the natural method, yet it affords a means of comparative cure, restores the normal nutrition and strength, and is the alternative to death from starvation.

Tube feeding.—The method of tube feeding which I teach my patients to employ is as follows:

A large-caliber, soft-rubber stomach-tube having fairly thick walls, with two end and two side openings, and measuring about 36 inches in length, is selected. When there is difficulty

encountered in passing the tube by the diverticulum, I have a hard-rubber, olive-shaped tip about a half inch long made so as to be securely fastened to the proximal end opening, which greatly facilitates the introduction of the tube. The tube is put into warm water and inserted down, but not through the cardiac orifice. The esophagus and diverticulum are carefully and thoroughly cleansed with decinormal warm salt solution, after which the tube is pushed into the stomach. To the distal end is attached a glass funnel having a capacity of about one pint. Food is then poured into the funnel and through the tube into the stomach, and the meal is finished with about six ounces of warm water. Care is taken to withdraw the tube before the water has entirely passed out in order to prevent any food being drawn up with the tube into the esophagus.

The following are some of the foods included in the dietary: Beef juice, rich soups and broths, including those containing cream, eggs and wine; puree of all vegetables which do not have tough fiber, among them being puree of spinach, beans, peas, celery, asparagus and potatoes; milk and cream; cocoa, chocolate, coffee, tea and some wines; eggs, raw or soft; scraped meat and fish chowder; porridge made from thoroughly cooked breakfast cereals; a few sweets such as bees' honey, calf's foot jelly, and simple custards. Once a week the individual is instructed to masticate thoroughly several mouthfuls of some hard substance like crackers with butter, or bread with butter, before one or other of the meals, and even to swallow some portion of it in order to keep up the secretion of saliva in the mouth. By immediately washing out the diverticulum and esophagus no harm is done.

CASE I.—S. T. F., aged 45, married. At the age of 7 he had a severe attack of typhoid fever, and double pneumonia. At 12 he had a severe attack of bloody flux, which nearly proved fatal. He had several attacks of grip. A maternal aunt had for years suffered from inability to swallow, and at autopsy a tumor was found at the cardiac orifice with dilation of the esophagus above.

Patient's present illness began in 1898. While at dinner, the attack began abruptly with sharp agonizing pains beneath the ensiform cartilage. It lasted a few minutes and then passed off. Later in the night, he had another attack of pain, for which a hypodermic of morphin was necessary. The following morning he experienced great difficulty in forcing food into the stomach. The attacks of pain, coming on in the evening, continued to recur almost every evening up to July 1, 1900, since which time they have come less often, and with less severity. The difficulty in forcing food into the stomach gradually increased until he became unable to take any solid food, living entirely upon milk and thin soups. Since October 1899, he had been steadily losing flesh until at the time of coming under treatment his weight was 40 pounds below normal. He consulted me September 17, 1900, for difficulty in swallowing, at that time showing the following condition: Bowels constipated; appetite good; tongue clean; skin and sclerotics clear; color good; breath not offensive. Heart, lungs, liver and spleen apparently normal; panniculus good. Belly normally formed. Splashing sound elicited only over upper half of epigastrium. No pain or tenderness elicited on deep pressure over stomach. One hour after test-breakfast the gastric contents showed hydrochloric acid present; total acidity 42; blood, lactic acid, mucus, pathogenic bacteria absent. On passing the stomach-tube, when the tip was at a distance of 13 inches from the incisors, it was felt to glide to the right; it lodged and could not be passed further. A second tube, passed while the first remained in the esophagus, sometimes slipped easily into the stomach, and sometimes turned to the left and lodged, as in the case of the first tube. I introduced into the stomach a tube having numerous side perforations extending upward from its tip for a distance of 10 inches, and through this tube was passed a smaller tube. An ordinary stomach-tube was introduced into the right sac, and ten ounces of colored liquid were poured through it, distending the sac. Not any of the colored liquid passed into the stomach and all of it came out through the esophageal tube, proving we were dealing with a true diverticulum. Upon introducing the esophagoscope, the interior of the esophagus was examined with difficulty. At the bottom of the right diverticulum was a bright red spot about an eighth inch in diameter, which was probably an ulcer. When the right diverticulum was filled with water, an area of dulness was easily made out on percussion to the right of the lower end of the sternum, which gradually disappeared when the patient reclined upon his left side. A No. 38 French esophageal bougie passed easily into the stomach with but slight resistance at the cardia. One hour after eating, a plateful of rolled oats was nearly all washed out of the diverticulum, unchanged and without a trace of acidity in it. Upon washing out the stomach immediately afterward only a small amount was found.

Subjective Symptoms.—He experienced difficulty in swallowing food; it seeming to lodge somewhere above the cardia, caused a fulness and sense of constriction, together with considerable pain and discomfort, which at first could be relieved by gulping a large swallow of water.

Treatment.—The patient was put upon a semisolid diet consisting of soft eggs, rich soups, coffee, cocoa and bees' honey. The only medication ordered was sodium bicarbonate an hour after meals, and .02 gm. (⅓ gr.) doses of codein whenever necessary to control the pain. After each meal the patient was instructed to wash out the diverticulum with warm normal salt solution. This line of treatment was continued, with slight variations from time to time, until December 7, 1902, upon which date the patient weighed 169½ pounds, a gain of about 8 pounds in two years. In the two years during which he was under observation, he had frequent attacks of pain, while the difficulty in forcing foods into the stomach remained as it was in the beginning. He had a keen appetite and enjoyed his food. Bowels were constipated, requiring the use of oil enemas. At this time I advised him to take all food and liquid through a No. 38 French stomach-tube, feeding himself three times a day at the usual meal hours. After a few days he became quite expert in the gavage. On January 2, 1905, he came again to see me. Since he began the gavage he has practised it three times a day continuously with the exception that one meal a month he has attempted to take without the tube in order to find out if the difficulty was becoming less. At the present time all sense of lodgment of food on the left side has entirely disappeared and he has much less difficulty in forcing food into the stomach. He has not experienced any pain for many months past. He has no trouble from constipation since he has been able to eat fruit. He weighs 189 pounds, a gain of 20 pounds since he began gavage. He feels strong and vigorous and is the picture of sound health.

CASE II.—On October 20, 1904, Mrs. I. S., aged 60, was referred to me by her laryngologist, with a history of progressively increasing dysphagia. She had been all her life a hard working woman, and had had good health up to three and a half years before, when the sudden death of a near relative brought on severe nervous symptoms, together with a severe attack of nervous dyspepsia. Shortly after this she began to notice that when she was very nervous she had some difficulty in swallowing foods. This had grown progressively worse, until at the time I first saw her she was only able to swallow bland liquids. She had lost about 40 pounds, although her general appearance did not suggest serious illness, inasmuch as her present weight was not below the standard for her height. Heart, lungs, liver, and spleen were apparently normal. Examination of blood showed a slight degree of chloranemia, with a very slight increase in the leukocytes. She experienced no pain at any time in any place. Appetite was so keen as to become annoying, since she was not able to satisfy it with solid food. Bowels were constipated. The patient was so very nervous and apprehensive, that it was with difficulty any sort of an examination was carried out. On attempting to introduce a No. 34 French stomach-tube, the tip lodged in a pocket to the right of the median line, when a distance of nine inches from the incisors was reached. A second tube, passed in beside the first, lodged in a similar manner, and could not be made to enter the stomach. After several trials with a No. 32 olive-tipped silkwormgut esophageal tube, it passed easily into the stomach, and a few cubic centimeters of acid chyme were withdrawn. Eight ounces of water were poured through the tube, which had lodged in the diverticulum, and the entire amount, unchanged, was recovered by siphonage. As the patient refused to submit to further examination, and rejected the suggestion of gavage, nothing further was attempted. On January 24, 1905, her son-in-law reported the patient's condition to be about the same as when I saw her last, and so far as he could see she had not failed in either strength or weight during the intervening period, although she had lived entirely upon milk and soup.

CASE III.—On November 16, 1904, I was called in consultation with Dr. J. R. Bromwell of this city, to see Miss C. L. G., who had been suffering with dysphagia since February, 1903. She had scarlatina at the age of 5 and measles at 7. Menstruation began at 12 and ceased at 50, about the time dysphagia appeared. She had suffered from constipation all her life. For the past 12 years she was subject to violent, but brief attacks of cramps in the right hypochondriun. Ten years ago she had an attack of "bilious colic," so severe as to raise a question of the presence of gallstones. For most of her life, she had been subject to violent headaches, less so in recent years. She had whoopingcough at 43. Three years ago a swelling developed in the right groin, probably a hernia. When her symptoms first made their appearance, the attacks were intermittent and were considered, and probably were, due to nervous dyspepsia. Under appropriate treatment, and with a sojourn at a health resort, the patient improved rapidly and gained in weight, having had no symptoms for some months. During the past few months, however, dysphagia has returned, and increased steadily, until now she is unable to force solid food into the stomach. During the past few months, she has lost from 15 to 20 pounds, and looks ill. Heart, lungs, liver and spleen are apparently normal. Urine and feces are normal. Examination of blood shows a moderate degree of anemia, but no increase in the leukocytes. She complains of the usual symptoms of dysphagia, together with a severe pain located behind the ensiform cartilage, which, while it lasts, is so severe as to make her unable to walk, but which

immediately passes off after she is able to regurgitate food from the esophagus. Except for dysphagia and the pain coming on at meal times, she has no pain or discomfort. Appetite is good. Bowels have been obstinately constipated. Upon introducing a 34 French tube when the tip reached a point of 12 inches from the incisors, it was distinctly felt to glide to the right and lodged in a pocket. A second tube passed in beside the first sometimes lodged in a pocket at a distance of 14 inches from the incisors to the left, and sometimes slipped easily into the stomach. Rumpel's test with colored liquids was carried out and a right diverticulum found which held about 7 ounces and a left diverticulum which held about 4 ounces of liquid. When the liquid was introduced gradually into the right diverticulum an increasing area of dulness on percussion was readily made out at the lower end of the sternum, which gradually diminished when the patient was turned upon her left side. When the sacs were carefully filled with eosin colored water, none of it passed into her stomach, and all of it could be recovered through the tube which was in the sac. The diagnosis of right and left diverticulum of the esophagus being made November 25, the patient was advised to practise gavage, which she readily consented to do. On January 21, she again presented herself at my office, having improved rapidly since I last saw her. She had gained about 12 pounds in weight. The anemia had disappeared, as evidenced by the return of color to the lips, cheeks, and conjunctivas. She has had no pain at any time and feels strong and well. She has had no trouble from constipation during the past five weeks. On September 7, 1905, she again called at my office to report steady progress, with entire absence of all untoward symptoms. She has gained 14 or 15 more pounds, making a total of nearly 30 gained since she began tube feeding.

SOME OBSERVATIONS ON THE THERAPEUTICS OF ACUTE INSANITY.[1]

BY

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The great blot on the civilization of today is its inability to cope with insanity. This great calamity is becoming more frequent and less curable. The two great factors in its production are heredity and stress. The heredity is not necessarily that of insanity, but that of an unstable nervous organization. Alcoholism, syphilis, and tuberculosis are most potent factors in promoting this heredity, in establishing a lowered mental and physical vigor, and thus diminishing the capacity of the body to resist the stress to which it is subjected. The solution of this great problem must be made by the medical profession. Through this agency, insanity was elevated from the condition of demoniac possession to the dignity of a disease after the church and State had struggled with it for many centuries, and we alone are capable of determining the methods by which racial degeneracy can be arrested and man properly adjusted to his present complicated environment.

The types of acute insanity, the treatment of which I desire to consider, are those that are frequently amenable to general hospital treatment. These cases will be found among the exhaustional and autotoxic types as acute confusional insanity and melancholia, among the drug insanities as alcoholic, morphin, and cocain insanity, among the insanities of the critical periods, as adolescent insanity and climacteric insanity. My experience with the general hospital treatment of these insanities began in 1876, and has been continued to this day, with results that I regard as satisfactory.

A sunny, well-ventilated, and comfortably warmed room should be selected away from the noise of the street; the windows, at least two, should be so fastened that they can be raised only a few inches from the bottom and lowered as much from the top. A nurse, who is cheerful, tactful, and resourceful, should be selected, and very often two are necessary. The patient should be isolated from all the family and friends, and the Weir Mitchell rest cure instituted. The essentials are absolute rest in bed, a generous diet of milk, eggs, and meat juice, daily massage, daily bath, daily general faradization, and, in some cases, cephalic galvanization; in the excited cases, the anode should be used over the forehead, the cathode at the nucha; in depressed cases, the cathode should be used over the forehead, and the anode at the nucha, with a current of two to three milliamperes. In excited cases, the hot wet pack is very useful as a sedative. A blanket is spread out over the bed and a cotton sheet wrung out of hot water is quickly spread over the blanket, and upon this the naked patient lies and is folded in the sheet and blanket; a cold compress is applied to the head.

Special attention must be given to elimination by the bowels and kidneys. Intestinal fermentation, when present, must be diminished by intestinal antiseptics, of which salol and zinc sulfocarbolate are among the best. Disorder of the gastrointestinal tract is one of the most common errors in these cases. Colonic impaction is common, and is frequently overlooked, and its relief by aloetics and flushing resorted to early, will often change the whole aspect of the case.

Diet.—Exhaustion stands next to autointoxication, as an important etiologic factor, and to overcome this, a generous diet must be insisted upon, and if the mental state interferes with this in proper abundance, then forced feeding should be early resorted to by the nasal tube, unless there is something in the shape or size of the nostrils that makes it impracticable, and then by the esophageal tube. The food to be used consists of eggs, milk, cream, and beef juice, and it should be given at least twice in 24 hours. If the digestive capacity is poor, then the food should be predigested. My experience in this matter leads me to conclude that many failures in treatment result from insufficient feeding.

Insomnia.—Insomnia is one of the most urgent symptoms, and its relief is always a difficult problem. The surest hypnotic is chloral in .65 gm. to 1.3 gm. (10 gr. to 20 gr.) doses, largely diluted with water. It is contraindicated in cardiac impairment, and its disagreeable taste is often a barrier to its use. Chloralamid is one of the best substitutes for chloral in that it is less depressing to the heart, and almost tasteless. In depressed cases, opium, in the form of deodorized tincture, or aqueous extract, is a valuable hypnotic, and relieves the psychic pain better than anything in the pharmacopeia.

In the excited cases hyoscin hydrobromate is of great value; it is powerful—some patients bear it badly—but used with caution it will often produce satisfactory results.

The bromids are of service in relieving the hyperesthesia that is present in some cases, but their depressing influence on the circulation and general nutrition must always be borne in mind.

Insanity is a profound error in general metabolism, which may sometimes be overcome by alteratives; mercury, potassium iodid, and best of all, the chlorid of gold and sodium. To get the best results from chlorid of gold and sodium, we must bear in mind its decomposition by light and organic matter. These tendencies may be obviated, at least in part, by rubbing it up dry with pulverized resin of guaiac, dispensing it in capsule and giving it to the patients some little time before meals. By the effect of this drug upon the body, general anemia, that is present in so many cases, is frequently overcome, but to secure this latter result, preparations of iron will often be necessary, and for these I think a freshly prepared Blaud's pill is the one that will be most generally useful. Finally, in considering the therapeutics of acute insanity, we must ever be mindful of the necessity of attention to the general constitutional state of the patient. Rheumatism, gout, tuberculosis and syphilis require special consideration.

In conclusion, I desire to emphasize further the opinion that many patients with acute insanity can be successfully treated by the family physician in the general hospital by the utilization of these therapeutic suggestions.

[1] Read by title at the meeting of the Pan-American Medical Congress, Panama, January 4, 1905.

FRACTURES OF THE LOWER END OF THE RADIUS WITH FORWARD DISPLACEMENT OF THE DISTAL FRAGMENT.[1]

BY

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Injuries around the wrist-joint will always possess great interest for the surgeon because of the difficulties which are met in the diagnosis of lesions in this vicinity. When we remember that here, within a short distance, are the ends of two long bones, eight small carpal bones and the bases of five metacarpals, all of which are susceptible to fracture or dislocation, we can appreciate the difficulties which stand in the way of an accurate diagnosis. The röntgen ray has been of the greatest service in this locality and has cleared many points which have previously been the subject of wide speculation. Correct observations are extremely essential, for the disability which follows these accidents is often great. While excellent results can be obtained in most instances by prompt and well-directed treatment, on the other hand, failure to appreciate the condition may lead to permanent loss of function.

The classic fracture in this vicinity bears the name of the English surgeon, Colles. Colles' accurate description appeared in 1814, but obtained slight recognition. The



Fig. 1 A.

injury was universally considered as a dislocation, and it was not until 1820 that Dupuytren had an opportunity to make a dissection of this fracture and proclaimed its true character. He then became so vigorous in the correction of his former error, that he would not admit the existence of a dislocation at the wrist-joint, or at best believed that it was of the greatest rarity. Even today we find some who are willing to make the diagnosis of Colles' fracture at a glance.

I do not believe that the years which have elapsed since the excellent observations of Colles, of Dupuytren, of Cooper, and of Malgaigne have increased our knowledge of surface anatomy. The observers in the early part of the last century were just as painstaking, just as accurate. It is the röntgen ray which, in the last decade, has so marvelously cleared for us this interesting subject. The difficulties attending the diagnosis of lesions in this region are exemplified by a striking incident narrated by Malgaigne, and which is also quoted by Stimson. When Dupuytren first questioned the correctness of the diagnosis of dislocation in these injuries, a patient, presenting the usual deformity, died at the Hotel Dieu.

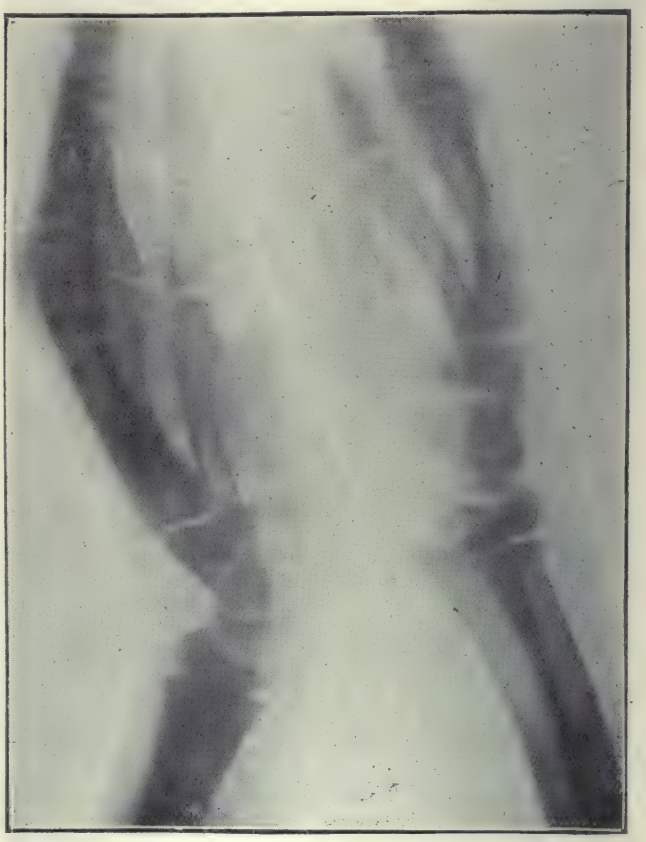


Fig. 2 A.

Dupuytren claimed that it was a fracture, while Pelletan was firmly convinced that a dislocation was present. The latter stoutly maintained his position until the scalpel revealed it to be a fracture with crushing of the lower end of the radius.

Sir Astley Cooper, in the third London edition of his work on Fractures (1824), says that "the radius is frequently broken," and that "the fracture usually happens an inch above the articulation." He describes fairly well the typic Colles' fracture, with the exception of placing the lesion a little too high upon the radius, and adds "I have seen this accident frequently, and at first did not understand the nature of the injury; indeed, dissection alone taught me its real character." He seems to appreciate the difference between this fracture and dislocation at the wrist-joint and he says of the latter "that dislocation of both bones is not of very frequent occurrence." He describes forward dislocation of the radius alone at the wrist, but his cases were probably epiphyseal separation with backward displacement or the lesion which I am to discuss, for Friedrich makes the statement that "all injuries reported as isolated dislocations of the lower end of the radius resolve themselves on critical examination into fractures of the radius."

That fractures of the lower end of the radius with

[1] Read before the San Francisco County Medical Society, June 13, 1905.

forward displacement of the distal fragment may take place, has been recognized since R. W. Smith first described the lesion in his book on Fractures published in 1847. But it was thought to be of the rarest occurrence, while backward displacements of the lower fragment were considered almost universal. It remained for Roberts of Philadelphia to show that the fracture was far more common than had been supposed, and his extensive monograph on this subject published in 1897 is a most excellent piece of work.

The following two cases have recently occurred in this city:

J. D., aged 32, a mariner by occupation, presented himself at my service in the surgical dispensary clinic of the Uni-



Fig. 1 B.

versity of California and gave the following history: In endeavoring to board a rapidly moving electric car, he caught the car rail with his left hand and was swung violently backward on to the platform, the stanchion just behind the rail striking the back of the left wrist forcibly and snapping the radius. On examination there was little swelling. Palpation revealed a clean cut fracture of the radius, the line of cleavage extending from the back of the bone forward and slightly upward. The styloid process of the ulna was prominent. The distal fragment was displaced forward. The proximal end of this fragment was easily palpable anteriorly and presented a sharp, transverse ridge about 3 cm. above the radiocarpal articulation. There was slight lateral displacement to the radial side, a ridge being distinctly felt at the point of fracture upon that side. The fracture was reduced and was retained in position by a plaster-of-paris bandage. The diagnosis was confirmed by radiograph. The patient made an uneventful recovery and was discharged six weeks after beginning treatment. The result was excellent.

The following patient came to the surgical clinic of Cooper Medical College, and it is through the courtesy of Dr. H. B. Reynolds that I report the case here:

A. F., an Italian gardener, aged 33, had fallen from a wagon 50 days before. The patient stated that he struck on the right arm with the hand in flexion. He visited two physicians but no attempt was made to reduce the fracture. He had been unable to work since the accident. Examination showed that all movements of the wrist were limited. Abduction was about half and rotation about two-thirds the normal amount. The styloid process of the ulna was prominent. The styloid process of the radius could be felt about .5 cm. above that of the ulna. The lower end of the radius was markedly enlarged and there was a prominence anteriorly. The radiographs, taken by Dr. Lehmann, are reproduced here. (Fig. 1.) They show a fracture of the lower end of the radius with forward displacement of the distal fragment and also a fracture of the styloid process of the ulna.

In connection with these two cases I wish to cite a third which exhibits the difficulties attending the diagnosis of these fractures:

I. B., a boy of 15, presented himself at my clinic on May 19 and gave the following history: Two days before he had fallen from a hay loft, a distance of seven feet, striking upon the palmar surface of his left hand. The patient said that after the accident there was a projection at the lower end of the radius anteriorly and to use his own language "that the bone stuck out like a cuff button." He said also that there had been a sharp edge of bone present upon the dorsal surface. He had received treatment immediately after the accident. When I examined his wrist I found that there was a decided bulging on the flexor surface at the lower end of the radius. This was not present over the ulna. The prominence was hard and the flexor tendons seemed stretched. Posteriorly there was considerable swelling. The wrist on inspection presented a deformity just the reverse of that usually seen in Colles' fracture. In spite of the mechanism of the injury which was certainly that of a fracture with backward displacement of the carpal fragment, I was inclined to believe that I was dealing with a Smith's fracture. The diagnosis was corrected by the röntgen ray. The radiographs (Fig. 2), made by Dr. George McChesney, show a separation of the radial epiphysis with backward displacement. There is also present a greenstick fracture of the ulna.

I cite this case because it shows the grave errors which may be made in diagnosis, and how misleading a physical examination of lesions about the wrist may be.

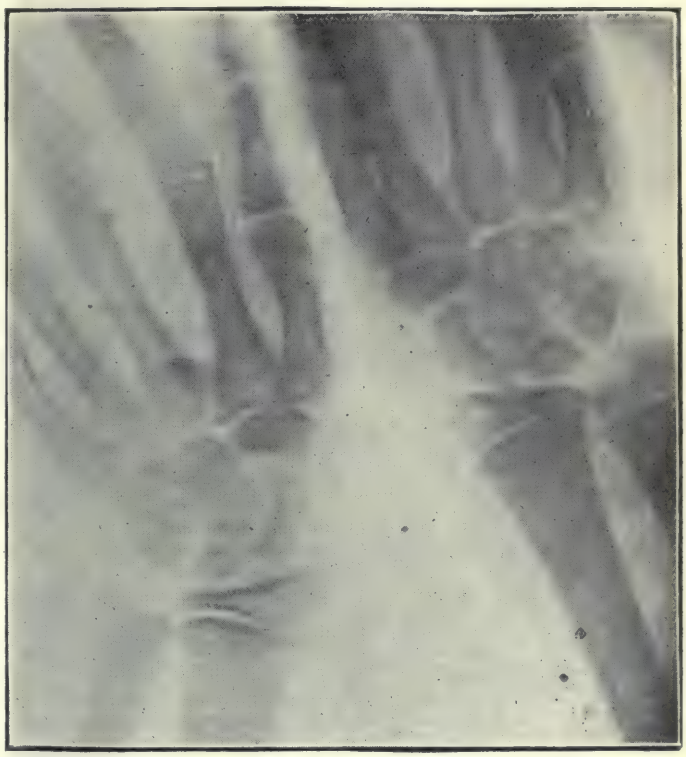


Fig. 2 B.

The radiographs finish the clinical picture and account for the deformity which was so easily misinterpreted.

For these reasons, I do not feel like accepting the accounts of others unless they are verified by radiographs. Roberts has published six cases, three of which have been confirmed by the röntgen ray. He has also published a radiograph of a case occurring in the practice of Beatson, of Glasgow. Roberts was enabled to collect 12 cases by correspondence, none of which had been verified. To these he adds 8 cases which he has found in the literature. While these reports are not convincing, still Roberts has found 31 museum specimens in this country and abroad which show this injury. This leads one to

believe that the injury is of fairly frequent occurrence and is often mistaken for other lesions.

There has been so much said concerning the mechanism of injury, in the classic fracture with backward displacement, that it is interesting to consider the subject in connection with cases of displacement forward. We would expect just the reverse condition to hold. As Colles' fracture is generally produced by a force acting when the hand is in extension, so we find Smith's fracture occurring, as in the second case which I have reported, when the hand is in flexion. This fact was early pointed out by Barton and was emphasized by Smith and the few others who have written of this lesion. The fracture has been produced experimentally in this way upon the cadaver by several.

The first case here recorded is instructive in that it shows the results of direct force to the back of the wrist, although the hand was at the time in hyperextension. The sudden impact of the car stanchion on the wrist snapped the radius, and the continuation of the vulnerating force upon the distal fragment resulted in its forward displacement. That such a lesion might occur without flexion of the joint has been considered possible by Roberts, but his opinion has not before been confirmed by clinical evidence.

THREE CASES OF CANCER OF THE CORPUS UTERI.*

BY

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Carcinoma of the uterus and its treatment have been the subject of thorough discussion in both American and foreign societies during the past few years. When we consider the undoubted increase in malignant growths, and that 29% of all primary cancers are uterine, the value and importance of such discussion become apparent. If success is to be obtained in the treatment of cancer of the uterus, the practitioner must realize the inestimable value of early diagnosis and early radical operative procedures.

When the cervix is normal and the patient presenting suggestive symptoms of malignancy of the uterus, one must not lose sight of the fact that malignancy of the body of the uterus may be present. (See Case II.) Of all portions of the human body in which it is safest for cancer to occur, if the word safe may be used in this connection, the fundus uteri is that portion.

As to the frequency of occurrence of cancer, Welch [1] found that the uterus was involved in 29.5% of all cases. There is no means of accurately determining the ratio between cancer, sarcoma and chorioepithelioma; the two latter are very rare. Cancer of the uterine body occurs in from 6% to 10% of all cases. This is the form usually seen in the nulliparous woman. The adenocarcinoma is the type most frequently seen.

The disease usually begins at one point in the endometrium and from there tends to spread; but it sometimes happens that in the very earliest stage the entire mucosa is involved, development evidently taking place simultaneously in all parts of the cavity (Case I). The lesions are similar to those in the cervix—slender papillary outgrowths from the surface of the endometrium, underlying which is a spot of infiltration. The papillas may entirely fill the uterus and cause marked enlargement of the organ.

Adenocarcinoma of the corpus uteri in its early stages is usually localized and the uterus may be subnormal in size, but as the disease advances, the corpus may increase from a half to three times its normal size. It is a slow growth and in some instances a period of five years may have elapsed from the initial symptoms. It is further remarkable for the slight tendency it shows to pass beyond the limits of the uterine body, to invade either the cervix below or the parametrium. When extension to the surrounding tissue supervenes, which is only late in the disease, it occurs through the lymphatics and not by progressively invading the tubes and ovaries. The uterus becomes soft and boggy, and with the advancement of the disease, there naturally occurs necrosis and disintegration of the older portions, a sloughing and foul-smelling, crater-like area representing the uterine cavity. It is this disintegrating material that forms the offensive vaginal discharge.

Adenocarcinoma of the body of the uterus rarely extends to the os; it is therefore necessary to rely mainly upon the microscope for a diagnosis. An important stimulus for careful microscopic research is supplied by the fact that the prognosis in adenocarcinoma of the corpus uteri is generally favorable, provided the process be detected in the early or comparatively early stages.

The one fact which is impressively evident, is the early, steady increase of cancer of the uterus. This increase is real and not "apparent and due to more precise diagnosis." It is also of peculiar interest that malignant disease of the cervix uteri occurs not infrequently in younger women than formerly. During the past year two women, each aged 34, with inoperable carcinoma of the cervix uteri, applied for treatment at the gynecologic dispensary of the Samaritan Hospital.

Nearly every victim of cancer of the cervix has borne children. On the other hand, one would expect the occurrence of pregnancy to be a minor etiologic factor in the origin of adenocarcinoma of the corpus uteri. Cullen [2] details the histories of 19 cases of carcinoma of the body of the uterus, 10 of the 19 women, or 52%, were nulliparous; 17 were married, and it is a significant fact that 6 out of the 17 had never conceived, a far higher ratio of sterility than is found under normal conditions. In the three cases herein reported, each woman had borne several children. Pryor [3] believed that nulliparous women had adenocarcinoma of the body of the uterus about as often as mothers, but that squamous-cell epithelioma is seen most frequently after child bearing or other trauma.

Heredity is not considered as important an etiologic factor as formerly. However, in about 20% of uterine cancers another member of the family has had some form of cancer. Roughly speaking, about three-quarters of the women suffering from cancer of the corpus uteri are past the menopause. (Two of the cases herein reported were postclimacteric.)

Usually the first symptom is bleeding, sometimes a watery discarge. The former may evidence itself by either a spotting of the clothing, or a profuse hemorrhage. If the patient has not reached the menopause the menses are increased and shortly she will have intermenstrual leaking of blood. The bleeding is the result of ulcerative processes which erode the blood-vessels of the growth. Too often this early symptom is attributed to the "irregularities of the menopause," or subsequent to this period to a return of menstruation; consequently, the bleeding of carcinoma is often disregarded until the disease has advanced so far that should operation be done, recurrence is inevitable, or the disease inoperable.

The reappearance of hemorrhage one, two, three, or more years after the menopause is strongly presumptive evidence of cancer, and always demands immediate examination. An offensive watery uterine discharge commonly follows the early bleeding. In the beginning it may be colorless and without odor, but as the ulceration progresses it becomes profuse, turbid, bloody, and at times purulent, and always of a most nauseating odor.

* Read before the Northwestern Medical Society, Philadelphia, January 24, 1905.

The extreme fetor which clings to the examining finger, despite much washing and the prolonged use of the scrubbing brush, may usually be avoided by the employment of glycerin as a lubricant. Rubber gloves, however, are far more satisfactory.

Irregular uterine cramps are frequently observed, at times of a lancinating character. As the disease progresses these may be referred to the back, the vulva, and down the legs. Cachexia occurs late in the disease.

The four cardinal symptoms—pain, hemorrhage, fetid discharge, and cachexia, I fear are most depended upon by too many at the present time. The merest tyro in medicine can make a diagnosis by the time these symptoms are present; and it would seem better at this stage not to reveal the diagnosis, but allow the patient to remain in ignorance of her sad condition, for death will claim its own.

Winter[4] says "The diagnosis of carcinoma of the uterus is the most responsible the physician is called upon to make. The price for every failure of diagnosis or for a diagnosis made so late that the cancer has already become unsuited for operation, is a human life. Under all circumstances and with all the means at our disposal we must strive to diagnose cancer at the very first examination. To wait in a suspicious case until destructive properties become manifest, as was so frequently done formerly, is today a most serious mistake." Carcinoma of the corpus uteri in the early stage is frequently impossible to prove. Often the patients feel and look perfectly well, even in well-established cases. The association of myoma with carcinoma often obscures the diagnosis. Cancer of the uterine body is more commonly observed between the ages of 40 and 50. Increased and irregular menstruation should put one on his guard, although this is frequently attributed to the menopause. A slight watery discharge, even though odorless, is highly diagnostic; should this discharge be malodorous, its diagnostic value is greatly enhanced.

Bimanual examination, unfortunately, adds little toward making a diagnosis until late in the disease. The uterus may not be enlarged, and yet the seat of an extensive malignant growth. The whole question centers in an intrauterine exploration with the finger, and a microscopic examination of the endometrium removed by curetment. The scrapings are usually much more abundant in malignant than benign growths. Should no microscopic evidence of cancer be found, the curetment must be repeated whenever the bleeding reappears. In cancer, the hemorrhagic discharge promptly recurs.

For securing ample uterine dilation we have found in our work at the Samaritan Hospital, the Schatz metramoicter preferable to all other methods. In multiparous women this instrument can be readily introduced without an anesthetic, and the dilation, which is secured in 18 to 24 hours, is painless. But in nulliparous women an anesthetic is often necessary for its introduction, and morphin frequently required to control the pains incident to the dilation; and in many instances it is necessary to remove the instrument before dilation is secured, on account of the uncontrollable pain. However, in multiparous women the metramoicter is in every respect an ideal method of dilation.

Upon palpating the uterus in the early stages, the endometrial changes may be demonstrable only by the microscope, but later a softened spot may be detected, if only a small area is affected; or, the entire endometrium may be easily broken down with the examining finger if the malignant disease has affected the entire body; later still an excavated cavity may be found.

Sloughing uterine polyps, sloughing submucous fibromyomas, hypertrophic endometritis, retained portions of placenta, uterine sarcoma and tuberculosis of the endometrium all produce symptoms similar to those arising from corporeal cancer. The sole positive test is the microscopic examination of the scrapings.

The prognosis is most favorable as to cure in adenocarcinoma of the body in which early operation is done. These growths if allowed to remain, all tend to a fatal issue within three years of their beginning; rare cases last longer.

Cullen[2] gives the following analyses of the results obtained in the Johns Hopkins Hospital. There were 30 patients with cancer of the uterine body operated upon, with over 66% of nonrecurrence. Only five cases had been seen which were considered inoperable. On the other hand, in 73 cases of cancer of the cervix, operation was done, with nonrecurrence in only about 20%. In addition there were 68 inoperable cases of carcinoma of the cervix, which reduces the number of nonrecurrence to 10%.

Generally speaking, it is safe to say that in the hands of all operators, only about 5% of the cases of cancer of the cervix results in cure. Baldy[5] reports a series of 24 cases of cancer of the body of the uterus from his own work. Of these, 3 were too far advanced or the patients refused operation; 2 patients died within six months or a year, the third one being alive, but dying later. Hysterectomy was done in the remaining 21 cases, a few of the early ones by the vaginal route, and in a number of the very stout patients, by the combined abdominal and vaginal method, the remainder by the abdominal route; 2 of the 21 patients died from the operation. Of the remaining 19, all are alive and well today (June, 1901), with two exceptions. One died of pneumonia seven years subsequent to the operation; the other is strongly suspicious of recurrence. This gives 75% of cures. In 1889, Penrose[6] reported a series of 11 cases of cancer of the fundus uteri, seven of which he had removed. In no case was there recurrence. If all the operations could be done in the first few months, recurrence would be rare. Recurrence after three years takes place in only about 30% of the cases.

The treatment is complete hysterectomy, and should be done at the earliest possible moment. As to the route, that will depend upon the extent of the disease and the preference of the individual operator. In cases too far advanced to admit of a radical operation, the uterus should be cureted and cauterized with the galvanocautery.

The following three cases were seen within a period of three months:

CASE I.—M. L., aged 47, married, German; first consulted me June 25, 1904, when the following history was obtained. Father and mother both dead, cause unknown, the former at the age of 40. Fourteen years ago the patient had an attack of typhoid fever, from which she made a good recovery. She has had five children, two of whom are living. Normal labors and puerperiums. Puberty at 14, menses are regular, painful, and last 6 to 7 days. For the past 10 to 12 weeks there has been continuous uterine bleeding, accompanied by slight odor. No pain; some exhaustion. Patient's general appearance is good, cheeks florid. Although this woman was bleeding and presenting suggestive symptoms of malignancy, the physician who saw her during the 12 weeks she was bleeding did not care to make a vaginal examination until the bleeding had ceased. On examination, the uterus was found softened, enlarged to about half again its size, tender, freely movable and in good position. Cervix normal. An intrauterine exploration was advised. She was admitted to the Samaritan Hospital June 28, 1904. On the following day a metramoicter was inserted. If a clinical diagnosis of malignant disease could be made by intrauterine palpation, hysterectomy was to be done; if not, then a curetment and the scrapings submitted to a microscopic examination. At the end of 24 hours she was taken to the operating-room, anesthetized and the metramoicter removed. The dilation was perfect and permitted of free palpation. A positive clinical diagnosis of cancer of the entire body of the uterus was made. A complete abdominal hysterectomy was immediately done. The patient was in excellent condition when removed from the operating table, and made an uneventful recovery. She was discharged from the hospital July 26, 1904. I examined the patient about a month ago, and found no evidence suggestive of recurrence. She has excellent health and is rapidly increasing in weight.

CASE II.—W. H., aged 57, married. I saw this patient in consultation with her attending physician June 1, 1904, when the following history was obtained: Puberty at 13, menses regular and painless. Her mother died of hemiplegia at 73, father dead, probably from tuberculosis. Grandmother died

at 73, and grandfather at 80. No brothers or sisters. She has had five children, three of whom are living. Menopause at 45. In December, 1903, she first noticed a slight, watery vaginal discharge, which became more or less profuse, followed in the early spring (1904) by hemorrhagic discharges varying in amount. About this time she first observed pain. At the present time (June 1, 1904) she complains of paroxysmal pains in the hypogastrium which radiate into the vulva, down the right leg, and are also quite marked in the right iliac fossa. These pains are at times so severe as to require morphin. General condition of patient not good. There is a bloody discharge accompanied by more or less odor. Upon obtaining the history, the doctor said, "I suppose you think you will find cancer, but the cervix is perfectly normal." I suggested the probability of cancer of the body, but he replied that he had not thought of it. On examination the uterus was found slightly enlarged, very tender, freely movable and in normal position. Upon removing the examining fingers they were found covered with blood. A few days later a curetment was done, and quite a large quantity of softened malodorous tissue removed. A clinical diagnosis of cancer of the body of the uterus was made. Pathologic diagnosis, adenocarcinoma. Complete abdominal hysterectomy was done June 16, 1904, the patient making a slow but good recovery.

CASE III.—During the last week of August, 1904, Dr. M. J. Karpeles, of Germantown, asked me to see with him a woman who had just come under his care, and in whom he had made a diagnosis of inoperable cancer of the body of the uterus. The patient was aged 60, married, and had three children. Menopause at 50. For the past three to four months she had noticed a bloody discharge accompanied by a slight odor. There was loss of weight. Pain was the most prominent symptom, for the relief of which Dr. Karpeles had been called in, about a week before I saw her. Bimanual examination revealed a normal cervix; the body of the uterus was enlarged about four times, retroflexed and firmly fixed. The diagnosis made by Dr. Karpeles was concurred with and operative interference deemed inadvisable. Death occurred three weeks subsequently.

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PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE.[1]

BY

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During recent years no morbid condition has been more provocative of discussion than general paralysis of the insane. The views advanced have been countless, and yet nothing definite is known. Perhaps the very wealth of material forthcoming has not been without effect in giving rise to the many conflicting theories in regard to this particular disease. It has seemed as if there were an over-elaboration of clinical detail at the expense of the pathology, or vice versa, hence, a contribution to the subject, or to any part of the subject, may prove of interest. That general paralysis is a veritable scourge in this and many other countries, and that it is on the increase, is not doubted. Notwithstanding the enormous array of facts that have been ascertained in connection with this malady, its pathogenesis is still unknown, although recent bacteriologic and experimental investigations have brought to light certain facts not known before, which have a very important bearing upon the pathology of the disease, and which cannot be explained away by any existing or obtainable data.

The view held by a majority of the neurologists at the present day, that general paralysis is essentially syphilitic in origin has never been proved. The argument used to support this view is based essentially upon statistics, showing the high percentage of cases in which a history of antecedent syphilis can be obtained. These claims have been further supported by the fact that Krafft-Ebing inoculating paretics with material obtained from an initial lesion failed to produce the disease.

[1] Read before the Association of Assistant Physicians of Ohio State Hospitals, April 5 and 6, 1905.

Opposed to the opinion that the origin of the disease is essentially syphilitic are many clinicians who, in the course of their experience, have seen cases in which it was hardly conceivable that there could have been syphilitic infection. One authority in particular has reported several instances in which syphilis was contracted after the onset of the symptoms of general paralysis. Again, there are many syphilitics who never become tabetics, or general paralytics. However, the belief that syphilis strongly favors the development of general paralysis is beyond question, the doubt is merely as to its mode of action.

When an investigation is made into the state of the nervous and nonnervous organs and tissues, there is, in my opinion, no escape from the conclusion that we are dealing with an active bacterial toxemia. More than two years ago Dr. Bruce directed attention to the gastrointestinal disorders that occur in cases of general paralysis. He also stated that the disease was dependent upon a toxemia of bacterial origin. He has since so far modified his view as to regard toxic infection by *B. coli communis* as a secondary and not a primary occurrence. Otherwise, observation has only served to confirm and extend the conclusions which have only quite recently been formulated.

On the ground of bacteriologic and clinical observations of known facts regarding the bacterial forms concerned and of the modern doctrine of immunity, the hypothesis has been advanced that general paralysis is the result of a chronic toxic infection from the respiratory and alimentary tract, permitted by the general and local impairment of the defensive mechanisms, leading to the excessive growth of bacteria, but especially upon the more abundant growth and prominence of a diphtheroid bacillus, which gives the disease its distinctive paralytic character.

In the phenomena of general paralysis I believe we are confronted with a problem of disordered immunity and its effects. The causes of general paralysis make an excessive call upon the leukoblastic functions of the bone marrow and directly damage this tissue, upon which the defensive powers of the body against bacteria are dependent. The secondary stage of syphilis is accompanied by a great hyperleukocytosis, which is continuous throughout, and the excessive demands made upon the bone marrow for long periods proves exhaustive. Again, observations go to show that it is the rule with persons who develop general paralysis after syphilis that they have almost invariably suffered with a mild form of the disease; this freedom from the severer phenomena of syphilis having been purchased at the cost of a long-sustained and very active leukocytosis.

As in the case of the other cells of the body, the myelocytes and other organs which lead to the production of leukocytosis must have definite limits as regards their proliferative capacity, so that after a long-continued and excessive proliferation, a condition of myelocytic insufficiency must arise, if such a term may be applied.

Under such circumstances the intestinal juices being in a constant state of dilution, saprophytes and other bacteria present in the alimentary tract will tend to assume a pathogenic action. Any condition independently weakening local resistance may determine the point of bacterial attack. Under such circumstances a condition of mixed toxic bacterial infection from the alimentary and respiratory tracts must ensue. This is the condition I believe that has been reached before general paralysis can arise, and usually before any symptoms are marked.

It would appear that some special infection is added, or at least predominates in general paralysis, giving the disease its distinctive features. Dr. Robertson has isolated an organism, diphtheroid in character, which to a certain extent in its cultural and morphologic properties resembles the Klebs-Löffler bacillus, and which un-

doubtedly exerts a pathogenic effect. He thinks it may be an attenuated or saprophytic form of the true Klebs-Löffler bacillus, and that by long residence in the host it may have undergone a certain exaltation of virulence.

Local lesions undoubtedly play an important part in maintaining the special infection. It seems very probable that the part played by syphilis is not confined to its action chiefly on the bone marrow, but may aid in the production of local lesions, especially in the upper portion of the respiratory and alimentary tracts. The result is that various bacterial toxins, including those of this diphtheroid organism, are absorbed, and entering the circulation are brought into contact with the tissues which fix them, or it may be they have an affinity for some particular cell. Some are fixed by the nerve cells, others by the tissue elements of the vessels, and so on. The toxins are many, and therefore the lesions are various, affecting not merely the nervous organs, but practically every tissue in the body. The pathologic picture seen at autopsy illustrates this.

The bones and bone marrow present chronic changes of a severe character, assuming many alterations. They are commonly thickened, sclerosed, and the medulla is usually obliterated. Chronic changes are seen in the alimentary tract, of the character of those produced by the prolonged action of a chronic bacterial action. These changes consist in chronic catarrhal conditions, manifested by proliferative and atrophic conditions. The stomach is usually greatly congested and shows chronic hypertrophy. There is also marked atrophy of the glandular element of the walls of the stomach and entire alimentary tract. In one autopsy was noted an epithelioma at the duodenum, chronic sore throat, chronic bronchitis, and the pneumonia to which these patients often succumb. The tonsils become greatly enlarged, and oftentimes contain local pockets of purulent material; this leads to the characteristic septic condition of the mouth.

Various other facts tend to support these views. For a long period I observed the temperature charts of paretics in different stages of the disease, and there appeared throughout constant febrile attacks, accompanied by the common symptoms of digestive disorder. Dr. Bruce has emphasized the leukocytosis accompanying these attacks, this condition I have failed to examine. Marschalko calls attention to the great development of plasma cells throughout the body, more particularly in the brain, alimentary, and respiratory tracts. He affirms that these elements are myelogenous in origin. According to the most competent authorities at the present time, they are considered transformed leukocytes, and are termed auxiliary phagocytes. This means that a special call has been made upon the natural forces in an endeavor to combat this foreign invader.

Recently I obtained direct evidence of general excessive development of the bacteria present. I obtained the stomach wash from 14 general paralytics, who were fasting for 24 hours. The fluid drawn was milky, thick, viscid, of low acidity, and in 11 cases contained enormous numbers of bacteria, the diphtheroid organism predominating. In two other cases the gastric contents were greenish and contained but few bacteria. However, as the contents were relatively of fair acidity, I believe the acid media had, to a certain extent, retarded the growth of bacteria. In one instance I was compelled to postpone examination because of the violent hemorrhages which occurred upon the introduction of the tube. I then examined the blood to see if this organism were present, but the results were negative; I was only able to obtain a streptococcus. On examination of the urine in 10 cases of general paralysis, I was able to isolate the organism in seven cases, although there were numerous other bacteria. In this connection it may be mentioned that chronic nephritis, septic cystitis, to which general paralytics are especially prone, and the enormous hypertrophied and congested condition of the bladder seen at autopsy, may be attributed to the absorption of organisms from an unduly septic alimentary canal, and their excretion into the urinary tract.

During the course of my investigations I began a systematic examination of the nose and throat of paretics, to ascertain the constancy of the organism in these localities. From a series of 12 cases I obtained the organism in 10 instances. These two cases were in an apparent remission, the entire investigation presented special difficulties, owing to the presence of inordinate numbers of bacteria, and the difficulties attendant upon the singling out of one particular organism. Three of the cases examined were apparently in the early stages of the disease, and both cultures and stained films were obtained. I do not doubt that the organism is present in the very earliest stages of the disease, and may be found if a thorough examination is made, but it is so very seldom we see the patient in the premonitory stages, that the examination is not easily at hand.

Levastine obtained entirely negative results froma bacterial examination of cerebrospinal fluid, drawn by a lumbar puncture in this disease. In two instances at autopsy the brain having been removed, inoculations were made directly from fluid in the ventricles. I was able to identify this organism by stained films and culture methods.

That the organism undoubtedly plays a part in terminal blood invasions in cases of general paralysis, was determined. In stained sections of brain we obtained positive results, while in the case of a white rat which had been fed on a pure culture and died on the fifth day, I obtained the organisms from the liver and heart clot at autopsy.

I have not done much experimental work on the action of this organism on animals. I know that by feeding mild bouillon cultures of this organism, isolated from general paralytics, to a white rat and guineapig, it is capable of producing for the first few days, and weekly, series of convulsive seizures, even after feeding has been stopped. I have not, so far, been able to examine the nervous changes found in this particular instance. Investigations along this line are still in progress, and I hope to refer to them later. These are some of the facts which tend to support the view that this organism is undoubtedly exerting a pathogenic action, and it will remain for experimental inquiry to determine its validity.

Susswein has only recently studied the effects of the Klebs-Löffler bacillus in the alimentary tract, in cases of acute diphtheria. In 15 cases examined during life he was unable to detect the organism in either the gastric or intestinal contents. In 8 cases after death he was able to observe the bacillus in cover-glass preparations of the stomach contents in 4, but could obtain cultures in only 2. I obtained this diphtheroid organism from the stomach contents in 11 out of 14 general paralytics, and, upon microscopic examination, from the ileum and from the region of the first part of the duodenum in 4 instances. It would thus appear that this diphtheroid organism is more readily isolated from the gastrointestinal tract of general paralytics than the Klebs-Löffler is in cases of acute diphtheria.

Another fact indicating that this organism must have a pathogenic action in cases of general paralysis, is that in three out of six cases I was able to find it in brain sections examined, although I have never been able to obtain a growth from brain after death. All these facts would tend to show that its presence in the brain must be indicative of a terminal general blood infection.

I think there are good grounds for excluding a local cerebral infection; with the evidence at hand it seems the less probable explanation. However, be this true or not, its presence there constitutes very strong presumptive evidence that the organism is undoubtedly exerting a pathogenic action.

An obstacle which may seem in the way of admitting or attaching importance to the presence of this diphtheroid organism, lies in the existence of a pseudodiphtheria bacillus. Without discussing this very thoroughly here, I would say the most competent authorities at the present time are agreed, that excluding Hofman's bacillus, and perhaps one or two other organisms of rare occurrence, the pseudodiphtheria bacillus is considered merely an attenuated and nonvirulent form of the organism which causes acute diphtheria. To understand this diphtheroid bacillus thoroughly, it must be an organism which varies greatly under circumstances which influence its life and presence. That it varies greatly in virulence there is good reason to believe, for with the weakening local defenses in the alimentary or respiratory tracts, permanent lodgment may be secured which would naturally lead to a heightening of its virulence, either by long residence in the host or in the presence of other organisms. In every examination I was struck with the presence of inordinate numbers of bacteria, streptococci, staphylococci, *B. coli communis*. This leads me to conclude that undoubtedly in general paralysis there is a condition of mixed toxic infection, and a serum treatment should be instituted. A bactericidal serum, in conjunction with an antitoxic serum, might prove beneficial in these conditions.

Wasserman's recent success in obtaining such a bactericidal serum may prove of great importance in the therapeutics and treatment of general paralysis. These investigations do not prove the hypothesis, they only tend to support it. Whether it is to be abandoned or retained must depend upon the evidence of further experimental inquiry, for the undertaking of which they have given us a clear road to travel.

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Telephone Directories and Ethics.—The old question of professional ethics, as applied to advertising by physicians, is agitating the New York County Medical Society. The trouble is due to a large number of the society's members, including the president, paying to have their names appear in a telephone directory, in what are declared to be advertisements. It is the unwritten law of the County Medical Society that no physician shall advertise, display a sign telling of the specialty he practises, or even note his work on his professional card. Several of the members of the society are insisting that the offenders be expelled.

Graveyard Insurance.—Writing insurance policies for large amounts on persons about to die is the new lead which the Armstrong committee in New York intends to follow in its investigation. The committee has in its possession evidence that extensive fraud was worked in these "graveyard insurance" policies—that the writing of policies for large amounts on persons about to die has been in many companies a common form of insurance bribery. Physicians have already volunteered testimony which will go to prove that this fraudulent practice has been in vogue for many years, and the committee has already struck upon a plan which it believes will bring the frauds to light. This plan will involve a comparison of old policies and the company's medical records. The medical records of policyholders insured as in good health will also be compared with their history, to see if they died soon after the policy was taken out, of any slow or chronic disease.

Naval Proficiency in Surgery.—There has been a notable increase during the past year in the number and variety of the surgical operations performed by naval surgeons, says the *Army and Navy Register*, and this fact will be shown in the coming annual report of the Surgeon-General of the Navy. Time was when such work was considered beyond the ability of the naval surgeon, and consequently many men were lost to the service by discharge for disability. All this is changed by the facilities which exist at the naval hospitals and the skill of the surgeons themselves. The latter are capable of performing such operations as were once regarded as the work of specialists in the profession. An example of the promptness with which the naval medical corps is able to meet the increasing demands made upon the members is afforded by the treatment of the Russians at the new hospital at Canacao in the Philippines. There were some 80 cases at that institution, mostly shell wounds, and the hospital has rendered a distinct service in its effective handling of many serious cases.

SPECIAL ARTICLES

HEALTH AS AN INVESTMENT.[1]

BY

HOMER FOLKS,

of New York.

Secretary of New York State Charities Aid Association.

The important facts with which the sociological section of this association would naturally have to do may be stated in general terms without difficulty. First, tuberculosis is the leading cause of death in this country. It cuts down its tens of thousands and its hundreds of thousands in the prime of life. The tragedy in the life of the individual consumptives—apprehension deepening into terror, the possible and then the probable misfortune to wife and children almost too terrible to be thought of, the weakening of the vital forces, the ever-renewed hope, and hope against hope, the gathering shadows, and the final dissolution—a story whose pathos is such that no brush or pen can picture it, is repeated so often that the very mass of it dulls our perceptions and our sympathies. Other chapters of the story may be found among the beneficiaries of our charitable societies, the lists of the recipients of public outdoor relief, in the orphan asylums and in the hospitals, and in laundries and kitchens, where overworked mothers are striving desperately to support their fatherless children at the expense of their own life energies. Fortunate for us that our imaginations are so feeble, our knowledge so imperfect, that only a few nooks and corners of the enormous area of desolation wrought by this disease come to our notice.

The second great fact is that in the past two or three decades we have learned some of the most important secrets of the arch enemy. We have discovered the unit of his forces, and we know something of its nature. We know how these units are marshalled into line, how they lie in wait, always ready to enter upon and then fully occupy any promising territory. We also know how to apply this knowledge in practice. We know how to cure a large proportion of those who are attacked, if only they can be treated in time. We know how to capture and destroy the active agent in the spread of infection. While we hope that the things we have learned are only a foretaste of the discoveries that are to be made in the very near future, they are sufficient to form the basis of a working program for the time being, subject always to revision as additional light is gained. The steps that should be taken in the application of our present knowledge to the restriction of this disease have been set forth lucidly and specifically in several notable papers, nowhere, perhaps, more clearly and comprehensively than in Dr. Biggs' paper on "Administrative Control of Tuberculosis," delivered under the auspices of the Henry Phipps Institute, February, 1904.

Considerable progress has been made, and is being made, in carrying into effect some or all of these administrative measures in various localities, nowhere, probably, in greater degree than in New York City. The result is read in the very notable decrease in the death-rate from pulmonary tuberculosis in New York City (Manhattan and the Bronx) from 3.86 per 1,000 in 1884 to 2.46 per 1,000 in 1904. After careful study of the possibilities of error and the difference in diagnosis at different periods, Dr Biggs (and I can quote no higher authority) states that the "conclusion seems to be thoroughly substantiated that the decrease in the deaths from tuberculosis is a real one and not in any material respect merely apparent." That this decrease is due in part to the general improvement of living conditions not included in the measures directed specifically against tuberculosis, is undoubtedly true. It is sufficient vindication of, not to say an extraordinary testimonial to, the campaign against tuberculosis, that it has contributed in some material degree to this wonderful result.

There is danger, however, that in our gratification at what has been accomplished we may underestimate that which re-

[1] A paper read before the Sociological Section of the National Association for the Study and Prevention of Tuberculosis, at its first annual meeting, held at Washington, D. C., May 18 and 19, 1905, by Homer Folks, chairman, secretary of New York State Charities Aid Association; ex-commissioner of Public Charities of New York City.

mains to be done. Although pulmonary tuberculosis has in places and at times yielded the primacy among the causes of death to that group of diseases known as pneumonia, I believe it has nowhere fallen below the place of a close second. The question which inevitably occurs to a layman is this,—if tuberculosis is a preventable disease, why is it not, in a still larger degree, prevented? If in its earlier stages it is usually curable, why are not more consumptives cured? Why did we record 8,512 deaths from phthisis in New York City in 1904? Various answers are given,—that the public is not yet sufficiently informed as to the means of preventing the spread of infection; that people are not as yet sufficiently educated as to the value of hospitals and sanatoria; that patients do not seek medical advice at a sufficiently early period; or, that, if they do seek it, the disease is not recognized by the ordinary practitioner; that our houses are not sufficiently ventilated, especially at night; and many other answers, all of weight. After some reflection, I am forced to the conclusion that all these reasons for the continued prevalence of this preventable disease may be resolved into one, namely, that we do not realize the value of public health as an investment; that we are not yet ready to devote sufficient means to the saving of human life, even when the opportunity is placed squarely before us. Which of the ten measures set forth by Dr. Biggs in the paper already referred to is fully carried into effect, even in the city of New York? A few of them, requiring comparatively little expenditure, are probably as effective as the present willingness of the medical profession to cooperate will permit. But in all the very important measures, which involve the expenditure of large sums of money, it is only too evident that our present provision is very ineffective and incomplete, and in some very important directions almost grotesquely inadequate. Whenever you push the inquiry as to the occasion of this inadequacy, you almost immediately come back to the underlying cause, the lack of adequate means. If money is the sinews of war, it certainly is the sinews of this warfare in which we are engaged. We have the greatest possible respect for the efficiency, the expertness, and the devotion to the public well-being, of our health authorities, but they, and we, must admit that the sums of money placed at their disposal, or at the disposal of any of their cooperating agencies, are woefully inadequate for the performance of the tasks which we all know are essential in checking this disease.

Consider the question of tuberculosis dispensaries, for instance. In only one of the five boroughs of the city is there such a thing as a tuberculosis dispensary, and in the Borough of Manhattan there should be five times as many as there are. And as to the few that we have, how many of them provide all the treatment, oversight, care, assistance in the home, and food that are clearly indicated as needed?

As to the educational campaign, thousands of circulars have been printed in many different languages, but to what extent have they actually reached the hands of the three and three-quarters millions of people in Greater New York? In a political campaign each individual registered voter is reached through the mail, not only once, but several times. The postage alone for a single communication, unsealed, to the registered voters costs the tidy sum of over $60,000, to say nothing of the printing, addressing, folding, etc. This particular method might not be the best for our purposes, but I doubt whether any less expensive one will be really effective. When we have at our disposal the means to undertake a few jobs of this magnitude, then we can carry on a campaign, and not merely a skirmish, of education.

As for the care of consumptives in their homes, with sufficient food of the right sort and adequate medical and nursing oversight; as to the provision of sufficient hospitals, sanatoria, and employment of convalescent patients, we are only at the beginning. Of all that has been done—and much has been done—we are, we trust, duly appreciative; but let us not forget that all that has been done is but a small part of that which should now be undertaken.

The practical question, then, is shall we as a community, knowing how to restrict effectively this terrible scourge, be satisfied with the piecemeal method, advancing slowly, a step here and a step there, wheedling a few additional thousands of dollars year by year from our city authorities and from the pockets of the well-to-do; or, shall we recognize the extraordinary nature of the situation created by our recent discoveries, make the largest possible use of our precious, recently acquired knowledge, and by large expenditures accomplish the greatest result in the shortest time?

I speak of New York City more particularly, because of greater familiarity with its circumstances, but the same considerations apply to all our cities. A unique opportunity is offered to our municipalities for the complete application of our present knowledge of tuberculosis, and of that additional knowledge which we shall undoubtedly gain from year to year, as we apply that which we now have. Why should not the city of New York spend a million dollars yearly for the next ten years, in order to do effectively, and adequately, the task set before it by competent medical authorities, for the restriction of tuberculosis? An addition, for this purpose, of a million dollars to the annual budget of New York City, already amounting to considerable over one hundred millions, ought not to be impossible; though, humanly speaking, perhaps it is. The fear of the taxpayer, the disinclination to discover and apply new modes of taxation, is so great that perhaps such an addition to the current expense account of New York and, in proportion, in other large cities would be, politically speaking, impossible.

The Burden of the Campaign.—But there is another possibility. When the city is undertaking a great public improvement the benefits of which will be extended over a series of years, perhaps through one or more generations, it does not meet this expenditure from its current funds, but from the sale of corporate stock, the burden of which is distributed over a series of years. Schoolhouses, hospitals, bridges, subways, and all these other great public enterprises are provided in this manner. They are spoken of as "permanent" improvements, made possible by the use of the credit of the city for the benefit of its people. Many of these investments are, directly or indirectly, for the health of the people. In providing parks and playgrounds, baths, hospitals for the care of contagious and other diseases, and, in an ever greater variety of ways, the city is pledging its credit for public improvements for the sake of promoting the general wellbeing.

Why should not an adequate expenditure for the restriction of tuberculosis by all of the known methods be of exactly this character, and therefore an appropriate expenditure to be defrayed from the sale of bonds? Certainly, the need is of a more unusual and extraordinary character than those I have indicated. Schoolhouses, hospitals, facilities for transportation, are constantly recurring subjects of expenditure, but it is only once or twice in a century that we require substantial control over an additional disease among those that stand high in the list of the causes of death. There is every reason to believe that after the work had been carried on adequately, efficiently, and comprehensively for a term of years, the need therefor, in some respects at least, would greatly diminish. What better use of the city's credit could possibly be made, what benefit would be more widely disseminated, or extended through a longer period of time?

What we often call "permanent" improvements are, after all, of a temporary character. The lifetime of a great structure can be foretold with approximate accuracy; schoolhouses become unsuitable and obsolete and are torn down; hospital buildings give way to better and larger buildings; but a substantial restriction of tuberculosis, such as we have ample reason to believe would be secured by really doing what we already know how to do, would be of untold benefit to generations yet unborn. When we speak of "permanent" improvements, why do we always think of brick and mortar, granite and steel? These things are of service only because they contribute to human wellbeing, and they are not the only means through which the city contributes to the wellbeing of its people. Every step taken for the protection of the health of the people, the protection of its food supplies, the care of its sick, the improvement of its housing conditions, protection from moral evils, is a great public improvement. If we can select from among these opportunities for the promotion of the general wellbeing, those that are of an unusual character, those that

present extraordinary opportunities, and whose benefits extend long beyond the period in which the expenditure is incurred, have we not a group of objects for which public indebtedness may properly and wisely be incurred? Additional legislative authority might be necessary to enable municipalities to incur debt for this purpose, but there is no reason for thinking that such authority would not be granted if the matter were brought in a proper way before our State Legislatures.

It is true that when the city invests money in a public park the real estate remains and the investment could be converted, should it be so desired, into cash. But this is not true to any appreciable extent of most of the objects for which public indebtedness is incurred. The money invested by the city in its great public improvements is invested beyond recall, and while there remains in some cases more, and in most cases less, of actual value to support the city's credit, does it not remain true nevertheless that the ultimate foundation of that credit rests in the people of the city, and not in its property?

The Return on the Investment.—The benefits derived from large expenditure for the public health could not, it is true, be converted into cash, but it is not the habit of our cities to go into liquidation, and while the public health is not an available asset in this sense of the word it is nevertheless an economic asset of the highest possible value, contributing to the economic strength of the people, furnishing the foundation upon which the entire superstructure of municipal credit and life is built. A strong people, relieved of unnecessary burdens caused by sickness and death, can bear other and larger burdens of taxation for public purposes. From every point of view therefore it seems to me that no American city at the present time can find a more appropriate subject for permanent investment, yielding larger returns, than in carrying into effect the measures set forth at this meeting of the National Association for the Study and Prevention of Tuberculosis.

This is not, however, exclusively a question for the city. It is also in large degree a question for private benevolence. The establishment of more and better sanatoria, the maintenance of more and better tuberculosis dispensaries, the assistance at home of the consumptive who cannot be removed to a hospital, the care of the family whose wage earner is under treatment, and certain portions of the educational campaign, are as appropriate for private initiative as for public action, if not distinctly more so. What we need for these purposes is not large permanent endowments, nor moderate annual contributions for an indefinite period; the need is for unusually large contributions for a comparatively brief period. The citizen of New York who will set aside a sum of money which, together with the income upon the unexpended portion, will provide a half million dollars a year for each year for the next ten years, will write his name large on the future history of the metropolis, will show himself a profound student of social wellbeing, a wise judge of the merits of various possibilities in the investment of his money. And in every city, large and small, the men of means, who feel the call of the social spirit, can find no better subject for contemplation and prayerful consideration, than this which we are considering. Let us hope that the founder of the splendid Henry Phipps Institute of Philadelphia will be but the first of a long line of public benefactors who will thus supplement the work of our municipalities.

We are a great people, at least so we are told. Our resourcefulness, energy and capacity for organization are said to be the wonder of those whom we have passed in the race for industrial supremacy. We do large things in a large way, and get large results quickly. We see great opportunities, appreciate the bearing of new discoveries, and move quickly, and in the right direction.

Have we not now before us the greatest opportunity of all, an opportunity to invest a very small proportion of our free capital in a manner which will yield large and quick returns in the prevention of suffering, disease and death. Let us not proceed in any halting, half-hearted, uncertain manner in the accomplishment of this task, for whose performance we now have, for the first time in the world's history, the necessary scientific guidance.

PORT ARTHUR'S SICK AND WOUNDED.

BY

LOUIS L. SEAMAN,

Late Surgeon-Major, W. S. V. E.

On January 2, 1905, after the greatest siege known in military history, which General Stoessel, its gallant defender, in a despatch to the Czar described as "unceasing fighting for the last 11 months," the fortress of Port Arthur surrendered.

The first questions asked by the world, waiting eagerly for the news of this triumph of Japanese arms, were: "How many men were surrendered?" and "How many of them were sick and wounded?"

The first report was to the effect that the garrison numbered about 32,000, and the sick and wounded about 16,000 souls. General Stoessel had reported to the Russian war office on December 28 that the sick and wounded in the hospitals had reached a total of 14,000 men, and added, "about 300 fresh patients enter daily." Somewhat pathetically for a grim warrior, he said, in the same dispatch, "Our principal enemies are the scurvy and 11-inch shells. Only a few persons remain unattacked by scurvy, which mows down men, and spreads, despite all possible measures." Later it was learned that the number of men surrendered was more than 41,000, and that the sick and wounded amounted to more than 17,000, It is not surprising that General Stoessel, in a highly overwrought mental condition, exaggerated the situation when he said, "Few persons remain unattacked by the scurvy"; nevertheless scurvy was epidemic in the entire fortified region of the place, known collectively as the fortress of Port Arthur, and there were more than 9,000 cases of the disease in the military hospitals.

Public interest in the capitulation of the stronghold soon changed so that it consisted largely of a desire to know more of the details of the siege from the inside of the fortress, to learn the amount of supplies captured, to watch the rapid succession of events in the disposition of prisoners; and so the sick and wounded were gradually forgotten, except as mere incidents in the great scenes of slaughter and destruction that had been enacted. Little information as to the condition of the hospitals and their inmates was published by the Japanese, because to gather the details required time, and because other matters of a graver character were pressing upon public attention.

Aside from the facts that there were 17,000 wounded in the hospitals and that scurvy was epidemic in the place, practically nothing has been known up to the present time of the exact medical condition when the Japanese, under General Nogi, took possession of the fortress. Since the surrender, all the facts have been collected and tabulated. But up to the beginning of July, 1905, when I visited the place by special permission of the Minister of War—at a time when even Japanese army officers were not allowed to be present except on official business—the full report of this side of the terrible tragedy of months had not yet reached the Tokio authorities for publication with other records of the war, months, or perhaps, years after the conflict should end. The facts presented herewith, illuminating the medical features of the situation, are from the official records; and, while certain details of minor importance remain to be made public, they paint in vivid colors the harrowing picture of the sad condition of the sick and wounded when the Japanese assumed control.

From January 3, the day of real capitulation, the medical affairs of Port Arthur were managed in a general way by a board of surgeons from Nogi's army. On January 14, Colonel Hoko Hoshino, one of Nogi's leading medical officers, was placed in charge of the hospitals of the fortress with full authority. At once he took a census of the sick and wounded. He found that there were 17,110 persons under Russian medical care, this number embracing 6,005 wounded and 11,105 sick. The sick were classified under the following heads: Scurvy, 9,093; dysentery, 368; typhoid, 18; miscellaneous, 1,626. Some of the wounded had scurvy in addition, and some of those sick with scurvy died of other diseases.

From the time the Japanese assumed charge until the last of the Russians were sent away in May, there were 801 deaths of Russian hospital patients, or 4.7%. These deaths were classified

as follows: Scurvy, 510; dysentery, 79, of whom 4 had scurvy; typhoid, 2; unclassified, 3; bronchitis, 33, of whom 14 had scurvy; venereal diseases, 4, of whom 1 had scurvy; diseases of nose, ear, and throat, 4, of whom 2 had scurvy; wounds, 118, of whom 13 had scurvy; nervous diseases, 6, of whom 3 had scurvy; unknown causes, 18; total, 801, of whom 47 had scurvy without its being the cause of death. The proportion of deaths from wounds was 1.9%.

The earliest activities of the Japanese medical officers were directed toward the epidemic of scurvy. The best treatment of this dread disease is admittedly the dietetic; and the Japanese began at once to feed the afflicted Russians with vegetables; and they enjoyed the satisfaction of seeing the scurvy cases reduced in number by nearly 3,000 in one week, as a result of their systematic dietary. No expedient was neglected by which proper food supplies might be procured for the victims of scorbutus. In fact, so absorbed were the Japanese in this work, inspired by the loftiest feelings of humanitarianism, that they incurred expenses which became matters of official inquiry, as will be explained later.

The Japanese next decided that speedy convalescence of the largest number of Russian patients would follow the adoption of the plan to leave them, so far as was practical, in the charge of their own physicians. The Japanese surgeons were instructed to avoid any possible conflict in authority, and to cooperate to the fullest extent in every practical suggestion made by the Russian surgeons. This turned out to be no easy task.

In addition to acting in a supervisory capacity for the Russian medical officers now installed in charge of the large hospitals, the Japanese surgeons began to collect and treat the sick and wounded who were scattered about the fortress in various places, because of want of room in the regular military hospitals, or in the Russian Red Cross Hospital. About 1,600 of these cases were found in some 40 different places in the old and new towns. They had been housed in hovels, in shanties, in shops, in shattered dwellings, in wrecked stores, in temples, and in abandoned public buildings, and most of them were in a deplorable condition. Many of them had crawled into any kind of shelter that was available, and the larger part of them had had no medical attention. Barracks which had been shelled and partially ruined were hastily repaired and cleaned, and into these structures, as well as into the pretentious building that had been occupied by the Navy Club, these unfortunates were gathered. These quarters, while lacking hospital equipment, were comfortable, and under the circumstances the Japanese could do no better; yet this arrangement resulted in friction with the Russians, who were inclined to demand more in the way of shelter and food than could be provided.

On January 14, when Colonel Hoshino took charge of the medical work, he brought with him seven medical corps, three from the army and four from the Red Cross Society, the latter acting, of course, entirely under the direction of the army officers. Each corps consisted of two medical men, one apothecary, and 30 soldiers detailed as nurses. The total membership of this combined medical corps was therefore 231. He also brought with him as an additional part of his staff, 25 medical men and 18 noncommissioned officers, and 36 soldiers, making in all 310 persons on his staff to care for the sick. He impressed others into service for emergency work, and thus assembled a force of 1,096 persons as a grand total of his medical corps.

Colonel Hoshino found that the Russian medical staff consisted of no less than 2,790 persons, including the socalled "families" of some of the Russian surgeons. Many of the members of the surgeon's "families" had caused themselves to be enrolled in this relief corps because thus they could secure better food supplies than if they depended upon the common military system of distribution. Indeed, the scandalous custom prevailed of allowing the members of these families to appropriate for themselves what they wished from the hospital supplies, the patients receiving what was left of the delicacies provided, a fact which the Japanese discovered when their own supplies were distributed.

In this Russian medical staff, there were 136 surgeons and apothecaries, 15 medical students, 17 army officers detailed as inspectors, 11 priests, 46 clerks and 112 female "nurses." The chief duty of these "nurses" seemed to be to minister to officers who either were sick or thought themselves sick. All the others enumerated were male attendants.

The Russian military hospitals in Port Arthur proved to be most admirable buildings, newly erected and splendidly adapted for the purposes for which they were built. Some of them were in process of construction at the time of my first visit to Port Arthur, in 1899. They are substantial, one-story structures of stone, with large windows and low eaves, and are grouped on terraces upon the sunny, southeastern slope of Pei-yo-shan. This large hill rears its head between the old and new towns of Port Arthur, almost directly behind Golden Hill, that forms the northern entrance to the fine harbor. Entering the fortress by the railroad, one passes along the northeastern side of this hog-backed hill, on the opposite side of which stand the hospitals. There is plenty of sunshine for these attractive buildings, and they are fortunately situated in being sheltered, not only from the cold winds of winter, but also from the Japanese shells, which, hurled into the fortress from behind famous "203-Metre Hill, wrecked the warships in the harbor and demolished hundreds of buildings in the old and new towns. Golden Hill intervened between the hospitals and the shells from Togo's fleet, and they were safe till the Japanese, capturing the string of mighty fortresses to the north and northeast, were able to train their guns on this point, though many miles away. One or two shells did strike the hospital buildings, but no casualties resulted.

A substantial stone wall reaching far up the side of Pei-yo-shan surrounds the entire hospital compound, and this, with the administration building, renders the hospital plant one of the most attractive architectural groups within the great fortress. In both old and new towns the public buildings, and some of the private dwellings, are of such a character as would be found in any city of 500,000 inhabitants. Hardly could better evidence be furnished of the insincerity of the Russians in their repeated statement that their occupation of Port Arthur and the peninsula on which it is situated was only temporary. As a matter of fact, if one could have furnished to the foreign departments of the various nations a complete set of photographs of these buildings, and also of those erected by the Russians in the magnificent city of Dalny, as well as of those in towns along the entire railroad as far north as Harbin, one would have offered sufficient ocular proof to demonstrate that there was no sincerity in the promise of Russia to evacuate Manchuria. From Port Arthur and Dalny northward every station was marked by a massive stone house; water tank, constructed largely of cut granite; while at the railroad division stations, great stone roundhouses and scores of buildings for railroad officials and others had been erected. The Russian quarter of Dalny boasted commodious and pretentious granite or brick theaters, churches, permanent barracks, and brick dwellings by the score; well-paved streets; stone and brick walls bounding the yards of the houses and facing the streets; and elaborate gardens. These features, together with the evidences of measures taken for protection from the elements, illustrated more conclusively than anything else the Russian intention of a permanent occupation in that country, promises of evacuation made to Japan, China and the other nations notwithstanding.

A few hundred yards from the main group of hospitals at Port Arthur stands the Red Cross Hospital, whose quota of beds brings the total hospital capacity up into the thousands. Had the medical system of the Russian military surgeons been as adequate as the hospital equipment was complete, the Japanese would have found the burden of caring for the sick and wounded, after the siege was raised, far lighter.

Retaining, of course, the general management in their own hands, the Japanese had left all details of hospital work to the conquered Russian surgeons, with the desire being to save the self-respect of the surgeons, and to secure to the Russian sick ministration by their own countrymen. It was, therefore, a great surprise to the Japanese head surgeons to learn that orders were not obeyed. Obedience in a hospital, which would result in the amelioration of the condition of the suffering, they had expected, would be more prompt and faithful than obedience on the firing line. But they soon discovered that there was a deplorable lack of discipline. The surgeons were

divided by bickerings and petty jealousies. The patients acted largely as they pleased. A dissatisfied patient, if he were able to go about, was allowed to go to another hospital than the one in which he was enrolled. If food was unsatisfactory, he could go elsewhere for meals. A patient might be entered in two or more hospitals. Subordinates carried out orders only when disposed to do so.

Upon the discovery of these conditions, Colonel Hoshino summoned to a conference the three chief surgeons of the Russian force, to devise a remedy. Differences amounting to a quarrel arose between the Russian surgeons before they had been in session 20 minutes, and one by one they left the room, nor could they be brought to an agreement as to any policy proposed by the Japanese. The Japanese surgeons wished to send to Japan 1,000 convalescents for final treatment in their well-equipped hospitals there; but the Russians could not agree which men should be sent. To obtain any agreement or concerted action, the Japanese were obliged to confer with each Russian surgeon separately, and then decide upon the orders to be enforced. From the outset, complaints came from the Russians that their countrymen in the hospitals received improper and insufficient food. Having provided liberally on the basis of the Russian census, at first, and having ascertained from the patients that the fare was far superior to what they had received from Russian authorities during the siege, the Japanese set on foot an investigation which resulted in the discovery, to which allusion has already been made, that the officers' families and mistresses had appropriated the best of the supplies for their own uses. Beer was earnestly requested by the Russians for the patients and was found by the Japanese to be consumed by the Russian officers and their female companions. Radical action was thereupon taken by the Japanese who supplied food liberally, and they put into effect the arrangement by which the enlisted man received the same rations as the general, which is the rule in the Japanese army. Complaints then were received of the quarters assigned to the sick, although vastly superior, in spite of their crudity, to those out of which a large number of them had been taken. These complaints were summarily dismissed and discipline was established in all matters, and soon order reigned. Meanwhile reports had reached Tokio of the extravagance in the commissary department, to the effect that the Russian sick received better treatment and food than the Japanese sick. With considerable difficulty, explanation was made that the scurvy had necessitated special food, and the authorities accepted the reply, sparing the commanding surgeon from humiliating criticism or perhaps punitive discipline.

The aim of the Japanese surgeons had been not only to fulfil all humane obligations toward the wounded and suffering, but also to accelerate the evacuation of Port Arthur by the Russians. All the healthy men had been marched out of town a few days after the surrender, and sent to Dalny to await transportation to Japan, to be finally distributed among the camps for military prisoners in various parts of the empire. The transportation of the sick and wounded began the day after Col. Hoshino and his assistants assumed charge of the medical work. Selected patients were started on the 30 miles of railway to Dalny, a journey that consumed five or six hours because of the bad condition of the railroad. Day after day patients were forwarded to the north, eight to a car if seriously ill, otherwise 18 to a car. Freight cars, open and closed, were employed in this work, and during one day 400 patients were mobilized. Sick and well prisoners of war traveled together until all of both classes were removed. The last shipment of Russian patients consisted of 42 insane cases, who had been quartered separately on the military hospital grounds. They left the fortress May 22, and were transported by boat from Dalny to Cheefoo, and thence to Russia. The Red Cross Hospital had closed May 10. Finally, but one Russian was left in Port Arthur, a resident of the town for many years, and of value to the Japanese in municipal affairs.

On the whole, the Japanese are satisfied with the results of their care of the sick and wounded, for but 800 of the 17,000 died. More than 10,000 were sent as prisoners to Japan practically restored to health. Over 4,000 unable to bear arms were invalided to Russia by way of Cheefoo.

The cases of scurvy were studied with much interest by the Japanese in the hope of isolating a specific bacillus. The results of operations on scorbutic patients were generally disastrous, and autopsy showed that about a third of these operated scurvy patients had tuberculosis. Had not the Russians crippled the hospitals to some extent the results would have been even better, since the operating-rooms were adequate and conditions were propitious. But in many cases the requisite instruments were lacking. The röntgen-ray machine had been disabled by some one, and thus many cases were robbed of valuable diagnostic assistance. Other instruments had been broken or abused, wantonly, as it seemed, and the Russians were the greatest sufferers from the resulting deprivation.

But in addition to the many thousands of Russian hospital cases, the Japanese in Port Arthur had a few of their own sick and wounded. At the time of my visit, at the close of June, 1905, there were about 7,000 Japanese soldiers in the garrison of the fortress, and of these only 120, or a percentage of only 1.5, were in hospital, as a result of the excellent sanitation in the field. During the early part of the occupation of the fortress by the Japanese the average number of their men in hospital was 500, with a sharp increase in March and April, due to accidents, resulting from the explosion of hidden mines during the clearing of the battlefields of the dead.

The record made by the besieging army in combating infectious diseases is impressive when compared with that made on the same spot ten years before. In the war with China, 1 out of every 9 of the sick in Japan's investing army suffered from infectious disease. In the war with Russia, only 1 out of every 80 sick men suffered with infectious disease. The difference between the ratio of 9 to 1 and that of 80 to 1 represents mathematically the progress made by Japan in ten years in the problem of grappling with preventable disease in war. When the government publishes the full medical statistics of the siege doubtless more striking illustrations of that progress will be shown.

A very striking and interesting condition presented itself to the observer at the moment of the conclusion of the heroic siege of Port Arthur. It concerns the effect of dietary. In neither army did contagious disease play a conspicuous part, in spite of the fact that each army had conducted a campaign under the most terrible, difficult, and distressing conditions that could influence warfare. Each endured the most bitter hardships from the blistering sun of summer and equally from the Siberian blasts of winter, on the unprotected hills, the only lines between them being the firing lines.

Inside the fortress the besieged army suffered little from contagious diseases; outside the fortifications the besieging army was comparatively free from contagion. Each army had its scourge, both suffering bitter hardships. The beleaguered Russians, suffering from a dearth of vegetables, rapidly fell victims to scurvy. The investing Japanese, with too liberal a supply of one vegetable, rice, were sadly weakened by beriberi at a time when their utmost strength was needed. Probably no more striking illustration has ever been presented of the effect of diet upon armies in the field.

Race Suicide in Pittsburg.—A table of the births and deaths in Pittsburg during the past 14 years, prepared by City Physician Dr. B. A. Booth for the Bureau of Health, shows a decrease of more than 7% in the number of births, notwithstanding a large increase in population. In 1891 there were 7,067 births, the rate per 1,000 being 28.61. In the same year there were 5,832 deaths, the rate per 1,000 being 23.61. The table is complete to the end of 1904, which shows a decrease in the birthrate to 21.74. The deathrate decreased from 23.61 to 19.70 from 1891 to 1904.

A medical group in the Italian Parliament has recently been formed. The members are Drs. Agnetti, Angiolini, Baccelli, Badaloni, Basetti, Botteri, Cacciapuoti, Campi, Cantarano, Casciani, Castellino, Ciartoso, Faranda, Fazzi, Fede, Gatti, Lampiasi, Licata, Maresca, Masini, Masselli, Pianese, Queirolo, Rampoldi, Rummo, Sanarelli, Santini, Santoliquido, Scellingo and Tinozzi. According to the *British Medical Journal*, the new group, which recently held its first meeting, will direct its efforts to influencing all legislation relating to public health and the legitimate interests of the medical profession. Under the auspices of the group, a general congress of the medical practitioners, poor-law medical officers, pharmacists and veterinarians of Italy, to discuss questions affecting professional interests, will be held in Rome in November.

MISCELLANY

PNEUMONIA COMMISSION.

The Medical Commission for the Investigation of Acute Respiratory Diseases, which was formed at the request of the Department of Health of the city of New York, and begun its work in October, 1904, has brought together for publication a number of reports on the special studies already made under its general direction. These papers will appear in the forthcoming issue of the *Journal of Experimental Medicine*, published under the auspices of the Rockefeller Institute for Medical Research, a majority of whose directors are among the members of the commission, advance sheets of which are furnished for comment.

This commission was constituted as follows: Dr. Edward G. Janeway, of New York, president; Dr. William Osler, of Baltimore, vice-president; Dr. T. Mitchell Prudden, of New York, secretary; Dr. Theobald Smith, of Boston; Dr. William H. Welch, of Baltimore; Dr. Frank Billings, of Chicago; Dr. John H. Musser, of Philadelphia; Dr. L. Emmett Holt, of New York; and Dr. Francis P. Kinnicutt, of New York, in association with Dr. Thomas Darlington, president, and Dr. Hermann M. Biggs, general medical officer, of the Department of Health.

Drs. Darlington and Biggs sign a preface to the reports, which outlines as follows the causes and objects of the investigation:

For some years the problem presented by the very large and constantly increasing deathrate from the acute respiratory diseases has been the cause of serious concern to the Board of Health of New York City, and in August, 1904, with the consent of the mayor and the Board of Estimate, it appointed a medical commission to conduct an investigation as to the causes for the great prevalence of the acute respiratory diseases in the city, with the hope that some means could be devised for reducing the excessive morbidity and mortality from this cause.

The problem has long been recognized as one of the first in sanitary importance, and efforts have frequently been made to find some method for its solution. The inherent difficulties of the problem, however, are so great and the other questions pressing for consideration have been so numerous and important that no determined efforts have hitherto been made to discover means or devise methods to effectually meet the situation.

Succinctly stated, the situation is this: During the last 20 years, the general deathrate in New York City has fallen 25%, and the deathrates from all the principal causes of death have fallen from 10% to 35%, excepting in four groups of diseases, in which there has been an increase. These are: (1) The acute respiratory diseases; (2) cancer; (3) the diseases of the heart and bloodvessels; (4) the diseases of the kidney. The increases in these groups have been from 10% to 30%, or 35%; in the acute respiratory, being from 10% to 15%. In the first half of 1904, there was an extraordinary increase in this group, the deaths from the acute respiratory diseases alone forming no less than 23% of the total deathrate.

The importance of the situation, so far as this group is concerned, is more forcibly brought out when we compare the percentage which the total deaths from the acute respiratory diseases bear to the total deaths from all causes. In 1883, it was between 7% and 8%, and in 1893, nearly 16%, showing a relative increase during this period of 100%.

A consideration of the etiology of the acute respiratory diseases, brings out even more strongly the sanitary importance of the problem. There can now be no question that the exciting cause in each one of the diseases of this group is a microorganism, which requires such conditions for its growth and multiplication as are usually found only in the living body. These organisms do not, under natural conditions, multiply to any extent outside of the tissues or cavities of the body. The infection, when it occurs, must practically always be the result of communication, directly or indirectly, from one human being to another. The conclusion, therefore, seems justifiable, that these diseases are essentially communicable, and, however great the inherent difficulties of the problem may be, theoretically at least, they should be, to a greater or less extent, preventable.

The difficulties in the way of prevention arise largely from the wide distribution of the organisms. Streptococci, pneumococci, influenza bacilli, singly or combined, are present in almost all morbid conditions in the respiratory tracts of the inhabitants of large cities, and probably also to a very large extent in the respiratory tracts of healthy individuals. The situation is much like that existing with relation to diphtheria, excepting that these organisms probably live more readily and for longer periods of time in the body cavities of healthy individuals than do the diphtheria bacilli, and the latter perhaps have (at least in children) greater pathogenic activity.

The Board of Health, looking forward to the study of this problem in the revision of the Sanitary Code made in 1903, included this group of diseases in the class in which partly voluntary and partly compulsory notification was required. This provision of the Sanitary Code, however, has not yet been enforced. It is believed now that provision should be made for this.

It has always been the feeling of the medical officers of the board that no really important effective measure could be taken in relation to any preventable disease unless the sanitary authorities first had some fairly comprehensive information as to the prevalence and distribution of the disease—such information as can only be gathered from the systematic notification of cases.

As the problem under consideration is not simply one which concerns New York, but one which almost equally concerns all the large cities of the United States, it was felt to be important that the commission should have a distinctly representative character, in the hope that the influence which it would exercise would be broader and more effective. As it seemed desirable to the commission to carry on investigations in other laboratories, in other cities, suitable arrangements were made for defraying the expenses of these investigations by the Department of Health of New York City. The facilities of the laboratories of the Department of Health were also placed at the command of the commission for assisting in various lines of investigation in New York.

In an "introductory note to studies on the pneumococcus under the auspices of the medical commission," Dr. Biggs makes the following statements:

It was decided to concentrate attention at first upon lobar pneumonia in both its bacteriologic and its clinical aspects. Among the studies upon the bacterial excitant of lobar pneumonia which it was deemed wise to pursue were the following: (1) A study of the occurrence and virulence of pneumococcus and organisms related to or resembling this, in the human mouth in health and disease; (2) the evidence of variations in virulence of the pneumococcus; (3) the occurrence of the pneumococcus in children's hospitals, homes, and asylums, with a study of the bacteria of mouths before and after outbreaks of pneumonia; (4) the vitality of the pneumococcus under various conditions; (5) a study of mouth disinfection.

It was the sense of the commission that one of the earliest phases of research, upon which much of the subsequent work would depend, was the determination, for the identification of species, of the characters of the pneumococcus, this investigation to include a comparative study of the coccus from cases of true lobar pneumonia and of that from normal mouths and throats hitherto generally assumed to be identical with the pneumococcus; also, to include such a study of streptococci as will suffice for their separation from the pneumococcus.

The method adopted in these studies was (1) to secure the cooperation of bacteriologists in various places, who should make independent studies along the lines suggested; and (2) to establish a central laboratory or "clearing-house," to which ultimately cultures from various independent workers should be sent for comparative study under a single observer. It was hoped that by the establishment of this central laboratory with its large number of available cultures, light might be thrown upon atypic forms, variations, etc., and greater precision achieved in determining the characters relied upon for identification.

The commission secured the cooperation, in making the special studies referred to, of Dr. W. T. Longcope, of the Ayer Clinical Laboratory in Philadelphia; of Drs. C. W. Duval and Paul Lewis, of the City Hospital in Boston; of Dr. William H. Park and his associates in the laboratories of the Department of Health of New York City; of Dr. Leo Buerger, of Mt. Sinai Hospital, New York; of Professor F. C. Wood, of the College of Physicians and Surgeons, New York; and Dr. Chas. Norris, of New York.

The cooperation of Prof. Philip Hanson Hiss, of the College of Physicians and Surgeons, New York, was secured in the organization and direction of the work of the central laboratory at the College of Physicians and Surgeons.

While various other lines of study are under way, it has been thought wise to publish at this time together the several independent studies which follow, in the belief that they may be useful not only in the further work of the commission, but of others engaged in similar lines of research.

The investigators' reports of the details of their laboratory work, along their several lines, are, as might be expected, extremely technical. Many, even, of the announcements of conclusions reached are so purely scientific, in both interest and phraseology, as to be out of place in a lay journal. Some of the conclusions, however, are of general interest, although separated from their context.

Drs. William H. Park and A. W. Williams report on a study of pneumococci in the research laboratory of the Health Department, where various experiments were made in the inoculation of rabbits, white mice, and sheep with pneumococcus cultures. Among their conclusions are the following:

Typic pneumococci were present during the winter months in the throat secretions of a large percentage of healthy individuals in city and country. . . .

Since the virulence of pneumococci may be rapidly increased for a susceptible species of experimental animal by successive passage, and since pneumococci obtained from most pneumonias are more virulent for experimental animals than are those obtained from healthy individuals, therefore the virulence of pneumococci from cases of human infection is probably increased for human beings; hence cases of pneumonia should be considered to a certain degree as contagious and, since the virulence of the pneumococcus may be quickly increased and since the organism is very prevalent in normal sputum, all possible measures should be taken to restrict public expectoration.

In regard to some of the experiments at the Ayer Clinical Laboratory in Philadelphia, Drs. Warfield T. Longcope and W. W. Fox say that "the results suggest that during the winter months the pneumococcus has a wide distribution, and that at this time a large percentage of healthy individuals harbor virulent pneumococci in their buccal cavities. These months precede those in which pneumonia is most prevalent. It is almost certain that some persons always have virulent pneumococci in their saliva.

From the laboratories of Bellevue and allied hospitals comes a report by Drs. Charles Norris and Alwin M. Pappenheimer on "a study of pneumococci and allied organisms in human mouths and lungs after death." They say:

It follows logically, from the results obtained in this experiment, that the cultural findings after death are no guide to the bacterial contents of the lungs during life, and that any deductions made from such findings are unreliable and deceptive. Granted that our explanation be correct, there is every reason to believe that any of the microorganisms present in the mouth and pharynx, and in many cases in the stomach contents, may enter the lungs, and, if the conditions be suitable, increase in numbers, during the time between death and the examination of the lungs. . . .

Our studies have thrown no light whatever upon the conditions which determine the onset of lobar pneumonia in apparently healthy persons. Moreover, we have been unable to draw conclusions as to the presence of pneumococci in the lungs during life, or as to the channels by which they gain access thereto.

Following are some of the conclusions of Professor Philip Hanson Hiss:

It seems, therefore, more than probable that practically every individual, at least during the winter season, when exposed to environmental conditions such as those existing in New York City, acts as the host at some time or other, and probably at repeated intervals, of organisms of the true pneumococcus type.

None of the supposedly normal individuals examined by us had had a recognized pneumococcus infection or "cold" within a recent time, nor, with two wellmarked exceptions, did any symptoms of infection develop in those whose mouths were found to contain pneumococci.

These two exceptions, detailed in an earlier section, strongly suggest the etiologic relations of pneumococci to some, at least, of the "common colds."

Prof. Francis Carter Wood, of the College of Physicians and Surgeons, closes an elaborate study with the following statements:

The conclusions of practical importance which can be drawn from the facts given in this paper are as follows:

1. The life of the pneumococcus in moist sputum is of considerable duration, the average period being less than two weeks, unless the material is exposed to direct sunlight. But as such sputum does not give off bacteria even when exposed to strong currents of air, it may be considered as innocuous, except to persons handling clothes, bedding, etc., which have recently been contaminated. Under ordinary conditions, however, this sputum dries in the course of a few hours or days. The dried masses retain their virulence for a long time, and if deposited on the floor or on the bedding of the patient, may be powdered mechanically, and sweeping, dusting or brushing the contaminated articles, will distribute pneumococci in the air. Fortunately, however, the organisms in the sputum do not remain long in suspension, and die off rapidly under the action of light and desiccation. In sunlight or diffuse daylight the bacteria in such powder die within an hour, and in about four hours if kept in the dark. The danger of infection from powdered sputum may, therefore, be avoided by ample illumination and ventilation of the sick room, in order to destroy or dilute the bacteria, and by the avoidance of dry sweeping or dusting. Articles which may be contaminated and which cannot be cleaned by cloths dampened in a suitable disinfectant, should be removed from the patient's vicinity.

2. When a person suffering from a pneumococcus infection coughs, sneezes, expectorates, or talks, particles of sputum or saliva are expelled from the mouth which may contain virulent pneumococci. Such particles remain suspended in the air for a number of hours if the ventilation of the room is good. They may be inhaled by persons in the vicinity of the patient, or they may be deposited upon various articles in the room. Whether suspended in the air or dried on surrounding objects, the writer's studies show that they become harmless in a very short time, about an hour and a half being the extreme limit, while many of the pneumococci in the spray perish in a few minutes, especially if exposed to strong light.

In the light of these experiments, the risk of infection from the pneumococcus is largely confined to those in direct contact with the person whose excreta contains the organism.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 16, 1905. [Vol. XLV, No. 12.]

1. Colohepatopexy or Colon Substitution: A New Operation for Perigastric Adhesions after Gallstone Operations. E. WYLLYS ANDREWS.
2. The Treatment of Empyemas of the Maxillary Sinus through the Nose. GEORGE L. RICHARDS.
3. Methemoglobin as a Factor of Conservative Metabolism. BERNARD OETTINGER.
4. Symptoms, Diagnosis and Prognosis of Uncomplicated Intestinal Amebiasis in the Tropics. W. E. MUSGRAVE.
5. Affections of the Thyroid in California. HERBERT C. MOFFITT.
6. Report of Committees to Aid Postoffice Department in Excluding Objectionable Advertising. C. S. N. HALLBERG, H. W. WILEY, and H. C. WOOD.
7. The Influence of Saccharin on the Digestive Enzymes. S. A. MATHEWS and HUGH MCGUIGAN.
8. A Dermatologic Clinic and Lecture: Leprosy, Blastomycosis, Lupus, Syphilis, Alopecia Areata, Lupoid Sycosis. JAMES NEVINS HYDE.

1.—Colohepatopexy.—E. Wyllys Andrews disagrees with R. T. Morris as to the cause of unpleasant symptoms from adhesions following gallstone operations; he has seen no cases of angulation of the cystic duct or of apparent dragging on the sympathetic nerves; the trouble he has seen has always been from gastric disturbance, and then only when the anterior wall or one border beyond the pylorus was involved. He, moreover, does not believe in the efficacy of Cargile membrane or of aristol to prevent the reforming of these adhesions. He does not consider them disadvantageous in themselves, but only so on account of their situation, and the method he has devised for the relief of the symptoms is based on the possibility of their replacement in a more advantageous position. After carefully separating the adhesions, he pulls up the transverse colon, with any loose omentum that may be present, into the space between the liver and pylorus, and stitches the omentum to the gastrohepatic ligament, liver surface, or such adhesions as form the angle between pylorus and liver. Five patients thus operated on are reported, and he summarizes his conclusions as follows: 1. Gall-tract adhesions are inevitable after disease and operation. 2. They are beneficent, harmless and symptomless in all but a few cases. 3. These few represent malposition rather than trouble from adhesions *per se*. 4. The colon, gallbladder, duodenum and pylorus can adhere to each other without impairing their function. The other parts of the stomach cause trouble if involved. 5. Such adhesions will reform when separated, unless the colon be substituted for the stomach. 6. The causing of colon adhesion to the liver does not perceptibly disturb its function. 7. Probably certain vague gastric disturbances have been treated by gastroenterostomy when the patients would have had more benefit from this operation. The article is illustrated in colors.

2.—See *American Medicine*, Vol. X, No. 5, p. 181.

3.—Methemoglobin.—B. Oettinger differs from the accepted opinion as to the invariable deleterious action of hemoglobin, and holds, on the other hand, that a partial methemoglobinemia may be usefully induced in certain conditions as an aid to conservation of nutrition. He argues at length on physiologicochemic grounds that medication by hemoglobinemia-producing drugs may be of benefit in dyspneic conditions by causing oxidation of increased amount of reducing substance in the blood. He finds this also in accordance with personal clinical experience.

4.—See *American Medicine*, Vol. X, No. 9, p. 345.

5.—See *American Medicine*, Vol. X, No. 13, p. 513.

6.—See *American Medicine*, Vol. X, No. 5, p. 181.

7.—Saccharin.—S. A. Mathews and H. McGuigan have studied the effect of saccharin on oxidation and digestion. Their methods and experiments are described in detail. They find that it has marked retarding action on oxidation in the blood and muscles and also on the action of the digestive juices, especially those of the salivary glands and pancreas. Its prolonged use, therefore, is likely to produce digestive disorders. When injected into the circulation of an animal, it produces depression and stupor, followed by labored respiration, similar to asphyxia. This is evidently due to its inhibitory action on the enzymes of the blood and tissues, and also probably accounts for the headaches and other symptoms it produces. It may be considered a general protoplasmic poison, in that it inhibits nearly all the fermentative processes of the body, thus interfering with and decreasing general bodily metabolism.

8.—A Dermatologic Clinic.—J. N. Hyde reports and comments on two cases of leprosy. In one case very marked improvement has followed the use of chaulmoogra oil in gradually increasing doses up to a teaspoonful, together with ferruginous tonics and hygienic treatment. Another patient improved similarly, but deteriorated after an absence of a year and neglect of treatment. Other disorders shown were blastomycosis, erythematous lupus, verruca acuminata of the anus, alopecia areata, lupoid sycosis and syphilis. He remarks on the prevalence of blastomycotic disease in Chicago, and believes in the value of iodid of potash in relieving, if not curing, the disorder. The connection of erythematous lupus to tuberculosis is discussed and the value of röntgen-ray treatment confirmed. While the parasitic possibilities in alopecia are recognized, the nervous element in its production is emphasized.

Boston Medical and Surgical Journal.

September 14, 1905. [Vol. CLIII, No. 11.]

1. The Modern Conception of Tuberculosis of the Skin. CHARLES J. WHITE.
2. A Clinical and Laboratory Study of the Therapeutic Value of Hydrochloric Acid in Diseases of the Stomach. RICHARD F. CHASE.
3. Ocular Vertigo of Interest to the General Practitioner. BENJAMIN P. CROFT.

1.—Tuberculosis of the Skin.—C. J. White divides tuberculous skin diseases into (1) the true tuberculosis, in which bacilli can always be found and animal experimentation is always successful, and into the (2) tuberculids, in which bacilli are absent, but inoculations may often give positive results and the pathologic picture is suggestive of tuberculosis and evidences of the disease can frequently be detected elsewhere in the body. A subdivision of the tuberculids includes (3) diseases found in those with a tuberculous diathesis. Class I contains lupus vulgaris; scrofuloderma, including tuberculous gummas, tuberculous ulcers, tuberculous lymphangitis; cutaneous miliary tuberculosis, tuberculosis verrucosa cutis; and verruca necrogenica. Class II comprises lichen scrofulosorum, erythema induratum, folliculis acnitis, acne scrofulosorum, acne cachecticorum, and mobiliform or scarlatiniform eruptions in the course of acute pulmonary tuberculosis. Class III includes possibly eczema scrofulosorum, pityriasis rubra of Hebra, certain dyschromias, lupus erythematosus, angiokeratoma, and lupus pernio. The author describes the characteristics of the lesions of Classes I and II. [H.M.]

2.—Hydrochloric Acid in Diseases of the Stomach.—R. F. Chase reviews some opinions as to the value of HCl. A tendency to limit its use is shown by later writers. If the natural supply of HCl was absent from the gastric juice it would require 1 ounce of the 10% solution to supply the deficit, therefore the objects attempted by large doses of HCl are either not at all or but partially attained. According to the writer's observations and experiments long-continued doses cause diminution of the natural secretion. This depressing influence is not generally recognized. Experiment and literature yield little in favor of large doses. The use of small doses often results in the alleviation of certain symptoms, but it is a question if it ever improves the function of the stomach. The favorable results obtained from clinical experience may be due to the fact that the vast majority of gastric disorders are of nervous origin. Probably 90% of these cases have normal acidity or hyperacidity. To ascertain the real therapeutic value of HCl we must use accurate tests of its action on the various functions of the stomach. [H.M.]

3.—Ocular Vertigo.—B. P. Croft divides ocular vertigo into that resulting from paralyses of ocular muscles, that from muscular imbalance and that accompanying errors of refraction. The first generally results from the diplopia caused by the paralysis. The refractive vertigo often occurs at the beginning of presbyopia. [H.M.]

Medical Record.

September 16, 1905. [Vol. 68, No. 12.]

1. Remarks on the Diagnosis of Diseases of the Nervous System. JOSEPH COLLINS.
2. A Case of Laryngeal Diphtheria Necessitating Intubation, Complicating Cerebrospinal Meningitis in an Adult. W. K. SIMPSON.
3. Gallbladder Surgery. T. C. KENNEDY.
4. The Influence of Pneumococci on the Healing of Wounds, with the Reports of a Few Cases. J. WIRT ROBINSON.
5. Report on the Control of Tuberculosis in the Philippines. D. M. APPEL.
6. The Aortic Reflexes. ALBERT ABRAMS.
7. On the Role of Trichocephalus in the Etiology of Typhoid Fever. GIUSEPPE SPEZIA.

1.—Diagnosis of Diseases of the Nervous System.—Joseph Collins comments on the difficulties experienced by the general practitioner in the diagnosis of nervous diseases, and says in this connection that the reason why nervous diseases are considered to be a strange country by the general practitioner, is (1) because there is an inherited conviction that such diseases are extremely obscure; (2) because there is an acquired conviction that in order to unravel the intricacies of such diseases, a comprehensive knowledge of the anatomy and physiology of the nervous system is required; and finally, because many physicians do not take the trouble to acquaint themselves with the simple methods of testing for the existence of nervous disease. He explains that this is a mistaken standpoint, and shows that nervous diseases, if approached with the same care that is necessary for the study of other affections, are no more difficult or obscure than most medical problems.

3.—Gallbladder Surgery.—T. C. Kennedy says that the first important thing in treating a patient for gallbladder troubles is a complete history, as diagnosis depends on a knowledge of the number of attacks, kind of pain, and condition of stomach and pancreas. Differential diagnosis demands a careful examination of all the other organs, and exclusion of other abdominal diseases. The exact condition may not be known without an exploratory incision, the operator being prepared for whatever operation may be indicated by the results. The general practitioner usually has to make the diagnosis. Many of the cases reach the operating table only when the original trouble has become much aggravated by time. Morphin takers should never be operated on, as they have extreme nausea, do not take nourishment well, have obstinate constipation, and often collapse suddenly. It is impossible to tell in any case what operation will be necessary, but usually a simple cholecystostomy is all that is needed. The operator must be prepared for cholecystectomy or cholecystenterostomy. He believes that there is no disadvantage in a long incision. He has not had any hernias as the result of the operation. There will be no fistula unless there be occlusion of the ducts. The most important thing is drainage. Cholecystostomy is the operation of choice.

4.—The Influence of Pneumococci on the Healing of Wounds.—J. W. Robinson describes a number of cases in which severe infections with pure cultures of pneumococci went on to a very favorable outcome. He concludes that: 1. The pneumococci, if alone, cause little inflammatory reaction in the healing of wounds. 2. Possibly, in surgical diseases caused by pneumococci, some protective substance is formed that ameliorates the symptoms, as occurs in the crisis of a pneumonia. 3. In the treatment of a pus case, care should be used to prevent a mixed infection, as healing is much more apt to be rapid and smooth if only one variety of bacteria is present.

6.—The Aortic Reflexes.—Albert Abrams considers these of great importance in medical diagnosis. To get these reflexes, apply the palm of one hand closely to the spinous processes,

while the other clenched fist is used as a percussion hammer, using sharp, vigorous blows. For the reflex of dilation, concuss the spinous processes of the eighth, ninth, tenth, eleventh, and twelfth dorsal vertebras. Then quickly percuss the region of the thoracic aorta, and the course of that vessel will be easily defined. This is a curved line, beginning at the right sternal line in the middle of the first intercostal space, and ending at the point of insertion of the first rib to the sternum. The highest point is about 5 cm. from the anterior thoracic wall, and the beginning 2 cm. from it. Concussion of the seventh cervical vertebra causes aortic dulness to evanesce at once, as a result of the counterreflex of aortic contraction. The aortic reflexes are fairly constant, but variable in duration.

7.—The Role of Trichocephalus in the Etiology of Typhoid Fever.—Giuseppe Spezia has made observations on 19 cases of typhoid, in 17 of which he found eggs of trichocephalus in the feces. In other diseases of the gastrointestinal tract these eggs are rare. He believes that the trichocephalus inflicts wounds on the intestines, which permit of the entrance of *Bacillus typhosus* into the intestinal wall. In view of these facts, it will be necessary in typhoid fever to use disinfectants capable of dissolving the resistant covering of these eggs, as well as destroying bacillus of Eberth; such, he holds, are concentrated solutions of potassium and sodium salts.

New York Medical Journal.

September 9, 1905. [Vol. LXXXII, No. 11.]

1. Surgery at the Dawn of the Nineteenth Century. NATHAN JACOBSON.
2. The Mephisto of the Pale Brotherhood of Disease; a Study of Masked Rheumatism, Based, not on Books, but Experience. (Continued.) GEORGE F. SOUWERS.
3. The Relative Frequency of a Protruding Lateral Sinus and Its Bearing on the Choice of Method for the Total Opening of the Middle-ear Cavities; with Demonstrations of Anatomic Specimens. EMIL AMBERG.
4. Six Lectures on the Diseases of the Blood. (Concluded.) JOHN M. SWAN.
5. Notes on the Deathrate of Infants in the Summer Months. F. L. WACHENHEIM.
6. The Hot-air Treatment of Acutely Inflamed Joints. W. ROSS THOMSON.
7. Prophylaxis in Tuberculosis. CHARLES D. ALTON.

3.—Protruding Lateral Sinus.—Emil Amberg discusses the relative frequency of a protruding lateral sinus and its bearing on the choice of methods for the total opening of the middle-ear cavities. Among the specimens from cadavers which he has studied, he has found the lateral sinus protruding in 12 instances. Several of these specimens are described and photographs added, showing the protruding sinus. [C.A.O.]

5.—Deathrate of Infants in Summer.—F. L. Wachenheim has taken the mortality tables of the New York Health Department since 1890 and compared them with the figures of the United States Weather Bureau. The corrected statistics show that hot weather alone does not play the chief role in producing a high infant mortality. The summer of 1890 was nearly six degrees warmer than that of 1903, but the excess of deaths was only 8 per 1,000; it was five degrees warmer than that of 1897, but the deathrate and actual number of deaths were far lower. On the other hand, the less efficient sanitation and general ignorance of hygiene, in the relatively comfortable summer of 1890, accounted for about 30 deaths per 1,000. The author says that it is evident that in New York at least, ignorance and neglect are about three times as fatal to infants as hot weather, even under the wretched housing conditions that so largely prevail. He says it is easy to foresee that hot waves will eventually play a subordinate role in infant mortality, so accurately has modern science grasped the key to this problem. As a medical triumph, the solution of the problem of the treatment of summer diarrhea of infants may be rated even higher than the antitoxin treatment of diphtheria. [C.A.O.]

6.—Hot-air Treatment of Joints.—W. R. Thomson says that in proper cases its action is rapid and certain. A case seen during the first three days of an attack of articular inflammation will almost invariably be cured in three bakings. A case seen after six weeks of various treatments may require fifteen or more bakings before recovery is in sight. The usual length of baking is an hour, and the heat is as high as the patient can stand. During the baking the patient is given a full glass of water, which is sipped slowly. This promotes free sweating. After baking he bathes the part in warm grain alcohol or spirits of camphor and dries it carefully. The best results are obtained if the limb is kept at absolute rest in the most comfortable position until the next baking. Several cases are reported briefly. [C.A.O.]

Medical News.

September 16, 1905. [Vol. 87, No. 12.]

1. A Test of Condition: Preliminary Report. C. WARD CRAMPTON.
2. Intussusception. W. E. DICKEN.
3. A Case of Retained Intubation Tube Treated by Gradual Dilation. FIELDING LEWIS TAYLOR.
4. Dermoid Cysts of the Mediastinum. ROGER S. MORRIS.
5. The Diagnosis and Differential Diagnosis of Incipient Pulmonary Tuberculosis. HENRY FARNUM STOLL.
6. Rod Auscultation. ED. REICHMANN.

1.—A Test of Condition.—C. W. Crampton states that a reliable test has not heretofore existed, yet it is of the utmost importance for the physician to know to what extent a disease is affecting the general health and vitality and to have a guide in prescribing tonic, rest, and exercise. "Feelings" cannot always be relied on. Such a test would also permit definite comparisons between mental and physical efficiency, and would afford an indication of success in athletic training, and would be invaluable in examining candidates for military and certain civic occupations. The writer's test consists in the comparison of the systolic blood-pressure and the heart-rate of the recumbent position with those of the standing position. On standing the voluminous splanchnic veins are constricted by the vasomotor action of the splanchnic nerves. If this is effective against gravity, the blood-pressure in the upper body rises. Another factor, however, enters in. When pressure tends to fall, the heart-rate is accelerated. This is associated with a rise in pressure which masks the inefficiency of the splanchnic contraction. Should the heart be accelerated and the pressure at the same time fall, it would indicate a still greater degree of failure. The total change of pressure in those who may be considered in health is from +10 mm. to −10 mm. Hg. The change of pulse-rate is from +5 to +35. The writer gives a scale for recording the splanchnic efficiency. The armlet of the blood-pressure instrument should be so placed that it bears the same relation to the heart whether the patient is lying or standing, and before counting the pulse-rate it should be allowed to fall to normal after the effort of rising. Athletes whom the writer has tested by this method, even when feeling in good condition, have invariably and fatally carried out predictions. The test is applicable only to ambulant cases. Long-continued rest decreases the efficiency of the vasomotor mechanism. The syncope on sitting up, of a patient long recumbent is familiar to all. [H.M.]

2.—Intussusception.—W. E. Dicken deplores the mistakes in diagnosis in acute cases, and describes the symptoms of the condition. He also describes the more obscure manifestations of the chronic form. In acute cases, surgical interference is indicated inside the first 48 hours. Inflation of the bowel with air or water is too risky, medicines are vomited, and hot abdominal fomentations are the only thing advisable previous to operation. [H.M.]

4.—Dermoid Cysts of the Mediastinum.—R. S. Morris reviews, in detail, the cases hitherto recorded in literature, and reports his own. Dermoids are generally believed to result from fetal inclusion. They are infrequent in the mediastinum, whereas mediastinal tumors in general are not rarities. Sex has no apparent influence; 61% came to observation between the ages of 18 and 30. They vary from the size of a walnut to that of a child's head. Adhesions are almost always present, and are frequently so firm that total extirpation is hazardous. The thickness of the wall is variable, and it may contain bone, cartilage, or teeth. The lining resembles skin, with hair follicles, sebaceous and sweat glands. The contents are the result of desquamation, with the secretion of the glands. The symptoms are dyspnea, pain, hemoptysis, and effusion; the sputum is often foul. Hairs, if present, are pathognomonic. The course of the disease is variable, and without operation, the prognosis is extremely grave. [H.M.]

6.—Rod Auscultation.—E. Reichmann gives an illustra-

tion of the rod which is held vertically on the body while the middle finger is passed over it, creating vibrations which are transmitted in every direction and can be heard by the stethoscope as long as it and the rod remain within the boundaries of the organ under examination. At the boundary the waves are reflected and are thus prevented or nearly so from passing to adjacent organs. By this means the various lobes of the lungs may be outlined, and tumors may be shown in some cases not to arise from the organs near which they may lie. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Veronal.—On the uses of veronal as a hypnotic and sedative agent, M. Bourilhet has contributed an instructive article to the *Presse Médicale* (May 20, 1905). This narcotic compound was added (in 1803) by Fischer and Von Mering to the already long list of remedies of that class. Chemically, it is recognizable by the terms diethylmalonylurea or diethylbarbituric acid, and is represented by the constitutional formula:

$$(C_2H_5)_2 > C < \begin{matrix} CO—NH \\ CO—NH \end{matrix} > CO.$$

Physically, it is known as a crystalline substance, of feebly bitter taste, fusible at 191° C., and soluble in 12 parts of boiling water (145 parts at 20° C.). Its formula indicates relationship to the ureid group of compounds, and it has been suggested that it owes its special somniferous powers to the presence of the ethyl group of atoms, which is frequently met with in hypnotic agents. M. Bourilhet has administered veronal in most forms of mental disease—in pill and in solution (hot tea, soup, etc.). MM. Fischer and von Mering found that when given in form of "cachets" sleep followed, but slowly—after many hours in some of their cases. It has also been given in tablets, made up with cacao or starch powder. Edhem found veronal as efficacious when administered in form of lavement as by the mouth. The hypnotic dose varies from 0.3 gm. to 1 gm.; when there is great restlessness, a larger dose may be used with benefit; to a specially troublesome subject of mania a 4-gm. dose has been given, and with gratifying result. But its good effects are especially observable—and most easily obtainable—is cases of melancholia not accompanied by restlessness. It gave good results in cases of hysteria, in the insomnia of chronic alcoholism, and in delirium with hallucinations. In cases of mania, accompanied by extreme restlessness, its hypnotic effects were not reliable; the same is reported of those of general paralysis and of senile dementia. Prolonged administration produced no bad effects on the heart or liver, or kidneys, so that it may be used with advantage in painful diseases associated with defective function of any of those organs. Accordingly, it has been administered with benefit in cases of cardiac and pulmonary disease, in the insomnia of the various febrile conditions, in advanced pulmonary tuberculosis and other forms of tuberculous disease, in the painful insomnia of the victims of inoperable cancer, and to diminish the frequency of the paroxysms of whooping-cough, and of the convulsions of epilepsy, respectively. The conclusion which must be deduced from the collective results so far as hitherto published, is that we have in veronal one of the most important of the recently discovered hypnotic (and sedative) agents.

REVIEW OF LITERATURE

The Physiologic Hiccough of Nursing Infants.—V. Thevenet[1] says that a physiologic hiccough occurs in normal infants, being a reflex of gastric origin. It is to be regarded as a sign of overfilling of that organ. It is probably an abortive regurgitation, indicative of an evacuation of the stomach by way of the pylorus, rather than the cardia. As an indication of pyloric evacuation, it is an index of return to normal function after severe digestive disturbances. Conversely, it tends to disappear in all pathologic conditions that render gastric distention impossible. [B.K.]

Tuberculous Meningitis.—Some of the more recent studies show that there may occur "extended remissions" in the course of this disease; and Tramonti and G. Baschieri-Salvadori,[1] reviewing the work of Carrière and Lhôte, and the experiments of Chaisse and Abrami, with comment by Sicard, Achard, Dufour, and others, report interesting cases. During the remission there is constantly to be feared a return of the progress of the disease, and this is evidenced by the patient's continual susceptibility to vomiting for slight causes, the rapidity and irregularity of the pulse, changes in eye fundus, a persistent lymphocytosis of the cephalorachidian fluid, and psychic irresiliency. When the ultimate attack approaches, it is by a sudden onset which is cyclonic and hopeless. The lesion to which this distressing train of circumstance is due during the remissions, is little more than a restricted patch of fibrous degeneration, yet like "a sword of Damocles, is suspended inevitably over the little sufferer." Treatment must forbid any physical expenditures beyond those of necessity, and all intellectual employments. Calomel has many advantages, more especially on account of the tendency to constipation. Creosote per rectum, and iodid of potassium by the mouth, are recommended. One case, that of a man of 30, is peculiar in that on puncture no specific germs were obtained, but inoculation in rabbits produced typic experimental tuberculosis. A cure is reported, and the patient's symptoms lead the physicians, Chaisse and Abrami, to assert the tuberculous nature of the disease, in spite of the objections which the failure to recover bacillus of Koch might raise. Montard-Martin criticises the report of a cure, and says that relapses have led to fatal developments after three years' apparent good health; prognosis must be guarded. The study of eye grounds is recommended by Comby. [T.H.E.]

Vaccination against Scarlet Fever.—G. N. Gabrichewski[2] made a series of experiments on horses, in order to determine the possibility of vaccinating them and thus protecting them against a certain form of streptococcus infection. The results have been very encouraging. By injecting a certain quantity of bouillon culture of the streptococcus under the skin of the horse, subsequent infection can be rendered ineffective. Now, then, scarlet fever being almost universally acknowledged to be a streptococcus infection, the author proposes a vaccine of streptococci obtained from the heart blood of a patient just dead of scarlatina. He gives directions for preparing the vaccine. His first experiment was performed upon himself, by injecting a dose of the vaccine. A reaction took place within a few hours, and was very mild in character. Two children were then given injections of the vaccine, and also showed a mild reaction. The author believes in the protective value of this vaccination and urges further trial. [L.J.]

Blood Changes Following Typhoid Inoculation.—W. B. Leishman[3] describes the preparation of the vaccine, the various dosages used, the technic of the various operations and that employed in estimating the agglutinating, bactericidal and opsonic and stimulating power of the serums. Even with very small doses, a remarkable development of protective substances occurred. Four weeks after the first inoculations, the amount in most cases remained considerably above the normal. The reaction was not excessive, even with the highest doses used. In 48 hours all symptoms disappeared, except in a few in whom pain and tenderness at the site of inoculation persisted for a day or two longer. In general, the reactions were proportionate to the dosage. The general relationship of protective substances to dosage of vaccine did not appear to be in proportion to the differences in dosage. The values were remarkably high in those receiving only half or a sixth of

[1] Lyon Médical, August 27, 1905.

[1] Il Policlinico (Rome), August 13, 1905.
[2] Russki Vratch, July 30, 1905.
[3] Journal of the Royal Army Medical Corps, July, 1905.

the highest dose. No evidence of a negative phase was found in any of the groups. The blood was first tested within 16 hours after inoculation. The interval of 11 days between the first and second inoculation seemed suitable, reinoculation appearing to stimulate, rather than retard, further elaboration. Men, inoculated five years previously, failed to show any marked response to .01 cc. of vaccine. On a second inoculation of .1 cc., no unusual development of protective substances occurred. Probably the interval of five years was too great. The amount of agglutinins developed in the various groups afforded a general indication as to the development of other protective substances. [H.M.]

Epidemic and Sporadic Dysentery in Childhood.—L. Jehle and G. A. Charleton[1] report a series of cases of dysentery in children, some of which occurred as parts of dysentery epidemics, and others of which belonged to the sporadic form. A hitherto unrecognized etiologic factor in the latter form is infection from articles of food—meat, milk, sausage, etc. Both forms are contagious. The sporadic cases may at times give rise to epidemics, which are characterized by a relatively rapid subsidence, and a milder form than the true epidemic variety. The dysentery bacillus is the exciting cause in either case, the Shiga-Kruse type predominating in the epidemic form and the Flexner type in the sporadic variety. The Shiga-Kruse infections are usually more grave than those with the Flexner bacillus; the latter may, in mild cases, produce merely the symptoms of a simple intestinal catarrh. Specific agglutinins are usually found in the blood-serum of patients and only the exciting variety of bacillus is agglutinated. In many cases an agglutination of the colon bacillus is produced, which may sometimes occur even before the reaction is obtained with the dysentery organism. [B.K.]

Nervous Diseases of Stomach and Intestines.—Boas[2] makes two groups (1) monosymptomatic; (2) polysymptomatic. In the first group one symptom stands out conspicuously; this may be of a depressive or excitant nature. In the depressive group there may be anorexia or bulimia or a sensation of fulness in the stomach; these conditions may be present when the stomach is empty or when it contains food. In the excitable form there are present cardialgia, rumination, regurgitation, eructation and vomiting. While in most cases it is easy to make the diagnosis there are cases in which difficulty will be experienced, but the condition can be cleared up by examining the motor and secretory functions of the stomach. If the secretory and motor function are found normal after repeated examination, the condition of the stomach can be regarded as nervous. The second group is typified in the nervous dyspeptic; the patient usually makes his own diagnosis and examination proves negative. The condition seems to bear no relation to the quantity or the quality of food consumed, differing in that respect from the organic lesion of the stomach, but it does appear to be related to the mental disturbances. Intestinal neuroses are manifest either by constipation or by diarrhea. The obstipation is the result of functional disturbances incident to psychic insults, as evinced by the fact that good mental influences and rest are followed by improvement of the intestinal condition. The diarrhea is uninfluenced by astringent diet or medicines, the use of opium may aggravate the condition. Psychic disturbances and mental strain appear to bring on the diarrhea. The patients may not lose weight even though the diarrhea continue for a year at a time. He advises the patient to stop all work and observe a restricted diet and tries to impress the patient that the condition will leave gradually. [J.F.]

Primary Tuberculosis of the Intestines.—P. Barkhash[3] analyzes a series of several hundred casuistic records and concludes that tuberculosis undoubtedly occurs primarily in the intestines and in the mesenterial glands. Such instances are quite rare, if we are to judge by the pathologic records. However, there is insufficient attention bestowed at autopsies on this particular subject and we may safely assume the occurrence of primary intestinal tuberculosis to be more frequent than is at present admitted. Two favorite locations of the disease are the plica duodenojejunalis and above or below the valvula bembini. These sites should be carefully searched. In childhood the disease appears to be more frequent than later in life. [L.J.]

Adiposis Dolorosa.—Schwenkenbecher,[1] in reporting two cases of this rare disease, little noted in Germany, remarks that the diagnosis is chiefly rested on the fact that the adipose accretions are painful on pressure. In America, Dercum has carefully described the syndrome. The etiology is obscure. Some writers lay the responsibility to changes of the thyroid gland. There have been experiments which seem to show that there is no actual increase in the nervous elements of the parts affected, and consequently the pain may be mechanical, and due to tension on account of the augmentation in fat between the fibers. [T.H.E.]

Amount of Urea in the Urine in Various Forms of Nephritis.—J. Mendl[2] made estimations of the urea in 13 cases of nephritis both acute and chronic. In acute nephritis he found a good prognosis to be associated with an undisturbed excretion of urea. The prognosis must be guarded in cases where the urea is markedly diminished from the start, and is absolutely unfavorable when the amount excreted falls below 10 gm. a day. Similar results were found in chronic nephritis. In cases where the daily excretion of urea is normal, a favorable prognosis may be given, as long as no complications arise from other organs, such as the heart. The prognosis is unfavorable when the urea is constantly below normal, and is in direct proportion to the amount of diminution. When the urea remains at the same level for some time, a gradual diminution indicates an exacerbation for the inflammatory process. [B.K.]

Cylindruria and Nephritis.—Gentzen[3] examined the condition of the urine of 100 individuals, varying from 4 to 30 years of age. The urine of 70 of these cases was obtained from patients in the hospital, while the remaining 30 cases were soldiers or young physicians. In the group of the 30 the urine was free from albumin, the individuals all felt well and were not subjected to severe strain the day preceding the examination. In 13 of these cases he found granular casts, in 5 half hyaline and half granular, in 3 simply hyaline, and in 9 no casts. In the group of 70, granular casts were found in 15; hyaline in 7; in 21 the urine was cast free, and in 10, all of which contained albumin, 2 showed granular, 4 hyaline, and 4 no casts. In all his examinations he sedimented the nubecula which was obtained after allowing the urine to stand from two to three hours. In two cases of the group of 70 there was no nubecula. [J.F.]

[1] Zeitschrift für Heilkunde, Bd. xxvi; Abth. f. Int. Med., Heft 3, p. 402.
[2] Deutsche medicinische Wochenschrift, No. 33, 1905.
[3] Medizinskoe Obosrenie, lxiii, No. 10.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Erythromelalgia and Osteomalacia.—U. Arcangeli[4] reports a case of interest in having these combined. The patient, a girl of 15, began three years ago to have pains in her feet, which soon grew red, and swelled, particularly the left one. She complained of a drawing in the skin as though ants were walking over it. Osteomalacia has produced its usual changes, but the bones are not appreciably softened on palpation. The concomitance of erythromelalgia is rare, but in 1899 a case was reported by Giudiceandrea which had to do with a woman aged 65, and who had long been hysterical. In this instance the erythromelalgia was diffuse. Arcangeli attributes the origin of the latter to some spinal process, and concludes that the osteomalacia is a direct cause in producing lesions of the vertebras similar to those which occur secondarily in tabes and in syringomyelia, yet further, since osteomalacia is an infectious process in its common form, the writer prefers to give primary significance to the general or systemic influences. [T.H.E.]

[1] Il Policlinico (Rome), August 13, 1905.
[2] Zeitschrift für Heilkunde, Bd. xxvi; Abth. f. Int. Med., Heft 3, p. 349.
[3] Deutsche medicinische Wochenschrift, No. 33, 1905.
[4] Il Policlinico (Rome), July 2, 1905.

Delayed Chloroform Poisoning.—E. W. S. Carmichael and J. M. Beattie[1] report a case of chloroform anesthesia, followed by death 42 hours after the operation. The anesthesia lasted 30 minutes, and 5 drams of chloroform were used. The main symptoms preceding death were vomiting, extreme pallor, great thirst, small weak pulse, subnormal temperature, and finally coma. At autopsy there was found an intense fatty degeneration of the liver, suprarenal glands, kidneys, and gastric mucous membrane. As a sort of commentary on this case, L. G. Guthrie[2] publishes a paper, in which he discusses the question of aciduria (acetonuria) as the cause of death in such cases. In addition to the above symptoms, diacetic acid has been found in the urine, together with the smell of acetone in the breath. It has been shown that similar symptoms may occur also after the administration of ether. They are probably due to acid intoxication by the poisonous precursors of acetone. These bodies arise from a disintegration of the fat produced in the course of the fatty degeneration in various organs. It is inconceivable that the small amount of chloroform used in some operations should produce such extensive changes, and ether is altogether incapable of doing it. It therefore follows that the fatty degeneration must have existed prior to the anesthetization, and that the chloroform or ether probably brought about the disintegration of the fat. The author believes that the fatty changes in the liver may be a physiologic infiltration, and not a degeneration, which thus explains why anesthetics are more dangerous at one time than another, the element of danger being a superabundant storage of fat in that organ. [B.K.]

The Surgical Treatment of Nephritis.—Taking everything into consideration, Luecke[3] maintains that the surgical treatment of the acute nephritis must be reserved for severe cases of the disease; anuria and oliguria in which cases the internal treatment is often powerless; in such instances he would recommend nephrotomy. The beneficial results claimed for decapsulation by Edebohls in the chronic forms of nephritis have thus far not been realized, except in cases of movable kidney with nephritic symptoms. Luecke maintains that these cases cannot be placed in the same class with those of Bright's disease. Experimental investigation shows that in decapsulation of the kidney there develop many new bloodvessels in the adhesion between the kidney and the surrounding tissue, yet Luecke says it is difficult to state whether this vascularity is a permanent condition or whether by the contraction of the newformed fibrous tissue many of the vessels will suffer obliteration. He quotes Stern as saying that in all those cases in which there is a tendency to the formation of new fibrous tissue in the kidney substance, decapsulation is not advisable. Most authors are agreed that for pain in the region of the kidneys, for hematuria, anuria, and oliguria, decided beneficial results are obtained from nephrotomy and drainage. [J.F.]

For and against Blood Coagulability.—Kaposi[4] compares the action of gelatin, which accelerates coagulation, and irudin, which hinders it. Gelatin ought to be sterilized according to the method of Krause, *i. e.*, for half an hour at 100° C. in an autoclave, on five successive days. [T.H.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Pubiotomy.—Buerger[5] does not concur in the views expressed by Franque that even if the woman be infected, pubiotomy may be carried out. Buerger holds it as hazardous to make a wound which is difficult to protect from infection. The side upon which the bone is cut depends upon the position of the child; it is always severed upon that side where the most space is needed. In those cases in which version is to be carried out, the saw cut must be on the side upon which the extremities of the child are found; if the pelvis is asymmetrically narrowed the cut in the bone must be on the narrow side. Küttner, in one of his cases, after it became evident that spontaneous labor was impossible, decided to perform pubiotomy, since he thought it inadvisable to attempt cesarean section in a case where the procuring of asepsis is doubtful. He cannot agree with Zweifel and Döderlein, who claim that in all cases in which symphysiotomy or pubiotomy will probably have to be done, the application of the forceps should be avoided. Although the pelvis was compressed from each side, the pubic bones separated a distance equal to three fingers' breadth. The child was easily delivered; the bones were united with silkwormgut and catgut sutures. In his second case a thrombosis of the pelvic vein developed; he is unable to say whether he shall hold the suppurating pubiotomy wound or the accumulation of lochia in the uterus responsible for this condition. Küttner is inclined to believe if he had performed the pubiotomy subcutaneously, as suggested by Döderlein, the suppuration might have been avoided. [J.F.]

Anogenital Malformation.—G. Conforti[1] describes the case of a girl of 8, in whom there were two vaginas and two uteruses, perfect and separate. The anal aperture corresponded to the posterior vaginal commissure. An attempt was made to interfere surgically in establishing a better anal position and the result is reported good. [T.H.E.]

Further Knowledge of the Early Auscultation of the Fetal Heart Sounds.—Sarwey[2] tells us that, as a result of his investigation, he is able to say that the fetal heart sounds are not, as generally believed, heard first at the middle of pregnancy, but can be elicited as early as the thirteenth week. They are constantly present in a small circumscribed, deep-lying area, situated over the anterior portion of the internal os. In order to hear these sounds, the physician must possess a normal functionating auditory apparatus, an inexhaustible supply of patience, a perfectly quiet room; the patient must be catheterized before attempting the auscultation, and in conjunction of the elevation of the uterus, the stethoscope should be pressed deep into the abdominal wall, just above the symphysis pubis. Thus, with patience, the physician is able to make an absolute positive diagnosis when the other signs of pregnancy are still obscure. [J.F.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Percutaneous Action of a Somnifacient (Isopral).—R. Foerster[3] employed isopral (trichlorisopropyl alcohol) for hypnotic purposes by rubbing it into the skin in the form of an oily lotion. Many pharmaceutic preparations were tried as solvents, but the best was found to be a mixture of equal parts of alcohol and castor-oil; three parts of isopral were usually dissolved or mixed with one part each of the substances mentioned; stronger solutions could be used. The oil is rubbed lightly into arm or thigh and at once covered with oiled silk and bandaged; cutaneous irritation was never observed. He used the mixture 140 times in 38 cases in gradually ascending doses, without once observing bad after-effects. In all, a sedative, hypnotic action was produced after a short time, sleep lasting undisturbed for from four to seven hours. The dose applied averaged about 3 gm. (45 gr.). [E.L.]

Veronal.—Bourilhet[4] concludes as follows: 1. In dose of from 30 gm. to 80 gm. this affords an excellent hypnotic when the case is that of insomnia without agitation. Hence it is used in simple insomnia, the insomnia of neurasthenia, hysteric insomnia, in melancholia, and in cases of chronic alcoholism. 2. It may be used in cases of agitation in dementia præcox, and in melancholia with excitement. 3. In maniacal excitement, chiefly in cases of paresis, even large doses are of little value. 4. The use of veronal, if not too prolonged, has scarcely any ill-effects. 5. It is well to guard against weakened effect by too

[1] The Lancet, August 12, 1905.
[2] The Lancet, August 26, 1905.
[3] Wiener klinische-therap. Wochenschrift, Nos. 35, and 36, 1905.
[4] Il Policlinico (Rome), July 2, 1905.
[5] Zentralblatt für Gynäkologie, No. 37, 1905.

[1] Il Policlinico (Rome), July 2, 1905.
[2] Deutsche medicinische Wochenschrift, No. 33, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 948.
[4] Il Policlinico (Rome), July 9, 1905.

constant or uninterrupted administration of the drug. 6. Veronal seems to exert no harmful action on the viscera. [T.H.E.]

Treatment of Serous Effusions by Injection of Adrenalin Chlorid.—This method of treatment was first advocated in 1903. H. W. Plaut and P. Steele[1] have tried it in cirrhosis of the liver and pleural effusion, with considerable success. As much of the fluid as possible is withdrawn by means of a trocar and canula, and 1 dr. of a 1 to 1,000 solution of adrenalin chlorid, diluted to ½ oz., is introduced by means of a syringe. The modus operandi of the adrenalin is in doubt. From autopsy findings it seems possible that the adrenalin causes the formation of vascular adhesions between the various layers of peritoneum or pleura, producing a collateral circulation in the case of the former, and an obliteration of the pleural cavity in the latter. [B.K.]

Arsenic in Tuberculosis.—Potain[2] advises its use in pill form. Gaucher prefers the solution, while Bucquey always combines strychnin, or tincture nucis vomic., with the arsenical preparation. All of these writers have found advantage in the use of this element, even when other general treatment has been instituted, and do not report less favorably from the combination. [T.H.E.]

Treatment of Sweating Feet in Soldiers.—After much experimentation and study, Fischer[3] has settled on a mixture of zinc oxid, 5% to 10%; formalin, 1%; salicylic acid, 10%, and fat powder, for the treatment of sweating feet. This mixture is hygroscopic, perfectly bland, and very cheap. The powder does not irritate skin or mucous membrane; it makes the skin smooth and fine, the sweat secretion stops almost at once; the application is very easy. The foot is first washed with a 1% alcoholic solution of salicylic acid; the powder is then rubbed well into the foot, some of it being strewn into the shoes; during the period of treatment the washing of feet is forbidden; recovery is usual within a week. It is necessary to return to the use of the powder occasionally, to prevent recurrence. The effect is to dry and harden the skin. Felt soles are forbidden, as they act as a warm, moist dressing. If the shoes get wet, they dry out very quickly if packed in hay or straw. [E.L.]

Endovenous Injections of Corrosive Sublimate in Septic Infections.—A. Cecchini[4] advocates this method of counteracting secondary infections, reporting many cases managed so, by the "Baccelli treatment," which causes an immediate favorable effect on the temperature curve—before, jagged and dentate—afterward, irregular, low, and tranquilizing. In endocarditis of relapsing type, and due to puerperal infection, complicated by pelvic peritonitis of tubal origin the clinical notes show direct and interesting improvement following injections at four-hour intervals over the course of three days. With another case, diagnosed as septicemia of rheumatic origin and developing *in puerperio*, the writer obtained equally good results; and after all it is result, not theory which counts in human medicine. Still other cases are reported, some of mitral infection subsequent to tonsillar rheumatism, and others of septicemia the outcome of pneumococcic inflammation of the amygdala. In conclusion it is said that the best results are gotten by small, broken doses of the salt, and in cases of some form of coccus infection. In cases of acute eberthian infection, many severe symptoms are quickly reduced; and in view of the excellent experimental results, the writer believes that hydrargyrum chloridum corrosivum will receive wider use than so far has been common. Among all the cases so treated there have been but two instances of gingival reaction, and ordinary precautions ought to guard against any severe trouble of this sort. [T.H.E.]

Treatment of Furunculosis and Folliculitis with Yeast.—Where acne, furunculosis, and folliculitis are due to an infection from within, that is, through the circulatory stream, A. Mirchbauer[5] gives yeast preparations by mouth; levurinose has given him excellent satisfaction. If the infection is from without, internal treatment does not achieve much; in such instances he employs yeast soaps, and best of all is a combination of yeast, salicylic acid and sulfur. Combined treatment is indicated where it is difficult to determine whether the infection is from within or without, or where there is absorption through the lymph vessels after an infection from without. [E.L.]

Diet of Hyponormal NaCl.—According to A. Carducci,[1] there are seven indications: 1. Nephritis, acute, subacute, and chronic; but it does not directly affect the elimination of albumin nor uremic symptoms. 2. While not aiding in treatment of orthostatic albuminuria, cases of leukemic albuminuria have been rapidly relieved. 3. In cases of exudative pleuritis,—but never during the febrile period. 4. Hepatic cirrhosis. But if long standing, paracentesis must be our coadjutor, and in such extremities no transudate is desired, so that failing appetite and increase of ascites are contraindications. 5. In cardiopathic edema only selected cases do well; in general the restriction of salt is inadvisable. 6. In arteriosclerosis, cerebral, cardiac, or renal localization indicate, while the stage of general hypertension contraindicates. 7. Epileptics may be benefited only on the condition that bromid is administered synchronously and without the bromid salt, sodium restriction is harmful. Basile reports that cases of cardiac failure of compensation may quickly recover under this special diet, combined with mild diuretics. For diet, Carducci recommends:

(*a*)

Milk	1000.0 gm.
Bread, without salt	300.0 gm.
Butter, without salt	300.0 gm.

which is valued at 2,600 calories. Or

(*b*)

Milk	1500.0 gm.
Bread, without salt	300.0 gm.
Meat	300.0 gm.

which is valued at 2,280 calories. The Achard chloridometer is to be used. [T.H.E.]

The Action of Stomach Bitters.—The belief in bitter tonics as appetizers and digestants is very widespread among the laity and the profession. Older physicians used to prescribe them for all sorts of disorders, while at present the field of their use has been somewhat narrowed down to gastric diseases. N. D. Strajesko[2] made a series of experiments on animals, in order to clear up certain vexed features of the controversy as to the exact action of the bitters. The practical conclusions reached by him are: (1) The bitter tonics should be given in small doses. Large quantities will often defeat the purpose, and if used for some time may lead to hyposecretion; (2) in prescribing bitters, the chief aim should be to act on the nerves of taste. Therefore, the use of pills and capsules is nonsensical in this connection; (3) the bitters should be taken 10 to 15 minutes before a meal. [L.J.]

Treatment of Puerperal Infections by Turpentine.—In the treatment of puerperal infections the want has been felt for an antiseptic with little toxic effect on the human organism. M. Fabre[3] believes that this agent has been found in oil of turpentine, which he uses by intrauterine and hypodermic injection in streptococcal infections. Turpentine has been found to have marked antiseptic and antiphlogistic powers, which are exercised especially on the streptococcus. If the inflammation is local, the author employs an intrauterine douche of 15 cc. each of turpentine and alcohol, mixed with a liter of sterile water. If burning sensations are produced in the vagina and vulva, they may be avoided by a simultaneous vaginal lavage with sterile water. These injections should be made twice daily, and continued even after the temperature has reached the normal point. In cases where the infection has spread beyond the uterine cavity, the author employs subcutaneous injections. A mixture of 1 cc. each of turpentine and alcohol is agitated with 200 cc. normal saline solution, and is injected into the cellular tissue of the abdominal wall. This treatment is to be repeated twice daily. [B.K.]

Treatment of Syphilis by Inunction.—H. Rayner[4] uses an ointment containing unguent. hydrarg. fort., gr. 30 and adeps benzoat. gr. 25. The exact amount is wrapped in waxed paper.

[1] British Medical Journal, July 15, 1905.
[2] Il Policlinico (Rome), July 9, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 945.
[4] Il Policlinico (Rome), July 2, 1905.
[5] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 18, 714.

[1] Il Policlinico (Rome), July 2, 1905.
[2] Russki Vratch, March 26, 1905.
[3] Lyon Médical, August 6, 1905.
[4] Journal of the Royal Army Medical Corps, June, 1905.

In private practice he substitutes lanolin for the lard. Before inunction, the parts, including the hands, should be thoroughly washed in soap and water or dirt is rubbed in, resulting in a cutaneous eruption. The inunction should last 20 minutes, with fairly strong pressure. If the patient is in bed, inunction is inadvisable, as he breathes in mercurial vapor, thus producing anemia and ulcerated gums. Patients should be in the open air as much as possible, and should walk six miles daily. The diet should be full; a pint of beer or stout is advisable. The duration of the course varies with the severity of the disease and ability to bear the treatment. There should be daily inunctions from 40 to 60 days, according to the quickness with which the patient reacts. A weekly record of the weight should be kept. If weight is lost or anemia appears, the treatment should stop for three or four days, and a tonic be given. It should be remembered, however, that syphilis itself causes anemia. The patient should use a tooth brush and antiseptic tooth powder three or four times daily, and every two or three hours a mouth wash. The writer discusses the treatment of ulcerated gums. In the first three years he gives 160 to 170 inunctions in six courses, soldiers being glad to submit in order to get a clean bill of health. He rarely uses potassium iodid in the first two years. He believes that inunction is better for syphilis in military hospitals than any other treatment, if carried out with strict attention to detail. [H.M.]

Therapy and Prophylaxis of the Diseases of the Alimentary Tract.—Klemperer,[1] with his uncommon flair for practicability, takes up in detail the different elements of diet, and shows plainly how these are to become effective weapons for medical purposes. In each patient there are idiosyncrasies to be appreciated, and inherited susceptibilities; for the muscular and mucous layers show a distinct reaction to special foodstuffs always to be regarded. Food is easiest to digest which is easiest comminuted. A liquid which does not coagulate is better than one which does; compare beef juice and milk. Lime water will militate against the tendency of flatulence. This is given in the milk—two teaspoonfuls to the cup. Sour milk is an excellent addition to the dietary, while buttermilk, a comparatively fat-free mixture, is less nutritious in proportion. Solids are considered according to their masticatability, and vary in digestibility directly so. Raw meat is better than cooked forms, because with the lessened amount of watery elements there is an increase of salivation required. Rye bread is for most of us less digestible than wheat bread. Taste and smell are valuable stimuli to digestion and must be regarded. Crust is better than center, and biscuit often, than bread. With meat, freshly killed fiber is less easily assimilated than that which has been kept a few days; and yet after putrefaction, again the scale is lowered, because the putrefactive process will continue in the alimentary canal. Of all parts, the iliopsoas and the gluteals form the best. The thymus and the brain are easily assimilated, but the liver, kidney and spleen are not. Salads are difficult, because of their oily composition. River fish are good, while the fatty fish, such as salmon or sole require more energy. Herring are dependent on mode of preparation. Shell fish are difficult. Oysters must be well masticated. The values of vegetables are shifting and must depend on mode of preparation. Of cheeses, the easiest is Camembert and Gervais; Swiss and Roquefort are difficult. Very small quantities of beer, or wine, are valuable. These are stimulants of the gustatory and olfactory nerves and also aid in the reflexes of internal secretions. But in overamount the effects of alcoholic compounds are very dangerous, and concentrated forms of alcohol are to be regarded with less approval than weak solutions. Uncolored oleomargarin is less well borne than true butter of common tint, and here enters the element of sensibility. Mistakes in treating gastric disorder may arise in neglecting the psychic relations. Reflexes are to be sought out. Medicaments are to be advised for temporary use, *e. g.*, dilute hydrochloric acid or pepsin and other ferments. The purely temporary value these have, must be reiterated. Lavage can be overdone. The intimate relation between the stomach and the nervous system receives the author's final word, and here he counsels wise and far-seeing study. [T.H.E.]

[1] Il Policlinico (Rome), August 6, 1905.

The Action of Silver Nitrate on the Gastric Juice.—From a series of experimental researches, A. A. Baibakon[1] draws some practical conclusions regarding the administration of silver nitrate in gastric diseases. The most interesting effect of this remedy is the increase of total acidity and of HCl in the gastric secretion. Even in conditions of hyperacidity, this increase takes place. Hence, all diseases with hyperacidity contraindicate the use of silver nitrate. Such are, among others, Reichmann's disease (gastrosuccorrhea) and the round ulcer. In these conditions, the routine use of silver nitrate is a great mistake. On the other hand, in diminished acidity, silver nitrate is a valuable remedy, which also appears to have certain anticatarrhal virtues. Furthermore, silver nitrate has a distinctly antifermentative action, and is, therefore, indicated in excessive fermentation. Another desirable effect of the remedy is the accelerated passage of the food through the stomach, suggesting its administration in torpid conditions of the gastric musculature. As to dosage, the author has found that small quantities (0.002 thrice daily) often exercise a beneficial effect, rendering the employment of large doses (0.03 thrice daily) seldom necessary, and thus lessening the danger of argyria. The mode of action of silver nitrate on the stomach remains as yet obscure. Possibly it stimulates the glands directly, although it is not to be denied that the drug may be taken into the blood and may then act on the central or the peripheral nerve-endings of the gastric nerves. [L.J.]

Paraganglin in the Rectal Prolapse of Children.—Miserocchi[2] reports seven observations and 100% cures. Other writers are adding to the favorable opinion the use of injections of this substance has attained. Two rectal injections are made daily. Surgical intervention is unsatisfactory, and the author believes unwise. Pagliari, Benati, and Fedele agree. There are no cases of idiosyncrasy or intolerance reported. [T.H.E.]

A New Field for Radiotherapy: Goiter Treatment.—Goiters should react very favorably to treatment with röntgen rays, in as much as they are covered with only a thin layer of tissue, so that a large part of the active rays is able to penetrate the glandular structures, and because they contain many abnormal cells, which according to our experience with other structures are easier destroyed by röntgen rays than normal cells. L. Goerl[3] exposed eight patients afflicted with goiter to the röntgen rays; in the first patient's case the neck diminished two inches after four exposures lasting ten minutes each; after some months the lateral enlargement had entirely disappeared. In all the other cases the neck improved in appearance, and many of the subjective symptoms disappeared. The length of time of the treatments was never greater than 10 minutes, the distance was usually 10 cm., and the interval between treatments was from four days to three weeks. [E.L.]

Hemoptysis.—Hislop-Thomson[4] advises moderate or small hypodermic of morphin, followed at once by the application of ice to the chest wall at the probable seat of hemorrhage. It is good to have given a rectal injection of water containing from 2 gm. to 3 gm. of calcium chlorid. The patient is to remain quiet in a half reclining posture, in a room well ventilated and of medium temperature. [T.H.E.]

ORTHOPEDIC SURGERY

H. AUGUSTUS WILSON

EDITORIAL COMMENT

Congenital Club-foot with Tardy Evolution.—The physician is frequently consulted regarding club-foot in young infants, and an idea as to the precise indications for treatment is always useful, especially in the type of this affection having a late evolution. This distinctive quality is most important to identify, because beside the congenital club-foot met with in newlyborn infants, there exists another form which develops very

[1] Russki Vratch, August 20, 1905.
[2] Il Policlinico (Rome), August 13, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 944.
[4] Il Policlinico (Rome), July 2, 1905.

much later, although the anatomic condition of the structures producing it is present from birth. The club-foot with tardy evolution is frequently mistaken for the acquired paralytic form of the affection, from which it differs essentially. The differentiation is made from the fact that in paralytic club-foot the deformity can be reduced, only to recur as soon as reduction is accomplished. In congenital club-foot complete reduction is quite impossible, on account of the existing lesions, more especially retraction of the tendons. This latter condition often continues to become more accentuated, and consequently an early operation may become necessary. But it is to be noted that at birth the feet are naturally deviated inwardly, and this defect is easily reduced. The error in diagnosis is easily avoided, and if the deformity is slight, a cure may be obtained by massage, passive movements, and some light apparatus. On the other hand, if the condition is marked it is preferable to operate at an early date. One should, however, wait until the life of the infant seems assured, that is to say, the second month or even later, according to the general condition and strength. The longer operation is deferred the more the deformity becomes accentuated, and in cases where the lesions were simply of a fibrous nature in the beginning, as time goes on the bones become involved and may necessitate tarseotomy. On the contrary, an early operation will usually consist of tenotomy of the tendon-achillis, and is quite sufficient to effect a permanent cure. The important point for a successful outcome is the immediate application of an apparatus. The tenotomy is not merely intended to overcome the resistance of the tendon, but to obtain its elongation as well, so that if the application of the apparatus is delayed for several days after the operation union of the severed ends of the tendon will have taken place and the end to be attained by the operation is lost. The leg should be placed in a favorable position, and the plaster cast is allowed to remain on for about four or five weeks, after which time it is replaced by some orthopedic apparatus, which in its turn can be done away with for good in a few weeks or months. It is, however, well to continue massage and passive movements for some time longer, and also to apply the apparatus at night.

REVIEW OF LITERATURE

The Knee in Coxalgia.—According to Latarget and Duroux,[1] pain in the knee in coxalgia may be due to the constrained position of the limb or to inflammation. The former occurs in the first stages of the disease, and is relieved by rest. The inflammatory gonalgia may either be due to a neuritis or to tuberculous rheumatism in the synovial sac of the knee. Various deformities and deviations of the knee may occur in the second stage of hip disease, as a result of static changes in the whole extremity or of faulty immobilization of the leg. These deformities include the flat knee, the recurvated knee, the back knee, genu valgum and varum. Certain precautions are necessary, immobilization or fixation of the extremity, in order that these deformities may be avoided. [B.K.]

Tendon Transplantation.—Since 1900 when Alessandro Codivilla[2] (Bologna) published his first work, indicating the success of this treatment of certain forms of infantile paralysis, especially those of spinal origin, various advances have been made, but not without the opposition of a few men of renown, notably Lorenz, Kirmisson and Rehn. The writer does not agree with those who prefer a mere mechanical interference such as straightening and modeling with retention appliances. He reports over 325 orthopedic operations. There are certain factors to account for: (1) The faculty of muscle sense, which gives the feeling of strength; (2) inhibitory impulses; (3) muscle sense of receiving power. These establish the state of tonicity, and must be adapted to the new conditions, that which undoubtedly does occur through centric modification. Related groups of muscle fibers are to be chosen. [T.H.E.]

[1] Lyon Médical, January 10 and 17, 1904.
[2] Il Policlinico (Rome), No. 24, 1904.

Scoliosis after Sciatica.—Ehret[1] says the typic scoliosis after sciatica is a heterolog scoliosis; it is purely of statomechanical origin, and is due to the shortening of the diseased limb, corresponding to the "self-helping position" of the earlier writers. Other forms of scoliosis are produced by distinct conditions which influence the primary position of the leg and the primary position of the pelvis in one way or the other, but have nothing whatever to do with the scoliosis after sciatica. [J.F.]

The Pathology of Lateral Curvature of the Spine.—G. C. Steele-Perkins[2] states that in those cases in which there is lateral deviation without rotation, no structural changes are present; they are only weakness and want of development. In cases in which there is lateral deviation with rotation, the changes present are dependent upon the amount of rotation; in slight cases little more than muscular wasting and relaxation are noticed, but in advanced cases the change includes alteration in the thickness of the bodies of the intravertebral discs. In severe cases the bodies of the vertebras become dense in structure on the side of the concavity and their cancellous tissue becomes compact. The spinal muscles in cases of long standing are often found to have undergone fatty degeneration and fibroid changes may occur. The thorax has its respiratory capacity much diminished and the viscera undergo alteration in position. The pelvis is more or less altered in shape and the lumbosacral angle trespasses either on the right or left of the cavity according to whether the convexity of the curve in the lumbar region is on the one side or the other. A compensatory curve always follows the development of a primary curve, and in treatment it is important to know which is the primary and which the secondary curve, because attention is first directed to the correction of the secondary curve, and later of the primary curve. Occasionally a third curve may exist, in which case treatment is directed first to the last curve which appears, then to the second, and lastly to the primary curve. [A.B.C.]

The Misuse of Tendon Transplantation.—H. Oppenheim[3] reports three cases to show the mistakes made by orthopedists in tendon transplantation. He states that the operation should be restricted to those cases in which the disease has run its course, and is stationary. Of the patients which came to his notice, two had been operated upon for relief of the paralyzed conditions, which resulted from progressive muscular atrophy in the one case, and from chronic anterior poliomyelitis in the other case. The third patient was an old woman who had had pain and weakness in the left leg for some time. A wellknown orthopedic surgeon performed an operation upon her for transplantation, in spite of the fact that similar symptoms were beginning to develop in the other leg. Oppenheim saw this patient several months later, when he made a diagnosis of a malignant growth pressing upon the lumbosacral cord, which caused the above symptoms. This diagnosis was confirmed by a röntgen-ray photograph. Oppenheim concludes that it is the duty of a surgeon or orthopedist who intends to perform an operation for transplantation, first to determine positively whether the disease has come to a final standstill, or is still progressive. [W.E.R.]

Treatment of High Pott's Disease.—C. F. Eikenbary[4] says this term should include all lesions above and including the third dorsal vertebra, because some form of head support is required. Most head supports and jury masts very illy answer the purpose for which they are applied, immobilization not being secured. Eikenbary has devised a brace made of stockinet and celluloid that gives satisfactory support. It accurately fits the trunk, neck, and posterior and lateral aspects of the head; a band of webbing passes around the forehead and immobilizes the head. It is very light, not weighing more than a pound. The jacket is made over a mold formed in a plaster jacket, which has been accurately applied to the patient and cannot fail to be a perfect fit. The stockinet and celluloid are applied alternately, 9 or 10 layers being sufficient. The celluloid solution is made in acetone and should have the consistency of cream; it should not penetrate either the inner or outer layer of the cast. [A.G.E.]

[1] Mitteil. a. d. Grenzgebiete d. Med. u. Chirg., 1904, Bd. xiii, Heft 1.
[2] The Lancet, September 24, 1904.
[3] Berliner klinische Wochenschrift, February 13, 1905.
[4] Medicine, July, 1905.

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The Yellow Fever Germ.—During the epidemic in New Orleans an opportunity has been afforded for careful study of conditions leading to the infection, with the result, it is believed, that the causative microorganism has been isolated and identified. The work has been conducted at the emergency hospital by Drs. P. E. Archinard, J. Birney Guthrie, and J. C. Smith. Corroborative proof of the reliability of the work is afforded by diagnosis from the blood of patients before the onset of acute symptoms. The life history of the organism discovered by Dr. Archinard has been followed, and its presence in the blood of patients confirmed. Dr. Archinard has kindly promised to make *American Medicine* the medium of publication of his experiments and results when he has these systematized. The results of the discovery cannot be fully calculated as yet, but it will have a far-reaching influence on all tropic enterprises. Dr. Archinard and his colleagues deserve the highest recognition of their work, which lends additional luster to the already high achievements of the profession in America.

Graveyard insurance has now come into the investigation being conducted by the Armstrong Legislative Committee in New York. It is said that there is evidence that this form of fraud has been quite extensive, and that there has been criminal collusion between agents and officers of certain unmentioned companies. As a few physicians are reported to have volunteered information as to uninsurable cases which have been insured, the matter is one which vitally touches a large part of the medical profession. So far as known the cases are not those demonstrating any moral fault on the part of the examining physician, but rather the certifications of health were the results of incompetence and inexperience, or, perhaps, carelessness. That is, there was some disease which was known to the applicant and agent, but which showed itself mostly by subjective symptoms, which were concealed from the examiner. The diagnosis, therefore, would be an easy matter for the family physician, even in the early stages, but practically impossible for any other diagnostician from whom the subjective symptoms were so carefully hidden. The question naturally arises whether there are any diseases which can be successfully concealed from a competent examiner such a short time before death. In the very early stages when concealment is possible, the patient is not apt to know that he is sick, and for some time later even the family physician himself would be in doubt in the usual run of cases. Nevertheless, it is perhaps safe to say that as soon as it is definitely known that there is present a disease which is sure to be quickly fatal, there are objective signs which a competent examiner should notice. There are exceptions, to be sure, but it is not likely that all these cases would be able to reach dishonest agents.

Insurance frauds will always be attempted, but should be rarely successful, and if they are as numerous as claimed, it means that the examiners are grossly incompetent, or parties to the fraud. In whatever light we look at the matter, there is but little doubt that if the companies would pay suitably for the expert opinions of competent men of experience, graveyard insurance would be a rare crime quickly followed by prosecution. The profession should resent the imputation that so many fatal diseases can be successfully concealed from a competent physician; diagnostics is too accurate a science for that. The family physician has confidential knowledge of his cases, and it is a fixture of legal practice and medical ethics that such privileged knowledge shall never be used either for or against the patient. The insurance companies must, then, hire experts able enough to make a diagnosis, and shrewd enough to elicit subjective symptoms without calling on the family physician. The military surgeon has the same problem in examining recruits, who invariably conceal defects, but he is held responsible and is compelled to pay the government for any expenses it incurs through his errors. He has every motive to become a good diagnostician on objective evidence and what subjective symptoms he can worm out of the applicant. It is a specialty requiring years of experience for expertness. Pension examiners have the opposite problem of detecting assumed disabilities. If they are imposed upon in the same proportion of cases as the insurance examiners are said to be, the government must be paying an enormous number of fraudulent pensions. It is likely also that graveyard insurance is much more rare than the lay press is inclined to believe. Nevertheless, there seem to be occasional cases of improper insurance without criminal intent, a matter to which we have pre-

viously alluded. Some of them might be prevented and the insurance expenses reduced to this extent.

The Catholic doctrine as to destruction of a fetus has been explained by Mr. W. P. Whelan, of Omaha, professor of medical jurisprudence in Creighton Medical College. His first letter, which appeared in *The Journal of the American Medical Association*, June 10, was written to correct a statement made in that journal of May 20, by Dr. R. W. Holmes, of Chicago, who, in the course of an article on another topic, incidentally mentioned that the Church not only forbade craniotomy upon a living fetus, but also prohibited operations for extrauterine pregnancy. Mr. Whelan explained that the latter prohibition was not so broad, but was limited to a living fetus which had not yet reached a viable age, in which case the surgeon must wait. Should the fetus be dead, it may, of course, be removed at any time, but if it is living, nothing but delay is permissible, as that is the only way to give consideration and protection to both lives. In a second letter, published July 8, in answer to an inquiry of Dr. J. H. Baldwin, of Columbus, Ohio, Mr. Whelan further explains that after an ectopic fetus is viable, operations may be done in a case of necessity, and, as he had previously mentioned the induction of premature labor in extrauterine pregnancy, it is not at all clear what he means. Practically, every extrauterine pregnancy is a case of necessity demanding operation, without which the fetus cannot be saved, even in the very rare cases where it is viable. We confess to some hesitancy as to commenting upon premature labor in such cases. An interstitial rupture into the uterus is probably never recognized. He also states that even after rupture of the sac, operation is not permissible until the fetus is viable or dead, and that delay even here is imperative until the surgeon can determine the fact of death. At the same time, he implies a doubt that the surgeon can ever be sure that death has occurred, although it is known that survival of a fetus after rupture of the sac is so rare as to be a curiosity of medicine, and that the slightest delay may allow the woman to die of internal hemorrhage. As all this means that nothing can be done at the time when it is possible to do something, we are much of the opinion that the matter is far from being explained, and that every Catholic obstetrician should desire to have it cleared up.

Thou shalt not kill is the ancient theologic and social law upon which the Catholic Church bases its prohibition of an operation which aims at the destruction of any living fetus in order that the mother may live. It is well known that its uncompromising opposition to craniotomy has had a profound influence in Catholic countries in developing the various operations for cesarean section. The comparatively small mortality in uncomplicated cases has led surgeons to do the operation in conditions for which it is unsuited. Holmes' paper was written to show that in placenta prævia, though it lowered the fetal deathrate 30%, it trebled the maternal mortality, and that it must be confined to complicated cases, such as rigid os or pelvic contraction, and even then as a last resort because nothing else is possible. We cannot believe that the Church really advocates in extrauterine pregnancy any such course as will increase maternal mortality or will condemn the mother to sure death. Theology and civics both interpret the biblical law in its active sense, and reserve a lesser degree of culpability for him who passively permits a death which he can prevent. In times of danger, as when a man is drowning, the onlooker is very likely to lose his presence of mind and fail to do the thing which might have saved a life. He cannot be held responsible for failing to do that which a cooler man would have done, and if his failure had been deliberate, it is difficult, if not impossible, to prove it. Beyond all this, no one in danger can expect assistance as a right, but only as a favor. "Am I my brother's keeper?" is the ancient view which still persists. Indeed, advice or interference to help others who are ignorantly destroying themselves is generally resented. Active and purposive lethal injury to another is therefore the only natural crime recognized by divine and human law as murder. Ethically, death through passive neglect is no less a murder, but at least in the case of Christian scientists the courts hold it to be a very minor affair. The attitude of the Church was, therefore, quite in accordance with natural law and legal usages. Both mother and child had to work out their own salvation, and no one had any right to kill one to save the other. The physician who stands idly by and lets both perish has not, in this view, committed sin.

Professional judgment is now recognized, and it is not at all likely also that any Catholic parturient woman will tolerate a sinless obstetrician who would let her die in this way. She demands a sinner and will get one when she can do so. If two men are drowning and we can save one by pushing off the other, we might not care to do the act so brutally, yet in shipwrecks we invariably sacrifice the men to save the women. We are not wholly like the ass between two loads of hay. Is not the Church thus apparently insisting upon the impossible, if she really does assume the attitude which Mr. Whelan asserts? We are justified in thinking that he is mistaken, and when he refers to these operations as "crimes" we are quite sure he at least uses wrong words. The teaching of the Church, that a fertilized ovum has just as much right to live as any other human being, is natural and may in time be universally recognized by survival of only such types. People who believed that infanticide was wrong have been the only survivors in modern times. Yet the great majority of women do not accept the Church view and they claim the right to survive by destruction of the fetus when it is a question of one of them. In other words, if the right to live confers upon the fetus the right to destroy, then the mother has an equal right. The rights of the fetus are just as restricted as those of adults, none of whom can be tolerated if they are destroying others. The Church formerly denied that the physician could be the judge and executioner, and quite properly.

The present trend of theologic opinion seems to be in the direction of permitting the surgeon to do what is necessary, and also leaving to him to decide what is

necessary, "on condition that, *as much as can be*, the lives of the fetus and of the mother are carefully considered and protected." It looks as though the whole matter were already left to his professional judgment. He is human, and can be expected to do all that can be done. If nothing can be done for the fetus, after due consideration, he is sinless when he does not protect it. He is only required to do the possible. As far as we know, the church has not authorized any layman to decide how much can be done by the doctors, and Mr. Whelan's decision cannot be upheld by either doctors or priests. His opinion that waiting in ectopic pregnancy is protecting both mother and child, is quite erroneous, as it protects neither. We are safe in presuming that his theologic knowledge is equally defective. In all Christian churches the old, harsh decisions and doctrines are being softened and also modified to accord with modern science. There is some evidence that even the prohibition of craniotomy is being softened if not abandoned on account of its harshness to the mother, who above all others has the loving care of the Catholic Church. This matter, too, will eventually be left to the surgeon. "Thou shalt not kill" will not be considered to apply to him in this matter, any more than it applies to Catholic soldiers in the wars the Church has blessed. In both cases to kill is a sacred duty, in one to protect the mother, in the other to protect her home.

Is It an Overcrowded Profession?—We have never been thoroughly convinced that the American medical profession is becoming dangerously overcrowded. There comes to our desk this week a letter which suggests other problems than that of overcrowding, and we will give the address should some young physician apply:

> Our town is in need of an efficient physician, and it occurred to me that you might know of a man who might be pleased to locate here. We have two men who call themselves M.D.'s, but they fail to fill the bill. One is an infidel farmer, who practises medicine as a side line, the other practises when not drunk, and he is drunk on an average four days each week. We now have nine or ten cases of smallpox in town, and several of the patients were sick with it for three weeks before the doctors or we knew what was the matter; as a result, we are threatened with a regular siege. The worst case was that of our town barber. He was not seriously sick, but was a sight to behold, and for three weeks he shaved peoples' faces, and literally rubbed the disease in. It remains to be seen how many are infected as the result. The people are thoroughly disgusted with the doctors, and it is a most excellent time for a new man to enter the field. Should you know of a good man who would be equal to the occasion, you will confer a great favor upon the people by telling him to take the matter up with me. He would get good support. We have a thousand or more people here, and the place is progressing steadily and increasing in numbers.

Beriberi has been investigated by Dr. Hamilton Wright, Director of the Department for Medical Research, Federated Malay States, and abstracts of his official publications have appeared in the *Journal of Tropical Medicine*. The report deserves considerable study from the profession in America, for it is bound to have marked influence upon our conception of other diseases. It is one more illustration of the fact that pathologic studies in the tropics are of the greatest importance to every physician, even to him who never sees a case from the tropics. Briefly, it might be said that what has usually been called beriberi is not that disease at all, but merely one of its symptoms—neuritis, with its sequels. Wright's discoveries leave but little doubt that beriberi is an acute infection due to a bacillus which produces an inflammation of the pyloric end of the stomach, the duodenum, and occasionally scattered patches further along the intestinal tract. The toxins of this bacillus act atrophically on the peripheral terminations of the afferent and efferent neurons. The period of incubation may be as short as 10 days and the active stage of the organism is between three or four weeks. If the patient does not die early, as in the pernicious form, the bacillus disappears from the body and the damage done to nervous tissue by the toxins causes all the rest of the symptoms in the chronic forms, which is named beriberic residual paralysis. It is proved that dietetic errors are not causes of the disease, though there is a lingering suspicion that, as it usually attacks those who are suffering from nitrogen starvation and never afflicts well-fed Europeans, it is quite likely that well-nourished bodies are able to prevent the lodgment of this germ, as well as the majority of other potential enemies we constantly encounter. The bacillus apparently flourishes in certain places, such as dark, damp jails, and is easily transmitted when these are crowded, the filthy habits of tropic natives facilitating the transfer of the germ from one to another. All this has suggested diphtheria, and if the bacillus should subsequently show any relationship to the Klebs-Löffler bacillus, it is probable that Wright has caused the segregation of a new group of infections, of which our diphtheria is but one variety.

The prevention of beriberi now seems possible, if subsequent research should confirm the opinion of Dr. Hamilton Wright, that it is an acute infectious disease with a primary lesion in the mucosa of the duodenum analogous to diphtheria. Wright[1] describes the preventive methods used successfully in the Kuala Lumpur prison in the Malay peninsula, based upon the theory that the bacilli, which he so constantly found in the necrosed tissue of the mucosa in patients dying in the acute stage, are transferred from host to host by the bowel discharges. By ordinary methods of cleanliness, and by arrangements whereby excreta were properly disposed of, the number of cases gradually diminished and finally disappeared, although the disease remained epidemic in the surrounding district. He repeats the statement that diet is not a causative factor at all, as the prisoners had a ration of less nitrogen content than in the previous year or two. The old dietetic theory, then, must be limited to the increased susceptibility to any infection in low states of nutrition. The sanitary side of the matter is of considerable interest to Americans. The bacilli have not been found, except in the acute stage, and it is evident that cases imported into the United States, if in the stage of residual paralysis, are not infectious at all. This may account for the fact that the disease has never proved contagious in this country. As the bacilli are tropic residents, it is probable that if

[1] Journal of Hygiene, April, 1905.

they ever have been introduced here by an acute case, they were killed by chilling or other adverse conditions of high latitudes, after leaving the host. There is then no reason to believe that this tropic scourge will ever menace this country, and tropic people themselves are safe from infection if they follow ordinary measures of personal hygiene. There is even good reason for doubting the diagnosis among Europeans, now and then, the cases probably being neuritis from other causes.

Popular Medicine in Sweden; Linnæus and the "Strawberry Cure" of Gout; Wintergreen Cure of Rheumatism.—The land of Sweden, which at present enjoys so much of the sympathetic interest of politicians and philosophers, from the desertion of its foster child, is oftenest remembered by the student of natural history and science as the land of Linnæus. The Swedish section of the history of scientific medicine is not a large one. The name of Linnæus himself is probably known to most of our readers only as the great student of natural history, and the founder of the modern science of botany—not as the active medical practitioner which he actually was during the greater part of the period of his most original researches. As might be expected from a land and people of strangely romantic history, inspiring scenery, and somewhat uncanny meteorology, the folklore medicine of the people, the miracle treatment of the clerics, the faith cure of the quack pretender, and the witchcraft cure of the wrinkled sorceress—for a long time included the bulk of the practice of healing as carried out in that country. Herbal cures were largely employed by the people—of all the Scandinavian territories. One of the medicinal products of the vegetable kingdom largely used by the Swedish people is the wood strawberry; and the belief in the therapeutic value of this fruit has by no means been confined to the peasantry and the unlearned. Linnæus himself tells us that by eating of this fruit he was able to bring a violent attack of gout to a precipitate conclusion; and for the remainder of his life he consumed as many fresh strawberries as possible. There was thus good precedent behind the attempted boom of the "strawberry cure" of gout of the latter years of the past century—although the "discoverers" of that "cure" did not apparently care to quote it! A still more remarkable specimen of folklore prescience of recent discovery in scientific therapeusis is afforded by the Swedish appreciation of the wintergreen, which has, time out of mind, been recognized by the peasantry of that country as a "miraculous cure" for rheumatism, and is popularly known by the highly expressive epithet of, "Stat up ach gatt," (stand up and walk). The "devil's bit" here, as in other parts of Europe, had not only the credit of rare healing properties—in the plague as well as in minor diseases—but provoked his sable majesty so far by its power of resisting his malignant designs, that he bit off the root in a fit of impotent rage—hence the popular name. The galium verum having secured the epithet of "Our Lady's bed-straw" from the fact that the infant Christ was born on a hastily made bed of this flower, is dearly prized by the Swedish peasantry at the eventful period of parturition. An eyewash prepared from the juice of the parnassia cures the eyes of the lovelorn maid when weakened by excessive weeping, and renders the bright eyes of the conquering flirt more dazzling and destructive still. The longest of their green mosses, fontinalis antipyretica, is much used by the peasantry as a remedy in chest complaints; it is also regarded as a preservative against fire!

Some Swedish Medical Superstitions.—Among the various folklore specifics and preventives valued by the Swedish peasantry in the promotion of physical well-being are: The claw of the lynx, which when suspended from the neck, is an infallible specific against cramp; the scabbard of the sword of Charles XII's headsman, a small bite of whose leather cures an epileptic; and the cure of warts by the application of "grasshopperria"—respectfully chronicled by Linnæus himself. These specimens of animated nature stalk about "caudâ ensiferâ erectâ"—with sword-bearing tail erect and when one is applied to a wart and kept there till it bites and sucks a little of the blood, the excrescence disappears in a few days. There is a well in Småland still sacred to the "Holy Thor," which is devoutly visited for the healing properties of its waters on Holy Thursday (Ascension day). A curious transfer of the business of miraculous healing! In the olden times a procession formed, and walking round the miraculous spring, sang the words of a hymn: "Thor caused the waters to spring up; he possessed the might of a god; he cured a blind man by the mention of his holy name." The museum of Lund retains the shift of St. Margaret, which was used till late in the eighteenth century as the most effective aid (and anodyne) in the process of parturition. Christian I wrote humbly to the cathedral chapter for it when Queen Dorothea was so circumstanced. When tied round Her Majesty's waist, all went off happily!

Swedish Bath Systems in the Treatment of Rheumatism.—Rheumatism is a disease which has received a great deal of popular attention in Sweden, and has inspired the invention of very special forms of treatment. When Horace Marryat, who was personally a good deal interested in the ailment, visited that country in 1860, he noted several varieties of the bath cure. The "active principle" of one of these counterirritant mediums was the sea nettle (*Medusa aurita*). The practice of this cure had then made Marstrand famous and prosperous. He writes on the subject with evidently vivid recollection: "In cases of rheumatism or paralysis they are most efficacious, though if the limb retains any feeling, the process of friction is most painful, for these sea nettles sting and burn like flames of purgatory." Ant baths were used for the same purpose: "A pailful of the insects is poured into scalding water, which boils out the formic acid, yielding a strong perfume like smelling-salts, most beneficial to folks 'debilitous.'" And at Grebbestad, Horace Marryat underwent the green mud bath treatment at the hands of "an old Scandinavian witch of 60." He sat in waiting half undressed, when she entered, and "In a second she whipped off my pantaloons, and, having first poured some warm water

over a wooden settle, to make it comfortable, she beckoned me to follow her; then, as I sat thereon, wishing I had only the courage to tell a fib, commenced daubing me all over with a green, greasy substance, plastering my body from head to foot, grinning encouragement as an old bathing hag does to a child frightened at its first dip. 'Very fine mud, this,' chuckled she. Very fine, indeed—quintessence of rotten eggs and all corruption." Having scrubbed the material vigorously in with a brush, she took a heather hose and "pumped at me as though I were a house on fire, making me turn round and round, as if on a pivot, before her." Then followed a second brushing, a cold douche, doing up in towels, drying, dressing and receipt of a dollar—one-fourth for herself, and the experiment was concluded.

BOOK REVIEWS

Atlas and Textbook of Topographic and Applied Anatomy.—PROF. DR. O. SCHULTZE, of Würzburg. Edited, with additions, by GEORGE D. STEWART, M.D. W. B. Saunders & Co., Philadelphia and London.

This textbook varies greatly, both in style and text, from the usual works on this subject, either in English or German. Its style is of the narrative type, being practically the placing in print of the demonstrations of the author, of fresh material in hand, before his student classes. The illustrations are numerous and good. The many plates of the various His models, as made by Eteger, though having little direct reference to the text, are fully explained by the accompanying legends and would be of much value to the student who wished to study the models in the laboratory. Of especial interest are the chapters on the head and abdomen. The description dealing with the topography of the thorax and the gross anatomy of the perineum, are also noteworthy. The chapters dealing with the extremities, and the special sense organs, *i. e.*, eye, ear and nose, are too brief, both in anatomic and applied detail, to be of much practical value.

A Practical Treatise on Fractures and Dislocations.—By LEWIS A. STIMSON, B.A., M.D., LL.D. Fourth edition, revised and enlarged. Lea Brothers & Co., 1905.

Since the days of Hamilton's textbook, which was published in the early '70's, there has not appeared in English or German a work of so great value both to students and practitioners as Stimson's treatise. It approaches in quality to the highest type of monograph. Throughout it is marked by the individuality and original work of the author. It is replete with references, and is complete both in the general considerations of fractures and dislocations and in the detail of diagnosis, management and treatment. In this edition, the author has made use of his own tables of statistics, obtained from the Hudson State Hospital, omitting many of the tables of the older authors, but due reference is made to their results. The chapters on operative treatment of fractures of the patella, of the lower end of the humerus and of the carpal bones have been made much fuller than in previous editions. The arrangement of the book throughout is excellent, and it has the advantage of a good index.

Practical Pediatrics.—A Manual of the Medical and Surgical Diseases of Infancy and Childhood. By E. GRAETZER. Authorized translation, with numerous additions and notes, by HERMAN B. SHEFFIELD. Philadelphia: F. A. Davis Company, 1905.

To our knowledge, there is no other book on pediatrics which presents in so small a space such an abundance of practical and clinical material, pathologic and bacteriologic data, and details of etiology and diagnosis as this volume. Instead of rehearsing threadbare descriptions of the typic course of the diseases, the author has laid especial emphasis upon the numerous deviations from the type, which so often baffle the skill of the general practitioner. Among the translator's additions are sections on intubation, Lorenz's operation for congenital dislocation of the hip, bronchopneumonia, achondroplasia, home modification of milk, gonorrheal ophthalmia, tinea tonsurans, hydrotherapy, massage and electricity, climatology, palatable prescribing, antitoxin, several newer standard remedies, etc. The book will prove valuable, especially to the general practitioner, who, in his early career, is not always prepared to cope with the difficulties encountered in the management of diseases of infancy and childhood. It will also serve as a repertory for the candidate of medicine before his examinations.

A Textbook of Mechanotherapy.—By AXEL V. GRAFSTROM, B.Sc., M.D. W. B. Saunders & Co., Philadelphia, New York and London, 1904.

The second edition of this useful little work has been entirely rewritten, reset, and very much enlarged. Two chapters have been added—one on Massage of the Eye, Ear, Nose, and Throat, and the other on Pelvic Massage. Seventeen new illustrations have also been added. The author states that his object has been to present a work that would be useful as a textbook to students, trained nurses and medical gymnasts, and as a reference book for the general practitioner. In the description of exercises, he has succeeded admirably, but his therapeutic recommendations are not to be followed implicitly. It is possible to do much harm by injudicious exercise and mechanical movements, especially in cases of cardiovascular disease, and the author fails to point out with sufficient clearness these dangers and counterindications. Also, in many of the recommendations in other respects, there is a degree of enthusiasm which the reviewer cannot share. Nevertheless, the book is a useful one and to be commended within its limitations.

Wharton and Stille's Medical Jurisprudence.—Fifth edition. Three volumes. The Lawyers' Cooperative Publishing Company, Rochester, N. Y. 1905. Price, $18 net.

One of the earliest comprehensive works on medical jurisprudence issued in this country is the one with the title given above. Editions have succeeded each other until the present, the fifth edition, has been issued. Since the issuance of the first edition the work has held its place as the great authority on the subjects included in medical jurisprudence. The present edition is the result of the collaboration of specialists, who are eminent in the subjects upon which they have written. Volume I, of 1,031 pages, treats of Mental Unsoundness; Volume II, of 858 pages, treats of Poisons; and Volume III, of 692 pages, treats of Physical Conditions and Treatment. No book in the English language covers the scope of what is termed medical jurisprudence so comprehensively as does this.

A Textbook of Physiological Chemistry.—By CHARLES E. SIMON, M.D. Second Edition, revised and enlarged. Lea Brothers & Co., Philadelphia and New York.

The first edition of Simon's chemistry was well received by physicians and the revised work to a still greater degree merits their confidence. The same general lines have been followed, but many chapters have essentially been rewritten; this is particularly true of those on albumins, products of nitrogenous katabolism and gastric and tryptic digestion. An appendix of laboratory exercises, with references to the text, has been added. The book is again fully abreast of the times and is a reliable laboratory guide. The author's clearness of expression is particularly valuable in a technical work of this kind.

Progressive Medicine.—Edited by Hobart Amory Hare, assisted by H. R. M. Landis. Volume ii. June, 1905. Lea Brothers & Co., Philadelphia and New York.

The contributors to this volume, and their subjects, are: W. B. Coley, Hernia; Edward M. Foote, Surgery of the Abdomen, Exclusive of Hernia; John G. Clark, Gynecology; Alfred Stengel, Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Spleen, Thyroid Gland, and Lymphatic System; Edward Jackson, Ophthalmology. The illustrations number 48. All the articles represent the latest literature in the branches discussed, and are well written; that on gynecology appears the best. A department of pathology might well be added to this useful digest.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Bulletin Iowa Institutions.—Published quarterly. Vol. VI. Herald Printing Co., Dubuque, Ia., 1904.

Ophthalmic Neuromyology: A study of the Normal and Abnormal Actions of the Ocular Muscles from the Brain Side of the Question.—By G. C. SAVAGE, M.D., Professor of Ophthalmology in the medical department of Vanderbilt University, etc. 39 full-page plates and 12 illustrative figures. Keelin-Williams Printing Co., Nashville, Tenn.

The Surgical Assistant.—By WALTER M. BRICKNER, B.S., M.D., Assistant Surgeon, Mt. Sinai Hospital, Outpatient Department, etc. 360 pages. 122 original illustrations and 116 illustrations of surgical instruments. The International Journal of Surgery Co., New York, 1905. Price, $2 00 net.

Transactions of the Tenth Annual Meeting of the American Laryngological, Rhinological and Otological Society, held in Chicago, Ill., May 30, 31, and June 1, 1904.

A Manual of Acute Poisoning, together with Methods for Use in First Aid to the Injured.—By JOHN W. WAINWRIGHT, M.D. E. R. Pelton, New York, 1905. Price, 75 cents net.

A Laboratory Guide in Bacteriology.—By PAUL G. HEINFMANN, Sc.B., Fellow in Bacteriology, the University of Chicago. The University of Chicago Press, 1905.

First Aid in Illness and Injury.—By JAMES EVELYN PILCHER, M.D., L.H.D., Major and Brigade Surgeon of the United States Volunteers, etc. Ninth edition, revised, with 208 illustrations. Charles Scribner's Sons, New York, 1905.

American Edition of Nothnagel's Practice: Diseases of the Kidney, Diseases of the Spleen, and Hemorrhagic Diseases.—By DRS. H. SENATOR and M. LITTEN, of Berlin. Edited, with additions, by JAMES B. HERRICK, M.D., Professor of Medicine in Rush Medical College, Chicago. Octavo of 816 pages, illustrated. W. B Saunders & Co., Philadelphia and London, 1905. Cloth, $5.00 net; half morocco, $6.00 net.

Pharmacopeia of United States of America: Eighth Decennial Revision.—By authority of United States Pharmacopeial Convention, held at Washington, D. C., 1900. Revised by the Committee of Revision and published by the Board of Trustees. Official from September 1, 1905. Philadelphia agents, P. Blakiston's Son & Co.

Color-Vision and Color-Blindness.—By J. ELLIS JENNINGS, M.D., formerly Clinical Assistant, Royal London Ophthalmic Hospital; Professor of Diseases of the Eye, medical department, Barnes University, St. Louis, etc. Second edition, thoroughly revised, with illustrations. 132 pages. Crown octavo. Price, extra cloth, $1.00 net. F. A. Davis Company, Philadelphia.

Diseases of the Eye.—By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, medical department, Columbia University, New York, etc. Fourth edition, with 360 original illustrations, including 21 plates, with 60 colored figures. William Wood & Co., New York, 1905.

Merck's 1905 Manual of the Materia Medica.—A ready reference pocket book for the physician and surgeon. Merck & Co., New York.

Dental Surgery.—By A. W. BARRETT, M.B. (LOND.), M.R.C.S., L.D.S.E., Consulting Dental Surgeon to the London Hospital, etc. Fourth edition, with illustrations; P. Blakiston's Son & Co., Philadelphia, 1905. Price, $1.00 net.

Juggernaut: Christian Science Exposed.—By W. H. WATSON. Investigation Committee, publishers, Davenport, Ia.

Chemic and Microscopic Diagnosis.—By FRANCIS CARTER WOOD, M.D., Adjunct Professor of Clinical Pathology, College of Physicians and Surgeons, Columbia University, New York, etc. With 188 illustrations in the text and nine colored plates. D. Appleton & Co., New York and London, 1905.

A System of Physiologic Therapeutics: A Practical Exposition of the Methods other than Drug-giving, useful in the Treatment of the Sick and in the Prevention of Disease. Vol. XI.—Edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor of Clinical Medicine at Jefferson Medical College; Physician to the Philadelphia and Jewish Hospitals and to the Rush Hospital for Consumption, etc. P. Blakiston's Son & Co., Philadelphia, 1905.

The Drug Trade in Foreign Countries: Vol. XIV.—Reports from the Consuls of the United States upon the laws and regulations. Government Printing Office, Washington, D. C., 1898.

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A Manual of Clinical Chemistry, Microscopy and Bacteriology.—By DR. M. KLOPSTOCK and DR. A. KOWARSKY, of Berlin. Translated by THEW WRIGHT, M.D., of Buffalo. Rebman Company, New York, 1905. Price, $2.25.

Pathology and Morbid Anatomy.—By T. HENRY GREEN, M.D., F.R.C.P., Consulting Physician to Charing Cross Hospital, London. New tenth edition. Thoroughly revised by W. CECIL BOSANQUET, A.M., M.D., F.R.C.P., Assistant Physician to Charing Cross Hospital. Octavo, 606 pages. 348 engravings and a colored plate. Cloth, $2 75 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Diseases of the Skin.—By GEORGE THOMAS JACKSON, M.D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons (Columbia University), New York. Fifth edition, enlarged and thoroughly revised. In one 12mo volume of 676 pages, with 91 engravings and 3 colored plates. Cloth, $2.75 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Physiologic Chemistry.—By JOHN H. LONG, M.S., Sc.D., Professor of Chemistry in the Northwestern University Medical School, Chicago. Illustrated. P. Blakiston's Son & Co., Philadelphia, 1905. Price $2.50 net.

Psychiatry.—By STEWART PATON, M.D., Associate in Psychiatry at Johns Hopkins University, Baltimore. Director of the Laboratory, The Sheppard and Enoch Pratt Hospital, Towson, Md. Octavo 625 pages. Illustrated. Cloth, $4.00. J. B. Lippincott Company, Philadelphia and London, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

Council of War on Mosquitos.—Suggestions of ways to exterminate the mosquito will be sought at the second General International Sanitary Convention, to meet in Washington, D. C., October 9. All South American republics will be represented and many European scientists will attend. The program gives a large place to discussion of yellow fever, the plague, cholera, and malaria. Each South American republic will report on the sanitary conditions in its territory.

Personal.—Henry H. Donaldson, of the University of Chicago will act for the Wistar Institute of Philadelphia as professor of neurology. Though the board has not definitely acted on the appointment, it is considered that this will be only a matter of form. He will conduct work at the institute in January, February, and March, during which time he will have entire charge of that department. The action in securing the Chicago professor's services was taken at the recommendation of the Advisory Board of Anatomists.

Don't Want Invalids to Marry.—The homeopaths of New York have taken up the question of restricting marriages between persons who are not in normal health. The homeopathic physicians of Nebraska, Colorado, and Michigan have resolved to ask their Legislatures to pass laws compelling all applicants for marriage licenses to undergo a thorough physical examination before they are allowed to wed. At the last annual meeting of the New York State Homeopathic Association a committee, with Dr. Holen, of Yonkers, at its head, was appointed to take up the matter. After thorough inquiry this committee is preparing to report its results and conclusions.

Defective Vision in Army Recruits.—In view of the number of cases of defective vision found among recruits enlisted at recruiting stations, recruiting officers have been enjoined by the War Department to take special precaution in the examination of the eyes of applicants. Cases were reported where applicants prior to examination had committed to memory the letters on the test cards, thus securing a better rating for sight than that to which they were entitled. To obviate this in the future, it has been ordered that the cards for testing vision be kept locked up when not in use, or otherwise protected from access by prospective recruits. In all doubtful cases a small paddle with a hole in it of such size as to expose only one letter at a time should be used.

Yellow Fever at Belize.—At the request of the colonial office, the Liverpool School of Tropical Medicine has, with the consent of the university authorities, requested Professor Boyce to visit Belize, in British Honduras, to report on the sanitary measures in that colony necessary in view of the recent outbreak of yellow fever. Professor Boyce, who is now at New Orleans, will, after completing his observations of the methods employed by the Americans in combating yellow fever there, proceed to Belize. The latest mail advices from Brazil have brought news that both members of the yellow fever expedition of the Liverpool School at Manaos have been ill with yellow fever, one very seriously. The latter has now been invalided to Madeira to recuperate, but proposes to return to continue his work.

Drops Civilian Physicians.—The War Department has issued an order, effective September 30, discontinuing the practice of employing civilian physicians at recruiting stations. The fees to civilian physicians for this work have averaged $60,000 annually. Complaints from army officers of the bad physical condition of recruits have been increasing, and the government has been put to great expense in issuing equipment and paying transportation for men who had to be discharged before they had rendered any service. Under the new plan, recruits will be examined for physical defects by recruiting officers, who will follow strictly the manual of the army. On acceptance the recruit will be sent to the nearest post, where he will be put through a medical examination by the regular post surgeon. No equipment will be issued to him until he has passed this final examination. It is said that the government will thus avoid many pension claims.

EASTERN STATES.

New Woburn (Mass.) Health Board.—Mayor Reade, of Woburn, has appointed Dr. A. C. Lane, Dr. J. Henry Hutchings, and Dr. Charles T. O'Brien to fill the vacancies caused by his recent summary removal of the old health board. The decapitated board comprised William H. Keleher, George Buchanan, and Dennis S. Doherty. The ousting of the old health board, which was generally considered a competent working body, grew out of a recent hearing on sanitary conditions at Horn Pond. The mayor attended in response to a formal invitation and undertook to ask some questions of witnesses. The Board of Health maintained that if cross-examination was to be entered into, the board would attend to it. The mayor ousted the whole board as tainted with contempt and insubordination. The city solicitor maintains that his act was legal beyond dispute.

Boston Mortality Report.—The number of deaths reported to the Board of Health for last week is 200, as against 216 the corresponding week last year, showing a decrease of 16 deaths, and making the deathrate for the week 16.60. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 22 cases, 2 deaths; scarlatina, 10 cases, no deaths; typhoid fever, 36 cases, 8 deaths; measles, 14 cases, no deaths; tuberculosis, 44 cases, 18 deaths. The deaths from pneumonia were 14, whoopingcough 2, heart disease 15, bronchitis 1, marasmus 7. There were 15 deaths from violent causes. The number of children who died under one year was 58, under five, 74, of persons over 60, 44, deaths in public institutions 53.

Typhoid Fever in Massachusetts.—In the fifty Massachusetts cities which have more than 10,000 inhabitants each, there were 19 deaths from typhoid fever last week. Of these 8 occurred in Boston. While some of the cities are stricken more severely than others, the situation is not serious. The cities which have suffered the most are Boston, Beverly, Cambridge, Rockland, Springfield, Waltham, Woburn, and Worcester. Several cases have occurred in each of these places during the last few days, but such outbreaks are expected now when people are returning from vacation. The State Board of Health, to which all cases are being reported, is keeping in touch with the infected districts, and aiding in the fight against the disease.

NEW YORK AND VICINITY.

Health of Montclair, N. J.—Since August 24, according to a statement issued by the Montclair, N. J., Board of Health, there has been no contagious disease in that town, and for the six months ending September 1 there have been but five cases of typhoid.

Erie Surgeons Elect Officers.—The Erie Railroad Surgeons' Association, at its meeting in New York City, September 18, elected the following officers: President, H. S. Cramer, of Ohio City, Ohio; vice-president, D. A. Currie, of Englewood, N. J.; secretary, J. A. Allis, of Upper Montclair, N. J.

Garbage Crematory Opposed.—An action has been brought by the Rockaway Park Improvement Company to make permanent a temporary injunction granted some time ago restraining the completion of the erection of a garbage crematory. Property owners in the vicinity say the crematory will be a great detriment to that section.

State Sanitary Officers to Confer.—The fifth annual conference of State sanitary officers held under the auspices of the State Department of Health, will take place in Albany, N. Y., October 4 and 5. The opening session will include addresses by Governor Higgins, Dr. Eugene D. Porter, State Commissioner of Health, and Attorney-General Mayer. Among those who will read papers are: Dr. F. F. Wesbrook, of Minneapolis, president of the American Public Health Association; John S. Fulton, secretary of the Maryland State Board of Health; Richard M. Pearce, H. D. Pease, Prof. O. H. Landreth, and Willis G. Tucker, of Albany; William H. Park, and George C. Whipple, of New York City, and Robert Spurr Weston, of Boston, Mass.

PHILADELPHIA, PENNSYLVANIA, ETC.

Thirty Cases of Smallpox.—Thirty cases of supposed chickenpox in Woodbury township, Blair county, Pa., have been diagnosed as smallpox, and steps have been taken to prevent its further spread.

Fewer Typhoid Cases.—There were 89 new cases of typhoid fever reported to the health authorities last week, compared with 152 the previous week. The number is the lowest that has been reported for any week since the first of the year.

Danger in Norristown Sewage.—It is reported that the Philadelphia Department of Public Health can do nothing to prevent Norristown establishing a sewer system to drain into the Schuylkill river and thus further pollute Philadelphia's drinking water. The State Department of Health will unquestionably take steps to protect the city's water-supply.

Milk Sanitation in Camden.—A company has been organized in Camden, N. J., to establish a sanitary milk plant in that city. During the past year the deathrate in children under 5 has exceeded 36% of the whole number born during that period. This undue mortality has been traced to a contaminated milk supply. The officers of the company formed are: President, Alexander McAlister; vice-president, A. Haines Lippincott; secretary, Howard F. Palm; treasurer, M. F. Ivins; counsel, Thomas P. Hurley; chemist, Paul H. Langner; and veterinarian, J. O. George.

Medical Inspector Sued.—Mary Fay has begun suit for $1,000 damages against Dr. Alfred C. Marshall, an assistant medical inspector of Philadelphia. She charges that when her youngest daughter was taken ill last July, Dr. Marshall was called in and diagnosed the case as diphtheria, and the child was sent to the Municipal Hospital. The inspector then put a diphtheria quarantine notice on the rear fence, and at the front of the house "negligently, carelessly, or wilfully" put up a smallpox warning. Mrs. Fay denies that her child had smallpox, and, as it was discharged from the Municipal Hospital in a few days, she contends that it is even doubtful whether it had diphtheria.

Bar "Medical" Companies.—The Postoffice Department has issued a sweeping order debarring from the mails a number of Philadelphia individuals and "companies" who pretend to be legitimate medical practitioners and institutions, but investigation of whose business has revealed their fictitious character. Those debarred by the order are: Dr. and Mrs. Wallace, French Remedy Co., Mrs. Dr. Gordon, Dr. Revere, Dr. J. Henry King, Mrs. Dr. Davis, Mrs. Butz, Mrs. Wilson, Dr. Garmo Company, Dr. Rober, Dr. Rogers, Dr. and Mrs. Good, S. Regan, Atlantic City. In the opinion of the department officials, this order will effect the closing of all such offices in Philadelphia.

"Mail Advice Physician" Sent to Jail.—Dr. Thomas Wallace was sent to jail for nine months for sending improper literature through the mails. A fine of $100 was also imposed. This was the first conviction in the crusade of the postal authorities against the use of the mails in advertising illegal operations. Several socalled "doctors" are under arrest, and will be arraigned for trial at the next term of court. Postal Inspector Malone wrote Wallace a test letter in the name of a woman from Altoona, and received advice and a circular. Wallace was sent a postal money order for some medicine, and as a result of further investigation he was placed under arrest. He protested that he did not know his business was illegitimate.

Want Water Sheds Patrolled.—Every water company in Pennsylvania will be asked by State Health Commissioner Dixon to patrol its water shed as a precautionary measure against outbreaks of typhoid fever similar to that at Nanticoke, which is giving the department so much concern. Dr. Dixon believes that if Maine can afford to pay wardens for the protection of its game, the water companies of Pennsylvania should be willing to put men on their water sheds at their own expense to protect the health of their consumers. The Johnstown Water Company has already promised Dr. Dixon to put a man on its water shed to prevent local infection. The shed that supplies Nanticoke, which is the cause of the typhoid epidemic in the town, is also being patrolled.

Cumberland Valley Medical Association.—The third annual meeting was held at Mount Holly Springs, Pa., August 29. V. M. Reichard, Fairplay, Md., presided. The meeting was well attended by representative physicians from the Valley and from Harrisburg, Pa., Winchester, Va., and Adams county, Pa. Major James Evelyn Pilcher, Carlisle, welcomed the association. Pilcher, Ramsey and Miller were named as a committee to revise the constitution and by-laws of the association. After routine business, the following addresses and papers were presented: The president's address, by V. M. Reichard, Fairplay, Md., "The Physician's Debt to His Profession." J. Bruce McCreary, Shippensburg, "Diaphragmatic Hernia of 21 Years' Standing." "Medical Lessons of the Far East," by Major James Evelyn Pilcher, Carlisle. "Our Relations to the World at Large," by Chas. F. Palmer, Chambersburg. "Eyestrain," Augustus C. Maisch, Hagerstown, Md. The following officers were elected: President, James Evelyn Pilcher, Carlisle; vice-presidents, D. F. Unger, Mercersburg; Augustus C. Maisch, Hagerstown; Geo. C. Borst, Newville; secretary, J. J. Coffman, Scotland; assistant secretaries, P. R. Koons, Mechanicsburg; H. C. Devilbiss, Chambersburg, and D. C. R. Miller, Mason and Dixon; treasurer, J. J. Koser, Shippensburg. The next annual meeting of the association will be held in Franklin county, time and place to be selected by the committee of arrangements.

SOUTHERN STATES.

Physician Missing.—Dr. William G. Ashby, of Norfolk, Va., surgeon for the Panama Railway Company, has been missing for a month, and his family fear he is the victim of foul play. He did not sail from New York with his ship on her last trip, and nothing has been heard from him since.

Prickly Heat in New Orleans.—The residents of New Orleans have been suffering in a remarkable and unusual degree from prickly heat, an affection which in spite of the prolonged summer, is not very common there. It has been found that most of the sufferers had been experimenting with the arsenization method of preventing yellow fever, which consists in taking arsenic in small amounts daily for a long period of time, and many have attributed their discomfort to that fact.—[*New York Medical Record.*]

The yellow fever situation at New Orleans has improved to such an extent that two theaters have opened, two others will begin their seasons next week, and citizens are returning to their homes in increasing numbers. As the weather becomes cooler a steady decrease in the number of mosquitos will be greater, and the Marine-Hospital Service surgeons again express the belief that the epidemic will be stamped out before frost comes. The daily report showed 282 patients under treatment, the smallest number since August 8, when the federal authorities took control. The disease is dying out at Lake Providence,

4 new cases being the report of the day. There are 11 cases at Milligan and 6 at Shelbourne, East Carroll parish. The epidemic at Hamburg is spreading rapidly. Nine new cases are reported and 4 suspected cases. One death occurred. One positive and 6 suspicious cases were reported at Vicksburg, and the disease gained ground at Natchez and Gulfport. Thirty-four new cases of yellow fever were reported at Pensacola, Fla., for Sunday and Monday, with one death. The situation is discouraging. The cases are scattered throughout the city, and all hope of checking the disease before frost comes has been abandoned. Four cases of yellow fever developed aboard the steamship Bremen, which had just finished loading.

WESTERN STATES.

Typhoid fever has developed in the Topeka State Hospital for the Insane, five employes and one inmate being ill. The epidemic is probably traceable to the ice supply, which is obtained from Kansas river.

Chicago to Have Pure Food Show.—The Chicago pure food exposition will be held for three weeks, beginning on September 25, under the direction of the Chicago Grocers and Butchers' Association. There will be a temporary laboratory, in which the various food products will be analyzed in view of the spectators and lectures given on the quality of the ingredients.

Hereditary Appendicitis.—Six of nine members of a family named Dunn, in Marshall county, Ia., have been operated on for appendicitis in the last 18 months. There are three more children in the family, and these have symptoms indicating that they also must undergo an operation. A peculiar formation of the appendix is found in every case. Only one operation has been fatal.

Seek to Check Diphtheria.—Vigorous action is being taken by the Chicago Health Department to prevent a threatened spread of diphtheria among the school children. The disease is now prevalent in South Chicago, where there have been 100 cases in the last six weeks. The victims are nearly all school children, the majority of them attending parochial schools. Out of the 100 cases 10 have been fatal and 17 children are still seriously ill.

Chicago Health Laboratory is Ousted.—After having received seven orders to vacate its quarters in the Chicago city hall, and having six times succeeded in getting the order rescinded, the city health laboratory finally has been forced to move by order of the finance committee of the city council. All of the chemic apparatus, etc., is to be moved from the hall to the Galbraith building. The laboratory officials accept the final action of the committee without protest, and will begin to pack at once.

CANADA.

Permanent Army Medical Corps.—The Militia Council have approved of the establishment drawn up by Lieutenant-Colonel Fiset, Director-General of the Medical Corps, for a permanent army medical corps. The force will number 150 of all ranks, of whom 9 will be stationed at London, 10 at Toronto, 11 at Kingston, 9 at Montreal, 9 at St. John, 11 at Quebec, 9 at Fredericton, 20 at Halifax, and 10 at Winnipeg. The remainder will be located in the west at places not yet stated.

FOREIGN NEWS AND NOTES

GENERAL.

Hospital for Epileptics at Moscow.—It is announced that a hospital for epileptics at Moscow, Russia, is to be built at once with immediate accommodations for 150 patients, and possibility of its enlargement.

A memorial in honor of Professor Friedrich von Esmarch, the surgeon of the University of Kiel, has been erected in his native place, Tönningen in Schleswig-Holstein. Professor von Esmarch was present at the unveiling, which took place on August 6.

A Chair of Protozoology.—It is stated that the University of London has added to its teaching facilities a chair of protozoology, the money for its establishment having been raised from various sources, amounting in all to $35,000. This will be used for the salary of a professor, and further money will be provided for assistants and for the general expenses of the laboratory.

Difficulty in Finding Directors for Russian Clinics.—In the Military Medical Academy, St. Petersburg, there is being experienced a scarcity of medical men to undertake the duties in connection with certain special clinics. To fill the gaps the council of the Academy has proposed that *privat-docenten* should be invited to take up the work and they have been invited accordingly.

A Nothnagel Scholarship.—It is reported that the memory of the late Professor Nothnagel is to be commemorated through the establishment of a scholarship of $5,000. The income will be awarded each year as a prize for the best essay on such medical problems as may be proposed by the Senate of the University of Vienna. Should no essay be satisfactory, the money will be expended to encourage research on diseases of the intestines.

Disposal of the Dead.—Both burial and cremation would be abolished by Karl Schott, a Cologne engineer. He would place the corpse in a simple coffin—which might be made of concrete, reinforced with steel—and would then fill this with a quick-setting liquid cement. The silicic acid and lime of the cement would bring about immediate petrifaction, insuring preservation superior even to that of ancient Egyptian embalming. It is suggested that utilitarians may go still further and build the cement blocks into vast monuments that shall be the future cities of the dead.

An Indian Medical Journal.—Raghumath Vaman Bapat, with the cooperation of other assistants, intends to start in January, 1906, a monthly periodical, to be entitled, *The Hospital Assistant*. This will be cheap enough to reach the poorest hospital assistant and will contain beside other matters, leading extracts from the medical journals of Great Britain and America. The hospital assistants are among the recognized classes of medical practitioners in India, and are employed by the government for service especially in the small villages.

Personal.—The Emperor of Austria has made **Karl Toldt**, professor of anatomy in the University of Vienna, a life member of the Austrian House of Lords.—**Professor Podwyssotzki**, dean of the medical faculty of Odessa, has been appointed director of the Institute for Experimental Medicine at St. Petersburg.—The Ophthalmologic Congress, which held its annual meeting from August 2 to 5, awarded the Graefe medal to **Professor Hering**, of Leipzig, for his work in the domain of physiologic optics.—**Professor William Osler**, of Oxford, has accepted the post of Thomas Young Lecturer on Medicine at St. George's Hospital, and will give a series of lectures and demonstrations at the hospital next spring on the diagnosis of abdominal tumors.

The Elimination of Tuberculosis.—A member of the Brazilian Chamber of Deputies has proposed that a prize of $2,000,000 shall be offered for the discovery of a sure method of stamping out tuberculosis. The proposal has been approved by the Brazilian Parliament. The offer is large in scope, since the prize will be given to anyone, native or foreign, who shall discover a sure means of prevention or cure of syphilis, or tuberculosis, or cancer. The Brazilian minister of the interior will refer the proposal to a committee composed of a representative of the National Academy of Medicine, and four other members of kindred bodies in France, England, Germany and Italy.

OBITUARIES.

John G. Park, aged 67, of Groton, Mass., August 29, after an operation for gallstones, at the Worcester City Hospital. He was graduated from the Harvard University Medical School, Boston, in 1866. During the Civil war he served as acting assistant surgeon in the navy. He was a member of the Massachusetts Medical Society; superintendent of the Worcester City Hospital in 1871; assistant superintendent of the State Insane Hospital for several years; two years on the staff of the Hospital for the Chronic Insane, and superintendent of the Worcester Insane Hospital from 1879 to 1890.

Joseph M. Sheahan, aged 53, September 21, at his home in Quincy, Mass. He was graduated from Harvard Medical School in 1873 and continued his studies in France, taking a degree in 1879. He was a member of the staff of the Quincy Hospital; chairman of the Medical Board of Mem. Massachusetts Medical Society; member of the Board of Health, and of the Norfolk South District Medical Society.

Frederick A. Baldwin, aged 59, September 22, at his home in New York City. He was graduated from the Bellevue Medical College in 1881. He served in the Eastern Dispensary from 1886 to 1894, and was attending surgeon to the outdoor department of Bellevue Hospital from 1884 to 1895. He was assistant to the late Alexander B. Mott in the chair of chemic surgery in the medical college.

B. Frank Park, aged 28, suddenly, September 8, from cerebral hemorrhage, while making a professional call in his home city, Omaha, Neb. He was graduated from Rush Medical College, Chicago, in 1901. He was a member of the American Medical Association and an instructor in the Omaha Medical College.

Benjamin F. Green, aged 88, of Lynn, Mass., September 18, at the home of his daughter in Peabody, Mass. He was graduated from the Cleveland University of Medicine and Surgery in 1862 and from the Dartmouth Medical College in the 30's. He was president of the Essex County Homeopathic Society, and a member of the Massachusetts Society for Homeopathic Medicine.

Colin P. Dewar, aged 40, September 7, from uremia, at his home in Ottawa, Ontario, Canada. He was graduated from the McGill Uni-

versity, medical department, Montreal, in 1882. He was a member of the Canadian Medical Association and past president of the Ottawa Medico-Chirurgical Society and of the Ottawa Medical Society.

Samuel C. Allaband, aged 63, September 18, from paralysis, at his home in Philadelphia. He was graduated from the University of Pennsylvania in 1865. He was widely known in the southern section of the city. During the epidemic of smallpox in 1872 he made a record of treating 700 cases without losing one.

Robert Ormiston, aged 73, of Brooklyn, N. Y., September 19, at Stamford, N. Y. He was graduated from the University of Pennsylvania in 1858, and for 30 years he served as head surgeon of the Brooklyn Hospital. During the Civil war he served as surgeon in the Thirteenth New York Infantry.

James R. Chadwick, of Boston, suddenly, September 24, at his summer home at Chocorua, N. H. His death was the result of an accident, it being supposed that he lost his balance while walking on the piazza roof to obtain air. He was graduated from Harvard University Medical School in 1871.

Lewis E. Hanmore, September 19, from tuberculosis, at his home in Newburgh, N. Y. He was graduated from the College of Physicians and Surgeons, New York, in 1884, and was a member of various medical societies in Europe and America.

James M. Gist, aged 71, September 10, at his home in Beebe, Ark. He was graduated from the medical department of the University of Nashville (Tenn.) in 1860. During the Civil war he served as surgeon in General McRae's brigade, C. S. A.

Alexander D. Mackenzie, aged 45, of Portland, Oregon, August 25, from tuberculosis, at the St. Vincent's Hospital. He was graduated from the University of the State of Oregon, medical department, Portland, in 1894.

Benjamin Bowman, aged 68, September 21, at his home in Chambersburg, Pa. He was graduated from the New York Homeopathic Medical College Hospital in 1865; member of the American Institute of Homeopathy.

Edgar Worthington, aged 35, September 21, from kidney disease complicated with heart disease, at his home in Wilmington, Del. He was graduated from the University College of Medicine, Richmond, Va., in 1898.

G. M. C. Godfrey, aged 35, September 23, committed suicide by shooting, at his home in Fort McPherson, Ga. He was a graduate of West Point.

FOREIGN.—**Thomas John Barnardo,** aged 60, September 19, from angina pectoris, at his home in London. For 40 years he has devoted his energies to the poor of London, especially to the children. In this time he has rescued some 60,000 destitute children. The boys have been educated to become self-respecting and ambitious; the girls have been imbued with the idea of wifeliness, industry and motherhood. He was a fellow of the Royal College of Surgeons of Edinburgh, of the Royal Geographical Society, and a member of the British Medical Association. **Philip Henry Mules,** aged 62, September 1, at his home in Gresford, Denbigshire. He took his degree from the Edinburgh University in 1870. He devoted his attention specially to the eye, was surgeon to the Manchester Royal Eye Hospital and the Altrincham General Hospital.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended September 23, 1905:

POWELL, Major JUNIUS L., surgeon, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

MEARNS, Major EDGAR A., surgeon, will report to the commanding general, department of Luzon, Manila, for assignment to duty.

CRAIG, First Lieutenant CHARLES F., assistant surgeon, will report to the commanding general, department of Luzon, Manila, for assignment to duty.

DUNCAN, First Lieutenant LOUIS C., assistant surgeon, will report to the commanding general, department of Luzon, Manila, for assignment to duty.

HUTSON, T. OGIER, contract surgeon, will proceed to Iloilo, Panay, reporting to the commanding general, department of the Visayas, for assignment to duty.

The following changes in the stations of officers are ordered: First Lieutenant John B. Huggins, assistant surgeon, will proceed to Camp Gregg, Pangasinan, for duty. First Lieutenant Charles F. Craig, assistant surgeon, will proceed to Camp Stotsenburg, Pampanga, for duty. First Lieutenant Louis C. Duncan, assistant surgeon, will proceed to Fort William McKinley, Rizal, for duty. Contract Dental Surgeon Edwin P. Tignor will proceed to Camp Stotsenburg, Pampanga, for duty, relieving Contract Dental Surgeon George E. Stallman, who will proceed to Camp Wallace, Union, for duty.

MORRIS, Major EDWARD R., surgeon, is granted leave for one month, with permission to visit China and Japan, effective about August 15. On expiration of this leave Major Morris is authorized to await, at Nagasaki, Japan, the arrival of the transport scheduled to sail from Manila, P. I., on September 15.

HEREFORD, JOHN R., contract surgeon, is granted leave for three months, with permission to visit the United States, and with authority to apply for an extension of one month.

KELLOGG, PRESTON S., contract surgeon, is relieved from further duty in the department of Mindanao, and will report to the commanding general, department of Luzon, Manila, for assignment to duty.

MORRIS, Major EDWARD R., surgeon, is relieved from duty in the Philippines Division, in time to proceed on the transport scheduled to sail from this port on or about September 15, 1905, to San Francisco, Cal., where he will report, by telegraph, to the military secretary of the army for further orders.

SHEPARD, First Lieutenant JOHN L., assistant surgeon, is granted leave for one month.

DALE, First Lieutenant FREDERICK A., assistant surgeon, leave granted June 7 is extended one month.

CORNMAN, LEIGHTON R., contract surgeon, is granted leave for one month.

GARDNER, FLETCHER, contract surgeon, is relieved from duty in the Philippines Division, to take effect upon the expiration of his present leave, and will then proceed to Fort Crook for duty.

GATES, IRA E., sergeant first class, Fort Grant, when his services are no longer needed at that post, will be sent to Fort Stevens for duty.

WILLIAMSON, Captain LLEWELLYN P., assistant surgeon, is granted leave for two months and ten days from about September 20, with permission to go beyond the sea.

HATHAWAY, First Lieutenant LEVY M., assistant surgeon, upon his arrival at Seattle, Wash., will proceed to Vancouver Barracks and report to the commanding general, department of the Columbia, for duty as a witness before a general court-martial, and upon being excused by the court will report by telegraph to the military secretary of the army for further orders.

SCHALL, GEORGE H., sergeant first class, Fort Des Moines, will be sent to the depot of recruits and casuals, Fort McDowell, to report to the commanding officer and be sent to Manila, P. I., on the transport leaving San Francisco about October 5, for assignment to duty.

SHARMAN, HERBERT, sergeant first class, now at the depot of recruits and casuals, Fort McDowell, will be sent to Fort Des Moines for duty.

CASS, WILLIAM E., contract surgeon, now at San Francisco, Cal., is relieved from further duty in the Philippines Division and will proceed to Vancouver Barracks for duty, relieving Contract Surgeon Oscar W. Woods, who will proceed to Fort Bayard for duty.

KENNEDY, Captain JAMES M., assistant surgeon, leave granted August 16, is extended one month.

So much of orders of September 2, as relate to First Lieutenant JOHN J. REILLY, assistant surgeon, are revoked.

SHELLENBERGER, JAMES E., contract surgeon, leave granted August 18, is extended fifteen days.

DAILEY, JOSEPH, sergeant first class, now at Barnesville, Ohio, on or before expiration of furlough will report at Fort Niobrara for duty.

ESTERLY, MILTON T., sergeant first class, Fort Niobrara, upon expiration of furlough, will be sent to Fort Oglethorpe for duty.

A board of officers to consist of Major William H. Arthur, surgeon; Major Walter D. McCaw, surgeon; Major James D. Glennan, surgeon, is appointed to meet at the Army Medical Museum Building, Washington, D. C., for examination of officers of the medical department for promotion or advancement.

BRATTON, Captain THOMAS S., assistant surgeon, will report October 10 to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for promotion.

Changes in the Medical Corps of the U. S. Navy for the week ended September 23, 1905:

THOMPSON, J. C., and BENTON, F. L., surgeons, commissioned surgeons, with rank of lieutenant commander, from March 3, 1903—September 19.

GARTON, W. M., surgeon, commissioned surgeon, with rank of lieutenant commander, from March 12, 1903—September 19.

MCCULLOUGH, F. E., surgeon, commissioned surgeon, with rank of lieutenant commander, from June 9, 1903—September 19.

FURLONG, F. M., surgeon, commissioned surgeon, with rank of lieutenant commander, from June 20, 1903—September 19.

DE VALIN, H., acting assistant surgeon, resignation accepted to take effect September 20—September 20.

Changes in the Public Health and Marine-Hospital Service for the week ended September 20, 1905:

BANKS, C. E., surgeon, to proceed from Flomaton, Ala., to Magnolia Bluff, Fla., for special temporary duty—September 15, 1905.

STONER, J. B., surgeon, granted leave of absence for two days from September 16, 1905—September 15, 1905.

GOLDBERGER, JOSEPH, passed assistant surgeon, to proceed from Mobile, Ala., to New Orleans, La., and report to Passed Assistant Surgeon M. J. Rosenau for special temporary duty—September 19, 1905.

FOSTER, A. D., assistant surgeon, granted leave of absence for seven days from August 7, 1905, under paragraph 191 of the regulations.

PETERS, R. H., acting assistant surgeon, to proceed from Livingston, Guatemala, to Zacapa, Gualan, Las Ametes and Puerto Barrios for special temporary duty—September 13, 1905.

STEARNS, W. L., pharmacist, to proceed to Magnolia Bluff, Fla., and report to Surgeon Banks for special temporary duty—September 15, 1905.

Board Convened.

Board convened to meet at Bureau in Washington, D. C., on Monday, September 18, for the purpose of examining candidate for entrance as cadet in the Revenue Cutter Service. Detail for the Board: Assistant Surgeon J. W. Trask, chairman; H. McG. Robertson, recorder —September 15, 1905.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

Obstetrics and Diseases of Women.

FIFTH SESSION.

FERGUSON exhibited a pair of forceps designed by L. G. Barton, of Willsborrogh, N. Y. They are applied to the head of the child at or above the superior strait. Blade is attached to the shaft with a joint; can make rotation with them in any direction at or above the superior strait. They also serve the purpose of a Hodge or any other form of forceps; are perfectly rigid when once applied. Their only objection, at present, was the cost of their manufacture.

The Physiologic and Legal Status of the Fetus in Utero.—W. H. SANDERS (Montgomery, Ala.) said the two most important events connected with the life history of a being were its beginning and ending. The vitality, life force and physiologic functions of a new being reside within itself and not within the hostess. According to science and logic, if birth means the act of coming into life, nine months ago the child came into life. He suggested the substitution of birth or conception, thus simplifying legal matters bearing on this question. There is no point at which we can designate between a living and not living being. If it is a crime to assault and slay a child, it is more so if we slay a babe. He suggested: 1. The location of birth—where and when it actually occurs in these cases. 2. Placing a pregnancy from the first day of its probable occurrence to its termination upon the high legal and moral grounds it deserves to occupy. 3. Dignifying the position of the fetus in utero and establishing the same protection, moral and legal, as is accorded human beings who have completed their uterine existence. 4. Unifying the terms flexion, abortion and miscarriage under one term—premature delivery; *i. e.*, two expressions: (a) Delivery at term, and (b) premature delivery. 5. This would enable lawmakers to enact clear and definite laws for the protection of the fetus in utero, which juries and jurists would admit without doubt and confusion. 6. Have a marked tendency to promote virtue and prevent crime, and build up healthful sentiment and positive demand for protection of human life at its tenderest and most helpless period. 7. It would educate the people upon a subject in reference to which they stand in great need of education, and would thereby save the lives of many innocent and undelivered babes. The statutes on this subject recognize the right of the physician to produce an abortion in the right of the mother. Though practically every pregnancy could be properly brought to term by cesarean section, etc., it should never be performed for nausea, but used in cases of deformed pelves, etc. J. W. Williams has collected 385 of these cases with a mortality of 6.87%. In conclusion, Sanders mentioned the following propositions: 1. The conjunction of the male and female germs constitutes birth. 2. Abolishment of the term conception for the term birth. 3. The extreme gravity of never condemning to death, however young. 4. These principles should be informed to medical men, and students taught accordingly. 5. The statutes of the respective States are ample for the fetus in utero.

Discussion.—MARCY emphasized the general conclusions. Thought life of mother far more valuable than that of the fetus.

Carstens, as chairman of the Nominating Committee, reported the following nominations: Chairman, C. S. Bacon, Chicago; vice-chairman, E. F. Tucker, Portland; secretary, W. P. Manton, Detroit; House of Delegates, D. H. Craig, Boston, alternate, J. B. Eastman, Indianapolis. The report of the committee was adopted.

Present-day Methods of Conducting Labor Cases, and Results Obtained.—JOHN A. MCKENNA (Lansdowne, Pa.) gave a report of technic of delivery in private practice. He spoke of the distinct and radical advances in obstetric practice, and mentioned the marked decrease in the number of septic cases following labor, due to the improvement in technic, as one of the most noteworthy. He advocated the use of solution mercury biniodid in alcohol to swab out the uterus in cases of high temperature. If a piece of placenta is found it should be removed and the uterus swabbed out with the solution mentioned and gauze packing inserted. Curet when necessary, and perform vaginal section also when there is pelvic peritonitis. Best results are obtained from hysterectomy in gangrene of the uterus, myomas, etc. Cleanliness should be insisted upon; no vaginal examinations should be made without thorough washing beforehand, and swabbing out the vagina. All of his patients were delivered in the dorsal position. The fundus is grasped before the birth of the child, and held until after labor is over. No douches are given, vaginal or uterine, neither before nor after confinement, and forceps are used only when absolutely necessary. He considers that the position assumed in bed by most puerperal patients has much to do with the presence of septic fluids in the bed or stagnant fluids in the vagina, which may cause trouble later.

Discussion.—SHANNON (Seattle) thought we should treat all obstetric cases as surgical and take the same precautions and therefore have less trouble with them. He uses gloves during obstetric work. He thought we should wait at least 20 to 30 minutes before trying to expel the placenta and not expel it too soon; should scrub the external genitals and shave the parts the same as we would do if we were going to perform an operation. MCKENNA, in closing, stated that he had tried rubber gloves and had concluded they were of no value, because he could not control the perineum when he wore them. The placenta is expelled as soon as the cord is tied, which is done as soon as the pulsation of the cord has ceased. There are not so many after-pains following this procedure.

A Study of the Bony Pelvis.—EFFA V. DAVIS (Chicago) based her remarks on the results of observation of 150 cases, in which 73 of the patients were seen in their homes and 77 in her hospital. She reviewed the results of her pelvic measurements taken and compared the etiology and frequency of deformity and the varieties of deformity in the pelvis of American women as compared with others. She compared the effects of heredity, diet, education, and employment in these cases. She concludes that habits of American women played a large part in the development of deformed pelves, and this accounted very largely for the difficult labor and large children. She thought that deformity of the pelvis occurred often enough to make pelvimetry necessary in all cases; thought we should regulate the habits, employment, etc., of women who are pregnant.

Discussion.—HENRY (Omaha) suggested the tabulation of cases of this kind to get at reliable statistics. CARSTENS (Detroit) said there were other factors beside environment, food, habits, etc., causing some of these deformities. DAVIS, in conclusion, said that we probably took too good care of pregnant women and that they were too well fed, etc. Women who worked have smaller babies and easy labor, and vice versa; thought we could always limit the weight of the child born.

The Maternal Impression Superstition in Modern Obstetric Teaching.—EDWIN T. SHELLY (Atchison, Kan.) gave facts concerning the theory of maternal impressions, now nearly universally believed in by the laity. He concluded his paper with an appeal to the profession to help eradicate this popular superstition.

Discussion.—CARTER (Victoria, B. C.) cited two recent cases in question. One woman having had an impression beforehand and was delivered of a normal child; and another woman who had had no impression previously and was delivered of a badly deformed child, with webbed fingers, leg webbed to thigh, forearm to arm, etc. HENRY (Omaha) said paper and its sentiments should be endorsed.

Syncytioma Malignum.—LAURA H. BRANSON (Iowa City) said there were many different definitions of this disease found in the different textbooks, and few of the recent textbooks even mentioned it as a malignant neoplasm. There are 192 reported so far. A confusion of terms exists, but syncytioma malignum is preferable to her, because of the derivation and location of the tumor. It may develop during as well as following pregnancy. It is usually situated on the inner surface of the uterus, at the placental site. May be nodular or pedunculated, intramural or otherwise, and varying in size. May become enucleated and be discharged in the lochia. The most distinctive feature is the occurrence of metastasis, which usually takes place through the bloodvessels. The secondary formation may be the first manifestation of the disease. About 50% develop following hydatidiform mole. Clinical symptoms alone are not pathognomonic except when taken into consideration with the history, age, and previous parturition. She next discussed the differential diagnosis. Average age of patient, 54 years. Next cited a case which developed before birth, and the principal symptom complained of was persistent headache and foul lochia, pupils largely dilated. A history of syphilis. She asked whether the disease was ever due to syphilis or not. Child may go on to term and be born alive. She considers the cause of the disease the same as that of hydatidiform mole, *i. e.*, due to a proliferation of Langhans' layer of the syncytium, and dropsy of the chorionic villi.

Discussion.—HENRY (Omaha) regards it the most malignant disease attacking a woman. Metastasis takes place early. Thought too many conditions are laid to syphilis as a cause.

Miscellaneous.—The secretary read an invitation from the British Columbia Medical Association to attend their meeting July 18 and 19, at Vancouver.

Ophthalmology.

THIRD SESSION (CONTINUED).

New Test Types Made According to Geometric Progression.—C. H. WILLIAMS (Boston).—The set of new test types had been made according to the geometric progression first proposed by John Green, and lately recommended by the French Ophthalmological Society. It had a more complete series of letters, with equal intervals between the different lines of letters, but preserved most of the Snellen lines and the shape of the Snellen letter. The lines of letters were arranged on slats so that they could be reversed and thus bring a fresh series of letters into view. The letters had been drawn with great care, so that they did not vary more than 1/1000 of an inch from the calculated sizes. The letters were also lighted with a constant electric light, to insure even illumination.

Subconjunctival Salt Injections.—S. D. RISLEY (Philadelphia) said that subconjunctival injections of weak solutions of sodium chlorid were efficient and preferable to solutions of the salts of mercury. The method employed and the ocular affections in which the injections had proved useful were considered.

Discussion.—WM. ZENTMAYER (Philadelphia) said, that while the injections produced no permanent disastrous results, they did often cause disagreeable results. L. H. TAYLOR (Wilkesbarre) asked if the immediate clearing of the cornea was permanent or only temporary. JNO. E. WEEKS (New York) considered that the beneficial results were due to change in the circulation of the blood and lymph, as suggested by Risley. A. E. BULSON (Fort Wayne) thought the reaction depended upon the depth of the injections and considered the superficial injection just underneath the conjunctiva just as efficient as the deeper ones. The reaction might also depend upon the frequency with which the injections were repeated. Some patients seemed peculiarly susceptible. S. L. LEDBETTER (Birmingham, Ala.) had given up the use of the mercury salts in favor of the normal salt solution and found the results more favorable. LEARTUS CONNOR (Detroit) thought the results depended not alone upon the relation of the fluids, but also upon the irritation of the nerves and the reflex action upon the size of the bloodvessels and the rapidity of the currents through them. KASPAR PISCHEL (San Francisco) thought that American patients did not stand the pain produced by the injections as well as the European patients and that they complained much more frequently. PROF. HIRSCHBERG (Berlin) saw a great many American patients and could see no decided difference between them and the European patients as to the manner in which they received the treatment. He used the injections exactly as did Risley and in thousands of cases had not seen a single patient complain.

FOURTH SESSION.

Amblyopia Caused by Wood Alcohol.—C. S. G. NAGLE (San Francisco) called attention to eye symptoms and manifestations not referred to in the paper by Buller and Wood and reported a case presenting certain peculiar features not previously mentioned in reported cases. Anatomically the blindness was due to ischemia retinæ. He recommended iridectomy, or at least keratotomy as lowering the intraocular tension and improving the circulation.

A Case of Melanotic Sarcoma of the Choroid.—L. H. TAYLOR'S (Wilkesbarre, Pa.) patient suddenly developed hemorrhagic glaucoma and the eyeball was enucleated on account of this condition. Microscopic examination showed pigmented sarcoma. There was no return in the orbit, but the patient subsequently died of sarcoma of the liver.

PROF. J. HIRSCHBERG (Berlin) read a paper on **A Contribution to the Etiology of Pigmented Sarcoma of the Choroid.**

Stomatology.

THIRD SESSION.

To what Extent are Teeth Necessary to the Human Being ?—M. H. FLETCHER (Cincinnati) said nature allows a wide margin from the normal standard, and still preserves a good state of health. The physiology of perfect function is so rare that it is hypothetic. It is the physician's endeavor to restore a patient to the normal state. When all the teeth are lost, great benefit may be derived from artificial, yet if they are not good, many of them are injurious to the mouth. Some of them are only good for appearance, and appearance is not to be ignored; but insertion of a poor crown to replace lost teeth, brings trouble. In the teeth, and in bridge work especially, are the germs incubated. Good molars, properly opposed, do more good work than substitutes. Civilized man has ceased to be prehensile and grinding can be replaced by chemicals and cooking. The actual necessity for teeth in civilized man is almost nil. His superior intelligence allows him to choose his food. The saliva is merely a moistening fluid, and it is so soon replaced by the HCl, and the pancreatic juice is much more powerful than the saliva. In getting men for military service, he must have four sound double teeth on each side, or he is rejected. The loss of two-thirds, or eight back teeth will not debar entrance, and the back teeth include bicuspids. If the front teeth remain and double teeth are gone, rejection is demanded. Artificial teeth are not considered a substitute for natural ones in the army. There is not much choice in army rations, which, no doubt, is taken into consideration by the examiner. The demands of health are more properly met by choice and selection of foods and proper preparation. There is danger to the patient from unkept, artificial teeth and badly fitting plates.

Discussion.—TALBOT. The dentist believes that it is possible for a man to live without teeth. Modern dentistry, due to uncleanliness in the insertion of bridges, has as much to do with disease as any one thing. The collection of germs about ill-fitting crowns is more detrimental to the mouth than no teeth. In the lower vertebrates, teeth are necessary not only for chewing, masticating, but for prehensile purposes. As man rises in evolution, the jaws and teeth are of less importance, until at the present time it is questionable whether teeth are necessary. I have for years believed we could get along without teeth. There are plenty of cases of men who have lived for 90 or 100 years and have been without teeth for 50 or 60 years. Methods of preparing foods nowadays do not require mastication and the jaws are shortening up; as we advance in civilization we shall see that we can get along without them. The first point in relation to digestion is the question of salivation. Loss of the teeth due to interstitial gingivitis is a marked illustration of the fact that the teeth are passing. There is no question that modern dentistry is doing more to injure the teeth and the alimentary canal than any one thing. The filthy condition of the mouth under bridges and crowns is certainly not conducive to health. A crown should never be placed under the gums, but should only extend to the line of the gum margin. Immediately the gold margin passes under the gum, interstitial gingivitis is set up and nature produces absorption, and in a short time the gum margin will recede. Therefore the law of cleanliness should be considered when these two appliances are placed upon the teeth.

Fatal Oral Pathologic Condition.—G. V. I. BROWN (Milwaukee, Wis.) said early recognition is essential to the prevention of grave results from comparatively simple incipient conditions; extremely careful differential study is necessary to distinguish between comparatively unharmful and other pathologic states that may be almost or quite hopeless from the point of view of prognosis; by the time the more serious cases come to the attention of the surgeon or general practitioner of medicine it is frequently too late for successful treatment, and having developed one form or another of serious disease, the simplicity of its origin is too commonly never recognized; one of the reasons this is so is because dentists who have constant supervision of the mouths of their patients do not recognize the serious nature of the affection promptly enough; and, on the other hand, want of familiarity with the detail of diagnostic symptoms of mouth diseases on the part of the general practitioner prevents him from making a diagnosis that would be of untold value. Interstitial gingivitis, or so-called pyorrhea alveolaris, the various forms of stomatitis, neuralgic pain, malposed teeth, inflammatory and suppurative processes, including necrosis of the maxillary bone, and contracted dental arches, are everyday matters in the daily routine of the average dental practice. Malignant growths, tic douloureux, muscular tic, facial paralysis, neurasthenia, and other neurotic manifestations are constantly numbered among the hopeless cases of practitioners of medicine. That there is a chasm, but poorly bridged, between these two, the better covering of which would save many lives and incalculable suffering, can hardly be questioned.

Pharmacology.

THIRD SESSION (CONTINUED).

The Pharmacopeia of the United States: Its Functions. How May These Be Best Presented to the Medical Profession?—W. M. SEARBY (San Francisco) set forth the reasons why pharmacopeias are compiled as being: 1. To designate with all possible exactness the materials found in the mineral, vegetable and animal kingdoms, which are in most general use as remedial agents at the time the pharmacopeia is published, with tests for their identification and purity. 2. To secure uniformity in the quality and strength of the preparations made from these materials. 3. To provide tests whereby the identity, purity, and strength of these preparations may be determined. In addition, it gives detailed formulas for various preparations and minute directions for their manufacture, and contains tables providing information often sought for hurriedly. The study of materia medica in the medical schools of recent years has been reduced to a minimum, being much below what it ought to be if physicians are to prescribe intelligently. The result is the prescription of preparations of unknown composition, whose popularity is due to persistent advertising. The younger men show the greatest tendency to prescribe nostrums. Searby recommended the new United States Pharmacopeia to the use of physicians, stating that there is no valid reason for endorsing unauthorized compounds, and that the prescription of unofficial preparations obliges the pharmacist to substitute, as he has not the article prescribed, and the patient needs the medicine promptly. An experience of 20 years has shown him that when physicians prescribe protected secret preparations the patients soon ascertain the fact and proceed to doctor themselves without further consultation. The medical student should receive enough instruction in chemistry to know the behavior of medicinal chemicals in being compounded and introduced into the human system, as well as to know enough of the chemic constitution of drugs to avoid chemic incompatibilities, and they should know what preparations are made from the crude materials, with the strength and doses of them. In order to facilitate the use of the Pharmacopeia, Searby suggested the possibility of a condensed edition, containing only such matters as need be known and studied by physicians. He also advocated the introduction to the physicians of the new Pharmacopeia by the pharmacists, and their exploiting the preparations therein set forth, to the end that the pharmacist, and, incidentally, the physicians and the public at large would be benefited by the supplanting of official preparations in place of nostrums.

The United States Pharmacopeia; the Advance in Pharmacy Indicated in the Eighth Decennial Revision.—C. S. N. HALLBERG (Chicago) stated that the Pharmacopeia was made public June 27, when unbound copies were distributed to medical and pharmaceutic journals, and further said with reference to the chemic nomenclature that that of the former revision had been retained, at the same time making some timely corrections in chemic terms, such as changing the official titles for three wellknown acids—carbolic, arsenious, and chromic, to phenol, arseni-trioxidum and chromi-trioxidum respectively. The convention had instructed the committee to revise as carefully as possible the limits of purity and strength of the pharmacopeial chemicals and preparations for which limiting tests are given, and that there has been added a descriptive definition for each chemical known as the purity rubric, which defines and limits the gross amount of impurities in each article. He enumerated several drugs and their preparations for which standards of active principles are required by the United States Pharmacopeia, and related some of the difficulties the committee encountered in the preparation of the latest edition.

Discussion.—CHAMBERLIN (Ohio) spoke of the deterioration of the drugs standing on the shelves of the retail pharmacist, and of the impossibility of his getting first-class drugs, as these are all bought up by the manufacturing pharmacist. He commented on the large sale of proprietary articles, as popular medicines, and recommended that doctors should not prescribe them in the original packages. He expressed the thought that it is to the large manufacturing houses that we owe much of the present era of improved pharmacy. LEWIS condemned the practice of substitution among the retail druggists, and said the physicians have drifted away from prescriptions and taken to proprietary medicines because they get what they are seeking, realizing that these things have been compounded by specialists, who have taken pains. CALVIN suggested that in practice we should familiarize ourselves with say 15 drugs, with which we can do most of our work, and do it understandingly. In regard to the manufacture by retail druggists, he commented on the fact that they lack the appliances with which to do minutely accurate work. He deplored the fact that retail druggists counterprescribe, substitute, and do things of that kind. He had ascertained on investigation that 90% of the doctors in Indiana do their own dispensing, and suggested the establishment of a store by the physicians for their own use, where nothing but pure drugs will be kept, and where there will be no substitution, and no refilling. He referred to the fact that in some drug stores owned by physicians they are making 90% of their profits from the sale of proprietary patent medicines. STERN contended that the laboratory work was overdone, and that practical knowledge is what is needed by the physician, writing of prescriptions, and the real physiologic activity of the medicines used. SCHNEIDER said that he did not believe physicians should do their own dispensing, holding that pharmacists were as reliable as physicians as a class. SEARBY expressed the opinion that pharmacists sometimes have to substitute in the interests of humanity. Substitution often meant the dispensing of a more costly for a less costly preparation. He suggested that manufacturing firms should manufacture pharmacopeial preparations with pharmacopeial names, medicinal activities and qualities, complaining that under existing conditions, druggists are compelled to keep several lines of preparations, requiring a big bank account and a warehouse. There is a new law in California which requires pharmacists to keep original prescriptions for two years, and which prevents them from giving a copy to anybody but the man who wrote it, suggesting that there should be an exception in the case of the attending physician, in case the one who wrote the prescription has been discharged. HALLBERG spoke of the law which recently went into effect in New York, requiring that a man must have a diploma from a recognized school of pharmacy, and comply with certain conditions, in order to be eligible to examination as a registered pharmacist by the State board. He held that in such laws lies the salvation of pharmacy and its practice. He condemned the use of any but pharmacopeial names by the manufacturers for their preparations, and spoke in favor of the druggist and the physician coming together to try to do something to overcome existing evils.

[*To be continued.*]

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Eighteenth Annual Meeting, held in New York City, September 19, 20 and 21, 1905.

[Specially reported for *American Medicine.*]

Officers.—The following officers were elected: President, John Young Brown, St. Louis, Mo.; first vice-president, James N. West, New York; second vice-president, Frank F. Simpson, Pittsburg, Pa.; secretary, William Warren Potter, Buffalo, N. Y., reelected; treasurer, X. O. Werder, Pittsburg, Pa., reelected; members of Executive Council, Robert T. Morris, New York, and Howard W. Longyear, Detroit, Mich. The next place of meeting was left for selection by the Executive Council.

Multiple Pregnancy Complicated by Double Pyosalpinx.—O. H. ELEBRECHT (St. Louis) reported an interesting case in detail. The most striking feature of this case was the obscurity of this rare complication, for without the autopsy he would certainly have abided by his first and only antemortem diagnosis, *i. e.*, sapremia, and would have continued to believe that the general peritonitis was the result of the sapremic infection traveling upward through the tubes and thus into the abdominal cavity, for such a process to his mind would be all the more plausible in the large and flabby uterus of multiple pregnancy, more especially from the fact that large blood clots were passed on the first day, showing the relatively imperfect contraction of the uterus. The case also showed very plainly the ability or the degree of tolerance of the pelvic peritoneum to cope with infections, as it was the author's opinion that the peritonitis was not general until the sixth day, for up to that time there was no hiccoughing, no vomiting, no abdominal distention, and no apparent weakness. Another deduction was that gonorrheal peritonitis, while not very dangerous, if confined to the pelvic peritoneum, was surely dangerous when it crept out of the pelvis and became diffuse. It was also his firm belief that the pyosalpinx in this case was unilateral at the time of impregnation, and that the infection was transmitted by the escape of virulent pus to the open fimbrias of the unaffected side. The only cases he could find analogous to his had been reported by Hare and Talley. The reports of two pathologists in the speaker's case, who worked independently of each other, both showed that the tube, which was secondarily infected, was infected by way of the fimbrias, as its pathology was confined entirely to its outer third; the middle third showed only slight inflammatory changes, and the inner third, including the uterine attachment, was normal.

Some Considerations on the After-treatment of Abdominal Sections.—WALTER B. CHASE (Brooklyn, N. Y.) stated that in reviewing his personal experience he was led to the conclusion that the principal, and by far the most frequent, condition after laparotomy requiring treatment was flatulence. The accumulation of gas in the intestinal tract was present to a greater or less extent in a majority of cases. The principal causes were reversed peristalsis, intestinal paresis, and the effect of the anesthetic itself. He seldom gave anodynes, except in conditions of pain, making a possible exception in cases when peritonitis was present prior to operation, or other structures involved in the operation were so friable that peristalsis should be prevented for a time, or in cases following intestinal anastomosis. Its administration for the relief of pain was admissible, and perhaps mandatory. It was a matter of much moment when anodyne was selected. Ordinarily he used codein hypodermically in doses of ¼ gr. to ½ gr., or more, if required. While its power to relieve pain and check peristalsis was much inferior to that of morphin, its lesser disturbance of the nervous system, checking of secretion, and tendency to undue constipation made it an agent of great value. It was imperative that a reliable preparation be used. In troublesome cases of continued nausea, the administration of small doses of cocain, $\frac{1}{10}$ gr. to $\frac{1}{12}$ gr., exercised a salutary sedative influence on the nerves supplying the stomach and was attended with happy results. Either the nausea or flatulence, or both, might disappear in a few hours after operation. Among the newer remedies for the relief of intestinal paresis was the alkaloid of the calabar bean. Physostigmin salicylate, given in doses of $\frac{1}{100}$ gr. to $\frac{1}{50}$ gr., or even more, hypodermically, repeated once in four hours, seemed to induce a powerful contraction of the circular fibers of the intestinal tract. The diet of patients after abdominal section called for the greatest circumspection, always following the rule that nourishment, taken by the mouth, before the stomach retained or digested it, was positively harmful. When shock was profound, minute doses of morphin sulfate were among the most powerful stimulants and superior to most for prompt and sustained effect. The author discussed at length the importance of bodily temperature and position of the patient after laparotomy.

Trivial Pathologic Conditions of the Uterus and Adnexa Considered as Causes of Severe Gastric Disturbance. FRANCIS REDER (St. Louis, Mo.) stated that during the last two years, eight patients had come under his observation, six of whom presented a train of symptoms that would ordinarily be grouped as those of hysteria or neurasthenia, moderately severe in character, the two remaining patients being free from any such pronounced neuropathic phenomena, and some in fairly good health, with the exception that their stomachs were weak. The pelvic organs of these patients upon examination gave evidence of disease, and although the examination did not reveal anything of a serious nature still local minor operations afforded relief. In the cases cited by the author it was a surgical procedure that anticipated the pathologic conditions. In the opinion of the author, to wait for pathologic conditions to give evidence of their existence by more pronounced local symptoms in gynecologic disease, where there was a marked reflex neurosis, would be to invite secondary conditions that might prove of a very grave nature.

[*To be continued.*]

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

Tenth Annual Meeting, Held at Buffalo, N. Y., September 14, 15, and 16, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 516.*]

The Lens Capsule in the Operation for Cataract.—HERMAN KNAPP (New York) said that if one lives long enough he will get cataract. He has never seen a patient who, after having attained the age of say 80, did not have a cataract. Only a very small proportion, however, of these cases come to operation. The capsule is the most unpleasant feature in cataract operations, and should be removed with the cataract. Since he has been doing flap extraction he has not had a case of sympathetic ophthalmia. He described his own technic of the operation, and referred to some of the accidents and complications met with in cataract extraction.

Some of the Accidents and Complications Met with in Cataract Extraction.—D. W. GREENE (Dayton, Ohio) gave a brief review of the history of the operation, showing the evolution through which the different stages had passed from Petit, 1706, Daviel, 1745, to the present time. The shifting of the section forward was accomplished until it was now made entirely corneal. He referred to the smaller iridectomy or its entire omission, and described the different methods of opening the capsule and delivering the lens and cortical debris. Reference was made to the socalled toilet of the operation. He said the combined operation was usually made. He spoke of the accidents in and what were complications of the operation. A strict definition of each was difficult. He outlined the management of a normal case, also the management of accidents and complications. Accidents were usually operative. Complications might be present at the time of operation; they might result from accidents during operation, but as a rule were postoperative. Age, as such, was never a contraindication. The physical and mental conditions incident to it might be complications.

Cyst of the Thyroglossus Duct.—JOHN J. KYLE (Indianapolis) stated that the thyroglossus duct is an embryologic structure, which disappears about the eighth week of fetal life. From faulty growth the duct may remain and manifest itself in extrauterine life by the formation of a cyst, which may be situated near the base of the tongue or between the deep fauces of the neck, and between the hyoid bone and the thyroid cartilage. A review of the literature is given, with the description of a case observed in a woman of 45.

Should Tonsillar Tissue be Removed in All Cases?—GEORGE W. SPOHN (Elkhart, Ind.) stated that the glandular tissue in the pharyngeal vault, between the pillars of the fauces, at the base of the tongue, within the ventricle of the larynx and within the nasal orifices, was generally known as the tonsillar tissue. As regional glands, they were physiologic. As tonsils, they should be known as pathologic condition. As diseased glands, tonsils should be removed. When not diseased and normally functionating, they should not be removed.

The Pinguecula and Pterygium.—ADOLPH ALT (St. Louis) illustrated his paper on this subject by stereopticon slides. He reviewed the literature on this subject, with special reference to the connection between the two affections from the standpoint of the pathologist, and said that it rehabilitates in some measure Arlt's marginal ulcer as a cause of pterygium.

The Mammalian Eye.—CASEY A. WOOD (Chicago) gave a talk on the mammalian eye, illustrated by colored slides prepared from original drawings by the artist, A. W. Head. This is the first time these fundus pictures were ever presented or exhibited in America, and it is through the courtesy of Dr. Head that they were obtained.

Filaria Loa.—DERRICK T. VAIL (Cincinnati, O.) discussed the varieties of nematodes simulating *Filaria loa* (eye worms); he described the parasite, its habitat, and mentioned the theories as to its development. He also spoke of the mode of infection and of the rarity of actual cases in this country. He reported a genuine case, and exhibited specimens.

The Ciliary Processes in Accommodation.—F. PARKE LEWIS (Buffalo) spoke of the importance of accommodation in relation to the eye itself, and pointed out the difficulty of studying the problem from a physiologic standpoint. He said that pathology interrupted its smooth working and made evident points otherwise obscure. Attention was directed to the inadequacy of the Helmholtz theory. The Tscherning theory was more satisfactory, but was not explained by the mechanism. The relations and nature of the ciliary processes were discussed. Nature adapted an organism to existing necessities, but did not often vary fundamental principles. He described the ciliary processes in the pig, in the reptile, in the bird, in the fish, and in man, illustrated by a series of stereopticon slides. The segmental action of the ciliary processes was necessary to explain visual correction of an astigmatic cornea. There was conjugate action of corresponding segments in one eye, or in both. He spoke of its importance in nutritive conditions of the lens and in sympathetic ophthalmia in correlated brain centers.

Cases of Hemorrhage from the Eye.—ALVIN A. HUBBELL (Buffalo) reported two cases of profuse hemorrhage from the eye. One was from the conjunctiva of a newborn infant after several instillations of a 2% solution of nitrate of silver; and the other from the eyeball of an adult whose cornea had become ulcerated and perforated in the course of a long-continued glaucoma.

Spontaneous Hemorrhage into the Vitreous.—THEODORE B. SCHNEIDEMAN (Philadelphia) stated that hemorrhages into the vitreous of traumatic origin were not very rare, but spontaneous hemorrhage was quite uncommon. The latter was dependent upon changes in the walls of the bloodvessels. Of constitutional affections responsible for such changes, tuberculosis, pernicious anemia, syphilis, malaria, were to be particularly mentioned. In older subjects, atheroma occupied the first place. In the two cases the author reported, the underlying cause was obscure. One occurred in a young man of 21, and the other in a neurotic woman about the time of the menopause.

Ocular Origin of Migraine.—GEORGE M. GOULD (Philadelphia) referred to the vague and hazy ideas existing in the minds of practitioners as regards migraine. He expressed a preference for the use of the word sick-headache. No two cases are exactly alike. He furnished abundant and unassailable evidence that the vast majority of cases of sick-headache are largely, if not entirely, due to eyestrain, and he has afforded relief to a large number of sufferers by prescribing properly fitting glasses.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston, Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 516.*]

New Operation and Instruments for Draining the Frontal Sinus.—E. FLETCHER INGALS (Chicago). The operation consisted, in brief, of passing a steel pilot through the natural canal into the frontal sinus, and running in over this a hollow burr, by which a canal 6 mm. in diameter was made, and then inserting into this canal a self-retaining gold tube so large that the pus would necessarily drain, and that the patient might easily wash out the sinus. The advantages of this operation were the following: (1) It caused no scar, afforded efficient drainage, and enabled the patient himself to easily cleanse the sinus; (2) it was much safer than any other intranasal method; (3) it could be done early, before permanent pathologic changes had taken place, and in such cases it might be expected to effect a cure; (4) the early establishment of free drainage usually prevented serious pathologic changes; (5) it was no bar to a lateral external operation, if that should become necessary, indeed, it rendered the external operation less formidable; (6) it would cure a large percentage of the chronic cases.

Two Successful Cases of Obliteration of the Frontal Sinus after Repeated Operations.—H. HOLBROOK CURTIS (New York) reported two cases of longstanding frontal sinus disease which were successfully treated by the open method.

Report of a Case of Inflamed Dentigerous Cyst, Simulating Abscess of the Antrum of Highmore, Caused by an Odontoma.—WILLIAM H. HASKIN (New York) reported this case in detail, and showed the specimen.

Discussion.—H. P. MOSHER (Boston), in connection with this symposium upon diseases of the accessory sinuses, showed two cases of frontal sinus disease that had been operated upon by the Coakley method. In one the operation had been done two weeks ago; in the other, four weeks ago. The cases were shown, to illustrate the simple nature of the operation, and the appearance of the wound in the course of healing. GEORGE L. RICHARDS (Fall River, Mass.) showed three cases of double frontal sinus disease, and one of unilateral frontal disease, treated by the obliteration method, with excellent results. The openings into the sinuses had been made under the ridge at the internal angle of the eye, and then enlarged, so that all the sinus area could be reached by the curet. He also exhibited a number of anatomic specimens showing abnormal conditions of the accessory sinuses. Owing to the comparative frequency of these peculiar anatomic conformations, Richards said it could hardly be expected that one operation would fit all cases. In some of the specimens shown, the conditions were such that complete obliteration of all the cells was practically impossible. A complete cure in a certain number of cases of sinus disease, the speaker said, was scarcely to be expected. When the disease had lasted for years, how was it possible to get out every cell? The majority of these patients were perfectly satisfied if they could get rid of the pain and most of the discharge, with the restoration of good, normal breathing, and without the recurrence of polypi. If so much could be done for them, they would be perfectly willing to report for treatment occasionally. Many cases of chronic frontal sinus disease, Richards said, would get well if free drainage could be secured. The statement made by Coakley, some years ago, that the long continuance of the discharge prior to operation had no relation to the question of how quickly a cure could be effected,

was often well illustrated in antral disease. The question of deformity resulting from operation for frontal sinusitis was not to be disregarded. As a rule, American patients, especially women, preferred the operation he had demonstrated rather than the extremely radical one of Killian, or even that of Coakley. JOSEPH PAYSON CLARK (Boston) said the subject of sinusitis and its treatment was such a large one, and had been so thoroughly covered in the papers presented, that he would limit himself to one or two points. He appreciated, as much as anyone, the great success that had attended Coakley, and the unusually large experience which he had had in frontal sinus surgery, but the fact should not be lost sight of that in a very large proportion of cases there was a resulting deformity from such radical operations, and that many patients refused to submit to them if they could be relieved from pain in any other way, even with a prospect of the possible continuance of a slight nasal discharge. When 50% or more of frontal sinus cases had been cured when treated by the socalled Ogston-Luc method, he considered it too radical a step to take to abandon that operation entirely. It seemed to him that efforts to improve its technic would be profitable. He urged that each case be most carefully studied, and the most conservative treatment adopted which seemed applicable to the case in question. JAMES E. LOGAN (Kansas City) said that this question of diseases of the accessory sinuses was a most important one, and could not be too fully discussed. There were a few points that he wished to emphasize, and one was, that conservatism should be practised in dealing with cases of frontal sinus involvement. In most instances the disease was not confined to the frontal sinuses, and we should not be too aggressive in dealing with this condition. The speaker said he agreed with Richards that the possible resulting deformity from a radical operation should not be overlooked. The important element in the cure was the establishment of free drainage, and this was apparently secured by the intranasal method described by Ingals. In suitable cases, and in their selection the röntgen rays would prove of valuable assistance, an intranasal operation should always be considered before advising the more radical external method. H. W. LOEB (St. Louis) said that in view of the exhaustive character of the papers that had been presented, it was very difficult for any one to do more than generalize on the subject under discussion. It was evident, from what had been said, that each man was able to do his particular operation with a great deal of skill, which showed the value of the personal equation in this as well as in other fields of medicine and surgery. For example, one man was able to get better results by employing a method that he had thoroughly mastered than he would obtain with a perhaps superior method that he did not understand so well. This same factor of the personal skill and proficiency of the operator was of importance in connection with the resulting deformity. Some were strongly in favor of conservative measures, and certainly, if we were able to dispense with the radical operation, and to substitute instead the method suggested by Ingals, it would be well to advocate it. The papers composing the symposium on this subject had at least emphasized the fact that these operations could be done, and done well, in various ways by different operators. LEE M. HURD (New York) said he had done conservative work in 15 cases of frontal sinus disease, and had secured perfect drainage. He had simply entered the frontal sinus through the nose, enlarging the frontal duct in an anterior direction. The bone was cut with forceps or other instrument, making the opening into the sinus as large as possible, and then injecting the sinus, once weekly, with a from 5% to 20% silver nitrate solution. If the patient tolerated this, a saturated solution of silver nitrate was then used. At the same time, he used salt solution in the nose to counteract the effects of the silver solution there. Of the 15 cases, he secured an absolute cure in 6, and improvement in all the rest, all the symptoms excepting a diminished purulent discharge disappearing. The speaker said he had also operated upon 6 cases of antral, ethmoidal and sphenoidal disease. The first one, of over a year's standing, was absolutely well without any crusting whatever; of the remaining 5, all were well, but there remained some tendency to crusting. He believed this would disappear in time. One of the cases had frontal sinusitis, and made a prompt recovery in spite of the pus running down over the antral wound. THOMAS J. HARRIS (New York) said the papers making up this symposium deserved the highest commendation, and the members should not fail to recognize how much time and labor had been spent in their preparation, and personally he wished to express his appreciation of their value. The speaker said he would confine his remarks chiefly to the subject of frontal sinusitis and its conservative treatment, as suggested by Clark and Logan. We should consider, first of all, the necessity of radical work in this region. Was it necessary, in the majority of cases, to do either a radical intranasal or extranasal operation? Leaving out of consideration the urgent cases, to which Coakley had referred in his paper, was it not true that the majority of our patients would be satisfied with what could be done for them by the usual methods that were employed, namely, the removal of the anterior end of the middle turbinate, and the clearing out of the other obstructions? In the large majority of cases this comparatively simple treatment would prove of immense satisfaction to the patient, and if, after this had been done, there was still a certain amount of mucopurulent discharge now and then, would we be justified in sacrificing the anterior frontal wall? The speaker said he did not think so. It should not be forgotten that the radical operation was not unattended with risk to life. Logan Turner had collected 24 fatal results following operations on the frontal sinus. Another factor to be borne in mind was the resulting deformity. The most important feature in any method of operation on the frontal sinus was to secure free drainage, and as Loeb had stated, the personal equation was everything. The speaker said that while it would ill become him to criticise or even allude to Coakley's very extensive work in this field, he still thought there was room for an operation that would give rise to less deformity. He favored Richard's method, so far as the lack of deformity it entailed was concerned, but it left the question of a complete cure open to doubt, and the same was true of the Ogston-Luc operation. In the cases that he had operated on with Coffin, the speaker said that recently they had followed the Killian method. He considered the preservation of the ridge as a very essential point in avoiding the deformity that was otherwise so apt to occur. H. P. MOSHER (Boston) said that the more he studied the anatomy of the frontal sinuses in the dissecting-room, the more he felt like getting a view into the sinus in the cases which he met clinically. None of the speakers had said anything about opening the sinus for exploratory purposes. This was very simple and left no scar. In the future it ought to become a customary procedure, because the operator at once saw what the condition of the sinus was, and could do little or much for its relief, as the case might require. The method of reaching the sinus through the nose was the oldest method of all that had been devised for treating the sinus. Men were continually coming back to it, but it was poor anatomy to use this route, and therefore poor surgery. The method described by Ingals, while it excluded the danger of injuring the posterior wall of the sinus, did not exclude the danger of injury to the posterior internal angle, the dangerous area of the sinus. In that angle the cribriform plate often sent forward a prolongation, and into that region, the bony canal of the foramen cecum, the vein which begins the great superior longitudinal sinus at times extends. After comparing the scars left by the frontal sinus operation, the speaker thought there was less deformity in the cases that had been shown, where the sinus was entered above the orbital rim. In connection with the method of opening the sinus at the upper internal angle of the orbit, the speaker said he wished to emphasize the point that whenever the operator used this route he interfered with the pulley of the superior oblique muscle of the eye. In a large series of cases done in this way a certain number would have permanent trouble from interference with the muscular balance. COAKLEY said he did not shave the eyebrow in his cases, because the hairs usually come out coarse, and did not match those of the opposite side. MOSHER thought it was more surgical to shave the eyebrow before operating, and in order to cover the objection raised by Coakley, both sides might be shaved. LEWIS A. COFFIN (New York) said he thought Richards struck the keynote when he said that one operation could not be expected to fit all cases. There were certain cases of frontal sinus disease in which the open method of treatment was undoubtedly indicated; there were others in which it should not be done. The speaker said he was certain that Coakley was willing and found it necessary at times to get away from any stereotyped method of operation. In regard to skiagraphy, Coffin said it was a very beautiful and instructive method of demonstrating the size of the sinuses and their relation to one another, but he doubted the statement made by one of the speakers, that it showed diseased conditions of the sinuses. He did not believe that the röntgen rays demonstrated the diseased sinuses in any way, shape or manner. In taking these skiagraphs, the light had to pass through various layers of bony and soft tissues, as well as the brain and the air cavities, and it would be expecting a great deal of the rays to have them demonstrate the presence of pus or diseased membrane in the accessory sinuses. The fact should not be lost sight of that skiagraphic pictures of the same object were not constant quantities, even by use of the same tube, and, as far as possible, under the same conditions. In regard to the various operations for frontal sinus disease, COFFIN said that much depended on the size and condition of the sinus. In dealing with a very large sinus with many septums, it would naturally take a long time to obliterate it by the open method; in fact, too long. He regarded the Killian method as practically certain, and one that gave perfect results for the large sinuses. The degree of scarring after the external operation on the frontal sinus by the open method, depended much on where the wound was kept open for packing, because there was sure to be more or less retraction at that point. He advised against splitting the eyebrow, as that would frequently leave a disfiguring scar. The incision, preferably, should be made along either edge of the eyebrow. Coffin, in differing with Coakley, said he had seen cases in which there was undoubted independent disease of the frontal sinus, none of the other sinuses being involved. He regarded Berens' operation as certainly an illustration of heroically radical work. In his paper, Berens had reported several cases as suffering from dry pharyngitis, following this radical operation. This was not at all surprising, as the functional integrity of the nose had been entirely destroyed, and nothing was left the patient but a large, irregular hole. In conclusion, Coffin said that if the sur-

geon, in operating on these cases, found it necessary to be radical, he should at all times be conservatively so. C. G. COAKLEY, in closing, said the discussion of the papers composing this symposium had brought out many good points. In the first place, the men who had advocated the socalled conservative treatment had done so in a very able manner. He regarded Ingals' operation as a valuable addition to the conservative or intranasal methods of reaching the frontal sinus. It certainly would seem to give better drainage than any of the other intranasal operations with which he was acquainted. One possible danger of the method was the accidental perforation of the brain, and the setting up of a septic process, as the curetage of the sinus was done blindly. Still Coakley said he expected to give the method a trial next fall, and hoped for as good results as Ingals had obtained. The speaker said he was perfectly in accord with the statement made by Richards that one operation could not be expected to fit all cases. The operation should be varied according to the indications met with; according to what the skiagraph showed; according to the size and shape of the sinus, and its condition Loeb struck the key-note when he called attention to the value of the personal equation, which certainly has a great deal to do with it. Coakley said the reason he had not done the Killian operation was that he was not familiar with it, and the results he had obtained from his own method were so good that he had not been tempted to try any other. If the Killian operation gave better results, with less deformity, the speaker said he would be willing to substitute it for his own in suitable cases. He would gladly concede the superiority of that method when he became convinced of it. Coakley said that in his paper he had touched upon the question of an exploratory operation on the frontal sinus, and in certain instances he thought that was a perfectly justifiable procedure. He could recall cases where he entered the frontal sinus, and finding that a radical operation was uncalled for, he had simply closed the wound, which healed with practically no resulting deformity. The value of skiagraphy should not be overlooked in dealing with these cases. If Haskin had resorted to it in the case he reported, the source of the trouble would probably have readily been discovered. The speaker said he had found the röntgen rays very valuable in dealing with abscesses caused by aberrant teeth. In dealing with diseases of the sinuses, skiagraphy did not always reveal the presence of disease, but a good negative always showed a marked difference between a normal and diseased sinus. Coakley said that while the method demonstrated by Richards caused less deformity than his own if the sinus was small, it was difficult, he thought, by the former method, to gain access to all recesses of the sinus. In some cases the sinuses were narrow, or we had to deal with multiple septums, and in such instances it would be very difficult, with any curet with which he was acquainted, to get out all the mucous membrane, and unless that was done, the mucous secretion would continue, and obliteration of the sinus would not occur. The only bleeding that occurred in the course of the operation was from the mucous membrane in the sinus, and after that was removed, together with the granulation tissue, the field was absolutely dry. In connection with his paper, Coakley showed two patients upon whom he had operated by the method described. T. PASSMORE BERENS (New York), in closing, said that in the discussion of the papers on this subject, Clark had criticised the radical operation from the standpoint that these cases could frequently be cured by less radical measures. Berens said that in his own paper he had emphasized the point that he only resorted to the radical operation in cases where milder methods had failed. In his case of pansinusitis referred to by Coffin, the patient had previously been under the care of two eminent rhinologists, who had failed to give him relief. The case was a very severe one, the constitutional symptoms being such that a meningitis was suspected. The local conditions were such that an intranasal operation for the relief of the sphenoidal and ethmoidal disease was out of the question. One of the rhinologists who had previously seen the patient concurred as to the necessity of an operation, and was highly pleased with the result obtained. Berens said it was only in those cases of chronic suppurative disease where palliative measures had failed that we were justified in resorting to a radical operation, whether the disease involved the ear or the accessory sinuses of the head. In dealing with these cases of disease of the accessory sinuses, in order to effect a cure, none of the involved cells should be overlooked, and drainage should be made complete. In reply to Coffin, Berens said he thought the nose was still a useful organ, even when "turned into one of those great, big ragged holes." In the operation he had described, the inferior turbinate and the entire mucous membrane of the septum were always left intact, so that there still remained a large area of healthy, secreting mucous membrane. Any one could readily convince himself of that fact by seeing one of these patients undergoing an attack of coryza, which was good evidence that the operation did not destroy the function of the nose entirely. Berens said he would be pleased to see the operation described by Ingals, but he was strongly opposed to injecting even a weak solution of commercial hydrogen dioxid through a canula into the frontal sinus. In some cases in which that cavity was affected, the disease extended to the dura, and such an injection would be very apt to set up an infection of the meninges.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

PODOGRAPHY.

BY

ALBERT ABRAMS, A.M., M.D.,

of San Francisco, Cal.

To the Editor of American Medicine:—The *claudication intermittente* of the French or "intermittent limping," as designated by the English, is a condition manifested by pains and paresthesia, usually of the feet and legs, and accentuated whenever an attempt is made in walking. The essential pathology of the affection in question is a retardation of the circulation in the legs and feet, dependent on a localized endarteritis of the bloodvessels of the lower extremities. The conventional objective evidence of the affection is an absence of the pulse in the dorsal artery of the foot and in a number of instances the posterior tibial is also pulseless. To aid in the diagnosis of localized arteriosclerosis of the lower extremities and assisting in the recognition of the finer details of the local circulation as well as securing a permanent record of the pulse for future comparison, I have recourse to sphygmography, or to be more specific to what I have been pleased to call podography. The apparatus which I employ is one already described in *American Medicine* (December 10, 1904), for sphygmography of the abdominal aorta. When the legs are crossed, such as is practised after the conventional manner for eliciting the knee reflex, with the additional injunction of planting the knee of



A B

the leg resting on the ground into the popliteal space of the crossed leg, a rhythmic pulsating movement may be observed in the foot of the crossed leg. This total foot pulse is alone available in diagnosis, for when the arteries of the lower extremity are sclerosed, the pulsation is less evident than in the normal. It is difficult to obtain a sphygmographic tracing of the foot pulse when the patient is seated, for movements are unconsciously made by the latter which interfere with the tracings. To divert the attention of the patient, the podogram is taken while his eyes are closed, and even then unconscious movements may be made which are at once recognized in the tracing. To obtain the best tracings, the patient must be placed in the recumbent posture, with one leg thrown over the other, after the manner already described, care being taken that the foot is unimpeded in its rhythmic pulsations as it hangs over the edge of the couch. The string of my improvised sphygmographic apparatus is fixed to the toe of the shoe by means of plaster and the cord in turn transmits the pulsations to the short arm of the lever of the instrument. Figure 1 represents an average normal podogram and it looks not unlike an inverted normal radial pulse tracing. A shows the tracing before and B after the inhalation of amyl nitrite. I have not encountered a typic instance of crural angiosclerosis, and have, therefore, no opportunity of presenting the podogram of such a patient.

OPEN-AIR TREATMENT OF CHRONIC COLITIS.

BY

B. F. REA, M. D.,

of Ware, Ala.

I have had personal experience with this method of treatment, although I have never seen it mentioned in the literature. About five years ago I had an attack of acute dysentery, which later became chronic. After trying the various astringents, also irrigation with antiseptics, without being benefited, and noticing the benefit obtained from the open-air treatment of pulmonary tuberculosis, I decided to try outdoor life. There has not been a day for several years past that I have not spent most of

the time in the open air, walking or horseback riding. I am at present practically well. For the first two years of the attack I had almost continual pain, tenesmus, and, at least, ten slight hemorrhages a day. Moderate exercise in the open air and an abundant supply of nutritious food is, I think, the best treatment for the condition. Unless the body is well nourished, the patient will not have strength sufficient to take exercise. Cod-liver oil and tonics are, I believe, beneficial, but proper nourishment and open-air exercise are mainly to be relied upon in the treatment.

RELATION OF AN ANOMALY TO MATERNAL IMPRESSIONS.[1]

BY

CHARLES E. McGIRK, M.D.,

of Philipsburg, Pa.

On October 16, 1901, I encountered my first anomaly, and thinking it might prove interesting as to its relation to maternal impressions, I have photographed the specimen in three positions. I have obtained a clear line of history, which is extremely rare in the cases of maternal impressions so far reported.

On May 20, 1901, I was summoned to see Mrs. M., aged 65, who had jumped down a well 28 feet in depth. On my arrival she had been lifted from the well, and but for some excitement, she was little the worse from the fall, having sustained only a few superficial scratches and bruises about the hands and limbs. I learned she had jumped down the well with suicidal intent. However, in a few days she was over her shock and about again. This woman was the mother of the patient from



whom I secured the specimen, and, owing to the circumstances and on account of the date of the accident, I have outlined this incident.

On October 8, 1901, Mrs. W. came into my office and engaged me to attend her in her approaching accouchement, saying she expected to send for me about the third week in November, and that it would be "twins or something else, as she was different from what she had ever been before, being entirely too large."

The remark not being a new one, and being busy at the time, I paid little or no attention to it and made no examination.

On October 16, eight days later, I was summoned. I found the patient in labor, but not in bed. At my request she was put to bed. On examination I found a greatly distended abdomen, hard and filled with fluid. Three weeks prior to this time she noticed a gradual, progressive enlargement of the abdomen, which had increased greatly in the last two days. The vagina was filled with the bulging amniotic sac, and, while endeavoring to reach the cervix, I ruptured it. There came a gush of water, which flooded me, saturated the bedding and mattress, and ran in a stream to the floor. There was at least three gallons of fluid. A second examination revealed the cervix well dilated and the head presenting. Patient was having hard pains, frequent and of long duration. The slow progress and the large head with the polyhydramnios, led me to believe that there was a condition here which I had never before encountered. Labor terminated in about an hour after many hard pains, the fetus being expelled by the last pain *en masse*, the head set on the shoulders without the interposition of a neck, as the photographs show.

The baby moved but feebly and did not breathe; efforts at restoration were of no avail. I wrapped it in a blanket, informed the mother that it was dead and that she had better not see it, as it was deformed. She immediately asked how. Being a sensible woman and not of a nervous temperament, I described the specimen to her.

She then spoke of the shock caused by the news of her mother's accident.

She was washing dishes, when the proverbial small boy ran into her kitchen and said her mother had fallen down a well and was killed.

She remembered "her head going back, becoming numb all over, and falling to the floor, striking the back of her head, becoming unconscious."

She, as well as the neighbors, all attributed the deformity to the mental shock. She made a good convalescence. On June 26, 1902, I was called to see the patient again. She informed me that she had fallen down three steps, having tramped on a marble which threw her, and that she was three months pregnant. She had been lying in pain all night. She was soon delivered of a three months' fetus, the head of which I found born on examination. This fetus was normal in all respects.

On October 8, 1902, C. W., the little 4-year-old son of the patient, was brought to my sanatorium, the mother coming also. I was informed that the child had been run over by a wagon loaded with steel mine rails. The mother saw the accident while standing in her front doorway, as it took place only a short distance above her house. On examination I found the left clavicle, left radius, and ulna fractured, and the left ear almost torn off, a fracture of the lower third of the right femur and a large, ugly abrasion on the calf of the left leg. He was in a deplorable condition, and I was afraid he was hurt internally. The mother insisted on remaining in the room while I attended to the little fellow. I was called again to see the patient, Mrs. W., May 7, 1903. She was in labor, and bore a perfectly healthy girl, weighing 8½ pounds.

This patient had good health from childhood until in 1899 she had a mild attack of typhoid fever. She was the mother of four healthy children, without blemish, at the time of the birth of the anomaly. Her father died at the age of 40, from heart disease. Mother living, aged 69, childish and at times melancholy. She knows nothing of her grandparents. Her husband died of typhoid fever, November 7, 1904, but previous to his last illness had never been ill. His father died at the age of 65, of heart disease, mother living and well, and aged 72. His grandparents' history is obscure, as they died in Ireland after the mother and father came here.

This case presents some interesting features: The photographs show a common form of anomaly, namely, hydrocephalus and spina bifida. This woman received a violent nervous shock when she was three months pregnant with this monstrosity. She had a miscarriage the following year, with fetus normal. She had a child born in 1903, and in this case she had a violent mental shock, if anything, much worse than the first, when she was five weeks pregnant.

In the first instance she bore a monstrosity, not because she became frightened (on account of her mother falling down the well) and fell over in a faint, striking her head, but because the laminas of the vertebra of the sacral region had not closed at the sixth week as they should have, and the spina bifida was already there. Hydrocephalus is very frequently found with spina bifida, and although its pathology is not well known, its development is given as at about the same time.

On the other hand, this woman witnessed the running over by a wagon of her little son in her fifth week of gestation. Saw him mangled and torn, brought to her in what she believed to be a dying condition, when she hurried to me "to save him if I could."

Now, if there is anything in mental impressions, why was not this second offspring an anomaly? It should have been born with rudimentary arms and legs, red, spotted, and bleeding, with no ears, or at least, a deformed ear. Had it been so, I perhaps would have altered my opinion as to maternal impressions, but such was not the case. Nature went on and completed her work perfectly, the mother's mental impressions having had absolutely no influence whatever on the result.

[1] Read before the Clearfield County Medical Society, May, 1905.

Brooklyn's Future Water-supply.—United States Government engineers who have been investigating the underground water resources of Long Island show that the amount of water to be obtained is practically inexhaustible. The soil of Long Island is sandy and porous, taking up the water which falls as rain and snow on its surface like a sponge. Interrupted in its flow toward the sea by wells, pipes or infiltration galleries, this underground water forms an enormous supply of pure water, filtered of organic material in the process, and hence of the very best type as regards potability. The *Brooklyn Medical Journal* says that all that is needed to render Brooklyn's water-supply one of the best in the world, is to cut off the surface drainage ponds like that at Hempstead, and supplement it by sufficient additional wells and infiltration galleries such as those installed two years ago at Wantagh and those at present installing at Massapequa to render the present supply adequate to meet Brooklyn's increasing needs.

ORIGINAL ARTICLES

LARGE DESMOID TUMOR OF THE ABDOMINAL WALL.

BY

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AND

P. B. BLAND, M.D.,

of Philadelphia.

Clinical History.—C. H., aged 26, colored, married woman.

Family History.—Patient's mother is living and in good health; four brothers and sisters are living and well; three brothers died in infancy. There is no history of tuberculosis or malignant disease in the family.

Personal History.—The patient had all the diseases common to childhood. Menstruation began at the age of 14, was always regular and lasted from six to seven days. As a rule she suffered much pain at this time. She was married at the age of 19, and has given birth to two healthy children. She had three miscarriages, one at the third month, one at the fourth month, and one at the fifth month. The last miscarriage occurred in October, 1904. The last menstruation was observed a week before admission to the hospital. The patient's general health is good, her appetite is fair, and bowels regular.

Present Trouble.—This began about seven years ago, when a small lump was observed in the lower part of the abdomen and upon the right side, or about the junction of the lower and middle thirds of the right rectus muscle. This tumor at that time was about the size of a walnut. The growth very gradually increased in size during the first six years of its life, but during the last year it has grown very rapidly. The patient's power of locomotion is more or less embarrassed by the presence of the growth since reaching its present dimensions, and the external genitalia become edematous if she maintains an erect posture for a considerable period. Recently she has suffered from dyspnea and also irritability of the bladder. There has been no undue bleeding from the genital tract, and no abnormal discharge. On examination the tumor mass apparently fills the entire abdominal cavity and seems to have its origin in the pelvis, though the uterus itself can be more or less outlined. It was inferred that this large abdominal growth sprung from the fundus of the uterus and was a large subserous fibroid tumor. The tumor is hard, resistant, and has the consistency of an ordinary uterine fibroid. The skin over the tumor is tense, but apparently not attached to the growth.

Operation.—The patient was operated upon, under ether anesthesia, by a long median abdominal incision. Efforts were then made to deliver the tumor through the incision, but it was found to be adherent to the peritoneum and to the right side of the abdominal wall. Further investigation revealed that the growth had no connection with the uterus, but that it had its origin from the right rectus muscle. The anterior parietal peritoneum had been pushed inward by the growth of the tumor, and this, therefore, was removed with the growth. The attachment of the tumor to the rectus muscle was then severed and a large portion of the rectus muscle was necessarily sacrificed in its removal. The peritoneum was closed with continuous suture of chromic catgut and the incised rectus muscle was also sutured with the same material as was also the aponeurosis. A strip of iodoform gauze was placed in the lower end of the incision and the skin closed with interrupted silkworm-gut sutures reinforced by interrupted chromic catgut. The tumor after removal gave the following dimensions: The greatest circumference measured 79 cm. or 31 in.; the lesser circumference 66 cm. or 26 in. It weighed 19 pounds.

Morbid Histology.—The tumor in general outline is more or less egg-shaped and of decidedly firm consistency. Its color is variable, at some places large pearly or pearlish-white tissue is seen, while at others a more or less pinkish-white or the color of ordinary fibroids is seen. The base of the mass is irregular and is formed by a large piece of muscle. The tumor cuts with more or less resistance. This resistance is particularly marked in the basal portion of the tumor, while the apex is easier incised. The surfaces presented on section also show a variety of tissue. That portion near the base is composed of large, thick fibrils, apparently of connective and muscle tissue. This area was apparently the primary tumor, and three similar islands of tissue about the size of a large orange have their origin from this structure. From the periphery of what is apparently the primary tumor the two other muscular growths mentioned extend on each side, and from these to the apex the tumor is more or less of homogeneous construction and of a pearly-white appearance. This portion of the tumor resembles somewhat the incised surface of a sarcoma.

Microscopic examination of sections prepared from different portions of the tumor show it to be composed largely of young fibrous tissue cells. In some areas muscle fibers were noticed, but the larger portion of the mass is constituted of the first-named elements. Sections taken from the pearly-white portion of the tumor reveal these areas to be decidedly edematous, as is shown by the indifferent collection of the fibers.

The bloodvessels are numerous and large. Their walls are extremely delicate, indeed, and are composed, in most instances, of a single nucleated membrane fortified by the tissue of the tumor, and in other areas the vessel walls appear to be composed entirely of tumor elements.

Desmoid tumors were first described by Nélaton. He reported several cases in which he said the growths occupied the iliac fossa or were located near the crest of the ilium. These, he believes, are the favorite localities, but the sheath of the recti muscles is perhaps the most frequent starting point of these neoplasms, and they usually arise in the inferior sheath of the recti or that portion in juxtaposition to the peritoneum. Many years ago Grätzer advanced the theory that they had their origin at a point where the mesoblast divides into the peritoneum and fibromuscular layer. These tumors are almost always found in women. They usually occur during the child-bearing period of life, though W. Kramer reported a case of congenital origin in a girl aged 4½. Senn, in his latest work on "Pathology and Surgical Treatment of Tumors," states that he has observed four cases of desmoid tumors. All these occurred in women, and each appeared soon after parturition. Lederrhose collected 100 cases, and 90 of these occurred in women; 70 of this number occurred in women who had borne children, and in all these the tumor began to develop soon after parturition. It is noteworthy that not one of these tumors has ever been reported to occur as a result of stretching of the abdominal muscles by ascitic fluid or ascites. Ill, in his observations, found that 82% of desmoid tumors occur in women.

Of all tumors found in the abdominal walls, fibromas are the most frequent, and form at least three-fourths or more of all varieties. Concerning the etiology of these growths, trauma, it is asserted, is the most important determining cause, and they occur in women in nearly all cases, and, furthermore, those who have borne children; it would appear that possibly the trauma inflicted to the abdominal wall by the gravid uterus, and also that resulting from contractions of the abdominal muscles during labor, would be to a certain degree responsible.

Histologically, these tumors in most cases are found to be a specialized variety of fibromas. Some investigators, however, are persuaded to classify them as a special variety of sarcomas, and they are called by some fascial sarcoma, though their course and general clinical behavior do not justify the classification. They are found to be composed, as a rule, of young connective-tissue cells, with a very scanty distribution of intercellular substance. The bloodvessel walls are found to resemble those found in sarcomas and are closely related to the tissue substance. The tumor cells tend strongly to infiltrate circumjacent tissues, beside displacing them. They are, as a rule, devoid of a capsule, but occasionally are found to have a very imperfect one. A peculiar phenomenon in connection with these growths is that they grow in the direction of the fibers of the tissue in which they originate; that is, if they arise in the transversalis fascia or transverse fibers of the abdominal wall they tend to grow in the line of the fibers. If they arise in the vertical fibers of the fascia covering the recti muscles, then they grow in a vertical manner or in the direction of those fibers.

These tumors do not, as a rule, recur after thorough removal, and, therefore, are of a benign character. They are said, however, to be more prone to recur in men than in women. The reason for this has not been explained. Volkmann reported four cases in men, all of which recurred after removal. Metastasis and lymphatic gland involvement are extremely rare indeed. Senn states that in order to distinguish them from the ordinary fibromas, it is best to retain the term desmoid, a name applied by Müller to benign connective-tissue tumors.

SURGERY OF THE STOMACH.[1]

BY

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In 1903, I published in *The Journal of the American Medical Association* an article entitled "Surgery of the Stomach," in which I reviewed briefly the history and status of the subject at that time. In the two years which have intervened, no great advances have been made, but an enormous volume of work has been done which has enabled us to estimate more accurately the value of various procedures, and determine more definitely the indications for surgical treatment. The value of the surgical treatment of various stomach lesions is being more and more generally recognized by both the surgeon and the general practitioner, and much is being accomplished by proper surgical procedures in well-selected cases. With the very rapid development of stomach surgery in the last few years, some evils have grown up which should be recognized and guarded against. Of these, I shall mention two which have impressed me: First; the doing of surgical operations which were unnecessary and uncalled for, by well-qualified men who were enthusiastic over the success of their stomach work, and who have extended the range of stomach surgery over a much larger area than even its great intrinsic value warrants, some hospital surgeons going so far as to claim all cases admitted to the hospital with stomach troubles as their own, and denying the right of the medical service to any stomach cases whatever. I think that time will show that these men have operated in many cases which should have been handled by medical treatment and not by operation. I have seen patients operated on, who, I am satisfied, would have been much more benefited by a fishing trip, or a walking or bicycle tour, or a selected diet and the euthanasia of morphin, than they were by the surgical operation.

I think this excess of enthusiasm for stomach surgery, however, is but a natural sequence of the splendid results that have been obtained in cases in which operative interference was really indicated. This fault must be corrected by discovering and applying methods which will enable us to make more refined diagnoses by curbing our enthusiasm somewhat. And, last, and of most value, by cooperating with the internist, so that the patient may have the benefit of both the medical and the surgical point of view.

The second evil which has impressed me is that, in the popularizing of stomach surgery, men who are not in any way qualified to undertake this work do undertake it, and operate on patients without any very clear idea of why the operation should be done, but largely because they have seen some prominent surgeon do a gastroenterostomy with McGraw's ligature, or Murphy's button, or with clamp and suture. I asked one of these men once why he had operated in a certain case, and without giving any indication, his reply was that Prof. ———, of Philadelphia, had done the operation, and he did not see why he should not. There is a bit of danger that, in the development of stomach surgery, we may witness, on a very much smaller scale, however, what was so common in the development of the surgery of the female genitals, and what still remains the curse of gynecology, *i. e.*, unnecessary, uncalled for, and ill-advised operations in the hands of the competent and enthusiastic, and the entering into this field of men illy qualified, who are led to undertake the work because of the ease of its performance and its demonstrated safety, with little regard for the indications.

In spite of the two evils mentioned, stomach surgery today stands out as the most gratifying surgical field in the process of rapid development. And this fact, too, is perfectly patent that the demonstrated value of surgical procedures in treating stomach lesions warrants a much wider application of such methods than are at present practised. My plea is that the cases must be most carefully selected; that we must be sure that an operation is strongly indicated. We must not operate on patients who could be cured by a summer's outing or by a carefully selected diet; nor must we operate when operations are hopeless.

I should like to discuss the surgery of the stomach under two heads: (1) Surgical treatment of carcinoma of the stomach; and (2) the surgical treatment of ulcer and its complications and sequels.

Carcinoma.—Cases of carcinoma of the stomach, except those which have progressed to a point where there is no longer any hope either for cure or palliation, are to be regarded as surgical cases, and are to be treated by surgical means. Carcinoma is primarily a local disease; there is a period in the history of every carcinoma when the process is so limited that a wide removal would effect a permanent cure. The truth of this treatment is becoming more and more apparent from the encouraging results we are now obtaining in the early and wide removal of carcinoma from more easily accessible regions, such as the breast and the larynx.

We have no medical means which are of service in a curative way in the treatment of carcinoma, and the newly-discovered agent, the röntgen ray, which is being experimented with, has proved reliable only in the most superficially situated cancers, and of little or no value in the deepseated cases. From our present knowledge, therefore, there is but one way of curing cancer of the stomach, and that is by removal by surgical operation. This fact must be insisted upon, because even among the intelligent and well-qualified members of our profession there are still to be found many who regard cancer of the stomach as a necessarily fatal disease, and one in which the duty of the physician has been fulfilled when he has made a diagnosis and advised the usual means of palliation, *i. e.*, special diet, morphin, etc.

What can surgery do for sufferers of carcinoma of the stomach? It can cure them if the cases are early diagnosed, and if operation is done at a time when the entire focus of disease can be removed. How many of these patients does surgery cure today? Probably about 10% permanently. This percentage would undoubtedly be greatly increased if the general profession accepted the truism that cancer of the stomach is a surgical disease as far as treatment is concerned, and urged their patients to seek surgical relief as soon as a probable diagnosis of such a condition is made. And, again, undoubtedly the percentage of recoveries will increase in just the proportion that more refined means of diagnosis are discovered which will enable us to discover the existence of cancer of the stomach at an earlier period.

What are the risks of death from the operation itself? Probably about 20% to 25%. This, although great, compares very favorably with the risks due to the continuance of the disease, *i. e.*, 100%. Out of 100 cases in which operation was done for cancer of the stomach, and in which the disease is removed by pylorectomy or partial or complete gastrectomy, about 25 patients die from the operation. Ten are permanently cured, and 65 are given more or less complete relief for various periods of time. Usually this relief is very complete, much more complete than the palliation of special diet and morphin, and even when recurrence takes place the picture is not nearly as distressing as the death from the original condition. I think that I have fairly stated the facts, and although by itself the picture is gloomy, it is roseate with life and hope compared with the picture of utter hopelessness and despair of the 100 cases which have not been given the chance of surgical treatment. The purely palliative operations for cancer of the stomach are not nearly as satisfactory as the operations for the radical removal of the disease. In fact, the most satis-

[1] Read before the Illinois State Medical Society, May 16, 1905.

factory of these cases are those in which the operation cures the patient and proves that he did not have cancer at all, and these cases which are by no means uncommon, furnish really the strongest argument for the performance of these palliative operations. There is, however, a certain limited field for those palliative operations, *i. e.*, cases in which the pylorus obstruction is marked, in which the invasion is so extensive as to make a radical operation impossible, and yet in which a considerable amount of stomach tissue is free from disease. Here a rapid gastroenterostomy is warranted. Gastroenterostomy for malignant disease carried with it from 10% to 20% of mortality, and in the patients who recover, life is prolonged from six weeks to a year. Some of these patients are greatly benefited, gaining from 20 to 40 pounds in weight, and obtaining marked, sometimes complete, relief from former symptoms. The relief obtained is more complete than can be obtained by any other means. The short respite is, however, soon followed by either recurrence of symptoms or gradual exhaustion and death from general carcinosis.

Most of our operations for cancer of the stomach are begun as exploratory operations and the exact procedure determined upon only after an intimate survey of the parts after opening the peritoneal cavity. Then the operation either results in an attempt at a radical removal, *i. e.*, a partial or complete gastrectomy, when such procedures would remove all the macroscopic lesion; or in a gastroenterostomy, when such removal is an impossibility, and, as stated before, the pyloric obstruction is marked, and there still remains most of the stomach uninvolved; or an exploratory operation, in which radical operation is out of the question, and in which either the pylorus is free, or, if obstructed, is accompanied with such a small amount of uninvolved stomach tissue as to make a gastroenterostomy very difficult, or lead one to suppose that the palliation would be but a matter of weeks and not worth the while. I would make a plea for a more general recognition of the fact that surgical treatment of stomach carcinoma is the only treatment to be considered, except in the absolutely hopeless cases. Compared with all other methods, it is of very great value. Our aim must be to improve our methods of diagnosis, and endeavor to obtain these cases early in the history of the process. Our operations should, for the most part, be either radical removal or purely exploratory in the advanced cases, and not, as now, unfortunately, so largely the palliative operation of gastroenterostomy.

In regard to technic, the operation of pylorectomy or partial, even extensive gastrectomy in suitable cases presents little difficulty to the surgeon today, thanks to the rather simple and satisfactory methods that have been developed. A carcinoma involving the pyloric end of the stomach is removed in the following steps: The omentum, extending from the duodenum and the great curvature of the stomach to the transverse colon is divided for the extent required after being properly tied off with chain ligature. The omentum, extending from the duodenum and lesser curvature of the stomach to the liver, is tied off and divided in the same way. This frees the portion of the stomach and duodenum to be removed, so that large stomach clamps can be applied, two to the duodenum, close together and well beyond the disease, and two also close together on the stomach, very widely beyond the cancer.

A study of the extension of cancer near the pyloric end shows a far greater tendency to invasion of the stomach than of the duodenum, and, as both Mayo and Moynihan have pointed out, this fact demands a much wider removal of the apparently normal tissue on the stomach than on the duodenal side. The duodenum is divided between the clamps, and then the stomach in the same way, thus widely removing the disease. The duodenum is closed by invaginating its end with a pursestring suture of silk, and a second pursestring of catgut. The stomach is closed with, first, a continuous suture of silk through all coats, and then a Lembert of either silk or catgut. The operation is now completed by making an anterior gastroenterostomy between the stomach and a loop of jejunum about 15 inches from its beginning. This is essentially the second Billroth method, and is the one which is best in almost all cases. Occasionally a carcinoma is so limited to the body that a resection of but part of the stomach wall is indicated, a strictly partial gastrectomy; and a few cases will be found in which the lesion is so extensive that a complete gastrectomy must be made. In technic there is little difference between an extensive operation by the second Billroth method and a complete gastrectomy. In doing a gastroenterostomy for carcinoma, an anterior gastroenterostomy with McGraw ligature, or an anastomosis either posterior or anterior, either with Murphy button or suture, can be made. Personally, I think there is not much choice between these methods. I use the suture, and prefer it to the mechanical appliances. There can be no doubt but that splendid results have been obtained by the use of Murphy's button and the McGraw ligature; the advocates of these methods must remember, however, that equally good results have been obtained with the suture.

Stomach Ulcer.—The wellknown statistics of Welch show that ulcer of the stomach is an exceedingly common disease, occurring in about 5% of the population, almost as frequently as hernia. Postmortem findings show many more healed than open ulcers. These two facts—the great frequency of stomach ulcer and the usual spontaneous recovery—demonstrate conclusively to my mind the fact that ulcer of the stomach is primarily a medical disease (if we can employ such a term), *i. e.*, a disease which is to be treated by medical and not by surgical methods. The clinical study of cases also demonstrates this fact. It is fair to say that in from 75% to 80% of cases a cure results from medical treatment. This treatment is essentially one of rest, both general and local; rest in bed, and rest to the stomach by limited bland diet or eventually absolute rest by means of rectal feeding. We can obtain a healing of a stomach ulcer by absolute rest just as we obtain a healing of a varicose ulcer by absolute rest. Many of these patients are very anemic and need building up, which is best done by change of air, scene and occupation, outdoor exercise, such as golf, etc. In some of the milder cases, the patients will recover under these measures alone, and these means of improving the general condition of the patient should always, if possible, supplement and follow the rest cure employed in the severer cases.

When intelligent medical treatment fails, and the symptoms return, and persist, and the patient is invalided, then and not until then does the uncomplicated stomach ulcer become a surgical problem. The complications and sequels of stomach ulcer which demand surgical treatment without question are perforation, obstruction of the pylorus, hour-glass contraction of the stomach, and such secondary conditions as perigastric adhesions and abscess, subphrenic abscess, etc. One of the sequels which must be considered is that of a carcinoma developing in the ulcer. There can be but little doubt but that this does occur very frequently. Fütterer has especially called attention to this fact, and this possible danger is a strong argument in favor of surgical treatment to cure the persistent ulcers. It would seem at first glance that the rational surgical treatment of uncomplicated persistent ulcer would be excision. It has been found, however, that excision is not the best treatment for several reasons. First, stomach ulcer is often multiple, and to excise one might not cure the patient, as others might be overlooked; and, again, not infrequently a duodenal ulcer exists in the same patient. Clinically, it has been found that a gastroenterostomy cures the patient with greater certainty than does excision, and it is apparently not attended by as great risks.

Perforation of a stomach ulcer occurs most frequently in those situated on the anterior wall. The ulcers on the posterior wall and greater and lesser curvatures are more apt to form adhesions with the contiguous organs, as the liver, pancreas, omentum, protecting against perforation, even when the ulcer has involved the entire thickness of the stomach wall. The symptoms of perforation are those of sudden great pain, shock, collapse, etc., which demand immediate surgical interference. A definite diagnosis is not possible in the absence of clear history of the existence of an ulcer, but the symptoms demand an immediate laparotomy without any hesitation, because although a definite and absolute diagnosis cannot be made between perforation of a stomach ulcer and rupture of the gallbladder, of the appendix, of an ulcer of the duodenum, or a case of acute pancreatitis, the surgeon is safe in urging an exploration, inasmuch as all of the lesions which are capable of producing symptoms such as are produced by perforation of a gastric ulcer demand equally prompt interference.

The great majority of cases of perforation can be saved by early surgical interference. Almost all of the patients not operated upon die. The whole question is one of immediate action. If a perforation is operated on within two hours, the prognosis is excellent. If 24 hours go by without surgical relief, but few cases are saved. The technic is exceedingly simple: A midline laparotomy, the exposure of the stomach, the finding of the perforation, usually on the anterior wall, the closure with pursestring suture of silk and over this a second pursestring of silk or catgut. No attempt should be made to excise the ulcer. As a rule, the peritoneal cavity is found full of stomach contents. This is washed out with hot saline solution, and the abdomen is closed, if the operation has been done early, without drainage, or a small cigaret drain. If some hours have intervened between perforation and operation, drainage is indicated. If the perforation is in the posterior wall, this is exposed by tearing the omentum between the stomach and colon in an avascular area, turning the posterior wall into view through this opening, finding the perforation, and closing in the same way, flushing, and if drainage is indicated, draining the lesser peritoneal cavity by a stab wound in the left lumbar region. Moynihan,[1] in a recent lecture, states that of his last 12 cases in which operation was done for perforation, he has lost but two.

Hemorrhage from stomach ulcer is, as a rule, to be treated by rest and expectant treatment. There are a few cases, a small minority, in which it would seem that the patient's chances of recovery were better with than without operation.

Moynihan, who has operated in 22 cases for hemorrhages, divides the cases he has seen with bleeding into four groups: (1) When the hemorrhage is latent or concealed, is always trivial and often inconspicuous; (2) when the hemorrhage is intermittent, but in moderate quantity, occurring spontaneously and with apparent caprice at infrequent intervals. The life of the patient is never in jeopardy from loss of blood, though anemia is a persisting symptom; (3) the hemorrhage occurs generally, but not always, after a warning exacerbation of chronic symptoms. It is rapidly repeated, is always abundant, its persistence and excess cause grave peril, and will, if unchecked, be the determining cause of the patient's death; (4) when the hemorrhage is instant, overwhelming, and lethal.

Moynihan believes the conditions found in group three require surgical interference. If possible, a period in which the patient is comparatively free from hemorrhage and symptoms of shock is to be chosen for the operation.

A number of operations have been suggested—ligation of the bleeding point or points, cautery, ligation of the ulcer in mass, excision of the ulcer, and, lastly, gastroenterostomy. The latter has proved the safest and most successful procedure.

Of Moynihan's 22 cases, he excised the ulcer alone in one case; this was fatal on the eighth day. He excised the ulcer in three cases, and did a gastroenterostomy at the same time, with one death. In 18 cases he simply did a gastroenterostomy, which checked the hemorrhage, and cured the patients in all but a single fatal case. It is reasonable to suppose a gastroenterostomy checks the hemorrhage by stimulating and permitting a contraction of the stomach which checks the hemorrhage in much the same way that contracting of the uterus checks hemorrhage from that organ.

Pyloric obstruction and dilation of the stomach furnish by all odds the most satisfactory groups, as far as the results from surgical treatment are concerned; these cases should practically all be submitted to surgical operation. I know of no more gratifying surgical experience than that furnished by the history of these cases. Taking these poor, starved victims of pyloric obstruction, many of whom have lost a third of their weight, and by a comparatively safe and simple operation one may restore them to health and vigor; I have seen a number of these patients who have gained from 30 to 75 pounds within six months after operation. The operation for benign pyloric obstruction is a properly planned gastroenterostomy. Pyloroplasty, the Heineke-Mikulicz operation, and the exaggerated pyloroplasty of Finney, and the gastroduodenostomy of Kocher may have a limited field, but are not to be regarded as serious competitors of gastroenterostomy as a cure of pyloric obstruction with dilated stomach.

As to the technic of gastroenterostomy, much has been written and much careful study is being given at present to the subject. In my limited time I cannot review this entire subject. I desire to say I am impressed with this general proposition that the stomach pouch should be drained at its lowest point and that the opening should be of good size. Whether this is done by suture, by McGraw ligature, or by Murphy's button, I think makes little difference, and whether it is anterior or posterior is also not of much moment.

The ideal operation is the Y-shaped gastroenterostomy of Roux. The objection to the Roux and similar operations done by Mayo, Crile, and others is that they take too long a time for their performance and they carry with them more danger. Taking all facts into consideration, I think that for benign obstruction either a posterior gastroenterostomy with a short loop, done as recommended by Moynihan, with clamp and suture, or a very low anterior anastomosis with a 15 in. to 20 in. loop, done with clamps and suture, or with McGraw ligature, offers the operation of choice. These simple operations give extremely satisfactory results, both immediate and permanent. I think fully as good as the more complicated methods.

A few cases of vicious circle, and more or less persistent vomiting and distress, will occur, no matter what method is employed. In this connection I want to call attention to the value of the castor-oil treatment in cases of vomiting after gastroenterostomy. I have employed it in ½ oz. to 1 oz. doses, two or three times a day, for several weeks, in a number of these cases, with marked benefit and permanent relief from the symptoms, and I would recommend its employment.

Gastroenterostomy for benign obstruction of the pylorus should not carry with it a greater mortality than 5%; a mortality which is very small when compared with the dangers of the continuance of the condition itself. The safety of the operation in benign disease is shown by Moynihan's remarkable series of 153 gastroenterostomies, done mostly with clamp and suture, with but 2 deaths.

Hour-glass stomach due to cicatricial contraction, due to ulcer, is a condition not infrequently met. When the pylorus is free, a plastic gastroplasty uniting

[1] British Medical Journal.

the two pouches in one, will suffice, if pyloric obstruction exists, or in cases of great dilation a gastroenterostomy may also be required. A diagnosis can sometimes be made before operation, but the cases are usually discovered only at the time of opening the abdominal cavity in an operation for supposed pyloric obstruction. Such complications as perigastric abscess, subphrenic abscess, and adhesions are to be treated along the well-known surgical lines of well-planned and efficient drainage and separation of adhesions and restoration of the structures to as near as possible the normal conditions.

The surgery of the stomach has advanced to a point where it can claim recognition alongside of the surgery of the bile tracts, the surgery of the kidneys, the surgery of the appendix, and the surgery of the female genitals, for it has been shown that much can be done by surgical procedures for lesions of the stomach which could not be done by any other means.

In cancer it is our one present hope. In ulcer and its complications it can save lives and restore health and accomplish an enormous amount of good. The surgery of the stomach is advancing. We must keep pace with it, and give to our patients the benefits of its demonstrated possibilities.

CRYOSCOPY OF THE BLOOD AND URINE IN NEPHRITIS AND UREMIA.

BY

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At the suggestion of Dr. Frank Billings, I endeavored to determine the practical value of cryoscopic examination of the blood and urine as an aid to diagnosis in these conditions. Before entering upon the discussion of the subject matter, I think it advisable to describe briefly the apparatus and technics.

The apparatus devised by Beckman has been used throughout. This consists of the following parts:

1. A glass jar 5 inches by 7 inches fitted with a metal top, having four openings for the tubes, thermometers, etc.

2. A large test-tube 6 inches by 1½ inches, known as the "air-tube." Inside of this is fitted the tube for liquids, having a side arm, known as the "inside tube," fitted with perforated rubber stoppers.

3. Standard thermometer, Heidenhain model, graduated in .01° C., the scale registering from +.5° C. to —5.0° C.

4. Small thermometer graduated in 1° C.; scale from +10° C. to —10° C., to regulate temperature of the bath.

5. One large stirrer for salt and ice mixture; one smaller, for liquid to be frozen.

6. One cooling tube for cooling liquids before freezing.

The glass jar is nearly filled with a mixture of cracked ice, salt and water, and the parts adjusted. The specimen to be frozen is poured from the cooling tube into the inside tube (which must be absolutely clean and dry), until the mercury bulb of the large thermometer is entirely immersed in the fluid. The tube is now returned to its place in the "air tube" and the fluid stirred constantly until the process is completed.

The mercury in the large thermometer will gradually fall until it has reached a point several degrees below the true freezing-point of the fluid. As congelation occurs the latent heat developed causes the mercury to rise rapidly until the true freezing-point is reached. Here it remains constant for a short time only, then begins to fall to the temperature of the surrounding fluid. The highest point should be recorded as the true freezing-point. If one is in a hurry, the process can be hastened by adding a small crystal of dry, clean ice to the liquid after the temperature is below the probable true freezing point of the fluid. This does not interfere with the results in any way.

If blood is to be frozen, it is obtained by puncturing one of the superficial veins of the forearm in the usual manner, after cleansing the skin with soap, water, alcohol, and mercuric chlorid solution. A constrictor is tied about the arm above the elbow, which causes the veins to become more prominent and facilitates the procedure. The skin is pinched up between the thumb and finger, and the needle quickly plunged beneath, as in giving a hypodermic, and later introduced into the vein. This process is no more painful than is the administration of an ordinary hypodermic, and is entirely free from danger, if properly done. A 10 cc. Luer syringe is used, and after it has been filled, the constrictor is removed, the needle withdrawn, and the puncture sealed with sterile collodion (no dressings are required). The entire process does not require more than 15 minutes and does not cause the patient any inconvenience whatever. Should the patient be very nervous, we can easily freeze the skin by using one of the sprays, as ethyl chlorid or bromid. The blood is preferably frozen immediately after its withdrawal, but may be safely kept on ice for 12 or 24 hours without losing any of its characteristics.

Certain precautions must always be observed, and it is necessary to keep these constantly in mind:

1. The thermometer must be tested before each determination, as it varies from .01° C. to .02° C. from day to day. This is readily done by freezing distilled water, which should freeze at the zero mark. A 1% salt solution freezes normally at —.612° C., and this may be used if desired.

2. Stirring must be continued uninterruptedly from beginning to end.

3. The mercury bulb of the thermometer must be entirely covered by the fluid to be frozen, and must not touch the bottom of the inside tube, as this will change the result.

4. The temperature of the bath should not be below —2.5° C. to —3.° C.

5. Keep the tubes well corked, and work rapidly.

6. The specimens of blood and urine must be frozen before any decomposition occurs, as this changes their molecular concentration.

7. Do not use preservatives in the urine or blood.

8. Always clean and dry the inside tube and everything coming in contact with the fluid to be frozen before beginning work, as any moisture will interfere with the accuracy of the result.

9. The technic must be mastered before any trustworthy results can be obtained. This is acquired by using distilled water and 1% salt solution, until constant results are obtained.

10. Work under the same conditions from day to day, keeping out of the sunlight and away from draughts or cold currents of air.

Material.—The material used for this work was obtained chiefly from patients in the Presbyterian and Cook County Hospitals, and from the Central Free Dispensary.

The 24-hour specimen of urine was always collected with great care and kept in a cool place to prevent decomposition. The blood was always obtained by venous puncture just before it was to be frozen. The entire blood has been used throughout my work, because it answers every requirement in clinical work. Patients were on the usual diet, and no effort was made to restrict either foods or liquids taken, unless expressly so stated.

Normal urine was obtained from the internes, medical students, and patients known to be free from kidney disease, as determined by a careful urinary examination. Normal urine was found to have a freezing-point varying from —0.98° C. to —2.56° C. in my series of 30 cases, the average being —1.46° C. Blood of normal individuals, old or young, has a constant freezing-point;

the average for my cases was —0.56° C. (physiologic variations from —.55° C. to —.57° C.). Besides determining the freezing-point of the blood and urine, the chlorids and urea were estimated in the urine in many of our cases, as will be shown in the following tables:

TEN SPECIMENS OF NORMAL URINE AND BLOOD TAKEN AT RANDOM FROM THIRTY PATIENTS EXAMINED.

Name.	Am't, 24 hrs.—cc.	Sp. gr.	Freezing-point, °C.	Urea, per cent.	Chl'rids, per cent.	Freezing-point of blood.
D. J.....	1,560	1,022	—1.980	2.	.80	—0 56
M. G...	1,600	1,018	—1.300	2.2	.46	—0.55
D. R.....	1,250	1,016	—1.155	1.5	.37	—0 56
Dr. B...	1 300	1,030	—2.145	2.5	1.19	—0 56
J. F.....	1,500	1,022	—1.735	1.6	.74	—0.56
R. S.....	1,000	1,030	—1.705	1.9	1.21	—0.57
T. S.....	1,100	1,018	—1.375	1.2	.72	—0 56
F. J.....	1,420	1,020	—1.920	2.2	.62	—0.56
D. C.....	1,200	1,025	—1.610	1.2	.80	—0 56
D. K....	1,000	1,018	—1.320	1.4	.47	—0.56
T. R.....	1,590	1,022	—1.980	2.	.89	—0.56

These results agree so closely with those of Koranyi, Lindemann, Dreser, and others that no further comment is necessary.

In regard to the relationship between the freezing-point and the specific gravity, we may make the general statement that in normal urine the lower the freezing-point, the higher the specific gravity, and vice versa. There does not appear to be any constant relationship between the percentage of urea or chlorids and the freezing-point, although if both are increased, the freezing-point is lowered, as a rule.

TEN SPECIMENS OF URINE COLLECTED FROM A SERIES OF TWENTY-SIX CASES OF PASSIVE CONGESTION, DUE TO CARDIAC DISEASE.

Case.	Am't, 24 hrs.—cc.	Sp. gr.	Freezing-point, °C.	Urea, per cent.	Chl'rids, per cent.	Freezing-point of blood.
B.....	1,020	1,013	—1.01	1.6	.46	—0.55
S. M....	1,100	1,010	—0.88	1.2	.34	—0.549
F. T.....	650	1,023	—1.46	2.1	.59	—0.56
B. Z.....	1,000	1,013	—1.01	0.9	.82	—0.56
S. R.....	350	1,026	—2.20	1.8	1.02	—0.57
Mc.....	400	1,011	—1.07	1.5	.16	—0.56
Desj. ...	1,500	1,020	—0.96	1.4	.70	—0.56
C. S.....	780	1,015	—1.21	0.6	1.19	—0.56
R. J.....	1,200	1,012	—0.75	0.8	.43	—0 56
P...	900	1,021	—1.34	1.7	.68	—0.57

These cases were collected at random and the clinical diagnosis based upon the heart findings, general edema, dyspnea, slight cyanosis, general condition of patients, and the negative urinary findings. In two cases autopsy confirmed clinical diagnosis and showed absence of nephritis.

It will be noticed that the freezing-point of the urine is higher and the chlorids lower than in the normal urines in preceding table.

In those cases showing high percentages of chlorids the edema was decreasing at the time of examination, and this seems to be a factor in the increase of chlorids in the urine. In case "Mc.," showing only .16% of chlorids, the edema was increasing and the patient's condition growing rapidly worse. The same observation was made in several other cases, and there seems to be some relationship between the amount of chlorids excreted and the retention of fluids in the tissues of the body. This fact has been mentioned by Widal and others, who have made extensive studies along this line.

In addition to the evidences of cardiac disease, these cases all presented positive signs of nephritis. No effort has been made to designate the type of nephritis present in the foregoing list, but from a study of the amount and character of the urine, the specific gravity, the amount of albumin and varieties of casts present, we might venture an opinion as to the type existing. There seems to be no constant relationship between the freezing-point and the specific gravity in this series, but the general rule, that the higher the specific gravity the lower the freezing-point, holds good.

TEN CASES OF COMBINED RENAL AND CARDIAC DISEASE TAKEN FROM A SERIES OF FIFTY-TWO STUDIED.

Case.	Amount.	Specific gravity.	Freezing-point of urine.	Urea, percent.	Chlorids, percent.	Albumin.	Casts.	Freezing-point of blood.
H. S.	1,950	1,011	—0.76	0.7	0.63	+	Hyaline+.	—0.56
Miss A.	1,560	1,020	—0.96	1.3	0.62	++	Hyaline+, granular+, epithelial+.	—0.55
J. K..	350	1,026	—2.27	2.4	0 96	+++	Hyaline+, granular++, epithelial+.	—0.57
R. C..	1,000	1,013	—1.01	1.3	0.34	+	Hyaline, granular.	—0.56
B. M.	400	1,012	—1.17	0 8	0.23	+++	All varieties.	—0.56
R. S..	1,500	1,020	—0.96	1.2	0.73	++	Hyaline, granular.	—0.55
J. B...	1,980	1,012	—0.74	0 40	0.84	+	Hyaline.	—0.54
F. B..	1,060	1,014	—1.49	1.40	0.90	++	Hyaline, granular.	—0.56
R. M.	450	1,011	—0 65	0.5	0.38	+++	All varieties.	—0.56
B. Z..	3,150	1,009	—0.72	0.2	0.16	+	Hyaline.	—0.55

In this series we have two factors to deal with, namely, the cardiac disease and the renal insufficiency.

According to Koranyi, the chlorids are diminished in passive congestion, although the urine, as a whole, is more concentrated than normal. Lindemann has shown that any form of nephritis lessens the concentration of the urine and causes its freezing-point to rise. From this it will be seen that the two conditions have a tendency to neutralize each other, and we have no means of determining accurately the part played by each organ in producing these changes.

The chlorids are more abundant in my series than in those quoted by other writers on this subject. This may be accounted for by the more liberal diet allowed our patients and the restriction of fluids in all cases of cardiac disease.

Medication is another factor to be taken into consideration. Most of our cardiac patients were given digitalis, and cathartics were used freely on account of the renal complication. These remedies are known to have directly opposite tendencies. Digitalis, by increasing blood-pressure, decreases the molecular concentration of the urine, whereas, cathartics have a tendency to concentrate it.

The blood in these cases was rarely affected to an appreciable degree and froze within the normal limits in every case. In a few cases, with marked cyanosis, it approached the limits, but it never reached lower than —0.57° C. From what has been said, it is evident that cryoscopy is of little, if any, value as an aid to diagnosis in these cases.

Lindemann states that he has been able to differentiate between an acute or chronic parenchymatous and an interstitial nephritis by means of a careful cryoscopic examination of the urine alone, and claims to have observed a case of chronic parenchymatous nephritis pass into the chronic interstitial variety, noticing decided and characteristic changes in the urine!

I have made several hundred estimations of the freezing-point of the urine in nephritis and was never able to say, from this step alone, which variety of the disease was present in a particular patient.

I find, however, that the general rule, formulated by Dreser, and later confirmed by Lindemann, holds good, namely, "a freezing-point of urine constantly above —1.° C., the quantity remaining normal, indicates the presence of nephritis." The opposite, however, does not hold good, as the urine may be more concentrated than normal and nephritis still be present.

In the following tables I have divided the cases into several groups, the division being based purely upon the clinical diagnosis, as determined by the history, the etiologic factors, general condition, and a careful chemic and microscopic examination of the urine. In several cases the diagnosis was confirmed by autopsy. I realize the danger in grouping cases of nephritis on clinical and laboratory evidence solely, but when this evidence was

positive for, and negative against, certain types, I deemed it advisable to risk it, since we have no other method better adapted to such classification.

FORTY-EIGHT CASES OF ACUTE NEPHRITIS (PARENCHYMATOUS TYPE).

	Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine.	Freezing-point of blood.
1	Mrs. B.....	400	1,030	—1.06	—0.56
2	J. R.....	460	1,030	—1.06	—0.55
3	F. Q.....	850	1,023	—1.48	—0.56
4	S. M.....	920	1,020	—1.35	—0.56
5	M. J.....	1,200	1,016	—1.44	—0.56
6	Mr. Z.....	800	1,016	—1.41	—0.55
7	Rev. H.....	350	1,027	—1.22	—0.57
8	J. S.....	150	1,015	—1.65	—0.57
9	S. S.	1,225	1,021	—1.01	—0.56
10	J. S.....	420	1,022	—1.45	—0.55
11	M. A.....	600	1,025	—1.51	—0.55
12	A. G.....	550	1,021	—1.57	—0.56
13	S. R.....	620	1,023	—1.68	—0.56
14	F. A.....	260	1,025	—1.75	—0.57
15	G. W.....	560	1,020	—1.67	—0.56
16	F. M.....	550	1,015	—1.12	—0.56
17	Fox	230	1,020	—2.20	—0.57
18	S. A.....	270	1,028	—1.90	—0.56
19	P. J.....	600	1,032	—1.78	—0.55
20	F. R..... ..	800	1,019	—1.56	—0.56
21	F. G	250	1,025	—1.63	—0.56
22	M. A.....	380	1,023	—1.92	—0.56
23	P. G.....	650	1,017	—1.17	—0.55
24	G. A.....	800	1,023	—1.63	—0.56
25	G. T.....	850	1,026	—1.95	—0.56
26	D. F.....	460	1,021	—1.38	—0.55
27	D. M.....	640	1,026	—1.76	—0.56
28	D. F.....	650	1,025	—1.81	—0.56
29	M. J	250	1,036	—2.20	—0.56
30	R. Y.....	360	1,026	—1.77	—0.56
31	F. B.....	450	1,020	—1.18	—0.56
32	R. H.....	1,100	1,020	—1.49	—0.57
33	S. M.....	450	1,030	—1.74	—0.55
34	A. S.....	200	1,029	—1.78	—0.56
35	J. F.....	260	1,031	—1.75	—0.56
36	E. G	340	1,027	—1.68	—0.56
37	D. J.....	240	1,030	—1.71	—0.57
38	E. D.....	670	1,025	—1.75	—0.56
39	J. R	1,020	1,020	—1.72	—0.55
40	J. Q.....	900	1,018	—1.32	—0.56
41	R. F.....	760	1,023	—1.46	—0.56
42	F. W.....	420	1,026	—1.63	—0.56
43	J. R.....	800	1,019	—1.30	—0.55
44	B. J	780	1,020	—1.56	—0.56
45	J. F.....	360	1,020	—1.90	—0.56
46	R. R.....	550	1,021	—1.85	—0.56
47	H. M.....	700	1,023	—1.47	—0.56
48	F. H.....	950	1,018	—1.75	—0.56

Since we are concerned only in the value of the cryoscopic examination of the urine and blood in nephritis, the determination of the chlorids and urea has been omitted in the accompanying tables.

Analysis of these tables shows the following results:

1. In acute parenchymatous nephritis, the freezing-point of the urine has not been found to rise above that of normal urine. In two cases the urine was very concentrated and froze at —2.20° C. The quantity of urine excreted has been uniformly below the normal, with a higher specific gravity. The clinical and laboratory evidence all pointed strongly toward an acute parenchymatous nephritis, and in seven cases the diagnosis was confirmed at autopsy.

The average freezing-point in these 48 cases was —1.54° C., the average specific gravity 1.020, and the average freezing-point of the blood was —.56° C., or practically normal in every case.

2. In chronic parenchymatous nephritis, the freezing-point of the urine was higher than normal in almost every case, the average for 54 cases being —1.02° C.; the specific gravity was below the normal, averaging 1.013. No change in the freezing-point of the blood was noticed, unless uremic symptoms were present. This phase of the subject will be presented later under the general consideration of uremic conditions.

In this type of nephritis, we might employ cryoscopy to advantage as a confirmatory process, but usually a careful chemic and microscopic examination is sufficient to make a diagnosis, especially when the clinical evidences are carefully considered as well.

3. In chronic interstitial nephritis, the freezing-point was considerably above the normal in every case, showing a urine of low concentration. The daily amount was usually above normal, the specific gravity lower—(average for 86 cases being 1.009.)

The average freezing-point of the urine was —0.69°C. (extremes —.42° C. and —1.06° C.). The blood varied more in this type than in the others, and was less concentrated than normal in several cases. In three cases it was more concentrated, showing a freezing-point of —.64, —.59,—.59° C., respectively, but here, uremia was either present or came on within a few hours. If the urine is

FIFTY-FOUR CASES CHRONIC PARENCHYMATOUS NEPHRITIS.

Case.	Amount in 24 hrs.—cc.	Specific gravity.	Freezing-point of urine.	Freezing-point of blood.
1.....	1,800	1,012	—1.04	—0.56
2.....	1,100	1,017	—0.86	—0.56
3.....	1,870	1,012	—1.17	—0.55
4.....	800	1,015	—0.87	—0.56
5.....	760	1,018	—1.08	—0.56
6.....	1,200	1,017	—0.72	—0.56
7.....	1,260	1,017	—1.07	—0.55
8.....	800	1,021	—1.60	—0.56
9.....	1,600	1,015	—1.24	—0.55+
10.....	1,800	1,016	—1.37	—0.56
11.....	2,000	1,012	—1.01	—0.55—
12	1,100	1,013	—0.94	—0.56
13..... ...	1,050	1,018	—1.49	—0.56
14.....	2,000	1,017	—1.20	—0.56
15	1,100	1,012	—0.85	—0.56
16	1,020	1,016	—0.95	—0.55
17.....	2,000	1,015	—0.98	—0.56
18.....	1,090	1,018	—1.03	—0.56
19.....	850	1,017	—1.13	—0.57
20.....	1,300	1,020	—1.38	—0.57
21.....	1,500	1,010	—1.11	—0.56
22	1,400	1,018	—0.65	—0.55
23.....	1,750	1,012	—0.86	—0.56
24.....	1,500	1,011	—1.35	—0.56
25	850	1,016	—0.94	—0.57
26.....	760	1,018	—1.05	—0.56
27.....	2,100	1,015	—1.15	—0.54
28.....	1,600	1,010	—0.98	—0.56
29.....	1,400	1,016	—1.01	—0.56
30.....	1,650	1,012	—1.15	—0.56
31.....	1,800	1,015	—0.98	—0.55
32.....	1,300	1,014	—0.99	—0.56
33.....	1,450	1,015	—1.08	—0.56
34.....	1,200	1,012	—1.05	—0.57
35.....	1,060	1,018	—1.16	—0.56
36.....	2,000	1,010	—0.78	—0.56
37.....	1,700	1,012	—0.90	—0.56
38.....	1,000	1,016	—0.92	—0.56
39.....	1,200	1,018	—0.97	—0.57
40.....	1,300	1,018	—1.13	—1.55
41.....	1,560	1,012	—0.78	—0.56
42	1,400	1,013	—1.29	—0.56
43.....	900	1,020	—0.98	—0.56
44.....	850	1,018	—0.70	—0.55
45.....	1,090	1,017	—0.87	—0.56
46	1,300	1,016	—1.15	—0.55
47	1,500	1,012	—0.88	—0.56
48.....	1,700	1,010	—0.76	—0.57
49	1,650	1,012	—1.02	—0.56
50.....	800	1,021	—0.75	—0.54
51.....	2,100	1,013	—0.70	—0.56
52.....	1,700	1,016	—1.16	—0.56
53.....	1,600	1,015	—1.03	—0.56
54	1,100	1,019	—1.05	—0.56

frozen in these cases from day to day, it will be noted that the concentration is less influenced by taking large amounts of fluid than is the case in normal individuals. This fact was noticed by Kovesi, Roth-Schulz and others, and has given rise to the socalled "filtration" test, for determining renal sufficiency.

If we remember the difficulty experienced in differentiating between the secondarily contracted kidney of chronic parenchymatous nephritis, the arteriosclerotic form and the kidney of chronic interstitial nephritis, we can expect but little aid from a cryoscopic examination of the renal secretions alone.

Cryoscopy may aid us in determining the presence of a nephritis, but more than this we dare not hope for. If we do, we are doomed to disappointment.

4. Fifteen cases of the arteriosclerotic or senile arteriosclerotic type were examined, with the following results:

The urine in most of these cases was increased in amount, the specific gravity was low, and the freezing-point was above the normal. The average freezing-

point of urine was —0.76° C. (Extremes, —.52° C. and —0.99° C.) The average specific gravity was 1.009+ and the blood froze within normal limits in every case, average —0.56° C.

5. Three cases of amyloid kidney were examined,

EIGHTY-SIX CASES OF CHRONIC INTERSTITIAL NEPHRITIS.

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine.	Freezing-point of blood.
1	2,800	1,010	—0.67	—0.56
2	1,700	1,009	—0 59	—0.56
3	1,600	1,010	—0.59	—0.56
4	2,100	1,011	—0.68	—0.56
5	600	1,023	—0.57	—0.57
6	2,600	1,006	—0.69	—0.55
7	1,860	1,011	—0 78	—0.56
8	1,700	1,012	—0 54	—0.55
9	1,900	1,008	—0.57	—0.56
10	2,020	1,008	—0.70	—0.56
11	2,900	1,007	—0 51	—0.57
12	1,800	1,009	—0 53	—0 56
13	2,360	1,005	—0.76	—0 54
14	2,400	1,006	—0.78	—0.55
15	2,600	1,007	—0.48	—0.56
16	3,000	1,013	—0.76	—0 54
17	3,500	1,011	—0.42	—0.55
18	2 250	1 009	—0.69	—0.56
19	2,400	1,010	—0.62	—0 56
20	2,000	1,017	—0.68	—0.56
21	1,800	1,013	—0.69	—0 56
22	1,000	1,011	—0.72	—0.56
23	2,100	1,007	—0.72	—0 56
24	1,950	1,011	—0.58	—0.56
25	3,150	1,006	—0.73	—0 55
26	1.780	1,010	—0.65	—0 56
27	1,900	1,009	—0.76	—0.56
28	* 200	1.026	—0.68	—0.64
29	3.000	1,011	—0.80	—0.55
30	2.300	1.008	—0.53	—0.56
31	2,600	1,006	—0.70	—0.56
32	1,910	1,010	—0 68	—0.57
33	2.000	1,012	—0.74	—0.56
34	* 450	1.017	—0.65	—0.59
35	700	1,011	—0.46	—0 56
36	1,100	1,012	—0.82	—0.56
37	1,860	1,007	—0.79	—0 55
38	1,500	1,009	—0.82	—0.56
39	2.200	1,010	—0 57	—0.56
40	1,900	1,009	—0.78	—0.56
41	1,650	1,008	—0.90	—0 55
42	950	1,017	—0.98	—0.56
43	1,400	1,015	—0.69	—0.57
44	1,800	1,012	—0.77	—0.56
45	2.200	1,006	—0.70	—0 56
46	2,450	1.007	—0.90	—0.56
47	1,700	1,012	—0.89	—0 56
48	1,600	1,013	—0.90	—0.55
49	1,150	1,016	—0.97	—0.56
50	1,300	1,019	—0.99	—0.56
51	1.800	1,009	—0.68	—0 55
52	2,150	1,007	—0.62	—0.56
53	2,300	1,008	—0.67	—0.54
54	2,600	1,006	—0.65	—0 56
55	2,000	1 009	—0.78	—0 56
56	2.100	1,010	—0.92	—0 56
57	2,800	1.006	—0.62	—0 55
58	3.250	1,005	—0 57	—0.56
59	1,900	1,012	—0.80	—0.56
60	2,100	1,011	—0.88	—8.56
61	2,300	1,008	—0.79	—0 56
62	2,040	1,008	—0.70	—0.55
63	1,300	1,017	—0 98	—0.56
64	3,180	1,005	—0.59	—0 55
65	1,600	1,013	—0.81	—0.56
66	1,750	1,014	—0.97	—0.56
67	2,200	1,010	—0 86	—0 56
68	1,550	1,015	—0.90	—0.55
69	1,400	1 012	—0.88	—0 56
70	* 870	1,019	—1 01	—0.59
71	3,800	1.005	—0.54	—0.56
72	2,150	1,008	—0.77	—0 56
73	2,300	1.006	—0.67	—0.56
74	1,900	1.008	—0.75	—0.55
75	2,800	1,007	—0.72	—0 56
76	1,650	1.010	—0.72	—0 56
77	1,400	1.012	—0.69	—0.56
78	2,700	1.007	—0 58	—0.56
79	3,100	1.005	—0.59	—0.57
80	3,500	1,007	—0.67	—0 55
81	3,160	1,008	—0.70	—0.06
82	1,900	1.012	—0.80	—0.56
83	2,100	1,008	—0.81	—0.55
84	2,000	1,011	—0.83	—0.56
85	1,200	1,017	—1.00	—0.56
86	1,750	1,015	—0.94	—0.55

and while it is not a true nephritis, the changes in the urine are so similar to those occurring in nephritis that we usually class it with this disease.

The urine in amyloid disease was increased in amount, of low specific gravity and a high freezing-point, showing that there is a disturbance of renal function, as evidenced by the decreased molecular concentration of the urine. Since there are only three cases of amyloid disease recorded, no further comment is necessary at this point.

We all know that nephritis in any form is accompanied by a disturbance of renal function, as shown by the characteristic changes occurring in the urine.

The greater the pathologic changes in the kidney, the more marked is the disturbance of function. This is manifested not only by changes in the urine, but also, to some extent at least, by changes in the composition of the blood. Substances normally excreted in the urine

FIFTEEN CASES ARTERIOSCLEROTIC KIDNEY (?) (SENILITY).

Case.	Amount in 24 hrs.—cc.	Specific gravity.	Freezing-point of urine.	Freezing-point of blood.
1	1,700	1,009	—0.59	—0 54
2	2,950	1,005	—0.52	—0.56
3	2,100	1,009	—0.69	—0.55
4	2,500	1,006	—0.71	—0.55
5	2,600	1,010	—0.94	—0.56
6	2,300	1,012	—0.99	—0 55
7	2,100	1,015	—0.98	—0.56
8	2,050	1,009	—0.73	—0 56
9	1,970	1,012	—0 92	—0.55
10	2,360	1,008	—0.69	—0.56
11	2,400	1,007	—0.63	—0.56
12	2,000	1,012	—0.85	—0.55
13	1,600	1,013	—0.94	—0.56
14	1,850	1,011	—0.78	—0.56
15	2,800	1,006	—0 56	—0.54

THREE CASES AMYLOID KIDNEY.

1	2,500	1,012	—0.685	—0.57
2	2,060	1,006	—0.65	—0.56
3	3,300	1,008	—0.68	—0.56

are retained in the tissues of the body. So long as the tissues of the body are able to retain these deleterious molecules, no changes of consequence are noted in the circulating blood, but just so soon as the tissues are no longer able to retain these molecules, they reenter the blood stream and cause a hypertonicity of this medium. This is at once shown by a decrease in the freezing-point; that is, the freezing-point is lower than normal. At first it may be within the normal limits, but unless the excretory power of the kidney is restored or compensated for by elimination through other channels, as the bowels and skin, we have further accumulation, increased molecular concentration beyond the physiologic limits, and symptoms of uremia occur.

6. *Uremia.*—In none of the preceding cases did the blood show unusual concentration (except in those cases noted as uremic) unless cyanosis was present, which nearly always causes a molecular concentration. The individuals having decreased molecular concentration were either very anemic or suffered from retention of fluids, as edema, anasarca, etc. In a certain number of cases some very interesting changes occurred in the character of both the blood and urine. When daily observations were made of the amount of urine excreted, the specific gravity, and the freezing-point, certain unusual changes were noted. Although the amount of urine was reduced, the specific gravity was not increased as in passive congestion and in acute nephritis, but in many instances it became less than it was before. The freezing-point of the urine was elevated instead of lowered, as one would expect with a decreased amount of urine.

This shows that the urine is less concentrated as well as reduced in amount, and hand in hand with this change in the urine we find a change directly opposite occurring in the blood. Where the blood had frozen within the physiologic limits before, it now showed a marked concentration, as showed by a reduction in the freezing-point. In some cases it dropped from —0.57° C. to —0.64° C. and lower in 24 hours. Coincident with

these changes there was a corresponding change in the clinical picture; that is, all the symptoms of uremia developed. In some instances convulsions and coma followed in a few hours after the observations were made.

The cases of uremia will now be considered more in detail.

CASE I.—Mrs. M., aged 42.

Diagnosis: Uremia; chronic parenchymatous nephritis. Urine: Amount in 24 hours, 1,050 cc.; pale yellow; acid; specific gravity, 1.006; albumin, +++; sugar, 0; indican, 0; urea, .16%.

Microscopic examination: Hyaline, granular, and epithelial casts very abundant; both red and white corpuscles present. Freezing-point of urine, —0.98° C.; freezing-point of blood, —0.60° C. On the following day the patient grew rapidly worse and had a severe convulsion, followed by coma. Urine, catheterized specimen (200 cc.); chemic and microscopic examination same as before; freezing-point of urine, —0.68° C.; freezing-point of blood, —0.64° C. Patient died in coma; no autopsy obtained.

CASE II.—Mr. C., aged 60.

Diagnosis: Chronic interstitial nephritis, with uremic symptoms. Urine: Twenty-four hour specimen not obtained; single specimen, 260 cc.; clear, pale amber, acid; specific gravity, 1.010; albumin, ++; sugar, 0; indican, 0; urea, .2%.

Microscopic examination: Hyaline and granular casts, ++; no blood; few leukocytes. Began to have convulsions during catheterization; venesection done. Blood-serum froze at —0.61° C.; urine froze at —0.63° C. Patient died; autopsy showed marked arteriosclerosis, chronic interstitial nephritis, one kidney being almost entirely replaced by connective tissue, having a very thick adherent capsule. Both kidneys were greatly reduced in size and the right was about a fourth as large as normal.

CASE III.—Mrs. W., aged 46.

Diagnosis: Uremia; catheterized specimen of urine 300 cc. showed the following: Clear, pale amber; acid; 1.006 specific gravity; albumin, ++; sugar, 0; urea, .25%.

Microscopic examination: Hyaline, granular and epithelial casts; red and white corpuscles present. Freezing-point of urine, —0.68° C.; freezing-point of blood, —0.70° C. Patient died in a few hours; no autopsy.

CASE IV.—Mr. M., aged 24.

Diagnosis: Chronic parenchymatous nephritis with an acute exacerbation; uremia. Urine: Amount in 24 hours, 400 cc.; dark brownish; heavy sediment; acid; specific gravity, 1.010; albumin, +++; blood, ++; sugar, 0; urea, .3%.

Microscopic examination: Hyaline, granular, epithelial and blood casts; red and white corpuscles very numerous. Patient became very restless and showed some muscular twitching so venesection was performed (620 cc. withdrawn). Urine freezes at —0.81° C.; blood-serum at —0.61° C. Patient was transfused and began to improve gradually, making a good recovery in three weeks.

During this time the following observations were made: Second day after venesection and transfusion, urine freezes at —0.58° C.; blood freezes at —0.60° C. Seventh day, urine freezes at —0.85° C.; blood freezes at —0.58° C. Fourteenth day, urine freezes at —1.06° C.; blood freezes at —0.56° C. This shows that as soon as the patient's condition improved, certain changes occurred in the freezing-point of the blood and urine, until it reached the normal, at the time of his discharge from the hospital.

CASE V.—F. S., aged 49.

Diagnosis: Acute nephritis; marked edema; acute dilation of heart; uremia. Urine: Amount in 24 hours, 250 cc.; dark amber, clear, acid, 1.018 specific gravity; albumin, +++; sugar, 0; blood, +; urea, .3%.

Microscopic examination: Granular, epithelial and leukocytic casts; white and red corpuscles abundant. Freezing-point of urine, —1.05° C.; of blood, —0.54° C. Patient improved very slowly for several days, then grew suddenly worse, and died in coma after three severe convulsions. Urine obtained just before death by catheterization; amount, 150 cc.; urine freezes at —0.78° C.; blood freezes at —0.57° C. Edema increased again before death, which no doubt accounts for the high freezing-point of the blood.

CASE VI.—Mrs. D., aged 67.

Diagnosis: Uremia. Patient in deep coma. Urine: Catheterized specimen showed abundance of albumin and casts of all kinds; no blood. Blood froze at —0.65° C.; urine froze at —0.58° C. Patient died in a few hours; no autopsy.

CASE VII.—Mr. C., aged 32.

Diagnosis: Chronic parenchymatous nephritis and uremia. Urine: Amount obtained, 640 cc.; clear, amber, acid, 1.020 specific gravity; albumin, ++; sugar, 0; urea, .5%; no blood.

Microscopic examination: Hyaline, granular and epithelial casts; few leukocytes. Freezing-point of urine, —1.65° C.; blood, —0.58° C. Patient made a rapid recovery, and blood and urine were practically normal when he left the hospital, after six weeks.

CASE VIII.—Mrs. D. S., aged 43.

Diagnosis: Chronic diffuse nephritis and uremia. Urine: Amount in 24 hours (October 12, 1904), 1,600 cc.; clear, pale; 1,010 specific gravity; acid; albumin, +++; sugar, 0; blood, 0; urea, .4%.

Microscopic examination: Hyaline and granular casts, +++; few leukocytes; no red corpuscles. October 12, 1904, patient's urine freezes at —1.00° C.; blood at —0.57° C. October 17, 1904, patient's urine freezes at —0.80° C.; blood at —0.62° C. October 20, 1904, patient's urine freezes at —0.58° C.; blood at —0.68° C. The amount remained about the same, as did the specific gravity, but the freezing-point of both the blood and urine changed as noted, and the patient died in coma on the night of October 21.

Autopsy confirmed the diagnosis, showing the chronic interstitial changes more prominent than the parenchymatous.

CASE IX.—Mr. D., aged 48.

Diagnosis: Uremia; chronic interstitial nephritis. Date: November 12, 1904. Amount, 1,800 cc.; pale, clear, acid; 1.014 specific gravity; albumin, ++; sugar, 0.

Microscopic examination: Hyaline casts, ++; granular, +; no blood; few leukocytes; began to grow worse gradually. November 13, 1904, urine froze at —1.080° C.; blood at —0.57° C. November 16, 1904, urine, amount reduced to 850 cc.; 1.012 specific gravity, otherwise the same. Urine freezes at —0.86° C.; blood at —0.60° C. November 25, 1904, urine reduced to 200 cc. in 24 hours; albumin, +++.

Microscopic examination shows great increase in casts also. Urine freezes at —0.58° C.; blood at —0.65° C. Patient died in convulsions a few hours later. No autopsy.

CASE X.—Mr. Z., aged 39.

Diagnosis: Chronic interstitial nephritis; albuminuric and hemorrhagic retinitis; uremia.

This case was studied more exhaustively than any of the preceding, so it will be reported a little more fully. Patient complained of loss of vision and headaches. I saw him first on November 15, 1904, when he was vomiting very severely. During an attack of vomiting he suddenly exclaimed that he was blind. Ophthalmoscopic examination revealed extensive retinal hemorrhages in addition to the albuminuric retinitis. Patient was sent to the hospital that night, and on the way had five severe convulsions, and reached the hospital in a deep coma. He was bled (750 cc.) and transfused with alkaline salt solution. He revived and was conscious for a few hours, when, after several severe convulsions he became comatose again. Venesection and transfusion were done on account of the extreme blood-pressure (260 mm. mercury at wrist) and the patient regained consciousness once more. From now on his improvement was gradual, and he was able to leave the hospital after six weeks.

He was fairly comfortable at home, and regained his vision after 10 weeks. He was up and around most of the time, and frequently took long walks.

I kept him under close observation and made repeated examinations of his blood and urine, the results of which will be tabulated below. On February 25, 1905, the patient grew rapidly worse, having convulsions, after which he sank into coma and died three days later, after having severe hemorrhages from stomach and bowels.

CASE X.—MR. Z., TABULATED.

Date.	24 hrs. —cc.	Sp. gr.	Freezing-point of urine.	Freezing-point of blood.	Alb.	Casts, etc.
11-15-04	2,800	1,009	—0.58	—0.65	+++	Hyaline, granular, epithelial.
11-20-04	1,600	1,008	—0.65	—0.62	+++	"
11-27-04	1,650	1,008	—0.67	—0.58	+++	"
12-20-04	1,800	1,008	—0.67	—0.57	++	"
1- 6-05	2,300	1,007	—0.55	—0.62	+++	"
2-26-05	600	1.009	—0.58	—0.67	+++	"
2-28-05	Cath.	1,008	—0.55	—0.68	++++	"

Patient died on the night of February 28, in deep coma, from which it was impossible to arouse him.

Here we can follow the improvement by observing the freezing-point of the blood and urine, as well as the clinical manifestations. Before the patient complained of any untoward symptoms, as headache, nausea or vomiting and loss of appetite, we could foretell what was to be expected by observing the freezing-point of the blood, which always showed a concentration greater than normal as soon as elimination was interfered with in any way. Although on our guard, and using every means at our command, the patient failed to respond to the most energetic treatment, and died in uremic coma. No autopsy could be obtained.

CASE XI.—Emil S., aged 26.

Diagnosis: Chronic parenchymatous nephritis (acute attack brought on by exposure and alcoholic overindulgence); uremia. December 31, 1904, urine, 800 cc.; clear, pale; specific gravity, 1,014; alkaline (from medicine); albumin, +++; no sugar; blood, +; urea, .2%.

Microscopic examination: Hyaline, granular, epithelial and leukocytic casts; red and white corpuscles, ++; freezing-point of urine, —0.89° C.; of blood, —0.63° C. January 14, 1905, urine, 1,100 cc.; 1.010 specific gravity; albumin, ++; casts same as previous examination; freezing-point of urine, —0.90° C.; of blood, —0.60° C. February 20, 1905, freezing-point of urine,

—0.69° C.; of blood, —0.63° C. February 22, 1905, freezing-point of urine, —0.58° C.; of blood, —0.72° C. Died in coma after 12 hours; no autopsy.

CASE XII.—Mr. G., aged 68.

Diagnosis: Uremic coma. Urine: Catheter specimen, 380 cc.; specific gravity, 1.010; albumin, +++.

Microscopic examination: Hyaline, granular and epithelial casts; some blood; reds and whites. Freezing-point of urine, —0.84° C; freezing-point of blood, —0.74° C.; freezing-point of cerebrospinal fluid, —0.64° C. (cerebrospinal fluid obtained after transfusion and venesection). Patient died in coma three hours later.

Autopsy: Chronic interstitial nephritis with cystic degeneration of right kidney.

CASE XIII.—Mr. B., aged 38.

Diagnosis: Uremic coma. Urine: None obtainable by catheterization. Blood (venesection) freezes at —0.65° C. Patient died 12 hours later; no autopsy obtained.

CASE XIV.—Mr. V., aged 22.

Diagnosis: Chronic parenchymatous nephritis; uremia. Urine, 2,300 cc.; specific gravity, 1.010; pale, clear; albumin, ++; no sugar; blood, +; urea, .27%.

Microscopic examination: Hyaline, granular and epithelial casts.

June 21, 1904, urine freezes at —0.73° C.; blood freezes at —0.56° C. June 30, 1904, urine freezes at —0.53° C.; blood freezes at —0.67° C.

Attending physician cautioned in regard to the danger of uremic convulsions and on the following day patient had severe headache, nausea, vomiting, muscular twitchings and finally a very severe convulsion; comatose for several hours. Venesection performed and transfusion with alkaline salt solution.

July 1, 1904, blood froze at —0.74° C. This was obtained during convulsive attack. July 10, 1904, patient greatly improved and urine freezes at —0.78° C.; blood freezes at —0.60° C. Patient left five weeks later with blood and urine practically normal as to freezing-point and specific gravity.

CASE XV.—Mr. Sch., aged 57.

Diagnosis: Uremic convulsions (monoplegia upper right extremity), cerebral hemorrhage (?). Urine: Catheterized specimen, 300 cc.; dark, acid; specific gravity, 1.018; albumin, ++; sugar, 0; urea, .2%; some blood.

Microscopic examination: Hyaline and granular casts; red corpuscles and leukocytes abundant. Urine freezes at —0.68° C.; blood freezes at —0.72° C. After venesection (750 cc.) and transfusion (500 cc.) normal salt, urine freezes at —0.66° C.; blood at —0.62° C. Spinal puncture done two hours after transfusion and venesection, 30 cc. cerebrospinal fluid withdrawn, which had a freezing-point —0.64° C. After spinal puncture and withdrawal of fluid the patient regained consciousness for a time, then sinking into coma. A few hours later a second lumbar puncture was made, and after withdrawing 20 cc. of cerebrospinal fluid patient opened his eyes and was able to answer simple questions for a time. During the following day patient died in coma. Urine obtained before death had a freezing-point of —0.76° C.; blood, —0.64° C.; cerebrospinal fluid, —0.64° C. Autopsy showed the presence of chronic parenchymatous nephritis; cerebral hemorrhage, left sided, in motor area, about the size of a pigeon's egg.

The blood of other patients suffering from uremia was obtained and frozen, and in nearly every case it showed increased molecular concentration, the freezing-point usually being below —0.57° C. In persons suffering from edema or general anasarca, the freezing-point of the blood is usually within the normal limits, even though uremia exists. This lends some weight to the theory that the chlorids are retained by the tissues rather than in the blood stream. If free fluid was present in any of the serous cavities, it was usually found to compare very closely in its molecular concentration with the blood withdrawn in the same individual. Sometimes it was of higher, sometimes of lower concentration, but usually within the physiologic limits.

From a careful study of the preceding cases we can readily see that cryoscopy may be of great service in the study of uremia and allied conditions.

1. *Diagnosis.*—As an aid in diagnosis, it frequently foretells the onset of an attack of uremia in a nephritic before any of the usual clinical manifestations are present. To do this, it must be systematically employed during the course of the disease, and daily observations made of the freezing-point of both the blood and urine. By it, we can differentiate, with some degree of certainty, between uremic coma and that due to cerebral hemorrhage, tumor, alcoholism, epilepsy, opium poisoning, hysteria and malingering. Diabetic coma cannot be differentiated with any degree of certainty, because we frequently have a condition of hypertonicity of the blood in diabetes mellitus, especially in the severe types.

2. *Therapy.*—It enables us to employ more energetic prophylactic measures before the uremic attack, and we may be able to prevent it by being put on our guard earlier than otherwise could be done.

It will enable us to determine the efficiency of our treatment, because the concentration of the blood should be reduced rapidly if proper therapeutic measures are employed. It helps to determine the advisability of venesection and subsequent transfusion.

3. *Prognosis.*—If the freezing-point of the blood and urine is changed favorably under treatment, it enables us to make a more accurate prognosis. If the freezing-point of the blood falls and that of the urine rises, in spite of our treatment, prognosis would be grave. If, on the other hand, the blood shows an elevation and the urine a depression of the freezing-point, we conclude that our efforts are successful, and the prognosis is correspondingly more favorable.

Certain facts must be kept in mind when doing cryoscopic work, and most important are those factors which influence the molecular concentration of the blood and urine. Factors having a tendency to cause an elevation of the freezing-point of the blood are edema, anemia, and large subcutaneous or intravenous transfusions (the latter for a short period only).

Factors tending to cause a reduction in the freezing-point, that is, an increase in the molecular concentration of the blood, are, cyanosis, jaundice, diabetes mellitus (if of a severe type), large abdominal tumors and some forms of cachexia, especially that following stricture of the esophagus or cardia, in which there is a marked decrease in the amount of fluids taken. Ogston states that any functional disturbance of the liver also causes an increased molecular concentration of the blood.

Kovàcs and Koranyi even go so far as to differentiate between a molecular concentration caused by an interference with the proper oxygenation, and that caused by renal insufficiency. If the concentration is reduced by passing oxygen through the blood, they say it is due to pulmonary disease, as emphysema, pulmonary stasis, etc. If it is not influenced at all, it is due to renal insufficiency entirely. If it is partially changed, both functions are at fault. My own experience has been too limited to confirm or deny this statement. The few cases in which the oxygenation experiment was carried out, showed nothing definite, usually it had no influence on the freezing-point at all.

THE ACTION OF ACID-FAST BACILLI WHEN INOCULATED INTO THE PERITONEAL CAVITY OF WHITE RATS.

BY

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Numerous observers, experimenting with acid-fast bacilli, have produced marked tuberculiform nodules in various animals, especially when the inoculated bacteria were reinforced or augmented by sterile oil or butter. Intravenous inoculations have given rise to nodules in the kidney, with ray forms of the organism resembling actinomyces, while subcutaneous methods have developed abscesses. Calves and rabbits are very suitable animals for inoculation experiments, the guineapig proving more or less refractory to these organisms.

Courmont and Potet,[1] through subcutaneous inoculation of various acid-fast bacteria, conclude that it may be followed by abscess formation with recovery of a bacillus, which tends to lose its acid-fast property. By the subcutaneous injection of doses of 7 cc. of a liquid

culture, Courmont and Descos obtained, after 30 days, in addition to local abscesses, tuberculiform nodules of the lungs; the latter consisted of inflammatory tissue, but contained no giant cells. The results of intraperitoneal inoculations depend upon whether they are given pure or with sterile butter. When the latter method is used, according to Rabinowitsch, death occurs in from two to four weeks. Autopsy showed peritonitis, adenitis of mesenteric glands, sometimes attended by necrosis, and false membrane agglutinating the organs, while granulation nodules, more or less numerous, were scattered throughout. Acid-fast bacilli were isolated from the lesions, but giant cells were not observed.

Mayer[2] asserts that the lesions are first exudative, then inflammatory. When butter is inoculated with the bacilli, the irritation produced by the former generates epithelioid cells surrounded by fibrin. Holscher is said to have seen neither extension, caseation nor actinomycotic forms with the Petri-Rabinowitsch bacillus or the organisms from grain. On the contrary, Mayer with the timothy bacillus obtained true caseation and giant cells in tubercles. Intraperitoneal inoculations of pure cultures were sometimes followed by septicemia. Inoculations of chickens and pigeons with Korn's bacillus No. 2 are followed by negative results, while white mice react positively with No. 1 and negatively with No. 2. Tobler's bacillus No. 1 in white mice produced fatal septicemia with tuberculiform nodules in the peritoneum without caseation and giant cells. The timothy bacillus inoculated intraperitoneally in rabbits produces death in four or five weeks, sometimes from septicemia, together with the formation of whitish nodules on the omentum, liver, and peritoneal adhesions and development of cavities in the lungs. Microscopic examination of the nodules shows epithelioid cells, some resembling giant cells. In rabbits the lesions are the same, with the exception that the nuclei of the giant cells are not placed so near the periphery as in those found in human tuberculosis.

Schultz and Lubarsch inoculated acid-fast bacteria into the kidneys of rabbits and 13 days later found ray forms resembling actinomyces. Subcutaneous inoculation was followed by a local abscess only, while intraperitoneal inoculation gave rise to peritonitis and tuberculiform nodules. Visceral involvement may take place if the dose is large.

Abbott and Gildersleeve[3] found that after subcutaneous inoculation into rabbits or guineapigs, of from .5 cc. to 1 cc. of opaque suspension, there is, as a rule, either no result or suppuration (subacute) of the neighboring lymph-nodes. If pure cultures be injected into the peritoneal cavity and the dose be not excessive, *i. e.*, not more than 1 cc. of an opaque suspension, there is often no result; but if there is injected a small quantity of some such irritant as sterile butter, and this is followed by an injection of the bacteria in pure culture, an extensive, sometimes fatal, fibrinopurulent peritonitis results. By injecting directly into the testicles of guineapigs with the view of forcing the bacilli into the abdominal cavity, the results may be negative or suppuration may occur at the site of injection.

If, on the other hand, sterile butter be injected into the peritoneum of an animal so treated, there is usually a widespread fibrinopurulent peritonitis, in addition to nodular formations containing acid-fast bacteria. Intravenous injections are preferred by these observers for studying the pathogenic possibilities of this group of bacteria. The lungs rarely showed involvement, as in 45 rabbits inoculated intravenously, pulmonary lesions were observed in only seven; 23 of these were inoculated with Moeller's grass bacillus No. 2, and the lungs of two were involved.

Of 11 inoculated with the Petri-Rabinowitsch bacillus, "suspicious nodules were found in the lungs of one" while in 11 others treated with Moeller's timothy bacillus, involvement of the lungs was present in four. In each of four rabbits inoculated with genuine tubercle bacilli there was marked pulmonary involvement. Not in a single one of the foregoing experiments with acid-resisting bacteria was involvement of the liver, spleen, myocardium, or diaphragm observed.

Hogs which received 2 cc. of a thick suspension of Moeller's grass bacillus No. 2, were killed 55, 70, and 75 days after inoculation, and only in one were lesions found which contained acid-resisting bacteria. The third animal received in addition to the subcutaneous injection, a second dose of 13 cc. of a suspension of the same organism directly into the lung. The latter organ was free from nodules, and only a few adhesions were present at the site of the inoculations. The bacterium was obtained in pure culture from the adhesions in this case, as well as in a fourth animal treated in the same manner. Cultures from the internal organs of all four animals were negative, except in the lungs of animals three and four.

Six calves were inoculated intravenously with acid-resisting bacteria, three with the timothy hay bacillus of Moeller, and three with the butter bacillus of Petri-Rabinowitsch. The amount of inoculation was the entire surface growth of two well-developed agar slant cultures which had grown for six days at 37° C., and four days at ordinary room temperature. None of the animals gave evidence during life of inconvenience from the inoculation. Two animals were killed on the twenty-second, and four on the thirty-third day after inoculation. In not a single instance did the autopsy reveal the presence of lesions that could be referred to the bacteria inoculated, and the blood and internal organs, as determined by cultures, were free from living bacteria. Nine calves inoculated into the pulmonary structure with the same bacteria, failed to produce a condition simulating tuberculosis.

In the nodules of those animals inoculated intravenously they assert that it is possible to detect in serial sections, hyphæ or club-like forms of the organisms, and claim that "it is evident that this is the normal mode of development of these organisms in the tissues." The actinomyces developing from the butter bacillus (Rabinowitsch) and from the grass bacillus, No. 2 (Moeller), are often much smaller, more delicate, and less numerous than are those from the timothy hay bacillus (Moeller), which is more prone to involution forms.

The histologic picture corresponds more to the suppurative and exudative change than to the proliferative and progressive necrotic reactions peculiar to true tuberculous infections, and this difference becomes more and more evident as time advances. No tendency to progressive destruction of tissue through the fusion of neighboring nodules, so characteristic of tuberculosis, takes place.

Abbott and Gildersleeve claim, in conclusion, and it is the opinion of others, that there can be little doubt of a botanic relationship between the socalled bacillus of tuberculosis and the socalled acid-resisting bacilli, the ray fungi known to us in connection with actinomyces of man and animals, and some of the socalled streptothrices concerned in the condition known as pseudotuberculosis.

Sato and Brauer inoculated two calves intraperitoneally with 100 cc. of a bouillon culture of an acid-proof bacillus, obtained by them from butter. One calf received, in addition to the culture, 100 cc. of melted sterile butter. In the calf which received the butter, plus the culture, three large tumors resembling granulomas were found in the peritoneal cavity, while in the animal which received only the bouillon culture, no lesions were present.

Moeller[4] records a few experiments upon calves with the bacillus of human and bovine tuberculosis and pseudotubercle bacilli. A calf of 5 weeks was fed for three months upon boiled milk, to which was added 12 cc. of sputum containing tubercle bacilli. At the end

of this time it was inoculated, intraperitoneally, with 6 cc. of a 1 to 50 bouillon dilution of the human tubercle bacillus. At the site of inoculation, there developed a tumor, which later broke down; the softened material contained numerous tubercle bacilli, which proved fatal to two guineapigs. The abscess healed, the animal gained weight, and after 203 days it was killed. At the site of inoculation, was found a tumor the size of a "walnut," in which tubercle bacilli were demonstrated. All the other organs were normal. A guineapig inoculated with macerated tissue of the tumor, contracted general tuberculosis, and died in three weeks.

A second calf, aged 16 weeks, was inoculated intraperitoneally once a week for three weeks with 12 cc. of a culture of the tubercle bacillus in sterile butter. At the site of inoculation there appeared a tumor the size of a "goose egg" which was hard and firm. The animal gained weight and after 102 days was killed. Upon autopsy the peritoneal layers (parietal and visceral) contained small grayish-yellow nodules about the size of a "grain of wheat." In the mesentery and the parietal layer of the omentum were many nodules the size of a "lentil" and some as large as a "hazel nut;" a few were yellowish in color and firm, others were yellowish-red, soft and gelatinous. In the omentum, areas of coalesced nodules resembling cauliflower formation were present, while upon the liver and spleen, broad sessile masses were observed. Adhesions of the visceral layer of the omentum together with adhesions between the liver, spleen, and diaphragm were quite marked. The bronchial, mediastinal, intercostal, mesenteric and sternal glands were enlarged and swollen. Two guineapigs inoculated with the macerated gland structure contracted tuberculosis and died. A third calf aged 7 weeks, was inoculated intraperitoneally once a week for three weeks with an eight-day old culture of the pseudotubercle bacillus. The animal gained weight and after 102 days was killed. There was no tumor formation at the site of inoculation and all the organs and tissues were normal. A fourth calf aged 6 weeks, was inoculated intraperitoneally once a week for three weeks with 10 cc. of a culture of the pseudotubercle bacillus (bovine) mixed with sterile butter. A tumor, the size of a "fist," appeared at the site of inoculation, but at the end of five weeks had disappeared. The animal gained weight, and after 113 days was killed. The same lesions were present as in calf number two, and the bacillus was demonstrable in sections and spreads.

A fifth calf, aged 2½ months, was inoculated once a week for three weeks with 10 cc. of an 8-day old bouillon culture of the grass bacillus. No lesions were found at autopsy, which was held 101 days after the first inoculation.

Calf No. 6, aged 3 weeks, was treated the same as the preceding animals, except that in addition to the bacterium, sterile butter was inoculated. After 123 days the animal was killed. Nodules of various sizes, some firm, others soft, were found in the peritoneum. The liver and spleen showed upon their superior surface an opaque nontranslucent deposit which was adherent to the diaphragm. The mesenteric glands were enlarged and the grass bacillus was obtained in pure culture.

Moeller, in conclusion, states that the injection of the human tubercle bacillus or the grass bacillus without butter has no effect upon calves, while if injected with butter, both produce the same effect.

The following personal experiments were undertaken to determine if lesions could be produced in the white rat by various acid-fast bacteria without the addition of sterile oil or butter. All the inoculations were made into the peritoneal cavity and a 5-weeks old agar culture rubbed up in bouillon was used in all bases. The animals were killed with chloroform, some in 30 days and others after the lapse of 54 days. It can be readily seen by refering to the detailed experiments that nodules or tubercles were constantly produced in the peritoneal cavity and in one or two cases nodules were produced in the parenchyma of the liver. Though the pancreas in these animals is extremely small, segments of this organ adjacent to sections of liver or spleen showed lesions histologically similar to the nodules found in the peritoneum. It will be further noticed that the heart, lungs, kidneys and intestines remained exempt from the infection. In one instance nodules were implanted upon the kidney, but did not extend into the parenchyma of the organ. In one case a nodule was present in the serous coat of the stomach and extended into the muscular coat.

Histologically the nodules in all the animals were identical, being made up of large, more or less oval, slightly granular cells; lymphocytes, spindle-shaped cells, and polynuclear leukocytes. In some sections were cells possessing 10 to 12 nuclei, for the most part peripheral, the others being in the center of the cell. Newly formed tissue was evidenced by the presence of a large number of small bloodvessels and blood sinuses limited by the cells already mentioned, principally the oval and spindle-shaped cells. In some of the masses small foci made up entirely of polynuclear elements and suggesting pyogenic infection were present. Areas of coagulation necrosis were also prominent. Caseous foci noticed at autopsy were found to be made up of polynuclear leukocytes and a granular detritus, which did not react to acid dyes, but took the basic stain quite decidedly. Free nuclei of polynuclear leukocytes were also scattered throughout. Even the pancreas showed cellular infiltration and areas of coagulation necrosis. In the splenic nodules the large oval cells were very abundant, most of them possessing a single nucleus, crescentic in shape, while others contained two or three such nuclei.

None of the animals showed illness or emaciation at any time and they apparently would have lived indefinitely. Similar experiments upon guineapigs were entirely negative. The bacilli were easily demonstrable in the sections and still retained their resistance to 25% sulfuric acid, but in morphology they were distinctly changed. Instead of being from 2 microns to 4 microns in length, they averaged about 1½ microns, were quite plump and were scattered widely throughout the tissue. No club-shaped form or any tendency to form rays, as noticed by Abbott and Gildersleeve in kidneys of rabbits inoculated intravenously with acid-fast bacteria, were demonstrable. In some specimens, as many as eight to ten bacilli were found in the large oval cells, but most of the organisms were extracellular. In cultures the bacilli regained their natural morphologic characters and exhibited their usual resistance to acids. Cultures obtained from the lesions produced the same phenomena in a second series of white rats. The sections were stained with hematoxylin and Van Gieson, and hematoxylin and eosin for histologic studies, while for acid-fast bacilli they were stained with carbol fuchsin and counterstained with Gabbet's solution.

Following are the details of the experiments:

RAT No. 1.—Inoculated with Korn's grass bacillus No. 2. Weight at time of inoculation, 280 gm.; at death, 290 gm. The peritoneal cavity contained 30 cc. of slightly cloudy fluid. Small nodules were present around the spleen, in the mesentery, and between the stomach and liver. The nodules varied between 3 mm. and 8 mm. in diameter, and were quite firm with the exception of one near the stomach, which was apparently caseous(?). One small nodule was found upon the sixth rib, and upon section contained a few calcareous areas. Spreads and cultures from both the fluid and the nodules contained acid-fast bacteria in pure culture.

RAT No. 2.—Inoculated with Rabinowitsch's butter bacillus. Weight at time of inoculation, 305 gm.; at death, 305 gm. In the abdominal wall corresponding to the site of inoculation were three closely grouped, firm, pinkish-white nodules, 2 mm. in diameter. There were no nodules in any other portion of the body. Spreads made from the cut surface of the nodules contained acid-fast bacilli, but cultures were negative.

RAT No. 3.—Inoculated with the horse-dung bacillus. Weight at time of inoculation, 235 gm.; at time of death, 240 gm. In the peritoneal cavity were a few recent adhesions,

as well as a few scattered nodules. Some of the nodules had coalesced, while others were isolated. The individual masses were from 2 mm. to 5 mm. in diameter. Upon the superior surface of the diaphragm were small nodules ranging in size from 3 mm. to 5 mm. None were caseous. Several masses were seen upon the stomach and several upon the liver. Spreads and cultures were positive for acid-fast bacilli.

RAT No. 4.—Inoculated with the butter bacillus of Grassberger. Weight at time of inoculation 90 gm.; at death 185 gm. Scattered throughout the peritoneal cavity were numerous small nodules of a whitish color. A few small masses were present upon the inferior surfaces of the liver and diaphragm. Recent adhesions were present between the diaphragm and the liver. None of the masses was more than 5 mm. in diameter. In addition to the lesions just mentioned, a small cyst, which contained a tapeworm 30 cm. in length, was present in the liver. Spreads and inoculations from the lesions contained acid-fast bacteria.

RAT No. 5.—Inoculated with Moeller's grass bacillus No. 2. Weight at time of inoculation 210 gm.; at death 212 gm. Upon the abdominal wall at the site of inoculation numerous small nodules were present. Throughout the peritoneum were many spheric masses varying from 5 mm. to .5 cm. in diameter, most of them firm and dense, while some were quite soft and resembled caseous material. A few firm nodules were also observed around the liver and spleen and upon the inferior surface of the diaphragm. Spreads and cultures were positive for acid-fast bacilli.

RAT No. 6.—Inoculated with the mist bacillus. Weight at time of inoculation 212 gm.; at death 220 gm. Upon the belly wall small, firm nodules were found. Small, firm masses were abundant in the peritoneum; some were present in the liver, others between the liver and the stomach and between the spleen and stomach, ranging in size from 5 mm. to 1 cm. in diameter. Intimately adherent to the small intestines was a firm, grayish-white mass, irregularly nodular, measuring 1.5 cm. in length and 8 mm. in thickness. The left testicle was enlarged, swollen and adherent: upon section it was caseous (?). Spreads and inoculations from all the lesions contained acid-fast bacteria.

RAT No. 7.—Inoculated with the margarin bacillus. Weight at time of inoculation, 209 gm.; at death, 198 gm. Numerous very firm nodules were observed in the peritoneum, especially in the region of the liver and spleen, and few were seen in the hepatic structure. A few adhesions extended from the nodules upon the liver to similar structures upon the inferior surface of the diaphragm. These nodules varied from 3 mm. to 5 mm. in diameter. No bacteria were obtained either from spreads or in cultures.

RAT No. 8.—Inoculated with the blindschleichen bacillus. Weight at time of inoculation, 180 gm.; at time of death, 182 gm. Two nodules, one caseous, were found in the abdominal wall near the site of inoculation. There were numerous tubercles in the peritoneum from 3 mm. to 6 mm. in diameter, none of which was caseous. Around the spleen and between the liver and stomach nodules were also evident. Acid-fast bacilli were obtained both in spreads and cultures.

RAT No. 9.—Inoculated with *B. tuberculosis piscum*. Weight at time of inoculation, 215 gm.; at death, 225 gm. Scattered throughout the peritoneal cavity were nodules varying in size from 5 mm. to 1 cm., some firm and fibrous, others caseous. The right kidney was adherent to the right lobe of the liver, and showed numerous whitish nodules upon its surface. Tubercles were also present between the liver and stomach, and between the latter organ and the spleen. Imbedded in the liver parenchyma were several small nodules 3 mm. to 5 mm. in diameter. The under surface of the diaphragm was completely studded with small firm tubercles, 2 mm. to 4 mm. in diameter. Acid-fast bacilli were obtained in spreads and cultures.

RAT No. 10.—Inoculated with the grass bacillus of Korn, No. 2. Weight at time of inoculation, 210 gm.; at death, 220 gm. Only a few small masses were present in the peritoneal cavity, and one large nodule, 1.5 cm. in diameter, the center of which was distinctly caseous. A few nodules, ranging in size from 2 mm. to 6 mm., were also present between the liver and stomach and around the spleen. Spreads and cultures contained acid-fast bacilli.

RAT No. 11.—Inoculated with the grass bacillus of Moeller, No. 1. Weight at time of inoculation, 185 gm.; at time of death, 200 gm. Nodules were abundant in the peritoneal cavity, and a small number were also seen in the liver and around the spleen. The under surface of the diaphragm contained a few masses, none caseous. No acid-fast bacilli were obtained in cultures or in spreads.

RAT No. 12.—Inoculated with Karlinski's bacillus. Weight at time of inoculation, 195 gm.; at death, 210 gm. In the peritoneal cavity was a large agglutinated mass made of small, firm, grayish-white nodules, extending about the liver, stomach and spleen. Tubercles were observed upon the inferior surface of the diaphragm and in the liver, but none showed signs of softening. Acid-fast bacilli were obtained in cultures and spreads.

RAT No. 13.—Inoculated with the milch bacillus. Weight at time of inoculation, 200 gm.; at death, 210 gm. The abdominal wall contained a small nodule near the site of inoculation. The peritoneum contained a few small nodules; none was caseous and none measured more than 4 mm. in diameter. A small number of masses were present around the spleen and between the liver and stomach. Cultures and spreads were entirely negative for acid-fast bacilli.

From these notes, it will be observed, that tubercles or tuberculiform nodules were produced in every case, and in one instance there was effusion into the peritoneal cavity. To me, the naked-eye appearances of these lesions resemble those of similar lesions brought about by tubercle bacilli, and only by cultures and histologic examination can the true nature of the processes be determined. True caseation was not constant, and when this degeneration did take place, the substance formed did not respond to stains, as does the caseous material in a frank tuberculous process, due to true tubercle bacilli.

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THE VAGOVISCERAL REFLEXES WITH SPECIAL REFERENCE TO THE VAGOSTOMACH REFLEX.

BY

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The vagus nerve may be stimulated in its cervical course, and such stimulation is available for clinical purposes. Czermak was able to press his vagus nerve against a little bony tumor in the neck, and by thus subjecting the nerve to mechanical stimulation was able to slow or even stop the beating of his own heart. This was the first demonstration in a healthy person of a fact already known to the physiologist. If, in a healthy person, the carotid artery, or a point immediately adjacent to it in the neck, is compressed, as a rule, slowing or complete inhibition of the heart action and pulse ensues. The latter may be made to disappear for fully 75 seconds; with prolongation of the pressure, the cardiac function is resumed. Such pressure may induce vertigo or syncope. Not infrequently the preceding phenomena are only observed after pressure is made on both vagi, in other instances, after pressure on one vagus, which is usually the right vagus. Many persons can voluntarily suspend heart action, and among Indian sorcerers, the phenomenon is regarded as a marvelous feat. Donders solved the riddle as follows: By voluntary contraction of the neck muscles, innervated by the nervous accessorius, the branches of the latter running in the vagus path are irritated, resulting in temporary stoppage of the heart action. I published a contribution[1] on "Inhibition of the Heart as an Aid in Diagnosis" in which I demonstrated, after many observations, that heart inhibition could be best effected for clinical purposes by directing the patient to draw the head slowly backward, though forcibly, thus inducing hypertension of the cervical muscles. During the time hypertension of the cervical musculature is maintained, the vagovisceral reflexes persist. Usually a few seconds elapse before the reflexes become manifest after forcible extension of the neck. In the contribution on "Cardiac Inhibition" I formulated the following conclusions:

1. The inhibition maneuver will cause organic cardiac murmurs to become faint, and in exceptional cases will render them inaudible.
2. Transmitted murmurs are more amenable to the maneuver.
3. The fainter the murmur, the more easily is it suppressed by the maneuver.
4. When a transmitted murmur can be inhibited, the tone which it masks can be auscultated.
5. Heart tones are less amenable than are heart murmurs to inhibition.
6. Hemic murmurs are more readily inhibited than are the organic murmurs.
7. As a rule, the murmurs of anemia may be suppressed and their evanescence is marked by the reappearance of tones.
8. Exocardial murmurs are easily influenced by the inhibition maneuver.

9. When the inhibtion maneuver is incorrectly executed, the result will be to increase the intensity of the murmurs, owing to increased exertion which intensifies the force of the heart's action.

10. The inhibition maneuver, when often repeated, is futile in its results, owing to overstimulation of the vagi.

11. In irregular cadiac action or in delirium cordis, the inhibition maneuver, by momentarily inhibiting the rapidity of the heart, renders signal service in determining the time of a murmur; the maneuver being practically in its effects like the physiologic action of digitalis on the heart.

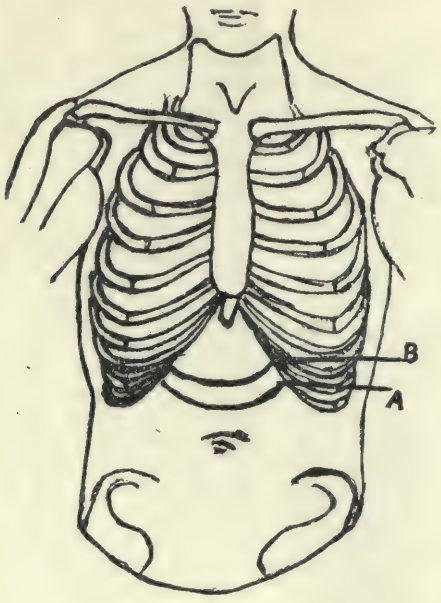
12. The inhibition maneuver enables us to determine the condition of the vagi as inhibitors of the heart and guides us in the administration of cardiotonics.

Later,[2] I described another vagovisceral reflex under the title, "The Tracheal Traction Test as an Aid in the Recognition of the Asthmatic Lung." Some of the conclusions then summarized were:

1. When the head is thrown forcibly backward, the normal resonance obtained by percussion over the manubrium sterni and lungs contiguous thereto becomes translated into a dull or flat sound. This maneuver I called the tracheal traction test.

2. The tracheal traction test is positive in health and in all cardiopulmonary affections, but it is negative in cases of idiopathic asthma.

3. The recognition of this test, which is always present in the interparoxysmal period, affords a valuable aid in the diagnosis of idiopathic asthma and assists in its differentiation from symptomatic asthma and other spasmodic affections which suggest an asthmatic genesis.



4. The maneuver specified as tracheal traction evokes contraction of the bronchial muscle by stimulation of the pneumogastric nerves.

5. In asthma the tone of the bronchial muscle is so reduced that it no longer responds to vagus stimulation brought about when the neck is forcibly extended on the sternum; hence the tracheal traction test in idiopathic asthma is negative.

I explained the dull sound supplanting the resonance in the normal subject by tracheal traction by supposing that, owing to contraction of the bronchial muscle, the air in the trachea and bronchi is under considerable tension, the pitch becomes higher and the volume and intensity so decreased that, while percussion formerly yielded resonance, the same act now elicits a dull or even flat sound. More recently, I have observed that while tracheal traction is maintained, dull areas on percussion may often be evoked over the anterior chest, but notably in the lower lung lobes posteriorly.

The third conclusion must be modified to this extent. I have described[3] a condition under the designation "Spasmodic Bronchostenosis," which is practically asthma without paroxysms. Patients with bronchospasm suffer from a persistent spasmodic cough, with or without expectoration, usually without, which rarely yields to conventional medication. Bronchospasm is specially influenced, like asthma, by climatic conditions. Auscultation of the chest in a bronchospasmodic patient elicits rales. These rales, as I have suggested,[4] may be differentiated from the rales of bronchitis by the inhalation of a few drops of amyl nitrite. Such inhalation carried to its physiologic effect will temporarily dispel rales due to bronchial spasm, while on the rales of bronchitis no effect is produced. In spasmodic bronchostenosis, like in true asthma, the tracheal traction test is negative. Before reference is made to the vagostomach reflex, I wish briefly to refer to one of my stomach reflexes.[5]

The "stomach reflex of contraction" is elicited by placing the palm of the left hand in direct contact with the Traube area, that half-moon shaped space which normally yields on percussion a tympanitic sound, owing to the presence of the cardiac end of the stomach. The Traube area is bounded above and laterally by the contiguous borders of the liver, lung and spleen. After placing the palm according to the method indicated, one strikes the fingers of the left hand with the clenched fist of the right hand (avoiding the employment of the knuckles, which is painful) a series of vigorous blows. Percussion of the entire stomach region now elicits a tympanitically dull sound, and after this manner the lower stomach border may be accurately defined. This reflex, as well as the vagostomach reflex, is best elicited with the patient standing. The reflex is of brief duration, hence if percussion of the lower stomach border has not been obtained in its entirety, repercussion of the Traube area must be made. This stomach reflex has been controlled by the röntgen rays, the gastrodiaphane and by other conventional methods and found to be correct. There is one drawback to accuracy, however, and that is that the lower stomach border in the normal will recede from its usual position from about 2 cm. to 4 cm.

We will note presently that the latter fact suggests a method for determining the motor power of the stomach. To explain the altered percussion sound in the stomach reflex of contraction, we must have recourse to the Skodaic interpretation of the condition which exists when dulness supplants tympanicity. In the stomach reflex of contraction, the gastric walls become tense, thus putting the air or gas within them under increased tension, and, for this reason, we have the physical elements necessary for the transition of a tympanitic to a dull sound.

The vagostomach reflex enables us to define accurately the lower stomach border without the concomitant dislocation of the border which attends the elicitation of the stomach reflex of contraction. All that is necessary is to percuss the lower stomach border during the time the patient forcibly extends his head as far back as possible. When he is unable to do this satisfactorily, an assistant may do it for him. That is practically all there is to this reflex. Comparing it with the stomach reflex of contraction, reference is made to the accompanying illustration. A, signifies the lower stomach border elicited by percussion during the time the head is forcibly extended; B, signifies the lower border of the stomach after concussion of the Traube area. The difference in the distance between lines *A* and *B* represents the degree of stomach contraction and is in direct ratio to the motor power of the organ. Both stomach reflexes are practically constant in the normal, but in anomalous abdominal conditions may be considerably influenced to the extent of annihilation. Having the patient incline his body backward after my method[6] of eliciting the lower liver border accentuates the dulness of the lower stomach border in both reflexes.

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MANIFESTATIONS OF LITHEMIA IN THE SPINE AND LOWER EXTREMITIES, SIMULATING ORTHOPEDIC CONDITIONS.[1]

BY

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The purpose of this article is to call attention to a class of cases occasionally seen and easily overlooked. In truth, a class of cases not described as such in textbooks. The symptom in these cases of which most complaint is made is either backache or pain in the feet. If an examination of the back is made, local tenderness is found. If an examination of the feet is made, local tenderness with a weak foot or a truly flattened arch is evident, and the case is referred to the orthopedist for appropriate treatment. A careful inquiry into the condition of the general health reveals a certain number of the following additional symptoms: Gastrointestinal indigestion for a period of some months, often with heart-burn, coated tongue, sour eructations, gas in the bowels and constipation; a general lack of energy and of strength; a tendency to dizziness, fainting and palpitation; general nervousness, insomnia, and paresthesias. A urinary examination usually reveals one of two conditions. Either a highly acid urine of high specific gravity, the quantity being less than 1 quart in 24 hours, or, what is particularly to be noticed, an alkaline urine of low specific gravity with the quantity for 24 hours abnormal. Rarely a normal urine is found.

One may name this condition whatever he chooses, be it lithemia, irregular gout, a rheumatic tendency, or the arthritic diathesis. It is, at least, a condition in which nutrition is at fault, oxidation imperfect and the organs functionally deranged. Anemia, neurasthenia, hypochondriasis and hysteria are frequent accompaniments. Every practitioner meets ordinary cases of lithemia and promptly succeeds, as a rule, in curing them. It is not generally recognized, however, that there is a class of cases, especially of the female sex, in which certain prominent symptoms may mask the underlying condition. These additional symptoms point to a diagnosis of flat-foot or of some spinal condition requiring support. The curative treatment is one directed at the diathesis, and support by jacket or flat-foot plate may be only secondarily indicated. A summary of the important points follows:

1. When backache is the major symptom, it is apt to be localized between the shoulders or in the lumbar region. Two or three spinous processes are found to be tender on pressure. The ribs and surrounding muscles are often sore to the touch. Tender points are sometimes discovered over various peripheral nerves, especially the sciatic nerves. Motions of the spinal column may cause pain. When motion produces pain, an advantageous adjunct in the treatment is to have the patient wear for a few months a light jacket.

2. When pain in the feet is the chief complaint, the site of the pain may be widespread, as, for example, throughout both feet and in both calves; or it may be localized in the ball of the foot or the heel or some particular tarsal joint. Pressure reveals deep tenderness in the ball of the foot, or over the plantar fascia, or dorsum of the foot. Pressure over the sciatic nerves very often finds typic tender points over both nerves and over the roots of these nerves in the lower part of the back. Occasionally widespread tenderness is present over all the muscular tissues of the lower extremities. It is a noticeable fact that until these patients have had general treatment, they are utterly unable to endure the pressure of plates or a lift in the shoes, even if there is flat-foot.

3. Anemia, neurasthenia and gastrointestinal disturbances are apt to be associated. The heart action is frequently disturbed. The urine is rarely normal, but may be diminished and hyperacid or increased and alkaline with a low specific gravity.

4. The treatment is mainly directed to the general condition. Regular hours with plenty of rest, increased exercise, increased water drinking and vapor baths are ordered. Starches and sugars are reduced in the diet. It is my habit to prescribe a powder containing aspirin, .45 gm. (7 gr.), sodium bicarbonate, 1 gm. (15 gr.), potassium nitrate, 1 gm. (15 gr.), and sodium and potassium tartrate, 2 gm. (½ dr.), three times a day in water after meals. Colocynth or aloin at night may also be necessary. Local treatment may consist of static electricity, massage or the mechanical vibrator. Improvement should be manifest at once, unless the neurasthenic element is strongly developed. Later there may be added to the foregoing remedies Blaud's pills and general tonics.

A few typic cases have been selected for report:

CASE I.—S. S., female, aged 27, referred by Dr. C. C. Frederick, May 8, 1904. Chief complaint, backache. Exophthalmic goiter suspected, owing to the presence of a goiter and a rapid heart action. She stated that for two years she had had indigestion, with excess of gas, pain after eating and sour eructations. She tired readily, had much palpitation, and was often dizzy and nervous. For the past four months she had suffered much pain of a sharp, burning character in the lower back and right hip. Examination disclosed tenderness over the lumbar spine, over the whole length of each sciatic nerve and the muscles of the lower extremities. The pulse was 100 and irregular. A small goiter was present, apparently cystic. No exophthalmos. The urine was alkaline, 1.022, two quarts in 24 hours. Treatment as outlined wrought a complete cure in a few months.

CASE II.—M. B., female, aged 23, referred by Dr. B. A. Gipple, of Alden, N. Y., July 22, 1903. Chief subjective symptom, backache. This girl had had chorea when aged 14. For some time past she had had backache between the shoulders. She suffered also from nervousness, insomnia, loss of breath, and general weakness. On examination, the spinous processes from the first to the third dorsal vertebras were found sensitive. A slight S-shaped lateral curvature was present. The urine was mildly acid, 1.015, and less than a quart in 24 hours. A few months of the usual treatment together with some spinal exercises cured this patient.

CASE III.—B. D., a female, aged 24, referred by Dr. J. A. Gibson, February 5, 1903. This woman had had pain between the shoulders for a long time. There had been heart-burn, sour eructations, and excess of gas. She complained also of muscular weakness, dizziness, and occasional palpitation. Tenderness was found about the second dorsal spinous process, and over the ribs on the right side. There was some tenderness over the right sciatic nerve. The urine was hyperacid, 1.015, and less than a quart in 24 hours. The symptoms disappeared after a few months of treatment.

CASE IV.—V. B., female, aged 19, referred by Dr. C. C. Frederick, November 13, 1903. This patient had had an attack of typhoid fever at the age of 16, and since then had been troubled with constipation. Pott's disease involving the twelfth dorsal vertebra had developed at 18. This trouble gradually improved. About a year later she came in to report, and stated that she had had sharp and dull pains in the thighs, and was not feeling well. A suspicion of increased spinal trouble was soon set at rest, for the urine was hyperacid, the bowels costive, and dermographia pronounced, while the local spinal symptoms were improving. Aspirin and alkaline powder brought relief from the pains.

CASE V.—E. D., female, aged 22, referred by Dr. Babcock, of Buffalo, October 9, 1903. Round shoulders and exaggeration of the normal dorsal kyphosis had existed for years. Backache of a year's duration was the only complaint, but it was soon discovered she had had constipation for the past year, and that she suffered from weariness, lack of ambition, headaches, a bad taste in the mouth and poor appetite. The urine was medium acid, 1.020. Tender points over both sciatic nerves were found, and also over the roots of the nerves in the back. It was found the headaches were due to eyestrain, and the addition of spectacles to the usual treatment brought prompt relief of all symptoms.

CASE VI.—E. S., male, aged 67, referred by Dr. Lorenzo Burrows. May 8, 1904. A brother had been rheumatic. For the past three months, pain in the feet had caused much inconvenience. He had had treatment by salicylates and several kinds of flat-foot plates. It was found that the pain was confined to the joint formed by the navicular and internal cuneiform bones of each foot, and local tenderness and pain on motion existed. The arch of each foot was high and normal. Advice was given that the sole of each shoe should be raised on the inner side a quarter of an inch, to throw the weight to the outer side of the foot. An alkaline powder was ordered. This patient was seen but once, but word came later that the abnormal condition had disappeared.

[1] Read at a meeting of the Buffalo Academy of Medicine, May 2, 1905.

CASE VII.—A. M., female, aged 25, referred by Dr. T. F. Dwyer, November 8, 1902. For the past six months the feet had been very painful, sometimes swollen. The pain was much increased by standing or walking. Marked flat-foot existed, limitation of motion, and reflex muscular spasm. Plaster-of-paris dressings were applied to afford complete rest in an improved position. The patient complained of increased pain and became hysterical. Special shoes were made, but she could not endure them. The pains increased and extended to the hips. Examination then showed both sciatic nerves very tender and other evidences of disturbed metabolism. Instant relief was afforded by appropriate treatment, and in a short time the shoes could be worn with comfort.

CASE VIII.—I. C. M., female, aged 22, referred by Dr. M. J. Frye, October 28, 1904. This patient gave a history of previous anemia and poor nutrition. The complaint was pain in the arch of the left foot and in the calves of the legs. A moderate flat-foot condition existed, with tenderness over the internal cuneiform bones. Tenderness was found also over all the nerves of the lower extremities and in the forearms and back. The usual treatment at first afforded great relief, but two months later a relapse appeared. The urine remained hyperacid, 1.024, and less than a quart in 24 hours, in spite of alkalies and baths. There was insomnia, great weakness and anemia, and excessive perspiration. She was advised to give up her work in town and return home for treatment, as she refused hospital care. She has not been heard from since then.

CASE IX.—F. N., female, aged 30, referred by Dr. J. W. Putnam in January, 1904. Several months after the birth of her only child this woman began to have marked pain in the feet, which had continued for eight years, practically crippling her. The pain was only relieved by resting in bed. No treatment had helped the condition. Examination disclosed flat feet, also great tenderness over all the nerves of the lower extremities and over all the muscular and bony tissues of the lower extremities. The urine was extremely acid, 1.025, and diminished. There were other general rheumatic symptoms. Very vigorous general treatment, combined with hot-air bakings of the feet, and with the use of special shoes, brought relief, but not absolute cure. She felt better than she had in years and could walk a considerable distance, but it seemed as if the diathesis would never completely disappear.

A SECOND CHINESE CASE OF INFECTION WITH THE ASIATIC BLOOD FLUKE (SCHISTOSOMA JAPONICUM).

BY

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On August 3 two specimens of human feces were received at the Naval Medical School from Changteh, Hunan, China. The specimens were sent by Dr. O. T. Logan, of the Cumberland Presbyterian Hospital, at that place, and arrived uninjured in hermetically sealed bottles. One of the samples had been preserved with formalin, the other was prepared with boiling alcohol. Both these samples were found to contain the eggs of the newly discovered trematode, known as *Schistosoma japonicum*, likewise known as *Schistosoma cattoi*.

It is desirable that the case should be recorded for at least two valuable reasons: (1) The case represents the second case recognized from China; and (2) it establishes a new locality for the parasite. Since, moreover, the samples are accompanied by a letter from Dr. O. T. Logan, giving a complete history of the patient's illness, which is included in this report, we are in possession of all the essential data that it is necessary to present with the records of such a case. The following is the history of the case as given by Dr. O. T. Logan:

Cheng, Chinese, aged 18, male. Reared in the Changteh, Hunan prefecture. At the age of 12, while engaged as a fisherman's assistant, he first had bloody stools, which grew worse, until at 15 the disease had become well established and incapacitated him for hard work. Patient is only 4 feet 6 inches in height; has a cachectic look, but is not emaciated, neither is he of the bloated appearance one often finds in patients suffering from ankylostomiasis. The superficial veins over the upper part of the abdomen and lower part of the chest are much enlarged. The left lobe of the liver extends four fingers' breadth below the sternum and three inches to the left of the median line. The right lobe is felt two fingers' breadth below the ribs. Spleen is slightly enlarged. The urine is clear amber colored and the patient has never noticed any blood. Microscopic examination failed to show abnormalities in the urine, although it was slightly albuminous.

The patient complains that he has, several times a day, pain in the abdomen, which is followed by a bloody stool. He has an average of four stools in 24 hours. The two stools examined contained considerable blood, well mixed with mucus and the fecal matter. The microscope revealed a few eggs of *Trichocephalus dispar*, *Ankylostoma duodenale*, and a peculiar form of lumbricoid egg that we constantly find here, the characteristics of which are its elliptic shape, thin shell, globular yolk, and its comparative freedom from the albuminous coating that characterizes the typic *Ascaris lumbricoides* egg. In addition to these, I found eggs that are oval in shape, light yellow or clear in color, larger and more nearly round than *Ankylostoma duodenale*, and always containing an embryo. The embryo is the shape of a melon seed, one end being more tapering and provided with a rounded protuberance, which is joined to the body by a neck. By using an oil immersion lens and carefully focusing on the different planes, one is able to distinguish rapidly-moving cilia on the neck and narrower part of the embryo. The rest of the body also is ciliated, but not so markedly, and there is no apparent motion in the cilia. When the embryo is in the shell, the cilia appear, not as rods, but like pigment granules, such as one finds in the malarial parasites, especially the benign tertian. In two instances I was able, by slight pressure, to burst the shell of the egg and study the embryo. It comes out as a shapeless mass, but soon assumes the characteristic shape. When out of the shell, the cilia appear as rods, which project from the body at different angles, depending on their location. I am not able to give a good description of the internal organs, as they seem very indistinct. Roughly speaking, there seems to be a connection between the protuberance and the globules in the narrow part of the body. These globules seem to form a sort of sac in some specimens. The globules in the middle and wider end of the body are coarser and not so refractile as those in the narrow end.

I was led to examine this patient more carefully on account of the reprints of papers by Dr. Catto and Prof. Katsurada that appeared in the *Journal of Tropical Medicine*, March 1 and April 1, respectively. As the eggs of *Schistosoma cattoi* have not been reported to have been observed in the feces, and as none found elsewhere have contained an embryo, one is led to believe that the eggs I have described and made drawings of are those of *Schistosomum japonicum*. The clinical symptoms tally closely with those described by Prof. Katsurada, and his description of the embryo applies in its main features to these I have studied, and I may say that I have observed dozens of these eggs, all of which contained an embryo. It has not been our policy to take into the hospital cases of the sort described and we have not examined the stools of many out-patients who have passed bloody stools. I do not recall other cases presenting the signs and symptoms of this one, still it is probable that similar cases will be found, now that we are on the alert for them.

O. T. LOGAN, M.D.,
Cumberland Presbyterian Hospital.

Changteh, Hunan, China, June 8, 1905.

An examination of the two preserved samples by Dr. P. A. Lovering, Dr. Ch. Wardell Stiles and myself soon revealed the fact that the eggs were not present in great numbers. It required on an average about six preparations for a single egg. The egg once found, there was no possibility of mistaking it for that from any other parasite.

Dr. Stiles, fortunately, being in possession of one of Catto's original preparations, obtained by Catto from a Chinaman having come from the province of Fukien to Singapore, he was able to compare the eggs received from Changteh with those from Fukien and thus to establish their identity. Moreover, since Dr. Stiles,[1] in a previous paper, had already recognized the two parasites found by Katsurada and Catto respectively as specifically identical, we would seem to be in possession of data sufficient for making the statement that the same parasite occurs both in China and Japan.

The egg is clearly a trematode egg, containing a ciliated embryo (miracidium). The shell is usually of a light yellowish to brownish yellow, varying considerably in size, as may be seen from the following measurements, taken of nine of the eggs, given in the succeeding tables in microns and in round numbers:

No.	Length.	Breadth.
1	69	46
2	78	54
3	72	46
4	70	55
5	73	54
6	61	48
7	72	51
8	75	36
9	75	40
Average	72	48

[1] "The New Asiatic Blood Fluke (*Schistosoma japonicum*, 1904; *Schistosoma cattoi*, 1905) of Man and Cats," by Ch. Wardell Stiles, Ph.D. *American Medicine*, Vol. ix, No. 20, pp. 821-823, May 20, 1905.

The other trematode eggs occurring in the feces are as follows: 1. *Paragonimus westermanii*, which does not contain an embryo when discharged. 2. *Fasciola hepatica*, which is much larger, measuring from 130 to 145 microns in length, and containing no embryo when discharged. 3. *Fasciolopsis buskii*, measuring from 120 to 130 microns in length, and containing no embryo when discharged. 4 and 5. *Fasciolopsis rathouisi* and *Gastrodiscus hominis*, both of which measure 150 microns in length. 6. *Opisthorchis noverca*, 34 microns in length. 7. *Opisthorchis felineus*, 26 to 30 microns in length. 8. *O. sinensis*, 28 to 30 microns in length. 9. *Heterophyes heterophyes*, 20 to 30 microns in length. 10. *Dicrocœlium lanceatum*, 30 to 45 microns in length with a very characteristic embryo.[1]

All of these eggs may, because of their size and structure, be at once excluded from consideration. *Schistosoma hæmatobium*, 120 microns long and 50 microns broad, is provided with a terminal or subterminal spine about 20 microns long, and contains no embryo when first oviposited, although an embryo may develop before the egg is discharged. The egg under consideration differs from the last-named species by being slightly smaller, and more particularly, by the absence of a spine.

The only other trematode egg that can come up at all for more serious consideration in the comparison is that of *Schistosoma japonicum*, also known as *Schistosoma cattoi*. There being no operculum present in either *Schistosoma hæmatobium* or in *Schistosoma japonicum*, it would indicate that the two are closely related, and this fact is further supported by a comparison made between the adults of the two species.

SPECIAL ARTICLES

THE NURSE OR THE DOCTOR?[2]

BY

ALBERT T. LYTLE, M.D.,

of Buffalo, N.Y.

In presenting this subject to the Academy, I feel that an explanation is required because of its deviation from a strictly medical subject; my object being to give in as little time as possible a rapid review of the rise, present development and future possibility of the theoretically old but practically new profession of nursing; and as the people have seen fit to elevate this calling to a position requiring the protecting arm of the law, it seemed to me that a brief presentation of the facts relating to a calling so closely associated with our own might be of interest.

In a way the free people of the United States are returning to a form of paternalism in that the government is protecting, by special legislation, various groups of workers from unskilled competition. Today the State licenses the plumber and the doctor, the lawyer and the barber, the pharmacist and the undertaker, the nurse and the bookkeeper. All professions and pseudoprofessional callings are asking this boon from the State on the hollow hypocritic basis of protecting the welfare of the dear unsophisticated public, and what is more to the point, this setting of the powers of the State against the inexorable law of the survival of the fittest, is being easily secured.

Today there exist four groups of nurses, the old-fashioned friend nurse who comes in to "sit up" with the sick, and who is deeply learned in every mystery and fetish of medicine, but who is correspondingly skilless; the practical nurse, whose medical erudition is much less, but whose ability is considerable; the trained nurse, whose knowledge of medical lore is supposedly little, while her competency is that of a specialist, high and frequently impractical; and the registered nurse, whose position is as yet ill-defined.

[1] Trematode Parasites of Man. Hyg. Lab. Bulletin, No. 17, 1904. By Ch. Wardell Stiles.

[2] Read before the Buffalo Academy of Medicine, May 9, 1905.

The sick man has been with us from all time, therefore the nursing of the sick is not a modern invention, but in the broadest sense is as old as man himself. Ancient records known today do not show any organized effort to succor the sick in hospitals earlier than that of the Egyptian College of Physicians of the eleventh century B. C. Probably Pindar, 500 B. C., chronicled the existence of the first European hospitals in the sanctuaries of Æsculapius, Hygeia and Serapis in ancient Greece; these included establishments closely allied to medieval and modern hospitals; of course they were strictly religious institutions. The next authoritative historic mention of hospitals for the care of the sick is of that founded by Fabiola, a lady of Rome, who, about 380 A. D., as an act of penance, established the first public hospital; this charity planted by a woman's hand has overrun the world of today. Just who did the nursing or caretaking in these institutions, history sayeth not, but it is fair to presume it was done by religious devotees like the Parabolani of the third, fourth and fifth centuries. We next hear of nursing as an institution, in the history of the Knights Hospitallers of the Order of St. John of Jerusalem, who about 1048 established themselves in the hospital of St. John, built in Jerusalem about 550 by Justinian for pilgrims to the sacred shrine; the members of this order were bound together to observe certain monastic rules, especially those of St. Augustine, of poverty, chastity and obedience, and to devote themselves to the care of the poor and the sick pilgrims, as well as the wounded crusader; many other orders modeled on this sprang up during the period of the crusades; the women following the crusaders were often pressed into service as nurses in these hospitals, while religious orders of women often assisted therein; in the middle of the twelfth century Hildegard, abbess of Rupertsberg, established a school for nurses for service in these crusade hospitals. About 1633 there was established in France by Vincent de Paul an association of women who took upon themselves the vows of St. Augustine and whose objects were to minister to and to instruct the poor and to nurse the sick; this order, known as the Sisters of Charity, has spread throughout the world and is the direct successor of the Knights Hospitallers in institutional nursing; the women who became nuns of this order were originally gentlewomen; the friar and the nun by the bedside in the infirmarium were none the less nurses, although their groping among the perplexities and complexities of the religious life of the monastery and the convent overtopped and hindered their attention to nursing.

Nursing outside the religious life of the convent hospital was carried on by medical students and by the denizens of the neighborhood of the sick individual. The medical student looked upon his preceptor's patient, over whom he was placed as nurse, as so much clinical material to be used and abused for his advancement in the practice of medicine, much like the ward patient of the medical college hospital of today. The neighbor nurse, while not always such, was frequently of the submerged class, whose ideals and motives were of the lowest order; on the other hand, there were many of the Sairy Gamp variety, with her big umbrella, her pattens, her gossip, her rusty black gown, the worse for snuff, with shawl and bonnet to correspond, her red and swollen nose and her suspicious breath. Well do I recall such a neighbor nurse in my early boyhood days, who was all of the foregoing description, minus the propensity for the bottle, who was, withal, a good and faithful soul, in much demand by men high in the profession, practising at that time. This unsatisfactory condition of things lasted until the establishment, about 1836, of the Krankenhaus of Kiaserswerth, by Pastor Fliedner, wherein was founded the first training-school for nurses, whose graduates are now known as the deaconesses of Kiaserswerth; the early motive of this institution was the reclamation of fallen women; the first instructors of nurses in training were a physician named Reichardt, and his daughter Gertrude; the latter had for many years assisted her father, and had been taught by him the fundamental principles of the practice of nursing.

To this school came Elizabeth Fry, of London, for instruction, following which she established, about 1840, the order of the Nursing Sisters of Bishopsgate, with the object of instructing, uplifting and nursing the outcasts of that part of London.

Florence Nightingale, in her philanthropic work among the poor, heard of the school at Kaiserswerth from Elizabeth Fry, and in 1844 took a course of about a year in this historic institution; she then returned to London and founded a similar establishment in St. Thomas' Hospital. Florence Nightingale's institution of this school is really the starting-point of the present technical education of trained nurses; her writings upon nursing and cognate subjects in hospital equipment and management, are still canons for the administration of hospitals and training-schools for nurses; it was not until 1853 that she put this training-school on the scientific basis governing it today. Slowly but surely the example of St. Thomas' Hospital was taken up by others of the British Empire, until now nearly every hospital with medical school attached has an especial training-school for nurses.

The New England Hospital for Women and Children, located in Boston, Mass., was the first in this country to organize such a school, when, in 1863, it announced that the training of nurses would be a part of the work of the institution; still, it was not until 1869 that the school was fully established. Bellevue Hospital, in New York City, although the first to turn out, in 1872, a class of trained nurses, did not institute the school for nurses until 1873; almost simultaneously, training-schools for nurees were established in the Massachusetts General Hospital, Boston, and in the New Haven Hospital; six years later, 1879, saw the starting of one in the Buffalo General Hospital.

Today almost every hospital or sanatorium, public or private, large or small, has a training-school for nurses, no matter what the character of the institution, of the teachers, or of the course of training. Postgraduate courses have been instituted in many of the hospital schools, while Columbia University has established a department for the training of nurses to be teachers of nurses. In addition to training-schools attached to hospitals, there is another group known as correspondence schools, from which a nurse may be graduated without leaving her home or doing any menial work; the studies may be pursued at the leisure and convenience of the student. In the short 32 years since classes of trained nurses were first graduated in this country, not only have innumerable schools (over 552 in this country) been established, but also the nurses themselves have formed associations and societies, local, national and international in character; their inception is credited to the United States, and the fraternization only dates from 1892; indeed, 1893 saw the first nursing congress in Chicago, while 1901 saw one in Buffalo attended by delegates from all over the world.

Up to 1836 there were no special opportunities offered to individuals who wished to follow nursing as a calling, either in or out of institutions, in the way of instruction, except such as experience alone might bestow. At this time, in Kaiserswerth, a systematic training in nursing was given to the women taken into the institution from the prisons and thus educated to be useful members of society. The first nurse teacher was the Gertrude before mentioned; the service began at six in the morning and ended at nine at night, and lasted from one to five years; during this time practical, with a very meager amount of theoretic training was given; in the beginning, a reformatory institution, work was the special thing desired, so most of the lectures were of a moral character. Today this school is no longer a reformatory, its graduates forming a sort of religious order in which care of the sick, infirm and old, especially the sick poor, is the main object of devotion; no special remuneration is given for the work done. In general, dating from the establishment of a similar institution in London, by Miss Nightingale, the course of training for nurses has covered one year's time and has consisted of practical work in hospital wards with long hours and little relief, a few brief talks on anatomy, physiology, emergencies and the conduct of obstetric cases; the instruction has been largely in the hands of the attending physician and the house staff. As the superiority of these trained assistants became apparent, the course of their education was gradually extended to two years; today in all the larger and better institutions, it covers a period of three years. In the United States, the schools commenced, with the exception of the first, at Boston, 1869, with a course of two years.

As mentioned before, practical work was the entire teaching of the training schools even up to 1866 by which date the larger ones had gradually introduced theoretic instruction or class work as it is called, amplified with a series of lectures on what might be called strictly medical subjects until today the whole scheme has grown into an elaborate system of instruction. At present there are two groups of schools: (1) Those that incorporate class work and medical teaching along with practical nursing; (2) those that give a course of theoretic medical instruction preceding the entrance upon the practical work varying in time from three to nine months, as a part of the entire course. The first of these is the character of the majority of the American schools, the second that of the better English schools. The Glasgow Royal Infirmary, Scotland, was the first to adopt the second method which was instituted there in 1893 and in general this is the description of that plan of education: Unless the intending pupil holds a certificate of graduation from a school of about the same standard as our public schools the applicant must pass an entrance examination in English grammar and composition, spelling and arithmetic; she must have a certain standard of general health; if accepted as a probationer, two courses of specially arranged instruction each covering about three months' time are taken in the medical college at the student's expense; before beginning the second, the pupil must show proficiency in the first course. The first course consists of twelve broad outline lectures in each of the subjects anatomy, physiology and hygiene. The second course consists of 20 lectures on surgical nursing (care before and after operation, asepsis, antisepsis, names of instruments, bandaging, etc.), also a similar series on medical nursing confined to the three propositions: (1) What and how to observe; (2) what is required in regard to nursing; (3) what to do in an emergency; in addition thereto a study is made of the excretions, of the administration of medicine, of toxicology and finally 10 lectures in practical instruction in nursing (*i. e.*, cleaning and care of instruments, preparation and use of enemas, douches, fomentations, plasters, cupping, application of leeches, etc.), and 10 lectures on the principles of cooking. Having passed these subjects it is assumed that the probationer has knowledge of the human form, of its functions, of its hygiene, and of the leading features of disease, sufficient to distinguish between healthy and unhealthy excretions, as well as a bowing acquaintance with the practical care of the patient and the patient's environment so that in consequence the balance of the time may be devoted to acquiring the technical intricacies of the profession with a minimum draft upon the resources of both body and mind. This system has found favor in the foremost institutions in Great Britain and it has been adopted as part of the curriculum in some of the more advanced schools in this country.

The other group may be exemplified by a brief description of the training given at present at one of the Buffalo schools. Candidates for admission must have had two years in the high schools or its equivalent, an effort being made to introduce culture as opposed to muscle; must possess a certificate as to mental, physical and moral capacity; must be between the ages of 22 and 30. The first six months after entrance is known as the probationary period, from which the candidate graduates by examination into the junior course, and becomes known as a pupil nurse; at the end of two years, by a successfully passed examination, the student enters the senior year, graduating by examination therefrom at the end of the third year.

The preparatory course begins every three months and lasts six months. The forenoons are devoted to practical work, under the supervision of special instructors, in the care of rooms, bath-rooms, furniture, linen, glass, china, etc.; in the preparation of diets for the sick in the diet-kitchen; in the simpler ward duties, and the proper care of hospital utensils and supplies, and hospital housekeeping; in the afternoon, lessons are given on the following subjects: Demonstration of practical nursing, theory of practical nursing, dietetics and invalid cookery, anatomy and physiology, ethics of nursing; advantage is taken of the City's Night High School for lessons in chemistry, hygiene and physiology. During the second half of the first year and the junior year, instruction is given in practical work in the various wards and operating-rooms while lectures are given and class work held in anatomy, physiology,

hygiene, principles of surgery, surgical technic, minor surgery and bandaging, materia medica, bacteriology in laboratory, clinical anatomy in laboratory, physiologic action of drugs, dietetics, infectious and contagious diseases, surgical nursing, care of nervous and insane, diseases of children, gynecologic nursing, obstetrics, care of eye, ear, nose and throat, the skin, massage, cooking for the sick, urine analysis in laboratory and practice in giving anesthetics. During the senior year the practical work includes obstetrics, care of private patients, experience in the operating-room, administrative experience in some of the large wards of the hospital; part of the year is spent in the contagious cottage, obstetric ward and the children's ward; elective lectures in literature and history. The lectures and classes referred to in the junior and senior courses are given by physicians.

I find the books that are recommended for nurses to read during their course of instruction contain the following well-known names among others, Gray, United States Dispensatory, Park, Thomas, King, Holt, Starr, Mills, Gould, Wood, Bartholow, Johnson, Reference Book of Medical Sciences, Fothergill, Purdy, Mason, Witthaus.

I have compared catalogs from representative training-schools in the large cities of the United States and also a few from abroad and find that the groups just quoted are fairly typical of all. Postgraduate courses in specialty nursing are offered by many of the institutions, while Columbia University is offering a special course of lectures in nursing pedagogics entitled "Hospital Economics."

A word in regard to the correspondence schools for the training of nurses; outside of the practical work offered by a fully equipped hospital whereby experience in technic is obtained, the lectures on the theory of nursing and in medicine are fully up to the standard of those offered by the training-schools associated with medical schools and hospitals, as is shown by these clippings selected from a very large actual correspondence of one of these schools:

"Dr. ——— says one can learn so much better from them than from hasty notes, taken as a doctor delivers a lecture to a hospital class. And I speak from experience when I agree with him.

"I have shown some of the lectures to several trained nurses, also to several doctors; they say it is just the same as they teach in the hospital."

Trained nursing, naturally a woman's occupation, has demonstrated its usefulness not only to the physician and the hospital but also to the public, so the demand for professional nurses has become enormous, unparalleled by any similar movement in equal time; one New York school whose patronage would come from those least likely to employ expensive nurses opened a directory in 1898 and supplied 429 calls, while in 1903 it supplied 1,184; a general directory, the first in London, established in 1891 supplied 1,127 calls with 158 nurses the first year and in 1899 supplied 7,130 calls with 509 nurses. The income of trained nurses, estimated at anywhere from $900 to $1,500 a year and living (in 1899 the London registry just quoted, received for the services of the nurses supplied, the sum of $218,480 an average of $30 per case giving an average annual salary to each nurse of $429), attracts the attention of their impecunious and untrained sisters, in the mind of each of whom is the unfaltering belief that she is a born nurse, a positive genius, needing no preparation. In this treacherous error she is encouraged by kind friends and particularly by her physician and her pastor, fanning the smoldering fire of desire into a blaze of emulation with the breath of philanthropy and romance, if with nothing more sinister and selfish, and all for love of the needy and sick. The garb of the trained nurse has been donned and the title assumed by incompetency, the field has been entered, the standard both of quality and pay lowered; it is reckoned that today in this country there are over three times as many untrained as graduate nurses that are called trained nurses; one training-school alone has received an average of 450 applications a year for the last eight years, from which only 65 were accepted and only 25 graduated. To offset this the association of nurses has for a number of years endeavored to secure in the several States, laws regulating the practice of nursing—at present registration laws are in force in North Carolina, New Jersey, Virginia, Maryland, Indiana, California, Colorado and New York. New York as usual led in this movement, as in April, 1903, the laws of the State were so amended as to create a special body of individuals to be known under the title of "Registered Nurse," to be privileged to append the letters "R. N." to their names, which title of degree has exactly the same significance in right of use and as evidence of special preparation as have the letters M.D., D.D., C.E., Ph.G., etc. To the public "R.N." implies that the individual using these distinctive letters has during several years performed certain duties and services in a properly equipped training-school under the guidance and instruction of especially skilled teachers, many of whom are physicians; that the individual has had such preliminary mental training that judgment and observation have been raised above the level of that of the average person and that the individual has demonstrated a particular ability to perform properly the duties represented by the letters "R.N." to the satisfaction of a jury of peers appointed by the State and actuated only by the best interests of the nursing profession and of the public. The law makes it a misdemeanor, punishable by a fine, for any one, not entitled so to do, to represent to the public in any way that he or she is a "Registered Nurse" or to use the letters "R.N." or any other abbreviation to imply that he or she is such.

The immediate effect of this special legislation and of the distinction or classification incurred thereby upon the nursing profession generally is to enhance the regard for the trained nurse and to increase her pride in her technical attainments. It will surely, even if more slowly, regulate and standardize the many and varied courses of instruction in the training-schools, thereby bringing the natural competition among graduates of the different institutions upon a more equitable base; it will bring into the calling a better, more evenly equipped membership, and as brain rather than brawn carries the day, nursing will surely become the assistant rather than the servant of medicine.

How like a boomerang this whole movement is acting. Under the guise of philanthropic acts for the benefit of the blindly innocent public, hospitals and physicians have used the trained nurse and the training of the nurse for purely mercenary ends and personal advancement.

The influence of all this teaching is already felt in the direction of specialization of nursing, as nurses now often confine themselves exclusively to such work as massage, baths, surgery, obstetrics, district nursing, settlement nursing, institutional nursing, school nursing, army nursing, hour nursing, tenement house inspection, and journalism.

In the beginning, the women being trained for nurses were selected from the submerged class or from penal institutions; they received no remuneration for the actual work done in the hospital, as such was in the nature of reformatory duty; subsequently and always in this country, nurses in training received a stipend varying from $8 to $15 per month over and above living and uniform. Very recently, and with the introduction of the preliminary probationary education, pupil nurses are expected to pay a fee varying in amount up to $50 for this education, subsequently they receive some pay for their services. Dr. Alfred Worcester, in an article published in the (Chicago) *University Record*, May, 1903, severely criticises the present training-schools and his indictment of them is thus summarized in the August, 1904, *Dietetic and Hygienic Gazette:*

1. The educational requirements of applicants for admission to the schools are not sufficiently exacting. As a result probationers are admitted who cannot assimilate the scientific knowledge that underlies the profession of nursing.

2. It is folly to expect young women whose backs are breaking and whose heads are aching, after 12 hours of day or night nursing, to acquire knowledge from textbooks or lectures, even if either the books or the lectures were well designed for the purpose, which most decidedly they are not. Moreover, the training-schools, in attempting to satisfy the outrageous demands of the hospital economists, break the best student nurses both in body and spirit, by requiring what is impossible, and thus putting a premium on shirking and laziness.

3. Training-schools for nurses ought to be educational institutions, and no educational institution can properly be subordinate to an eleemosynary institution. And yet most training-schools are mere adjuncts of hospitals, established and maintained, not primarily for the education of nurses, but openly for

the advantage of the hospitals. This is shameful. What would become of a medical school under such thraldom?

4. Training-schools, instead of demanding proper tuition fees from student nurses, persist in partially clothing them or in paying them small "servant allowances." Even the theologic schools have had to give up this kind of bribery, which, of course, operates to attract the poorer and to repel the better and more self-respecting students.

5. Training-schools do not provide a proper corps of teachers. One woman, often without even a single assistant, has to serve as principal of the school and as superintendent of the whole nursing work of the hospital. What sort of a medical school would result if the resident medical superintendent of the hospital were also the dean of the school? Moreover, this single-handed woman at the head of the training-school has to beg lectures as a favor from the staff. As a result, the curriculum generally offered is only a haphazard medley quite unworthy the serious attention of a well-educated woman.

6. The hospital training-schools do not give an all-around training even in hospital nursing, but only in the special kinds of hospital nursing there required. Thus one school omits midwifery, another omits contagious case nursing, and so on. But, worse than this, none of the hospital schools arranges for the training of their student nurses in the equally important departments of private family nursing and district visiting nursing.

7. The teaching in the training-schools is fundamentally wrong. Nursing is personal service to the helpless. It is an art—dependent upon science though it be. Now, an art can be learned only from a master teacher of it, by imitation. And the art of personal service to the helpless can be rightly learned, not by doing one thing for 20 patients, but rather by doing 20 things for one patient. In other words, ward work deprives the probationer of the necessity for that personal devotion to the individual patient which lies at the very heart of good nursing.

8. In the large hospitals the student nurses are kept too long at work they do well, instead of being constantly changed to new work that they do not know how to do. In short, the education of the nurse is not the purpose of such training-schools. The real purpose is to get the nursing service for the hospital at the lowest possible cost. In the small hospital training-schools, on the other hand, the student nurses during more or less of their course are sent out to private nursing, not under any teaching supervision, nor with any reference to the kind of experience needed, but solely for the income the school thus receives. Were these earnings devoted to the education of the nurses, it would perhaps be defensible, but the disgraceful fact is that these earnings of the student nurses are generally devoted to the support of the hospital, which owns the school both body and soul.

Certain institutions—Pratt Institute, Brooklyn, Drexel Institute, Philadelphia, University of Chicago, Simmons College, Boston, not connected with any hospital—are now offering theoretic work for cash tuition fees; so far as investigation goes, there is only one institution in this country built on the plan of other technical educational schools—the Cambridge School of Nursing, which has often been improperly considered a department of Harvard University; in this school, which is not an integral part of any hospital, the course is four years, averaging nine months each year, with an annual vacation of from two to three months. The first year student nurses live in the home of the school and devote all their time to lectures and laboratory instruction in chemistry, bacteriology, anatomy, physiology, domestic science and housekeeping, history and principles of nursing, and to the care of the helpless, when such is not due to sickness. The second year pupils are assigned to the wards of various hospitals, receiving for their services clinical and didactic instruction from the physicians in charge. The third year is given to district and home nursing by actual daily experience in the field under competent instructors, with daily reporting at the school. The fourth year is confined to practice in special nursing and evening lectures. Students' fees for the four years' instruction amount to $375, they receiving in addition to tuition, board, lodging, laundry services, and medical attendance, but they buy uniforms, outfits and books.

A comparison of the opportunity for medical experience which a course in nursing offers to the student as compared to that of a course in medicine, considering the textbooks recommended for nurses, would lead many physicians to think that a nurse receives a better and more practical training for the practice of medicine at a much less expense than does the student who aspires to the degree of M.D. How many medical students get from 24 to 36 months in actual experience, hourly observing the sick in the wards of a well-equipped hospital? The character of the lectures given by the physician to the nurses in a training-school is frequently as extended and technical as those given by the same men to the medical student; consequently it is simply a matter of justice to the graduate nurse to assume that she shall consider from the fulness of her education that she has the right to use the knowledge given her in benevolent and romantic aid to the sick,—that is, to practise medicine. The relation of the nurse to the patient being so much more intimate than that of the doctor to the same patient, while her knowledge of medicine may not be so very much less than that of the physician, it is possible, nay, it is a fact, that the nurse is diagnosing and treating diseased conditions in her (shall I say?) family which would naturally fall to the care of the doctor. As the technical equipment of the nurse increases, as is inevitable from the facts just related in regard to the rapid and comprehensive increase in educational requirements, she will naturally and justly assume the position of competitor to the physician.

In pursuing the investigations which led up to the preparation of this paper, I was more than surprised at the literary quality, the forensic ability and the rhetorical power of the writings and speeches of these women who stand at attention in our presence; how refreshing is the evidence of care in preparation, originality in thought and directness of argument compared to the plagiarism, cant and drivel of so much of the medical writings and discussions.

What will be the effect of such competition upon the practice of medicine? First, it will have a tendency to drive out of existence the fakir, the quack and the irregular practitioner like the osteopathist, Christian scientist, the magnetist, the clairvoyant, the patent medicine man, the advertiser and a host of like ilk better than laws by the tome; second, it will compel the medical man to keep constantly at work on his medical education; it will compel him to stop making any old kind of a diagnosis because it will answer; he will have to be true in his diagnosis; it will prevent him from doing professional work simply for the fee and without regard to the necessity therefor or to the condition of the individual; he will have to be therapeutically honest also; it will have a tendency to lessen the number of medical men in the field, for the nurse will have a better education at less price than the average graduate in medicine from poorly-equipped institutions.

Whether this prophecy be true or be only the figment of a diseased brain, this movement, which I have tried to outline, will have a greater benefit upon the practice of medicine than probably any other one influence; it, therefore, behooves the doctor to make a professional friend of the professional nurse, to encourage the registration of nurses by engaging such only at all possible times; to advise their employment only by the public; to effect, if possible, an *entente cordiale* instead of an armed truce.

There is no pessimism in this paper but strictly an optimistic view, for the training of nurses for their profession is creating a body of efficient handmaids to the noble profession of medicine.

The Transvaal Medical Journal, the official organ of the Transvaal Medical Society, South Africa, Vol. I, No. 1, of which has just reached us, will give the profession knowledge of medical events in a remote and medically interesting land. The journal is a monthly, with offices in Johannesburg.

Prize Competition for the Prevention of Lead-poisoning.—The International Association for Labor Legislation is prepared to offer the subjoined prizes for the best effective means that can be devised for the prevention of lead-poisoning in men employed in mining, smelting, and refining lead ores, and in persons who manipulate lead compounds or are otherwise brought into contact with them. A prize of $1,250 is offered for the best treatise on the prevention of lead-poisoning in mining and milling lead ores; a prize of $2,500 for the best treatise on the prevention of lead-poisoning in smelting and refining works; two prizes (1) $625, (2) $375, for similar treatises relating to white-lead works, paint works, manufacture of electric accumulators, etc.; four prizes (1) $375, (2) $250, (3 and 4) $187.50, each, for house, ship, and coach painting, etc.; and four prizes ranging from $375 to $187.50 for the best treatise on the prevention of lead-poisoning in trades where raw and manufactured lead are consumed or handled, as in type foundries and printing offices. The essays must be sent into the International Association for Labor Legislation, Basle, Switzerland, not later than May 15, 1906.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 23, 1905. [Vol. XLV, No. 13.]

1. Abdominal Crises Caused by Meckel's Diverticulum. MILES F. PORTER.
2. Exstrophy of the Bladder Successfully Treated by Peters' Method. HARRY M. SHERMAN.
3. Drugs and the Diazo Reaction. WILLIAM W. GOLDEN.
4. The Fat of Top Milks. JOSEPH W. ENGLAND and CHARLES H. LA WALL.
5. Freezing-points of Blood and of Urine in Pneumonia: With Description of a New Method. F. E. SCHMIDT.
6. Pleural Effusions in Children. C. F. WAHRER.
7. The Management of Typhoid Fever in Children: A Plea for Enterocysis. W. C. HOLLOPETER.
8. The Extraction of Uncomplicated Immature Senile Cataract. ALBERT E. BULSON, JR.
9. Preliminary Report on Cells Found in Yellow Fever Blood with Reference to their Etiologic and Diagnostic Significance. O. L. POTHIER, JOSEPH HUME, F. H. WATSON and M. COURET.

1.—See *American Medicine*, Vol. X, No. 9, p. 345.

2.—See *American Medicine*, Vol. X, No. 10, p. 388.

3.—Drugs and the Diazo Reaction.—Incited by a statement in the medical press that certain drugs will cause a positive reaction to the usual diazo test, W. W. Golden reports the results of a series of experiments made with these drugs on patients with normal urinary reaction. While the observations are not numerous, he thinks that, so far as they go, they most emphatically disprove the assertion that salol, thymol, sodium, sodium sulfocarbolate and guaiacol carbonate have the power of producing the diazo reaction in the urine of persons taking these drugs. He also made two experiments to test the persistency of this reaction in urine after long standing, with or without the addition of preservatives. Two samples of typhoid urine, one with the addition of 2 cc. of chloroform and one without, were allowed to stand for periods, respectively, of a week and 48 hours, and the reaction was found unimpaired.

4.—The Fat of Top Milks.—J. W. England and C. H. La Wall have examined the certified milks sold in Philadelphia, and find that quite a number of factors influence the fat percentage. The richer the upper layers of top milks in fat the poorer the lower layers. The differences in the fat percentages of top milks in pint and quart bottles respectively are marked, especially in the lower layers. The extreme range of variation between minimum and maximum was from 60% to 170%, and the maximum variation of the whole milks examined was nearly 50%. The quart bottles of the Philadelphia milks follow the Winters standard very closely for the upper half ounce, one ounce, two ounces, and four ounces. Above that, the differences are wide. The pint bottles of certified milks follow Winters standard very closely for the first one and two ounces, but differ widely for the rest. The one pint bottles should not be used for obtaining top milks for infant feeding, as the differences of fat percentage are too great. While the differences are not so great in the case of the quart bottles as to justify the disuse of the top milks, it should be remembered that in cow's milk as in human milk, the ratio of fat to proteid is highest at birth and gradually decreases until the period of dentition is reached; for this reason the fat percentages of cow's milk are most variable. As is well known, the most uniform milk is that of a herd rather than that of a single cow. The same rule holds true as regards the other constituents of milk, though not to the same extent.

6.—See *American Medicine*, Vol. X, No. 10, p. 389.

7.—See *American Medicine*, Vol. X, No. 11, p. 430.

8.—See *American Medicine*, Vol. X, No. 13, p. 514.

9.—Cells Found in Yellow Fever.—Pothier, Hume, Watson, and Couret report that after a careful study of the blood of yellow fever patients they noticed the regular occurrence of certain cells hitherto unnoticed or not described. They state that these cells seem to be undergoing developmental changes, which can be demonstrated in the stomach of a recently infected stegomyia. These cells are entirely extracellular, though occasionally some are seen lying on the red cells; and on one occasion one was seen within the protoplasm of a morphoneutrophile leukocyte. They give in detail the methods of staining and state that every effort was made to avoid sources of error. The stains were filtered, sterilized, and examined, with negative results for other bodies.

Boston Medical and Surgical Journal.

September 21, 1905. [Vol. CLIII, No. 12.]

1. Methods in Medicine. LEWELLYS F. BARKER.
2. The Medical Treatment of Gastric Ulcer and Hyperchlorhydria. FREDERICK C. SHATTUCK.

2.—Medical Treatment of Gastric Ulcer and Hyperchlorhydria.—F. C. Shattuck believes hyperchlorhydria oftener due to faulty innervation than to mechanical irritation or stimulation of the mucous membrane. The relief of symptoms by food and in severe cases by sodium bicarbonate clinches the diagnosis. Tablets of soda are better without mint. Magnesia may be used if there is constipation. The diet should largely exclude salt and condiments absolutely. Milk is desirable and eggs allowable. Meat, and even fish, should be excluded for a few weeks. Diet and rest are generally sufficient without drugs. In severe cases, from a half to two teaspoonfuls of bismuth subnitrate before meals diminishes the activity of the peptic glands. When there is pain and hemorrhage, the stomach should be given entire rest and morphin may be used to lessen pain, peristalsis, and secretion. After 3 or 4 days of rectal feeding a dram of milk may be given every 15 minutes, and in 14 days solid food gradually allowed. Meat should be prohibited for three months. Those foods demanding least stomach digestion should be selected. Persistence in proper diet and bismuth will probably prevent recurrence. A permanent cure follows medical treatment of peptic ulcer in 50% of the cases. The writer does not see much room for surgery in the treatment of ulcer hemorrhage. The only feature which seems to clearly demand it is cicatricial contraction at or near the pylorus, causing dilation and perforation. [H.M.]

Medical Record.

September 23, 1905. [Vol. 68, No. 13.]

1. The Individual Treatment of Diabetes Mellitus. HENRY S. STARK.
2. Congenital Umbilical Hernia. CHARLES GREENE CUMSTON.
3. Sixty Cases of General Paresis: A Clinical Study. EDWARD LIVINGSTON HUNT.
4. The High-frequency Spark in a Xanthoma-like Degeneration of the Lips. CHARLES WARRENNE ALLEN.
5. A Case of Acute Internal Hydrocephalus. THEODORE DILLER.
6. A Case of Abdominal Pregnancy Undiagnosed until after Operation. A. J. RONGINSKY.

1.—The Individual Treatment of Diabetes Mellitus.—Henry S. Stark advises the treatment of the individual patient in diabetes mellitus, rather than the arbitrary treatment of the disease by stereotyped methods. The severity of the pathologic process cannot be measured by the amount of sugar in the urine. We should study the power of the patient to assimilate carbohydrates; his general state, whether anemic, plethoric, obese, or emaciated; his mental attitude, his digestion, his ability to maintain nitrogenous equilibrium, the complications, and the preferences of the patient as to diet. Under prophylactic treatment, the author advocates a modified diet for the children of diabetics, with a systematic examination of the urine. The occurrence of an excess of uric acid may be a forerunner of diabetes. Treatment must be systematic. The patient should be restrained from gratifying his appetites for food and drink. If emaciated and weak, a diet of increased fats is valuable. For glycosuria and polyuria, codeia should be given only in very moderate doses. For the skin lesions about the genitals the author uses a soothing lotion and protective application. In bad cases, catheterization for a time works well. To prevent diabetic coma, he uses alkali therapy, purgation by croton oil, blood-letting if necessary.

2.—Congenital Umbilical Hernia.—Charles Greene Cumston says that congenital umbilical hernia arises only through the ring, the periumbilical variety occurring only in the adult. Some contain viscera which have never been in the abdomen, on account of lack of closure, while in others the viscera forming the contents protrude after having been normally placed in the abdominal cavity. He divides this type of hernia into embryonal and fetal hernia, the latter developing after the completion of the third month of intrauterine life. Embryonal hernia has three varieties: Umbilical eventration, characterized by an arrest of development of the abdominal walls, or a defect of union of the walls; diverticular hernia, due to the persistency of the vitellointestinal duct, which opens into the intestine by an orifice called the intestinal umbilicus; hernia of the vitellin

loop, characterized by the presence of the intestinal loop united to the vitellointestinal duct at the base of the cord, which has remained adherent to the umbilicus. The contents of these hernias may include almost any of the abdominal viscera, and even the heart has been found in them. Aside from the intestine, the liver is most frequently found. Congenital umbilical hernia develops after the formation of the abdominal ring. The condition results from the failure of the somatopleure to reach the median line on account of arrested development. Another cause is a defective regression of the omphalomesenteric duct. A third is the persistency of the umbilical vesicle, which draws the part of the intestine to which it is attached out of the ring. The hernia may be so small as to be tied in with the cord and cut, and death result from a fecal fistula. The prognosis varies with the form of hernia. It is not absolutely bad in the slighter forms. Operation should be done as soon as possible after birth, as the sac becomes dry and causes inflammation of the viscera. Simple laparotomy, with extirpation of the sac, and suture of the freshened border of the wound, will be sufficient in a large number of cases.

3.—Sixty Cases of General Paresis: A Clinical Study.—Edward Livingston Hunt has compiled statistics from 60 cases of general paresis seen at the Vanderbilt Clinic recently. He gives us the clinical picture of the disease thus: A man of 45, fairly well-to-do, married, with a trade, perfectly well up to a year ago. The patient is nervous, weak, and restless, has Argyll-Robertson pupil, tremor of the facial and lingual muscles, and paretic speech. Knee jerks are exaggerated, and there is loss of memory. He has usually had a chancre some 15 years ago. This is a picture of the type of patients seen at this clinic, who are seldom of the lowest rank in society. The statistics are confined to male patients. The age is in half of the cases between 35 and 45, the average being 47 years. The youngest was 21 years. Comparing these statistics with those of the Psychiatric Clinic at Moscow, we find that the disease began younger in Russia, and the average age was less advanced. The oldest patient was 65. In half of the cases the knee-jerks were exaggerated, normal in only one case. The Argyll-Robertson pupil was present in 52%, while many others were sluggish. In six cases optic nerve atrophy was marked. Tremor of facial and lingual muscles was present in 76.8%. The typic paretic speech was present in 56%. The most common symptom complained of was loss of memory, in 60%. The disease appeared from 5 to 18 years after a syphilitic infection.

5.—A Case of Acute Internal Hydrocephalus.—Theodore Diller reports this case, which was that of a girl, who died at the age of four and a half of what at the autopsy was found to be internal hydrocephalus. The cortex was nearly smooth, the convolutions and fissures being almost entirely obliterated. The brain resembled a bladder, and from the distended ventricles about a pint of clear fluid escaped. The condition apparently began with an obscure febrile attack at the age of two and a half. Six months later a double convergent squint developed, and after that the manifestations of the internal pressure steadily progressed until the patient became totally helpless and died of exhaustion.

New York Medical Journal.

September 16, 1905. [Vol. LXXXII, No. 12.]

1. The Food Factor in Asthma: Hyperpyremia. FRANCIS HARE.
2. Floating Kidney Due to Colon Displacement. SWITHIN CHANDLER.
3. Epilepsy and Eyestrain. WILLIAM P. SPRATLING.
4. A Convenient Method of Leukocyte Counting, and the Value of This Sign in Appendicitis. EDMUND L. GROS.
5. The Formative Period of Early Infancy: Its Opportunities. ELIZABETH CAMPBELL.
6. Mixed or Secondary Infection, with Some Considerations as to Treatment. ETHAN A. GRAY.
7. The Mephisto of the Pale Brotherhood of Disease: A Study of Masked Rheumatism, Based, Not on Books, but Experience. (Continued.) GEORGE F. SOUWERS.
8. Renal Distention. A. M. WOSE.
9. Hints on the Hygiene of Infancy. LOREN JOHNSON.

2.—A case of floating kidney due to colon displacement is reported by Swithin Chandler. The patient, a woman of 35, had given birth to a child in 1903. An examination showed that the right kidney was adherent to the ascending colon and that both were in the central umbilical region. During the operation it was found that the intestine in being displaced, probably by the child, had drawn the kidney with it and gradually the peritoneum had closed behind the kidney, forming a pedicle carrying the vessels and ureter. Both were replaced. The patient made a good recovery and all former symptoms disappeared. The author calls attention to the fact that in the fetal formation the kidney is finally in juxtaposition to the cecum and ascending colon. The connection at this point is fibrous and firm. The condition is not easily diagnosed so it is not to be wondered that the above condition had been diagnosed to be any disease from a benign growth to a malignant tumor. [C.A.O.]

4.—Leukocyte Counting, and the Value of This Sign in Appendicitis.—E. L. Gros describes a quick and simple method of counting the leukocytes, which he says possesses the indispensable quality of precision. Solution used: Aqueous solution acetic acid, 5 to 1,000, 30 gm.; saturated alcoholic solution of gentian violet, 10 drops. The best instrument to use for the count is Hayem's hematimeter. The acetic acid dissolves the red blood-corpuscles, and the leukocytes alone appear in the microscopic field. The gentian violet is not strong enough to strongly color the whole leukocyte, but it makes the nuclei very visible and allows one not only to readily make the count, but also to rapidly determine the relative number of uninuclear and multinuclear cells. An ordinary case of acute appendicitis seen on the second day, with moderate fever and severe pain, may present a leukocytosis of from 18,000 to 20,000, indicating a rather severe catarrhal inflammation of the appendix. If the number should reach 25,000 to 30,000 it would indicate that the peritoneum was somewhat seriously affected, and, if another count taken a few hours later indicated a rapid rise, say to 35,000 or over, the question of immediate operation would have to be considered. On the other hand, it is frequent to find a count as high as 27,000, which falls the same night to 22.000 or 23,000. This is an excellent omen, even though the state of the temperature and pulse may be somewhat disquieting. In most ordinary, socalled mild attacks of appendicitis, the leukocytes do not exceed 15,000 to 16,000 per cm., and this number quickly falls to normal after a few days. Speaking in a general way, the danger zone in appendicitis is 25,000 and over if the count is persistently high. Numbers such as 35,000 to 40,000 are almost certain indication of pus. [C.A.O.]

6.—Mixed or Secondary Infection.—E. A. Gray discusses mixed or secondary infection in cases of pulmonary tuberculosis, and reports several cases in which antistreptococcic serum gave excellent results. Not only streptococci, but all other pathogenic forms seem to be directly affected by this serum; 10 cc. may be given daily for six or seven days. From the fourth to the seventh day a slight erythema is noticed at the site of injection; urticaria soon follows; by the ninth day, there may be swelling of face, hands and feet, and the itching becomes almost intolerable. Arthralgia may occur. The cutaneous manifestations now give way, to be followed, perhaps, by an evanescent petechial eruption. The temperature ranges from 100° to 104°; pulse may run as high as 120, or, as in one case, 150. When the storm of reaction has passed, and perhaps before, the cough is lessened and the expectoration reduced to a minimum, if not entirely gone. The sputum now being taken for examination, shows an apparent increase in the number of tubercle bacilli, owing to its limited amount and concentrated character. On the other hand, streptococci and other bacteria will be found with difficulty, if at all. The author adds that the elimination of the pathogenic bacteria and their toxins has but cleared the ground of complications and rendered the cure of the tuberculous disease a relatively easier matter. [C.A.O.]

Medical News.

September 23, 1905. [Vol. 87, No. 13.]

1. Appendicitis in Children: A Study of Seventy Cases Occurring between the Ages of Two and Fifteen Years. CHARLES N. DOWD.
2. Ovarian Transplantation. JAMES P. WARBASSE.
3. What Means Does the Modern Obstetrician Employ to Prevent Ophthalmia of the Newly Born? J. CLIFTON EDGAR.
4. Rational Diet in Disease. EDWARD C. HILL.
5. An Appendectomy with an Uncommon Location of the Appendix and Involving a Modification of the Intermuscular Incision. ALFRED S. TAYLOR.
6. The American Disease: An Interpretation. WILLIAM BROADDUS PRITCHARD.

1.—Appendicitis in Children.—C. N. Dowd presents a study of the records of 70 children from 2 to 15 years of age. He finds that the peculiarities of children are that (1) the rapidity and insidiousness of the disease are much greater; (2) that the percentage of diffuse and general peritonitis is greater, probably because the omentum is less likely to inclose the inflamed appendix; (3) that pain is almost always present, but is more difficult to interpret; (4) that vomiting is almost always present; (5) that abdominal palpation is generally more satisfactory than in adults, but in a few cases is misleading; (6) that constipation is much less likely to be present; (7) that there is a greater ability to deal with general peritonitis than in adults; (8) that during the acute progress of the disease delay is more dangerous because of the insidious course and the greater tendency to peritonitis, and immediate operation is advisable. [H.M.]

2.—Ovarian Transplantation.—J. P. Warbasse reports a case, illustrating the cachexia ovaripriva, following the removal of both ovaries, the relief of symptoms by the use of ovarian extract, the cure of the condition by the transplantation of ovary from another woman, and the final recurrence of the disturbances at the end of a year. Morris, in animal experiments, has found that ovarian tissue thus transplanted survives for a certain period and then undergoes degeneration. [H.M.]

3.—Ophthalmia of the Newly Born.—J. C. Edgar advocates antepartum disinfection of the vagina in the majority of hospital cases, and in suspicious cases he institutes the treatment two weeks previously. He uses bichlorid 1 to 5,000 and just before delivery a 1% lysol solution for lubricating purposes. Immediately on delivery he drops a 2% solution of silver nitrate in the conjunctival sacs. There is evidence that in some cases the fetus is infected with the gonococcus in utero, which accounts for the apparent failure of Credé's solution in some instances. He finds by experiment that protargol and argyrol do not equal silver nitrate in efficiency. He presents statistics to show that if the technic is correct, Credé's method does not cause "silver catarrh." [H.M.]

6.—The American Disease.—W. B. Pritchard regrets that the term neurasthenia has been so misused. Its essential manifestation is an irritable quick exhaustion of nervous function in many or all directions. It never occurs in fools; it is a disease of bright intellects. Out of 50 of the writer's cases 42 were American born, and of the other 8 all but 2 had resided here more than 15 years. All were brain workers. It is the crime of attending to minutiæ which makes the nervous derelict. That quality, the highest, which helps us to select our lieutenants is always lacking. The symptoms are headache, vertigo, irritable weakness, insomnia, the fears associated with an overworked heart, hyperesthesia of the nerves of special sense, etc. Neurasthenia is essentially recoverable and carries no penalty to succeeding generations. It is an acquired state. The factor in its causation is the atmosphere peculiar to America, the atmosphere of limitless possibilities in every field of accomplishment, stimulating the individual to an effort, strain, unknown elsewhere. The author discusses the differential diagnosis. The first step in treatment is the establishment of confidence, the second is control of the environment. Concessions are always dangerous. Objective consciousness must be encouraged by a change. The patient must never be alone and never idle. The details of diet, exercise, diversions, etc., must be arranged with his companion. Rest and isolation encourage introspection. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN — A. O. J. KELLY
NORMAN B. GWYN — BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Codein Habit.—Most writers on the subject refer to codein as an absolutely dangerless remedy from the standpoint of habit development, and no clear case of codein addiction has ever been reported. Pelz[1] relates the case of a musician, aged 26, springing from a neuropathic family and himself decidedly melancholic and neurasthenic. Shortly after an attempt at suicide, he began to take codein (1½ gr. daily) because of mental excitement, insomnia, and melancholia. Immediate relief was noted, but this amount daily did not satisfy him very long, and he gradually increased it to as much as 25 gr. and later 50 gr. daily; and even this amount was found in the end to relieve him but a short time. Morphin and various hypnotics were then added to the codein, and any attempt to drop these drugs was associated with return of the old symptoms. After both health and finances were ruined, he was admitted to an asylum for treatment. The symptoms arising in the course of withdrawal were the same, but to a less degree, as are noted in morphinism. At the time of admission to the hospital the patient had 1,800 pills (each containing ½ gr. codein) in his possession. [E.L.]

Hemophilia in Females.—Hemophilia is regarded as a condition affecting usually the male sex, being transmitted through the females. According to R. de Bovis,[1] it occurs more frequently in the latter than is usually supposed, and often assumes a more or less masked form in them. It is most frequent in the first 20 years of life, and often develops at puberty, becoming manifested by menorrhagia. Other forms of hemorrhage, however, occur in female hemophilia, as well as in the male sex. Women succumb to the hemorrhage less frequently than do the men. The manifestations of the diathesis in the genital organs of woman are the most important aspects of hemophilia in that sex. The female members of a hemophilic family usually begin to menstruate early, and the loss of blood is superabundant. In women with a well-established diathesis, the loss may be enormous, and may end in death. Accidental menstruation may occur in young girls or even infants of such families. Pregnancy and parturition usually run a normal course in those who belong to hemophilic families, without developing the disease. Those who present hemophilic manifestations, however, are subject to postpartum hemorrhages immediately after delivery. Some of these women abort more or less regularly. Under the term rudimentary or abortive hemophilia, the author includes those cases which present no other symptoms beside abundant menses, with a tendency to abortions and puerperal hemorrhage. The menopause may awaken the hemorrhagic diathesis, and the author believes that many of the cases of hemorrhage at this epoch may be ascribed to this cause. In the treatment of uterine hemorrhages in hemophilic women, recourse may be had to hot douches, local applications of adrenalin, tamponage, gelatin injections, etc. As a last resort, amputation of the uterus may be done. The women of hemophilic families should be advised against marriage. In case of pregnancy, the natural termination at term should be awaited, rather than inducing abortion. [B.K.]

Cutaneous Edema of Unknown Origin.—During the last two years Eschweiler[2] has treated 17 different individuals for an edema of the feet and legs, ascending from there in some of them even to the face, but being most marked in the lower extremities. All of the patients were apparently perfectly well, and in none of them were other symptoms beyond a slowness of pulse present. All recovered without any special treatment in periods varying from five days to six weeks. All of the patients were recent arrivals in the prison, and all were put to work at small tables, their work preventing all motion whatsoever. In several cases where the men returned to prison the condition recurred. The author believes the edema to have been due to the slowness of the blood and lymph circulation, because of the unaccustomed quiet and lack of muscular movement. [E.L.]

Poisoning by Fungi.—C. B. Plowright[3] says that most cases of poisoning from toadstools are caused by one species,—*Amanita phalloides*. The poison is a toxalbumin,—phallin. He reports four cases of death from this cause. The usual symptoms are vomiting, which occurs several hours after eating the fungus, diarrhea, abdominal pain, cramps of the stomach and diaphragm, intense thirst, cold sweats, collapse, sometimes headache, delirium, suppression of urine, slight jaun-

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 22, 864.

[1] La Semaine Médicale, September 6, 1905.
[2] Deutsche medicinische Wochenschrift, 1905, xxxi, No 22, 870.
[3] British Medical Journal, September 9, 1905.

dice, subnormal temperature. The postmortem findings are marked hypostatic discoloration, inflammation of the gastrointestinal mucous membrane, localized ecchymoses of the liver, alimentary canal and lungs, enlarged solitary glands, fatty degeneration of the liver, fluidity of the blood, hyperemia of the meninges. In treating a case, the stomach and intestines need only be emptied in early stages, before vomiting and purging have begun. Morphin is required for the pain. To decompose any phallin left in the stomach, permanganate of potash should be used. Saline infusion is also useful in collapse. The poisonous fungus may be recognized by the cup-like base to its stem, its permanently white gills, its shining pale greenish or yellowish top, and its habit of always growing near trees, especially oak trees. [B.K.]

Observations on Wrestlers.—A large number (30) orthodiagraphic examinations of the hearts of wrestlers made by R. Lennhoff and Levy-Dorn[1] failed to show any enlargement, even after the most strenuous of bouts. The boundaries varied somewhat, but not in the direction of enlargement; this was true not only of normally compensated hearts, but also of enlarged compensated organs. If the röntgen rays showed no change, the sphygmograph and the Riva-Rocci blood-pressure apparatus did; the greater number of the men also presented temporary albuminuria and elevation of temperature after the matches, the latter varying in proportion to the strength of the opponent and the duration of the contest. [E.L.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Results of the Radical Operation of Hernia, Specially Inguinal Hernia.—P. Daichen[2] reviews the results obtained in 204 operations for hernia performed by Kocher of Bern; 170 patients were operated on, 20 having more than 1 hernia. There were 139 instances of indirect inguinal hernia, 17 of direct inguinal hernia, 10 of umbilical hernia, 7 of epigastric and 3 of ventral. In age the patients varied from 17 weeks to 72 years, the greatest number (35) being included in the third decade. The operative methods employed were: Displacement and invagination 96 times, the old method without opening the canal 53 times, opening the canal and removing the sac high up 35, and 20 operations for abdominal hernia. His technic is very simple, consisting of steam asepsis, bromethyl ether narcosis, sublimated silk, gloves; collodion dressing, no drainage, removal of sutures on third day; discharged on seventh day; no truss. In 202 patients (99.2%) the operative wound healed by primary intention, this being a marked reduction in infections from former numbers. Two patients died, respectively peritonitis and pulmonary embolism. Of 90 patients, 75 of whom were operated on for inguinal hernia and 15 for femoral hernia by Kocher's new method (invagination and displacement), 3 and 1 respectively had recurrence; of 35 patients in whom the inguinal canal was opened and the sac ligated high up, there were 5 (14.2%) recurrences; of 35 operated after Bassini 2 (5.7%) had recurrences; of 18 in whom lateral displacement was practised, 2 had to return because of failure. The abdominal hernias recovered without disturbance of any kind. [E.L.]

Nephritis Complicating Appendicitis.—After discussing Dieulafoy's paper on appendicular toxic nephritis, W. Hildebrandt[3] relates in detail the history of a young man who was seized with appendicitis associated with marked signs of peritoneal irritation in the right iliac fossa, and a grave, acute hemorrhagic nephritis; prior to this attack his urine had always been perfectly clear. The gravity of the kidney lesion made the appendiceal affection a secondary consideration; it improved very soon, however, this being especially rapid after the fifth day; about the same time the peritoneal symptoms increased in intensity, and localized pus foci formed, the leukocytes rising to the number of 37,000. This did not interfere, however, with the improvement of the nephritis. On account of vesical symptoms and fluctuation above Poupart's ligament, the abscess was opened, but few renal signs being present then. On the day after the operation, probably due to the chloroform narcosis, the renal symptoms returned in their old time intensity (albumin, blood-casts), but he began to improve within a few days. Three months later the appendix was removed, with the same train of renal symptoms, the urine having been almost colorless before the operation. An early operation was prevented by the gravity of the nephritis, the literature showing that cases with coexisting nephritis, operated on, almost invariably died shortly after the operation. Nephritis, therefore, is a grave complication of appendicitis, requiring special indications where operative interference comes in question. [E.L.]

The Simplification of Thiersch Transplantation Technic.—L. Isnardi[1] reports having done skin-grafting in the cases of 140 patients, having had good results in almost all, though some were very difficult cases. A few of the latter are briefly referred to. He does not approve of either scraping away the granulations by means of a sharp spoon or rubbing the granulation surface until it bleeds. He considers a surface covered with healthy granulations the most suitable for the purpose. The granulations should be small, rose-red, hard, and healthy. Such granulations are found in all cases in which the wound and the neighboring parts are frequently cleansed; the dressings are frequently changed, using at times a moist, and at other times a dry dressing; all bleeding is prevented, and caustics are used in moderation. He applies the graft of skin by means of a sterile spatula, and fixes it with wide-meshed gauze, which is fastened to the wound edges with collodion; for the purpose of better fixation, the edges of the gauze are sewed together on the opposite side of the trunk or member being treated. In suppurative cases he fixes the grafts with fine sterilized silver wire, wound spirally around the surface, and covers these with gauze, moistened in 3½% boracic acid solution. This dressing is changed twice daily. The layer of gauze nearest the wound is not changed. [E.L.]

Clinical Effects of Ether Anesthesia in Renal Activity.—H. Pringle, R. C. B. Maunsell and S. Pringle[2] find that during the time of full anesthesia, not only is the amount of the urine reduced, but also the excretion of its nitrogenous constituents is diminished. The former may fall to 3.6% of the normal, while the latter may be reduced to 2.2%, amounting to practical suppression. This condition of renal inactivity appears to increase with the duration of the anesthesia. In prolonged ether anesthesia a most injurious effect must be produced on the whole body by this inhibition of the renal function. After the removal of the anesthetic, the kidneys recover their power of secretion of water more rapidly than the power of nitrogenous excretion. [B.K.]

Traumatic Abscess of Spleen.—J. Bogdanik[3] reports the case of a man, who, a year prior to his operation, had been kicked in the left side by a horse; at the time he had violent pain and a sensation as if something were tearing. In spite of the pain, he continued his work for some weeks, but then this, as well as gradually increasing weakness, forced him to quit. A mass could easily be made out occupying the left hypochondrium; it was very tender to touch and moved but little with respiration. His temperature had always been normal. The operation revealed this mass to be a huge splenic abscess; it was the size of a man's head, smooth and round, glistening, steel colored, and fluctuating; it was not adherent. After suturing it well to the abdominal incision, he opened it, evacuating a quart of dirty green fluid without any special odor. The spleen was sutured to the abdominal wall and tamponed; the patient recovered. [E.L.]

Grave Contusions of the Abdomen.—Berger[4] reports the cases of two men who were operated upon a short time after having received what seemed to be comparatively slight blows against the abdominal wall. In both instances the operation

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 22, 869.
[2] Deutsche Zeitschrift für Chirurgie, Vol. lxxv, 82.
[3] Mittheilungen aus den Grenzgebieten, Vol. xiv, 202.

[1] Centralblatt für Chirurgie, 1905, xxxii, No. 14, 370.
[2] British Medical Journal, September 9, 1905.
[3] Wiener klinische-therapeutische Wochenschrift, 1905, No. 8.
[4] La Médecine Moderne, 1905, No. 9.

was performed on account of vomiting, continued for several hours after the accident, gradually increasing temperature, increased frequency of respiration and pulse, and abdominal distention. In both cases he found rupture of the intestines and beginning peritonitis. Death occurred in both—not because of the operation, however, but owing to the continuance of the peritonitis discovered at the time of operation. After discussing the symptoms in such cases, the author points out the following as indications for operation: If the patient remains unconscious for any length of time, if the initial vomiting is repeated after some hours, if the abdomen becomes painful and tender, if the pulse and the respiration become accelerated, if the temperature rises, and if the abdominal walls become tense. Immediate intervention should be considered imperative if a single one of these symptoms exists. [E.L.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Pathology and Treatment of Eclampsia.—J. W. Byers[1] says that scientific proof of the specific cause of eclampsia is still wanting. In seeking for an explanation, certain points in the etiology must be borne in mind: 1. Its predilection for primiparas, especially those who are young or old. 2. Its prevalence in certain districts. 3. Its prevalence in certain years. 4. The favorable effect of death of the fetus on the condition. In treating eclampsia the author recommends morphin hypodermically for the convulsions. The patient should be kept on her side, freely purged, and treated by hot packs and saline infusion, to eliminate the poison. If labor has not set in, it should not be induced. If it has begun, and the os is dilated, give chloroform and deliver by forceps or version. If the above treatment has not caused improvement, and the patient has not yet reached the second stage of labor, the os should be dilated and the fetus delivered. For the convulsions after delivery use morphin, purgatives and saline infusion. In the prophylaxis of eclampsia, rest, milk diet, warm baths and purgatives are advised. [B.K.]

LARYNGOLOGY, RHINOLOGY, and OTOLOGY

D. BRADEN KYLE

REVIEW OF LITERATURE

MOUTH AND PHARYNX.

Inspection of the Antrum of Highmore.—A. Brown Kelly[2] calls attention to the difficulty of making a correct diagnosis of diseases of the antrum of Highmore on the discharges from the antrum alone. It is equivalent to the treatment of otorrhea without examination of the ear. He has devised a plan which he advocates and by which he is able to illumine the antrum and examine it entirely by sight. His method consists in opening the mucous membrane at the gingivolabial fold beneath the canine fossa under cocain. A sharp trocar is applied to the bony surface at a point 5 mm. in front of the zygomatic alveolar ridge and the same distance above the incision in the mucous membrane. Having formed a passage large enough to admit the end of a blunt trocar, the latter is used to make the full-sized opening into the antrum. The trocar should be directly backward, upward, and slightly inward; the operation is simple and painless. To obtain a view of the interior of the antrum a speculum similar to the ear speculum or Zaufal's nasopharyngeal speculum cut down serves the purpose. This is inserted into the opening and light can be turned directly into the antrum and its interior examined. [A.B.C.]

Pathology of the Antrum of Highmore.—A. B. Kelly's[3] paper is based on a postmortem examination of 100 subjects a few hours after death, before any important changes could occur. Among the anatomic variations noted were asymmetry in 7 subjects; loculation in 2 cases; ridges in 2; ostium maxillare accessorium in 5 subjects on both sides; in 6 subjects, on the right side; in 5 subjects on the left side; other abnormalities were a bony shell in the antrum, very thin lining membrane, perforation in the anterior wall, absence of ostia, and a cavity no larger than a bean. Both antrums in 30, and 1 antrum in 26 cases were normal. The nasal condition seems to have produced the antral disease in several cases, while in the majority of insignificant affections the nasal fossas were normal. Fluid, probably of postmortem origin, was found in both antrums in 9 subjects, and in one antrum in 11 subjects; in 2 cases mucus was found, in 5 there was pus, in 6 there was blood in both and in 3 cases in 1 antrum. In all the foregoing the lining membrane was normal. Thickened membrane without fluid occurred in 5 cases, with serous fluid in 4 cases, with mucus in 4 cases, with pus in 11 cases. Antrums with polypi were found in 9 cases, with cystic lining in 12 cases. Blood was found in both antrums in 9, and in 1 antrum in 4 subjects. Abundant fluid is probably due to traumatism. Pus is often associated with pneumonia, tuberculosis, diseases of the liver, and malignant cachexias. The writer discusses each abnormality in detail. [H.M.]

The Treatment of Retropharyngeal Abscess.—A. B. Kotchanoff[1] writes on the management of acute retropharyngeal abscess. This disease occurs chiefly in children between six months and 1½ years of age, and is often the result of catarrhal conditions of the upper air passages. Ear suppuration may also lead to abscess of the retropharyngeal glands. Usually it is the streptococcus that is found in the pus. Almost in all cases the cervical lymphatic glands are enlarged or suppurating. The treatment is surgical, and the incision should be made from the outside of the neck, removing the cervical glands at the same time. The customary incision from the mucous membrane of the pharynx should be reserved for abscesses situated very high, and small in size. [L.J.]

Vincent's Angina.—H. W. Bruce[2] states that Vincent's angina is a form of pseudodiphtheria, associated with and probably due to certain characteristic microorganisms. Early diagnosis is of great importance, and depends mainly on bacteriologic examination. If the clinical features of the affection be relied upon in the early stages, they will probably lead to a mistaken diagnosis of diphtheria. The writer reports 10 cases of Vincent's angina. The disease has been observed by a number of French and German writers, but few English observers have called attention to it, and it is still frequently confused with diphtheria. In Vincent's angina there is a necrosis of the mucous membrane, which spreading deeply, may involve and destroy the whole thickness of the tonsil or the whole of the uvula, but which never gives rise to the formation on the surface of the mucosa of a thick, false membrane, such as occurs in diphtheria. Positive diagnosis, especially in the early stages, can be made only by pathologic examination, which shows the absence of the diphtheria bacillus and the presence of a large number of atypic bacilli, which are often associated with a spirillum. This microorganism is described in detail. The disease is often insidious in children, and frequently not discovered until a routine examination is made. Various other microorganisms have been found with the bacillus in question; these are *B. coli communis*, and the pyogenic cocci, and the pneumococcus. [A.B.C.]

LARYNX AND TRACHEA.

The New Local Anesthetics in Rhinolaryngology.—A. Meyer[3] prefers betaeucain lactate and stovain to cocain, as local anesthetics. The former he has used in the form of a 15% solution, and applies it for five minutes to the mucous membrane to be operated on; he records 30 instances of nasal surgery successfully operated with it. When anemia was desired in addition, he used adrenalin solution, 1 to 1,000; the latter should always precede the eucain application, as thus the anesthesia is increased and prolonged. In septal operations, he injected a 1% solution of eucain and a few drops of the adrenalin solution after applying the eucain locally. Both from the

[1] The Lancet, September 9, 1905.
[2] The Lancet, September 17, 1904.
[3] Glasgow Medical Journal, October and November, 1904.

[1] Russki Vratch, June 11, 1905.
[2] The Lancet, July 16, 1904.
[3] Therapeutische Monatshefte, 1905, xix, No. 5, 240.

standpoint of painlessness and anemia, the operations were perfectly successful; in laryngeal surgery, eucain failed invariably to induce anesthesia. Stovain (dimethylaminbetabenzoylpentanolchlorhydrate) is only half to a third as poisonous as cocain. It bears boiling very well, retaining antiseptic properties even in 1% solutions; 5% solutions of it were found as effective as 10% solutions of cocain. In nasal work, it was found superior to all other substances; in laryngeal work, it was necessary to instil 20% solutions (a few drops), to paint several times, and lastly, to apply a tampon saturated with pure pulverized stovain to the larynx. This was fairly effective; the posterior wall was the most difficult to anesthetize. Symptoms of poisoning were never observed. In nasal work, cocain can, therefore, be replaced by either of them; in laryngeal work, eucain is of no value, stovain suffices in most, but cocain must be applied in some. [E.L.]

Cancer of the Larynx.—F. Semon[1] believes it of the greatest importance that the diagnosis be made at the earliest possible moment. The notion that it is from the first attended by grave constitutional symptoms must be eradicated. There are no more promising cases for radical operation than those showing only obstinate hoarseness without apparent cause in middle-aged and elderly persons. Clinical diagnosis should be confirmed before radical operation by the intralaryngeal removal and microscopic examination of a fragment of the new-growth, first getting consent for the radical operation in case the diagnosis is confirmed. As the microscope is not infallible, in case of negative results other fragments should be removed, or, if clinical symptoms do not warrant postponement, exploratory thyrotomy should be undertaken. The intralaryngeal method is from its very nature unsuitable for radical removal. Subhyoid pharyngotomy is still *sub judice* in such cases. Early thyrotomy in suitable cases, performed on modern lines, is ideal in intrinsic cancer of the larynx. Hemilaryngectomy comes into question when mere thyrotomy will not suffice. The tributary lymphatics should be removed. Total laryngectomy should be reserved for extrinsic and those cases of intrinsic cancer in which both sides of the organ are affected and the disease has proceeded too far to be eradicated by milder measures. [H.M.]

Inhalation of Sodium Phenylpropiolate against Tuberculosis of Larynx and Lungs.—Inasmuch as cinnamic acid, which contains two atoms of hydrogen less than phenylpropionic acid, is more bactericidal than the latter, Loew theorized that a substance containing two atoms of hydrogen less than cinnamic acid must be more bactericidal still. Such a substance is phenylpropiolic acid. Bulling[2] employed the sodium salt of this acid by inhalation in three cases of laryngeal and pulmonary tuberculosis with such good results that he insists on its employment in all cases of laryngeal and pulmonary tuberculosis which are not absolutely hopeless. He recommends combining it with the usual dietetic and hygienic measures. The method of its employment is described thus: Two inhalations of a half hour duration each are taken daily. The mouthpiece of the inhalation apparatus is placed against the tongue and the patient is told to breathe quietly and without exerting himself. The initial temperature of the spray is from 77° F. to 86° F.; this is increased after some minutes to 108° F. or 109° F., and where tendency to hemoptysis can be excluded, to 113° F. This hyperheated inhalation induces passive hyperemia of the respiratory mucous membrane, which, bactericidal in itself, increases the action of the sodium phenylpropiolate. The last few minutes of the inhalation its temperature is again reduced to 95° F. After the inhalation the patient must keep absolutely quiet, not even being allowed to talk. He employed a .5% solution at first, gradually increasing it to 3%, but thinks that stronger solutions may even increase its usefulness. [E.L.]

Treatment of Spastic Aphonia.—E. Barth[3] considers spastic aphonia due to an incoordination of the laryngeal muscles and believes that the disturbed memory for their activity can be rearoused by mechanically restoring this action. After cocainizing the larynx, he pushed a sound or electrode between the arytenoid cartilages, and found that the patients were soon able to pronounce vowels. In some of the instances the patients were cured after a treatment, in others it required a repetition of the treatments for a few days, but all of them were cured within a relatively short time, thus proving the correctness of his theory. [E.L.]

[1] Medical Press and Circular, November 2, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 751, No. 17.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 1174.

EAR.

Myelocene in Catarrhal Deafness.—Myelocene is prepared in the following manner: Fresh bones are obtained at the butchers, and from these such bones are selected which have both marrow and epiphysis normal. The marrow is extracted with ether, and the ethereal solution is evaporated down at first in the open and later over the warm water bath. The fat is then rubbed up with 1% chloretone for preservation. The substance is now a whitish or faintly yellowish fat with a strong odor, partly of ether, partly of chloretone. The melting-point of these fats varies from 70° F. to 130° F. The fat with low melting-point is the only one which has proved satisfactory in use; the others, in some instances, were found harmful. W. B. Weidler[1] reports his results with myelocene in cases of catarrhal otitis media, with concomitant deafness and otosclerosis; he employed it in treating five patients, three of whom showed decided improvement, the two unimproved giving a history of deafness extending over a period of from 15 to 20 years. The method employed by him he describes thus: The patient lies down with the ear to be treated exposed; 10 to 30 drops of myelocene are dropped into the canal and allowed to remain for 5 to 10 minntes, during which time the tympanic membrane is slowly and gently massaged with a cotton carrier working at the rate of 30 strokes to the minute; then the excess of oil is removed. [E.L.]

Differential Diagnosis between External Otitis or Furuncle, and Acute Mastoiditis.—J. F. McKernon[2] says the symptoms of furuncle are pain in the external auditory canal, over the region of the parotid gland, along the course of the eustachian tube, and on moving the lower jaw; there is also slight stiffness of the neck on the affected side; there is a swelling in the external auditory meatus, and in the region of the parotid, and marked edema over the mastoid; there is no discharge from the external auditory canal; the surrounding parts are extremely tender. In acute mastoiditis there is purulent discharge from the middle-ear, a bulging drum membrane with an opening over the tube not large enough to drain the middle-ear properly, with a prolapse of the posterior superior portion of the membranous canal wall, so as to exclude from view the posterior two-thirds of Schrapnel's membrane. Externally there is swelling and edema over the mastoid, with some tenderness upon pressure over the antrum and the tip. Occasionally there is furuncle and mastoiditis in the same patient, but the symptoms named will suffice to distinguish them. [A.G.E.]

Ear Affections Noted after the Use of Arsenic and Salipyrin.—Schwabach[3] relates the occurrence of an acute catarrhal otitis media with diminution of hearing and subjective noises following an inflammation of the nasopharynx, and traces both conditions, as well as a catarrhal conjunctivitis, which appeared shortly afterward, as being due, in his opinion, to small doses of Fowler's solution (liquor potassii arsenitis) which the patient was taking. After stopping the arsenic, all the patient's symptoms disappeared spontaneously. In a second case he reports subjective noises and almost total inability to hear after the use of salipyrin powders; six powders, each of which contained .75 gm. (12 gr.), were taken, but the symptoms were noted after the first powder. No improvement in this case was observed for two weeks. After the use of fluid extract of ergot, 30 drops daily, the symptoms gradually disappeared. The ear symptoms in this case were evidently due to the salicylic acid contained in the salipyrin, although this amounted to no more than 2 gm. (30 gr.) in the six powders. He recommends ergot preparations in all varieties of tinnitus and in all cases where such remedies as quinin, salicylates, etc., are prescribed he advises combining them with ergot to prevent the subjective ear symptoms. [E.L.]

[1] Pennsylvania Medical Journal, 1904, vii, 530, No. 10.
[2] The Postgraduate, October, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, No. 11, 385.

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The Postoffice and the Advertising Quack.—The postoffice inspectors have been doing a good work in Boston and in Philadelphia, which the medical profession and the police have heretofore been unable to accomplish, or at any rate have not accomplished. They have actually driven out of publicity the worst class of quacks, the abortionists, whose advertisements no longer appear in the daily papers, and whose mail is held at the postoffice as illegal. Whether the claim of the office to have driven them out of business is fully justified, remains to be seen, and can only be so from the experience of physicians and the courts, but there can be no doubt that it must have been a heavy blow to their prosperity to prevent them from advertising. But the knowledge of where abortions can be "safely" procured, which appears to so many young people as the one gleam of hope in their trouble, like other bad news, travels fast in ways which do not appear in print, and there will undoubtedly remain, in more or less respectable hiding, enough of such practitioners to serve the urgent needs of the business, but they cannot solicit it through the public press. The knowledge that this murderous traffic can be checked, if not completely stopped, without waiting for manslaughter to be accomplished with all the formalities demanded by the law, is highly satisfactory to all good citizens.

The Wide-spread Limits of Traffic in Murder and Indecency. — If the evil was confined to the cases of the "young people from the country," who, the inspectors say, are those to whom most harm is done, one might feel compassion for the victim while warning her of her danger and her sin; but when the physician is visited by a party of two or three, in addition to the patient with "amenorrhea," and is told that he "need not be so huffy about it" when he declines to relieve this condition by an operation, he feels that the practice will flourish without much assistance from the papers until sentiment changes among a considerable part of our population. In a recent case, information was volunteered that it was the twentieth miscarriage, several of which were acknowledged to have been self-produced, by a married woman who looked upon it as a trivial affair, and who was in much better health than she was entitled to be. By putting the distinct stamp of immorality on the practice and marking its practitioners as disreputable, the action of the United States will certainly aid in developing such a sentiment. These efforts are not stopping with the abortionists. Beginning with the lowest and most flagrant cases orders have already gone forth against a number of quacks of the fraudulent-indecent and indecent-fraudulent class. It would seem that it is rather the fraudulent element in the combination which gives the inspectors their best hold, as they very correctly say that these people are making promises to do what it is impossible that they should perform, and notoriously do not, although charging extortionate prices. Some of these people are threatening recourse to the United States courts against the Postoffice.

The medical profession should support morals and decency to the utmost. It is of course chiefly morals and business which concern the department, rather than taste, but if attacks are made upon the simply indecent rather than the immoral, there will undoubtedly result some very amusing situations, ranging from the very public allusions to functions which are not usually made the subject of conversation in mixed society, through the young lady in elegant (but inadequate) costume calmly reclining on the crescent moon as she waits for the laxative to operate "while she sleeps," and the innocent little boys in marble on the front of a public building who came so near being emasculated in deference to the neighboring virtue, to the nude in art where they must undoubtedly stop, reflecting that as Miss Beatrice Hereford says in one of her witty monologs, "Them Greek goddesses wa'r'n't brought up as we are." But this whole subject of advertising, publicity, and professional ethics in many of its ramifications comes too close to business on the one hand and our own profession on the other to make it easy to discuss or to lay down rules for it.

National Quarantine Control.—The lay press has given much editorial attention of late to the coming quarantine conference at Chattanooga on October 9 and 10. Southern newspapers are unanimous in their advocacy of federal control, and in the North, news-

paper comment has for the most part been favorable. It is probable, however, that opposition will arise whenever the proposition is fairly before the country. The yellow fever situation in the South has not turned the attention of the people of Massachusetts, New York, and Pennsylvania to their own ports of entry, and their approval of the surrender which southern States are prepared to make does not imply readiness to transfer their own quarantine stations. When Congress comes to consider the project of taking over all the port quarantines now operated by States and cities, it is very likely that the strong sense of local sovereignty, which is supposed to distinguish southern patriotism, may prove a hindrance to quarantine reform in the North. For samples of thoughtful and disinterested comment in national quarantine, one may refer to the *New York Post* of September 18, and to *Boston Herald* for September 28. The *Post* favors federal control, and thinks that the chances should be altogether favorable, "especially as no opposition is apparent and medical and scientific authorities are a unit on that side." But in this matter, the *Post* continues, history has a tendency to repeat itself. An epidemic situation has always given rise to the demand for federal control, "but before Congress gets around to the subject, the particular epidemic has been stamped out, the need no longer seems to be urgent, so the law-makers pass some half-way measure, but stop short of the sweeping change really needed." A brief review is given of the attempts to supplement or substitute the inefficiency of local quarantines. These efforts began, we are told, in 1796, when the subject came before Congress "in a form not substantially different from that it will assume this winter."

The federal laws on quarantine were amended ten times between 1796 and 1893 without materially improving the situation. We have no acquaintance with the legislation which, the *Post* says, was enacted in 1832 and 1836, but the causes which led to failure before and since those dates are of interest. The bill of 1796 put the United States revenue cutters into the service of the States to operate local laws. The law of 1799 was more absurd. It expressly recognized the quarantine authority of States and subjected customs officials and military officers to a vicious division of responsibility, between local laws on the one hand and Treasury orders on the other. In 1872 Dr. Harvey Brown, of the United States army, made a report to Congress, showing that local quarantines, beside inflicting unnecessary burdens on commerce, were infested with graft—not very infamous graft to be sure, but profitable graft. He recommended that the whole business of quarantine should be turned over to the War Department, which he said excelled all other federal departments in political chastity. The Surgeon-General did not want this responsibility, and therefore withheld his endorsement when forwarding the report to Congress. Congress thereupon undertook to create a quarantine board, including the Surgeons-General of the Army, Navy, and Marine-Hospital Service, authorizing this board to perform the impossible task of making and enforcing regulations which should not conflict with local laws. In 1878 a bill was passed authorizing the Marine-Hospital Service to make quarantine regulations, which should be approved by the President and should avoid conflict with local laws. The latter condition gave the Marine-Hospital Service no field of operation within the United States, and the first quarantine adventure was an attempt to stop the importation of rags, feathers, hides, and clothing from Mediterranean and Black Sea ports. The commercial hostility aroused in the United States by this order was disastrous to the Marine-Hospital Service and very helpful to a project which had theretofore languished.

The bill establishing a National Board of Health, passed in March, 1879, did not confer any quarantine authority, but in June Congress enlarged the powers of this board so as to include both inland and maritime quarantine. Excellent regulations were at once put in operation in foreign ports. These regulations were not at all burdensome, and were at first complied with; but they were soon nullified by the local quarantine officials in the United States, who exacted no penalty, made no protest, nor any report even, in cases of noncompliance. Memphis was the storm center of inland quarantine in that year. Under the influence of the national Board of Health the quarantines were less rigorous and more effective than in 1878, but certain southern Boards of Health, even while profiting by the aid of the national board, did their best to destroy its efficiency by suppressing and falsifying information about yellow fever, and by obstructing the local agents of the national board within local jurisdictions. During the following winter the influence of these southern Boards of Health, with perhaps the connivance of the Treasury Department, prevented Congress from renewing its appropriations, and so the first national Board of Health perished, though the law enacting it stands yet unrepealed. In 1893 the fortunes of the Marine-Hospital Service began to mend. The Treasury Department was authorized to make, and, with the consent of the President, to enforce quarantine regulations, whenever and wherever local regulations might be found inadequate. The year 1893 was a cholera year, and the local regulations of the port of New York were not satisfactory to the country nor to the Treasury officials. That delay in action, which the *Post* attributes to the clumsiness of federal machinery, was chiefly due to the resistance of local officials, who disputed the legitimate interest of the federal departments and of State Boards of Health in quarantine at New York. The unwritten history of New York quarantine in that year includes several incidents more exciting than the duplicate quarantine. With more accurate information, such as a dozen or more citizens of New York might have furnished, the *Post* might not have described the reinspection of ships as a farce, farcical though it was. A careful investigation of the events of that season will, we believe, keep the *Post* firm in its advocacy of national quarantine, even though New York should be called upon to name the selling price of her own quarantine equipment. Since July, 1902, the United States Public Health and Marine-Hospital Service has been fully

empowered to take charge of all quarantine matters, and national control waits only on the will of States and cities to dispose of their holdings. Great progress has been made since that time, and unless Congress can take over the business of maritime quarantine without the consent of States and cities, it is difficult to see how Congress can go further toward national control. In the matter of inland quarantine the situation is different. No standing regulations exist on this subject, nor any permanent equipment. A State exceeds its powers whenever its quarantine creates a nuisance outside its own limits. The mad quarantines recently and now in existence in the South are, many of them, wholly lawless. They exceed the reasonable needs of the situation and outrage the rights of the American people, so far as to demand radical and drastic action on the part of the federal government.

The wisdom of national quarantine is doubted by the Boston *Herald*, considering the question apart from the casuistry of recent events. It says the broad question is whether national quarantine shall supersede State quarantine at all ports, and shall apply to all diseases of an epidemic character, cholera and smallpox, for example, as well as yellow fever.

> To change this policy (nonintervention) now, when the yellow peril has been reduced to lower terms than ever before in our history, and when the method of preventing its spread is so well demonstrated and understood, and is so peculiarly a means within the power and facilities of State and municipal government, does not appear to be a commanding necessity. It is one of the conditions of government by the people that they must suffer if they do not govern themselves well. The remedy for such misfortune is in their own hands, and it is a question how far they ought, for their own good, to be allowed to shirk the responsibility of doing their duty and be relieved of the penalty of their own failure to do it. Will such a political state be improved there or elsewhere by the inauguration of the policy proposed, relieving local government of one of its peculiar and most proper duties? Will this tend to vivify the people's sense of their own responsibility for the public health and the prosperity of business, or to deaden it?

These are cogent doubts. If they are not fully solved by the present attitude of Southern States, the past history of the subject speaks eloquently against the policy of national intervention to save a State from the consequences of its own inefficiency. In 1899, Louisiana had yellow fever, and being coerced by the alarm of neighboring States, accepted from the United States Public Health Service just such assistance as is being rendered by the Federal government today. Did Louisiana thereafter strengthen her internal sanitary government or improve her maritime quarantine? On the contrary, Louisiana received from the nation's largess no impetus to better self-government. When, in 1901, all the world applauded the illuminating work of Reed, the official sanitarians of Louisiana were not enlightened. With the exception of the City Board of Health of New Orleans, official minds proved intensely refractory to the truth about yellow fever. In 1902 and 1903, Texas had yellow fever. The United States Public Health and Marine Hospital Service rendered to Texas just such services as Louisiana is now receiving. Was the sense of local responsibility vivified in Texas? On the contrary, the benefits of federal aid were accepted in some places as a nuisance superposed on yellow fever, and in one or two places the treasury officials were unable to render aid of any sort. Absolutely no advance in sanitary government has been made by Texas in 20 years. Not the faintest impulse has appeared in Alabama or Mississippi, or Arkansas, or Missouri, to emulate the efficiency demonstrated by federal officials to be so easily within the power of local Boards of Health. There is no doubt that a policy of national intervention in epidemic situation tends to deaden the sense of local responsibility.

National Quarantine and Local Sanitation.—But all this is not to say that national control of quarantine will also discourage local sanitation. Here is a distinction which the Boston *Herald* may bear in mind. The suppression of yellow fever and the exclusion of yellow fever are very different propositions. The exclusion of yellow fever is a proper function of the national government, the suppression of infectious disease is a function of local government, and local government ought to pay the cost of inefficiency. Every State has its own problems of communicable disease, and on them its officials should have daily exercise. In no other way can they learn to deal with epidemic situations of any sort. When the Southern States give up their absurd and futile quarantine powers and turn their attention to internal sanitation, they may in time develop efficiency in public hygiene. For Southern States which exemplify the wisdom of national control of quarantine, and growing efficiency of sanitary self-government, go to Florida, whose quarantine stations were recently sold to the Treasury Department, and whose Board of Health has in consequence made substantial progress in relieving the daily needs of her own people; go to North Carolina, where the same encouraging spectacle is on view; go to Georgia, where a State Board of Health, but two years old, was not provided with a quarantine incubus, but received instead a laboratory of hygiene and other machinery necessary to a real campaign against communicable disease.

The radiobes, which have filled an unduly large space in current periodicals, are peculiar microscopic condensations of sterilized bouillon produced by radium, and which, from their appearance and size, together with the manner in which they divide, have suggested the similar phenomena of bacteria. Their discoverer, Prof. John B. Burke, of Cambridge University, unwisely first named them radiobes, as though they were really alive. He has since been inclined to place them in a halfway house of their own, neither living nor dead, and in due time he will probably shift them back to where they belong. There is entirely too much to learn about the chemistry of living substances to form any safe conclusion as to what is the nature of the process called life. It is hopeless to think of making a living molecule for a long while yet. It now appears that Prof. Raphael Dubois, of the University of Lyons, described these same appearances last November. He produced them by barium as well as radium, and he correctly called them merely granulations. Though he

noted their remarkable similarity to vital phenomena, he showed that they were as far from being vital as any other laboratory change. The incident must be classed with the host of other alleged instances of the generation of life from nonliving materials. The scientific interest in these little bodies is probably due to the fact that their behavior is one more illustration of the growing number of instances in which phenomena supposed to be produced only by living protoplasm, are found also in dead matter. They support the growing tendency to look upon all vital phenomena as reflex results of definite causes, and not as due to innate powers independent of the environment.

The creation of life also seems unduly to exercise unscientific writers in lay journals. There has been a persistent tendency to consider the artificial fertilization of ovums of low organisms as a creation of life. How and why such a false idea should have imbedded itself in the public mind is one of those mysteries which no one can explain. Parthenogenesis or the development of a female cell without a conjugation with a male cell, is a very common phenomenon in lower organisms, though it is invariably followed by sexual reproduction sooner or later. Its cause is unknown, but it can be artificially checked by certain means such as changes of food or temperature, so that sexual reproduction becomes necessary at once. It was no doubt a great discovery that a partial parthenogenesis could be caused artificially by certain changes in the environment or by chemicals which rejuvenate the cell in the same way as conjugation, yet it is strange that this should also be called a creation of life. There are now press reports that a botanist has discovered that the regeneration of sea weeds is due to the action of external forces, and has assumed that the similar phenomenon in animals, such as the regeneration of the amputated parts of lobsters, is also due to purely physical forces. This too, has been enlarged into a statement that the life problem is being solved. If this tendency continues we must expect every biologic investigation to be heralded as a contribution to the one great overshadowing task of creating a living thing in the laboratory. There are problems vastly more important than the origin of life, and they must be solved first, anyhow. The present popular tendency merely blinds the public to the work really being done. It is right and proper that all scientific work should be popularly described, but such articles on the life problem are now entirely too yellow.

A Whisky Tax on Alcoholic Patent Medicines.—The Commissioner of Internal Revenue, in his recent decision commented upon heretofore, reverses the traditional policy of his office. The profound effect which this order must have upon the drug trade needs no comment, but the ultimate result is difficult to predict. It is an open secret that in many "dry towns" the drug-stores are kept alive by the bar in the back room where the law is openly defied. There is no doubt that there will be a great reduction of sales and consequently a rejoicing among the brewers who find their own business benefited by every restriction of the whisky business. In the meantime the steadily increasing consumption of alcohol goes on. Where is it all to end? If the people are bound to get alcohol, by hook or by crook, it would seem wisest to let them have it openly, and end this matter of concealed alcoholism. The commissioner should be supported in his most laudable order, for it will probably result in a reduction of clandestine drinking and is decidedly in the interests of public health. These dishonest manufacturers are rich and will get political influence to stop the order, and will bring large claims of the medicinal virtues of their wares, but we can let them rage—it won't hurt anybody.

The pathologic effects of alcohol on rabbits have been experimentally studied by Dr. Julius Friedenwald,[1] of Baltimore, in the pathologic laboratory of Johns Hopkins Hospital. His report contains the summary made by Prof. Wm. H. Welch, who directed the work. It mentions several facts which are of considerable importance to every physician. The rabbits were given huge quantities of alcohol, as a rule 90 cc. to 100 cc. of whisky per week, in doses large enough to cause intoxication. As this is equivalent to five quarts of whisky weekly for a man weighing 150 pounds, it is evident that the experiments give no data whatever for conclusions as to the effects of alcohol as ordinarily consumed as a beverrge. The animals showed remarkable variations as to susceptibility to these excesses, for while some lived four years unharmed, others quickly died, and there were all gradations between these extremes. Intoxication increased the susceptibility to many infections, and injured the process of immunization—two facts which have been repeatedly found by other experimenters and known in the case of man also. Pregnant rabbits were liable to abort and shortly die of accidental infections, while the newborn lived but a few days. One important result was the failure to produce satisfactorily the three diseases looked upon by both profession and laity as the sure results of alcoholic excesses—cirrhosis of the liver, chronic Bright's disease, and arteriosclerosis. Though the experiments were not continued long enough to be decisive, and might have produced these diseases in time, even if smaller amounts of alcohol were used, yet they go far toward supporting the growing opinion that all the scleroses when found in drunkards are not necessarily due to the alcohol, but are rather the results of the degenerate physique or other factors which also caused the alcoholism.

The commonest alcoholic conditions were fatty changes of the liver cells, heart muscle, and kidneys, but the lesions disappeared shortly after the alcohol was stopped. Necrosis of cells was inconstant, and even the proverbial gastritis was often slight or even absent. Hyperemia or small hemorrhages were occasionally found in the stomach, kidneys and brain. The most important results of all were in Dr. Berkley's study of the alcoholized brains. These findings were published separately in the hospital reports, and he summarized the matter by stating "that the whole appearance of the normal cell is stouter than its pathologic fellow." In

[1] Journal of the American Medical Association, September 9, 1905.

other words, even at this early period of chronic alcoholism, it is possible to demonstrate those material brain changes and atrophy which are at the basis of the dementia, eventually found in every heavy drinker. As he could not find any very definite lesions of the bloodvessels, the selective action of alcohol on the cerebral cells seems quite well proved. Help was given by the Committee of Fifty, and in view of the differences in the results obtained by other experimenters, Dr. Welch expressed the opinion that further work in this direction was needed. The important results obtained by these experiments would seem to indicate that future work should be done, as in this case, by the cooperation of many experts. It is to be hoped that it will be taken up as early as possible.

Wholesale Prescribing.—The following letter was received by a subscriber from a manufacturer:

For some time we have desired to make some first class article in the way of an Antiseptic Eye Water or Lotion for the use of physicians throughout the New England states. We know that you have had a large experience in the treatment of the eye and we think you are better qualified to assist us than anyone else. As you know we manufacture for physicians use solely quite a number of articles, using some of our physicians' names with their full consent. For instance, we use Dr. ——'s name on our Comp. Iron Pills, Dr. ——'s on our Loz. Cubeb & Guaiac, Dr. ——'s on our Alkalyptol, Dr. ——'s on our Skin Ointment, Dr. ——'s on our Suppositories, and Dr. ——'s on our Carbo-Menthol. Now we would consider it a great favor if you would give us a formula for this preparation if you have one you have been in the habit of using. You understand we have no intention of selling it to consumers, but shall send samples to physicians only. If you can help us in this matter it would really be of assistance to the physicians outside the large cities, for you know the eye waters as made by the ordinary retail druggist are not very satisfactory. I would have called on you about this matter but felt that we did not wish to take your time. If you are willing to assist us, we would be glad to talk it over with you.

Trusting you will feel disposed to assist us, we are,

Very truly yours,

———————.

To which the physician replied as follows:

I have received your letter and given it due thought. I regret that I cannot hand you any prescription to be used for an eye water, to be sold as you suggest. My reasons for declining your proposal are:

I object to the use of prescriptions for what will be virtually a patent medicine, and I object to every patent medicine for the eye, because that organ is subject to innumerable diseases requiring at times diametrically different medicines.

Nor can I consent to the use even of an innocent eye water in diseases which might be iritis, or glaucoma, or others likely to produce blindness, and for which diseases I personally would never think of directing such a lotion.

A further objection which I make is that every person using my eye water, as you suggest, means a possible patient for some local eye physician, who could prescribe properly on the spot. And, finally, I believe that every considerable town has physicians who, of their own knowledge, or from that obtainable in every textbook on medicine or surgery, can prescribe a satisfactory antiseptic eye water, and have it properly compounded then and there.

Truly yours,

———————.

Is it an Overcrowded Profession?—The original letter upon which our editorial was based has unfortunately been mislaid. Will our correspondent write us, that we may answer numerous inquiries?

BOOK REVIEWS

The Treatment of Fractures with Notes upon a Few Common Dislocations.—By CHARLES LOCKE SCUDDER. Fifth edition revised, 1905. W. B. Saunders & Co.

The appearance of the fifth edition of this book within five years shows how deservedly popular is this work of Dr. Scudder's. As compared to the fonrth edition many new illustrations have been added to the already large number. The very large number of illustrations both diagrammatic and those which are reproductions of the actual conditions, are of themselves amply sufficient to bring to the reader's mind what the author intends to teach. Because of the great attention given to the subject of treatment of the various fractures combined with their excellent illustrations, this work should be of great value to both the student and general practitioner. This work as also the former editions shows a high grade of the publishers' art.

The Life of Florence Nightingale.—By SARAH A. TOOLEY, author of "Personal Life of Queen Victoria," etc. With 22 illustrations. New York: The Macmillan Company, 1905.

The author of this book wrote it as marking the jubilee of the departure of Miss Nightingale for the Crimean battlefields in 1854. It is a very straightforward account of the life of the person whom every one delights to honor for her service to humanity. Her modesty is well shown by the fact that she lives so quietly and without ostentation that few people outside of her immediate circle know that she is still alive. As an inspiration for nurses the book is of sterling value, but for people of all classes it depicts the life of an individual whose ideals are ennobling. The work contains 344 pages and is attractively bound, with uncut leaves and gilt tops.

A Textbook of the Practice of Medicine.—By HOBART AMORY HARE, M.D., B.Sc. Lea Brothers & Co., Philadelphia and New York, 1905.

Throughout this entire work the author has dealt with medicine as a practical science, and has given prominence to those aspects which bear directly on human needs. The sections on diagnosis and treatment have been developed with special fulness and detail, and the therapeutic recommendations are given in such a way that they may be readily applied. The chapter on Diseases of the Nervous System was written by so competent a neurologist as William Pickett, which guarantees its accuracy and fulness to date. The chapters on Tropical Diseases were contributed by Charles F. Kieffer, major and surgeon in the United States army. The book is in every way a noteworthy addition to the scientific and to the practical library of the student of medicine and physician.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, with the collaboration of Wm. Osler, M.D., Oxford; John H. Musser, M.D., Philadelphia; James Stewart, M.D., Montreal; J. B. Murphy, M.D., Chicago; A. McPhedran, M.D., Toronto; Thos. M. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London; Edmund Landolt, M.D., Paris; Richard Kretz, M.D., Vienna, with regular correspondents in Montreal, London, Berlin, Paris, Vienna, Leipsic, Brussels and Carlsbad. Vol. II, fifteenth series, 1905. J. B. Lippincott Company, 1905.

Sexual Disorders in the Male and Female.—By ROBERT W. TAYLOR, A.M., M.D, Clinical Professor of Genitourinary and Venereal Diseases in the College of Physicans and Surgeons (Columbia University), New York. New third edition, enlarged and thoroughly revised. In one octavo volume of 575 pages with 130 engravings and 16 colored plates. Cloth, $3.00 net. Lea Brothers & Co., Philadelphia and New York, 1905.

A Text-Book of Physiology, Normal and Pathologic.—By WINFIELD S. HALL, Ph.D., M.D., (Leipzig), Professor of Physiology, Northwestern University Medical School, Chicago, etc. New second edition, revised and enlarged. In one octavo volume of 795 pages, with 339 engravings and three full-page colored plates. Cloth, $4.00 net. Lea Brothers and Co., Philadelphia and New York, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

No Bar to Patent Medicines.—The report that Mexico has excluded American patent medicines is erroneous. The duty has been increased on this class of goods, and doubtless some medicines much in use there will hereafter be manufactured within the country, as is the case with some British medicines.

Canal Laborers Refused to Land.—Laborers from Martinique, who have arrived at Colon, are giving much trouble, many refusing to disembark or submit to vaccination, which is imperative under the American sanitary regulations. Panama and canal police called upon to compel the laborers to land, were unsuccessful, and it now seems that force will have to be employed to bring the men ashore and to make them submit to vaccination.

Eddyism and Virus.—The open warfare between Christian scientists and the Kansas City, Mo., Board of Health over the question of compulsory vaccination of school children has been settled by word received from Mrs. Eddy, saying that it was contrary to the principles of her church to object to the enforcement of the laws. Some time ago the Board of Health issued a compulsory vaccination order, to apply to all school children. Local eddyites demurred, contending that vaccination, as well as the use of medicines was against their doctrine.

Swindler in New York.—A man giving the name of Charles Croft is calling on physicians, representing himself as the agent of the "World's Clubbing and Subscription Company of New York City." He offers a number of publications for $2 a year, and collects the money, but the journals are never received. The publishers of the different magazines state that the man is not their representative, and that he is a swindler. He is about 26, weighs about 165 pounds, has smooth face, light brown hair, is well dressed, and has a very pleasing manner.

To Investigate American Methods with the Insane.—William P. Byrne, principal clerk of the home office; Dr. Horatio B. Donkin, a commissioner of prisons and consulting physician to Westminster Hospital; Dr. William H. Dickinson, consulting physician to St. George's Hospital and former president of the Royal Medical and Chirurgical Society; J. C. Dunlop, and Mrs. Pinsent, composing the subcommittee of the Royal Commission on the Care and Control of the Insane, have sailed from Liverpool for New York to investigate American methods of treating the insane.

National Association of Military Surgeons.—At the annual meeting at Detroit the following officers were elected: President, Lieutenant-Colonel Albert H. Briggs, Buffalo, N. Y.; vice-presidents, Brigadier General Robert M. O'Reilly, U. S. Army; Rear Admiral P. M. Rixey, U. S. Navy; Assistant Surgeon-General G. T. Vaughan, Public Health and Marine-Hospital Service; secretary, Major J. E. Pilcher, Carlisle, Pa.; treasurer, Major H. A. Arnold, National Guard Pennsylvania, Ardmore, Pa. It was voted to hold the next meeting of the convention in Buffalo, N. Y.

Marine Hospitals to be Cut Off—Extravagance in the management of the United States Marine-Hospital Service is claimed as a result of an investigation ordered by Secretary Shaw, and Congress will be asked to enact legislation which will bring about reforms. It is the present intention to recommend the abandonment of several marine hospitals now being supported by congressional appropriations, and for the curtailment of rosters of physicians and attendants in other institutions of this kind. The cost of maintaining the Marine-Hospital Service has more than doubled since 1897, being now more than $1,000,000.

Charitable Bequests.—Mrs. Marcia A. Norris, of Boston, bequeathed $5,000 each to the Children's Hospital on Huntington avenue, and the New England Hospital for Women and Children. The bequest to the Children's Hospital is designed as a memorial to H. O. and Julia Norris, children, and is for what is to be known as the "Norris Free Bed." The sum of $4,000 is given to the Convalescent Home for Children, situated at Wellesley, and a contingent bequest is that of $3,000 to the Home for the Aged in Somerville. At a special meeting of the directors of the Sanitarium for Hebrew Children at Rockaway Park, New York, a subscription of $10,000 by Jacob H. Schiff to a fund of $35,000 for new buildings for the sanitarium on the present site was announced.

The Seaman Prize for 1905.—Major Jefferson R. Kean, surgeon, United States Army, detailed for service at Washington, is announced as the winner of the Seaman prize for 1905. This is a prize of $500 offered for the best essay on "The prevention of disease in the army, and the best method of accomplishing that result." Major Kean's paper made a plea for the reestablishment of the canteen at army posts. He showed by statistics that since the abolishing of the canteen all kinds of diseases traceable to dissipation have increased among the soldiers of the regular army. The reason for this, he said, is that low groggeries have sprung up around army posts where soldiers drink to excess and then fall victims to disease. The prize has always heretofore gone to surgeons of the English army.

Proprietary Association Does Not Dispute Internal Revenue Decision.—Commissioner of Internal Revenue Yerkes has received from the counsel of the Proprietary Association of America an argument regarding the recent treasury decision that manufacturers of patent medicines principally composed of alcoholic ingredients shall pay a rectifier's tax and that dealers in the same shall pay a federal liquor dealer's tax. The association does not dispute the justice of the decision, but desires regulations that will protect preparations which are declared to be legitimate remedies. Yerkes has taken the matter under advisement. The effect of the decision which is expected to provoke the most objection is that in certain communities the application of druggists for Federal liquor dealers' licenses will be taken as prima facie admission that they are liquor dealers, and they will then be called upon to pay State taxes of $400 to $600 a year for State liquor dealers' licenses.

EASTERN STATES.

Senator to Build Tuberculosis Hospital.—Senator Proctor, of Vermont, has offered to furnish a site, erect a tuberculosis sanatorium, endow it with $100,000, and present it to the State of Vermont. The offer is made because his son has been afflicted with tuberculosis. Senator Proctor stated that he would furnish the site, erect the building at a cost of not less than $50,000, and endow the institution with a fund of $100,000, the interest to be used in its maintenance. He desires that the hospital shall be managed by a State commission and that the governor shall be a member of the board. The hospital will accomodate 25 or 30 patients.

NEW YORK AND VICINITY.

Harvey Society.—The first lecture of the course will be given by Prof. Hans Meyer, of Vienna, at the New York Academy of Medicine, on Saturday evening, October 7, 1905, at 8.30 p.m. Subject: "Die Theorie der Narcose." This lecture will be delivered in German.

The Herter Lectures.—The Herter lectures, established by Dr. C. A. Herter at the New York University and Bellevue Hospital Medical College, will be given this year by Professor Carl von Noorden, chief of the City Hospital of Frankfort, Germany. His subject will be diabetes. The lectures, six in number, will be given in English, in the large auditorium of the Carnegie Laboratory, from October 9 to October 14, inclusive, at 4 o'clock in the afternoon. Visitors are welcome to these lectures. Reserved seats may be had on application to the college.

State Hospital Work for Tuberculotics.—The trustees of the New York State Hospital for Incipient Pulmonary Tuberculosis in the Adirondacks, in their completed statistics for the first year, show an excellent percentage of recoveries and improvements. There were admitted during the year, 207 patients, more than half of whom were incipients. There were no deaths. Of the 105 patients discharged, 52 were apparently recovered. The officers do not feel that a tuberculous patient can be said to be cured until he has been two years or more without any symptoms of the disease. Twenty-six arrested cases are reported, 16 improved during their stay there, while 11, whose stay had been brief, left without any improvement.

Heavy August Death List.—The State Department of Health, in its monthly bulletin, states that the mortality for August exceeded by 1,000 the average for 7 years, which has been 10,800. The 12,800 deaths in July exceeded the average by 1,300. The epidemic mortality and from pulmonary tuberculosis in August is but little above the average, so that the increase is almost entirely in local diseases and general diseases not epidemic. There is a considerable increase in the deaths from whoopingcough, the mortality from which has commonly risen to its highest point in August in this State; its extensive prevalence at this time is to be noted. The typhoid fever mortality is excessive, and the increase is chiefly in the maritime district. Save in typhoid fever and whoopingcough, the epidemic mortality is less in all diseases than in July, that from diarrheal diseases being reduced by 600, although still excessive. It is noteworthy that while the urban mortality is 1,200 less than in July, the deathrate being reduced from 20.6 to 18.2, the deaths in rural towns have increased by almost 50%, and their diarrheal mortality by 60% from that of July.

PHILADELPHIA, PENNSYLVANIA, ETC.

Longer Medical Course Advised.—Dr. Adolph König, president of the Pennsylvania State Medical Society, in his annual address urged the necessity of a five-year course instead of the present one of four years, the final year to be devoted to practical medical work with commonplace diseases instead of rare ailments and spectacular cases in clinics.

Sanitary Barber Shops for Pennsylvania.—The National Barbers' League, at their annual convention last week, stated that for six years they have been endeavoring to obtain legislation guaranteeing sanitary shops and the licensing of barbers. They feel certain that their bill will be passed by the next Legislature. A resolution favoring the passage of a bill for such licensing of barbers and for sanitary shops was passed. A committee was appointed to draw the bill and bring it to the attention of the Legislature.

Police to Bind Wounds.—Police patrol sergeants in Philadelphia are to be organized into a first aid to the injured corps. This plan for the improvement of the police service was adopted on the recommendation of Police Surgeon William M. Angney, a member of the Association of Military Surgeons. He has prepared a bandage package for dressing wounds which each patrol sergeant will be required to carry. The package weighs about 2 ounces and is about the size of an ordinary cake of toilet soap. The sergeants will be instructed in the various methods of bandaging and be trained so that they will be an adjunct to the hospital surgeons.

Decrease in Typhoid Cases.—For the week ending September 30 there were reported 95 new cases of typhoid fever, as compared with 111 cases during the preceding week. The assistant medical inspectors of the Bureau of Health report that many veteran physicians complain because the public now insists that they take the precaution of wearing special caps, gowns, and overshoes when attending victims of contagious diseases. The Department of Public Health and Charities requires its inspectors to wear these gowns, caps, and shoes, so that danger of communicating disease may be reduced. After leaving the patient the special clothing is packed in a grip and fumigated by formaldehyd.

Typhoid at Nanticoke.—The increase in cases of typhoid at Nanticoke makes the total number of cases reported close upon 400, and Dr. F. C. Johnson, of the State Board of Health, says he believes that if all those affected were reported to the authorities there would be far over that figure. The total deaths to last Wednesday were 32. The authorities have again issued orders to all residents to boil the water they use, it having been found that many of them neglected to do so. A secondary outbreak is expected, the cases developing from existing cases with lack of sanitary precautions. Dr. Johnson had a conference with all the milk dealers to devise proper means and plans for transacting the milk business in the future. From every pulpit last Sunday came words of warning to the people to boil the water and milk used.

SOUTHERN STATES.

The Tri-State Medical Society, embracing physicians and surgeons of Alabama, Georgia, and Tennessee, held its seventeenth annual convention at Chattanooga, Tenn., beginning September 26. First Vice-president W. H. N. Wilder, of Birmingham, presided.

Typhoid Wipes Out Family.—The family of James Tribbitt, of Henderson, Del., has been practically wiped out by typhoid fever, five deaths having occurred in as many weeks. Three little children remain at the home, all ill with the same disease. The disease may spread in the neighborhood.

Fighting Diphtheria at the Naval Academy at Anapolis.—The authorities of the Naval Academy are taking every precaution to prevent any further spread of diphtheria among the midshipmen and at the Marine Barracks. No new cases were reported. While at least 10 midshipmen have developed complete cases of the disease, a dozen or more are under the observation of the academy surgeons and still others who have sore throat are receiving treatment at the hands of specialists of Washington. Medical Inspector Burns conducted an examination of all members of the class and those whose throats showed any signs of soreness have been confined to the sick bay in the hospital. All the midshipmen not affected were removed to the Hartford, lying in the Severn river, and, with new bedding served out to them, have taken up their quarters on that ship. Their clothing was fumigated. As a further precaution the Academy authorities may postpone the opening of the Academy until October 15.

The Status of Yellow Fever.—Five new cases of yellow fever were reported at Natchez, Miss., October 1, and one new focus. No deaths occurred and seven patients were discharged. The total number of cases under treatment is 30. There have been five deaths. At Vicksburg, five new cases were reported. No deaths occurred. At Pensacola, Fla., the health officials are greatly encouraged over the small number of new cases reported, and the situation is entirely satisfactory. Little change is reported in New Orleans, the record to October 3 standing: Total cases, 3,023; total deaths, 391; cases under treatment, 227. The Superior Board of Health of Mexico, reports that there was one death from yellow fever in the hospital at Vera Cruz, and that there are two other cases. There is one case at Tierra Blanca and three at Tezonapa. One patient had been discharged cured. Merida, capital of Yucatan, reports one case, but there is nowhere any epidemic of this disease, and Gulf ports are remarkably free from it. The passing of September without a serious outbreak of yellow fever, is regarded as a great victory of sanitary science over the disease. Cooler weather will soon set in, which will check any fever which might originate in the hot country.

WESTERN STATES.

Summer Oysters Poison 100.—Nearly 100 persons, doctors, nurses, attendants and clerks, at the St. Louis (Mo.) City Hospital were taken violently ill last week from ptomain poison resulting from having eaten oysters. Many were unable to perform their duties, but none was affected fatally.

Patent Medicine Maker under Arrest.—E. B. Wiler, maker of patent medicines, was arrested last week on the charge that he used the name of the State chemist on labels upon the medicine. The label stated that the medicine had been approved by the State chemist, which is said to be false.

Plan National Hospital at Illiopolis.—Louis Declermont, of Washington, D. C., has secured an option on 640 acres of land at $250 an acre at Illiopolis, Illinois, on which the government contemplates building a $400,000 hospital for the army and navy. It will be for the treatment of bowel and stomach disorders. The capacity will be 3,000 patients. The Illiopolis authorities must furnish lighting facilities and water-supply.

State Board Made Powerless for Drug Prosecutions.—The Illinois State Board of Pharmacy cannot prosecute for the adulteration of drugs, medicines, and the like, because there is no law, according to an opinion rendered by Attorney-General Stead. The pharmacy law, which was passed in 1901, makes the "United States Pharmacopeia" the standard of tests for purity. The seventh United States Pharmacopeia was in effect at that time and a new one has been issued since and was made effective September 1. The question involved is, whether the law passed in 1901 applies to the new edition of the pharmacopeia, and the Attorney-General is of the opinion it does not.

Chicago Health Officer Deplores Lack of Inspectors.—Health Commissioner Whalen asserts that his bureau is a poor excuse for a guardian of the public health. While he complains that the city ordinances would guarantee but slight protection even if they were enforced, his great cry is for more men. The adoption of the suggestion to require license fees from cold storage plants and meat markets, placing them under control of the Board of Health, would have a disciplinary effect upon the proprietors, since, if they were found to be passing out meats or other articles of food which had been allowed to deteriorate, they could be punished by revocation of their permits.

New Hospital for Insane.—A tract comprising 393 acres, 346 feet above the level of the Ohio river, in Madison, Ind., has been selected as the site of the new Southeastern Hospital for the Insane. The site was accepted under the following provisions: That good water will be furnished the institution in sufficient quantity; that the commission will be given privilege of selecting whatever portion of the land offered it desires; that the price for the land be less than was originally specified; that the Pennsylvania railroad construct switches to connect with the institution; that the title of the land shall be approved by the attorney-general; that the streets leading to the proposed site of the hospital be improved by the city, and that the site shall be given to the commission within a specified time.

FOREIGN NEWS AND NOTES

GENERAL.

A medical insurance company is being organized in France by members of various protection societies. The society purposes to make temporary weekly payments to members suffering from accident or disease. It also proposes to pay pensions after a certain number of years.

The cholera epidemic in Madras continues unabated, the daily returns being still very high. It is reported that outbreaks have occurred in both the general hospital and government lunatic asylum. Last week the deathrate was over 125 per 1,000. A number of schools and colleges in the city are closed.

The Cholera Situation.—No cases of cholera have been reported in the Volga region this year. The only cases announced are in the Vistula district. Investigation shows that the Astrakhan government is not threatened with cholera, and an order has been issued cancelling the protective measures. The official bulletin for Berlin announces that four new cases of cholera had occurred from noon Saturday to noon Monday and no deaths occurred in that period.

Personal.—Louis Trimani resigned his office as editorial secretary of the *Policlinico* (Rome), July 1.—**Medical Convocation.**—At Chieti, in Italy, the provinces of the Abruzzi and the Molise, on September 23, 24, and 25, held an important medical convocation, made more notable in the attendance of Cardarelli, De Amicis, Del Greco, Mucci, De Arcangelis, Tedeschi, Caporalli, and other distinguished representatives of Italian medicine. The theme which most appealed to the meeting will also exert a general appeal, being entitled Physiotherapy of Tuberculosis.

Plague in Mongolia.—Twenty cases of bubonic plague, ten of which resulted fatally, have occurred near Dalai-Nor Hulan Lake, Mongolia, near the Russian frontier, and two cases at Manchuria station. The authorities intend to declare Transbaikalia infected. The greatest fear is expressed that the plague may be communicated to the troops returning from Manchuria, and the troop trains have been strictly forbidden to stop at that station. The inhabitants of the affected village have been transported to a quarantine location some distance from the railway and the village has been burned.

Nations Fight Tuberculosis.—The International Tuberculosis Congress was opened October 2 at Paris, in the presence of President Loubet, the cabinet ministers, and the ambassadors. Over 3,500 delegates were present. The American official delegation consists of Drs. S. A. Knopf, of New York; Lawrence F. Flick, of Philadelphia; Henry Barton Jacobs, of Baltimore; and Medical Inspector Henry G. Boyer, who represents the United States Navy. Other Americans present were Drs. Arnold C. Klebs, of Chicago; John S. Lowman, of Cleveland, O.; William Osler, formerly of Baltimore and now of Oxford, England. The opening address was delivered by Dr. Hérard, of the French Academy of Medicine, who was chosen president of the congress. The report of Dr. Letulle, the secretary, said that 33 nations, representing the entire civilized globe, had united to consider the most effective means of combating the worst human malady. President Loubet visited the corridors of the Grand Palace, where were erected models of hospitals, and typic sanitary and unsanitary dwellings, and models of the most recent devices for treating tuberculosis.

OBITUARIES.

Walter B. Saunders, of Philadelphia, head of one of the largest and best known medical book publishing houses, died suddenly at Atlantic City, October 1. Mr. Saunders had been ill from overwork for some time and had spent several months in the effort to regain his health. He traced his ancestry back to the first English colonists of Jamestown, Va., and was educated at the Episcopal Academy, Philadelphia.

Henry L. Day, aged 66, September 16, from pleurisy, at his home in Eau Claire, Wis. He was graduated from the University of Buffalo (N. Y.), medical department, in 1860. He was a member of many State, county, and local medical societies and of the American Medical Association; member of the Ninth International Medical Congress; served as assistant surgeon of the Seventy-eighth New York Volunteer Infantry during the Civil war.

Decatur Curran Anderson, of Moss Point, Miss., September 26, of yellow fever, at Tallulah, La. He was graduated from Tulane Medical College, New Orleans, in 1901. After graduation he served as interne at the Touro Infirmary, and later was appointed medical inspector for vessels of the Central America fruit trade. He died at the post of duty, having been called to assist in the endeavor to subdue yellow fever in the Gulf States.

Edward F. Galligan, aged 49, September 26, at his home in Taunton, Mass. He was graduated from the Harvard University Medical School in 1881. In 1884 he was appointed city physician and filled the position for several years. He was a trustee of the Morton Hospital, a member of the Taunton Physicians' Club, the North Bristol Medical Society, and the American Medical Association.

John Harrison Hunter, aged 76, September 26, at his home in Berkeley Springs, W. Va. He was graduated from the University of Maryland School of Medicine, Baltimore, in 1855. He was a veteran of the Mexican war and served as surgeon in the Confederate army during the Civil war.

Frederick A. Smith, aged 50, formerly of Boston, Mass., September 26, from tuberculosis, at Belhart, Texas. He was graduated from the Harvard University Medical School in 1878; following his graduation he took up postgraduate work in Heidelberg, Berlin and Vienna.

Joseph L. Wever, aged 80, September 11, from senile debility, at his home in Leavenworth, Kan. He was graduated from the Albany (N. Y.) Medical College in 1852. He served as surgeon of the Seventh Kansas Volunteer Cavalry during the Civil war.

Lafayette Balcom, aged 67, of Buffalo, N. Y., September 14, from nervous collapse following septicemia, at the home of his sister in Detroit, Mich. He was graduated from the University of Buffalo (N. Y.), medical department, in 1864.

David L. Norris, aged 33, September 4, from malarial fever, at Chancy, Miss. He was graduated from Jefferson Medical College, in 1897. He was physician for the Bacon-Nolan Hardwood Company at Chancy.

Cyrus S. Bulhand, aged 59, September 11, from cancer of the stomach, at his home in Union, Mich. He was graduated from the College of Physicians and Surgeons, Keokuk, Iowa, in 1874.

C. Alfred Grymes, aged 76, September 29, at his home in New York. He was graduated from Harvard University Medical School and the College of Physicians and Surgeons, Philadelphia.

Charles Smith, aged 48, September 9, from cirrhosis of the liver, at his home in Guthrie, Okla. He was graduated from the Missouri College, St. Louis, in 1879.

Mariano Samaniego, of Chihuahua, Mexico, at El Paso, Texas, October 2. He was a general in the Mexican army in the war against Maximilian.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the two weeks ended September 29, 1905:

SMALLPOX—UNITED STATES.			Cases	Deaths
California:	San Francisco	Sept. 2-16	2	
District of Columbia:	Washington	Sept. 8-16		1
Florida:	Jacksonville	Sept. 8-16	1	
Illinois:	Galesburg	Sept. 16-23	1	
Minnesota:	4 counties	July 31-Aug. 14	28	
	6 counties	Aug. 14-21	26	
	3 counties	Aug. 21-28	6	
	2 counties	Aug. 28-Sept. 11	8	
Ohio:	Cincinnati	Sept 1-22	7	
Pennsylvania:	Allegheny	Sept. 2-9	1	
	York	Sept. 8-16	7	
Wisconsin:	Appleton	Sept. 16-23	4	

SMALLPOX—FOREIGN.				
Africa:	Cape Town	July 29-Aug. 5	5	
Argentina:	Buenos Ayres	June 1-30		34
Brazil:	Pernambuco	July 1-31		393
	Rio de Janeiro	Aug. 20-27	14	8
China:	Niuchwang	Aug. 5	1	
Ecuador:	Guayaquil	Aug. 22-Sept. 5		7
France:	Paris	Aug. 27-Sept. 9	35	5
Great Britain:	Liverpool	Sept. 9-16	1	
				Imported
	Plymouth	Sept. 2-9	9	
India:	Bombay	Aug. 9-15		1
	Calcutta	Aug. 5-26		4
	Karachi	Aug. 6-13	1	1
	Madras	Aug. 5-18		14
Italy:	General	Aug. 18-Sept. 7	21	
	Catania	Aug. 31-Sept. 7		2
	Messina	Aug. 12-19	4	4
Russia:	Moscow	Aug. 12-Sept. 2	15	6
	Odessa	Aug. 19-Sept. 9	15	3
	St. Petersburg	Aug. 19-26	3	1
Turkey:	Constantinople	Aug. 28-Sept. 10		3

YELLOW FEVER—UNITED STATES				
Florida:	Pensacola	Aug. 29-Sept. 25	144	21
Kentucky:	Lexington	Sept. 17	2	
				Refugees
Louisiana:	Ascension Parish	To Sept. 23	70	3
	Ass'mption Parish.	To Sept. 25	30	
	Avoyelles Parish	To Sept. 25	10	2
	East Baton Rouge Parish	To Sept. 24	5	
	East Carroll Parish	To Sept. 25	264	31
	Iberville Parish	To Sept. 13	16	3
	Jefferson Parish	To Sept. 26	342	43
	Lafayette Parish	To Sept. 26	8	
	Lafourche Parish	To Sept. 24	379	47
	Madison Parish	To Sept. 26	261	16
	Morehouse Parish	To Sept. 18	1	1
	Nachitoch's Parish.	To Sept. 20	76	5
	Orleans Parish, New Orleans	July 21-Sept. 27	2907	378
	Pl'quemines Parish.	To Sept. 23	57	8
	Rapides Parish	To Sept. 25	20	
	St. Bernard Parish.	To Sept. 25	61	3
	St. Charles Parish	To Sept. 20	114	16
	St. John the Baptist Parish	To Sept. 26	150	14
	St. Mary Parish	To Sept. 25	672	26
	Tangipahoa Parish.	Sept. 17	2	
	Tensas Parish	To Sept. 23	4	
	Terebonne Parish	To Sept. 23	229	10
Mississippi:	Enoka	Sept. 15	1	
	Gulfport	Aug. 15-Sept. 25	75	1
	Gulf Quarantine	July 22-Sept. 2	61	1
	Hamburg	Sept. 15-25	23	4
	Handsboro	Sept. 17-24	3	
	Harriston	To Sept. 25	2	
	Mississippi City	Aug. 22-Sept. 25	50	
	Natchez	To Sept. 25	35	
	Roxie (vicinity of).	To Sept. 25	5	
	Seria	Sept. 15	1	
	Vicksburg	Aug. 30-Sept. 25	57	7

YELLOW FEVER—FOREIGN.

Brazil:	Rio de Janeiro	Aug. 20-27	5	
Guatemala:	Tocura	Aug. 23	Present	
Honduras:	Puerto Cortez	Aug. 29-Sept. 5	2	
	San Pedro	Aug. 20-30	4	
Mexico:	Coatzacoalcos	Sept. 10-15	1	
	Merida	Sept. 17	1	
	Tehuantepec	Sept 3-9		1
	Tezonapa	Sept. 8-15	2	2
	Vera Cruz	Sept. 3-9	4	1
Nicaragua:	San Francisco	Aug. 27		2
Panama:	Bocas del Toro	Sept. 9	5	
	Removed from Steamship Preston			
	Panama	Aug. 27-Sept. 9	6	1

CHOLERA.

Germany:	Hamburg	Aug. 26-Sept. 6	3	1
	Posen, West Prussia, (Vistula district).	To Sept. 7	105	32
	Stettin	Sept. 19		1
India:	Bombay	Aug. 8-15		1
	Calcutta	Aug. 5-26		72
	Madras	Aug. 5-25		1313

PLAGUE.

Africa:	Port Elizabeth	Aug. 12-19	1	1
Brazil:	Rio de Janeiro	Aug. 20-27	9	2
Chile:	Taltal	Aug. 30	3	
India:	General	July 29-Aug. 5	1445	1054
	Bombay	Aug. 8-29		139
	Calcutta	Aug. 5-26		34
	Karachi	Aug. 6-27	29	20

Changes in the Medical Corps of the U. S. Army for the week ended September 30, 1905:

CONNOR, First Lieutenant CLARENCE H., assistant surgeon, is relieved from duty on the transport Sheridan and will proceed to Fort Stevens for duty.

REDDY, JOSEPH W., contract surgeon, is relieved from further duty in the Philippines Division and from treatment at the Army General Hospital, Presidio of San Francisco, Cal., and will proceed to his home, Boston, Mass., for annulment of contract.

KLIEMAND, GEORGE, sergeant first class, will be relieved from duty in the Philippines Division at such time as will enable him to be sent to San Francisco, Cal., on the transport leaving Manila about March 15. Upon arrival at the depot of recruits and casuals, Fort McDowell, Cal., he will report by letter to the military secretary of the army for further orders.

So much of orders of July 15, as relates to Contract Surgeons Roger P. Ames and Oscar F. Davis is revoked.

The following changes in the stations and duties of contract surgeons are ordered: Contract Surgeon Oscar F. Davis is relieved from duty at Fort De Soto, Fla., and will proceed to Jefferson Barracks for duty. Contract Surgeon Roger P. Ames is relieved from further duty at Fort McIntosh, Texas, and when his services are no longer required at Jackson Barracks will proceed to Fort St. Philip for duty, relieving Contract Surgeon George W. Daywalt. Contract Surgeon Daywalt will proceed to Fort De Soto for duty.

RAY, Major BEECHER B., is granted leave for ten days from about September 15.

REAGLES, JAMES, contract surgeon, is granted leave for one month, to take effect about October 1, with permission to apply for an extension of one month.

WOODBURY, First Lieutenant FRANK T., assistant surgeon, is granted leave for one month.

BOBERG, KNUD, post commissary sergeant, now at Des Moines, Iowa, having relinquished the unexpired portion of his furlough, will report to the commanding officer, Fort Des Moines, who will send him to Fort Apache, to relieve post commissary sergeant Fred. Higgins. Sergeant Higgins will be sent to the Presidio of San Francisco, Cal., at such time as will enable him to be sent to Manila, P. I., on the transport leaving San Francisco about November 6, to relieve a post commissary sergeant whose tour of duty has expired. Such sergeant upon relief will be sent to San Francisco, Cal., reporting to the commanding general, department of California, for further orders.

AMES, ALTON B., post commissary sergeant, Fort McIntosh, will be sent to the Presidio of San Francisco to be sent to Manila, P. I., on the transport leaving San Francisco about November 6, to relieve a post commissary sergeant whose tour of duty has expired. Such sergeant upon relief will be sent to San Francisco, Cal., reporting to the commanding general, department of California, for further orders.

EDWARDS, SAMUEL H., post commissary sergeant, Yosemite National Park, Cal., when his services are no longer required at that post, will be sent to Fort McIntosh for duty.

REYNOLDS, First Lieutenant CHARLES R., assistant surgeon, will report, October 5, to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement.

The following-named assistant surgeons will report on the dates specified to Lieutenant-Colonel George H. Torney, deputy surgeon-general, president of the examining board, at the General Hospital, Presidio of San Francisco, for examination for advancement: October 31, First Lieutenants Frank C. Baker, William E. Vose, and Frank T. Woodbury; November 28, First Lieutenants Frederick A. Dale, James F. Edwards, and Walter C. Chidester; December 29, First Lieutenant Allie W. Williams.

WALLACE, GEORGE S., contract surgeon, will proceed from Waynesburg, Pa., to Cayey, P. R., for duty.

JONES, GEORGE B., contract surgeon, will proceed from Indianapolis, Ind., to San Francisco, Cal., and take transport to sail from the latter place about October 5 for Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

WILSON, Captain JAMES S., assistant surgeon, is granted leave for twenty-one days, to take effect when his services can be spared by his post commander.

The following changes in station of medical officers in this department are ordered: First Lieutenant Charles Y. Brownlee, assistant surgeon, will report at Cuartel de Espana, Manila, for duty; Henry M. Hall, contract surgeon, will proceed to Fort William McKinley, Rizal, for duty; Preston S. Kellogg, contract surgeon, will proceed to Fort William McKinley, Rizal, for duty.

GORTON, GLEN D., sergeant first class, Army General Hospital, Washington Barracks, D. C., on or before expiration of furlough, will be sent to the depot of recruits and casuals, Fort McDowell, to report and be sent to Manila, P. I., on the transport leaving San Francisco, Cal., about January 5, for assignment to duty.

ROBERTS, First Lieutenant WILLIAM, assistant surgeon, will report October 3 to Major Charles Richard, surgeon, president of the board of medical officers at Governor's Island, N. Y., for examination to determine his fitness for tropic service.

MACDONALD, CHARLES E., contract surgeon, will proceed from Liberty, N. Y., to San Francisco, Cal., and take transport to sail from the latter place about October 5 for Manila, P. I., for assignment to duty.

The following-named contract surgeons, now in Washington, D. C., will report October 2 to Colonel Charles L. Heizmann, assistant surgeon-general, president of the faculty of the Army Medical School, Army Medical Museum Building, for a course of instruction at that school: Sidney L. Scott, Charles E. Freemen, Albert H. Wilton, Henry J. Nichols.

The following-named contract surgeons will proceed from the places set opposite their respective names to Washington, D. C., and report October 2 to Colonel Charles L. Heizmann, assistant surgeon-general, president of the faculty of the Army Medical School, Army Medical Museum Building, for a course of instruction at that school: Albert G. Love, Memphis, Tenn.; Omar W. Pinkston, Fort Mansfield; Lucius L. Hopwood, Philadelphia, Pa.; Hermon E. Hasseltine, Baltimore, Md.; John R. Hicks, Warrenton, Va.; Howard A. Reed, Milford, Pa.; Ferdinand Schmitter, Baltimore, Md.; Mathew A. Reasoner, Morrisonville, Ill.; Thomas F. Duhigg, Des Moines, Iowa; Oswald F. Henning, Chicago, Ill.; Laurence P. Desmond, Elizabeth, N. J.; Harold W. Jones, St. Louis, Mo.; Henry B. McIntyre, Randolph, Vt.; Louis H. Hanson, New York City.

RION, CROXTON L., dental surgeon, will proceed from Paris, Ky., to San Francisco, Cal., and take transport to sail from the latter place about October 5, for Manila, P. I., for assignment to duty.

BLUMENTHAL, WALTER, sergeant first class, Army Medical School, will report at the Army General Hospital, Washington Barracks, for duty with Co. A, hospital corps.

HOWARD, Captain DEANE C., assistant surgeon, will report October 10 to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum, Washington, D. C., for examination for promotion.

SHORTLIDGE, First Lieutenant EDMUND D., assistant surgeon, leave granted September 16, is extended one month.

LEONARD, CHARLES L., sergeant first class, Manila, P. I., is relieved from further duty in the Philippines Division and will be sent to San Francisco, Cal. Upon arrival at the depot of recruits and casuals, Fort McDowell, Cal., he will report to the commanding officer of that post, and by letter to the military secretary of the Army for further orders.

Changes in the Medical Corps of the U. S. Navy for the week ended September 30, 1905:

THOMPSON, J. C., passed assistant surgeon, ordered to the Naval Recruiting Station, Providence, R. I.—September 25.

WHITE, E. C.; REED, T. W.; REED, E. U.; OLD, E. H. H.; MCCONNON, G. H., assistant surgeons, appointed assistant surgeons, with rank of lieutenant (junior grade), from September 21, 1905—September 26. Ordered to Washington, D. C., for course of instruction at the Naval Medical School—September 28.

VON WEDEKIND, L. L., surgeon, detached from the Lancaster and ordered to the navy recruiting rendezvous, Chicago, Ill.—September 27.

RICHARDS, T. W., surgeon, detached from the navy recruiting rendezvous, Baltimore, Md., and granted leave for thirty days—September 27.

DE VALIN, C. M., surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Lancaster—September 27.

PECK, A. E., passed assistant surgeon, detached from the Bennington and ordered to the Concord—September 27.

ANGENY, G. L., passed assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—September 27.

MOORE, J. M., passed assistant surgeon, detached from the navy recruiting rendezvous, Chicago, Ill., and directed to wait orders—September 27.

BROWN, E. M., assistant surgeon, detached from the Navy Yard, Mare Island, Cal., and ordered to the Naval Medical School, Washington, D. C.—September 27.

GEIGER, A. J., assistant surgeon, ordered to the Navy Yard, Mare Island, Cal.—September 27.

HULL, H. F., assistant surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Naval Academy—September 27.

HEINER, R. G., assistant surgeon, detached from the Navy Yard, Washington, D. C., and ordered to the Scorpion—September 27.

RICHARDSON, F. A., acting assistant surgeon, detached from the Scorpion and ordered to the navy recruiting rendezvous, Baltimore, Md.—September 27.

FIELD, J. G., detached from the Solace and ordered to the Celtic—September 28.

SPEAR, R., surgeon, detached from special duty at St. Petersburg, Russia, and ordered to the Asiatic station—September 28.

OMAN, C. M., assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—September 28.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-sixth Annual Session Held at Portland, Ore., July 11 to 14, 1905.

[Specially reported for *American Medicine.*]

Pharmacology.

THIRD SESSION (CONCLUDED).

The Etiologic and Therapeutic Relation of the Pancreas in the Development of Tuberculosis.—H. EDWIN LEWIS maintains that the pancreas and its secretion, aside from its direct influence as a digestive agent, has a more remote but none the less important relation to intracellular digestion, especially of fats and sugars. Lesions of the pancreas interfering with its function are quite generally followed by fatty degeneration throughout the body, and the increase of fat and sugar in the blood under similar conditions is easily demonstrable. Boenngerhas has shown that there is an increased amount of fat in the blood of diabetics, and the majority of investigators believe today that diabetes is the result of structural change in the pancreas, more especially the islands of Langerhans. Lewis has become convinced that tuberculosis as commonly recognized clinically is simply a serious complication of an antecedent disease far more general in its pathology and etiology, and that a failure of proper metabolism is essential for the development of tuberculosis. Human susceptibility to tuberculosis consists primarily of a breakdown or perversion somewhere in the sequence of enzyme action. While a failing metabolism is a constant accompaniment of the progress of tuberculous disease, far more significant is the fact that the disease or conditions characterized by such failing or perverted metabolism, like diabetes, chronic indigestion, and pregnancy, are the ones most often complicated by tuberculosis. Free and disorganized fats and sugars in any tissue of the body provide essential facilities for the development of an organism like the tubercle bacillus, whose composition and culture are so closely related to these substances. Ferment action is profoundly influenced by oxygen, in vacuo the action of the pancreatic ferments being very markedly inhibited, while in an atmosphere of almost pure oxygen their destructive powers are greatly increased. The increased amount of oxygen which necessarily enters the circulatory system of the individual living in the open air may increase the enzyme value of those ferments which have been acting, though with lessened power, their relative value being greatly increased, and with increased feeding, a closer approach to metabolistic equilibrium temporarily takes place. If internal conditions are favorable for the prolongation of this readjustment, and the tuberculosis infection is small, then the resulting process is held in abeyance or starved out by the withdrawal of conditions which have enabled the bacilli to live and to grow. Just such restoration of metabolistic equilibrium, with more or less permanent arrest of the tuberculous process, has been commonly observed in the clinical course of this disease. Tuberculosis is a frequent complication of nervous and mental diseases, following as a result of their influence on cellular digestion. With the hypodermic injection of pancreatic extract in cases of tuberculosis, even in advanced cases, there has been temporary increase in weight, amelioration of cough, fever, night sweats, and debility, and an examination of the patient's blood showed a perceptible decrease of free fat and free sugar.

Discussion.—STERN said that none of the pancreatic enzymes which he has been able to obtain has proved sterile and never came isolated, and that he doubts if the enzymes made for Lewis have been free from by products. Enzymic activity is nothing else but a transmission of the protoplasmatic activity of a cell upon a suitable form of surrounding proteid or albuminoid substance, in the transmission of this energy, the enzyme not being disintegrated. It is much more the physical underlying conditions than it is the enzymic action, which give rise to the physiologic phenomena. Physiologic chemistry has been overdone during the past few years, the socalled isolated pancreatic enzymes proving of no avail in the reduction of the amount of glucose. The injection into the blood of any organic substance such as pancreatic extract might call forth disintegration of the various blood components.

The Committee on Resolutions whose report was next on the program, offered the following resolutions:

WHEREAS, the United States Pharmacopeia has established standards of nomenclature and orthography which appeal to science and scientific methods; therefore be it

Resolved, that the Section on Pharmacology and Materia Medica respectfully urges the desirability of the American Medical Association accepting the United States Pharmacopeia as the standard of nomenclature and orthography in all its transactions and publications.

WHEREAS, the Postmaster-General of the United States and the Secretary of Agriculture are making laudable efforts to restrict or exclude all obnoxious, fraudulent, and dangerous substances from the United States mail, and

WHEREAS, these efforts are nullified to a certain extent by abstruse or incomplete laws, or misunderstanding in their interpretation; therefore be it

Resolved, that the Section on Pharmacology of the American Medical Association extend to the Postmaster-General and the Secretary of Agriculture our sincere appreciation of their efforts in behalf of honest pharmacy and assure them that this section is in accord with their methods and objects; and be it

Resolved, that the Section on Pharmacology of the American Medical Association emphasize to our Legislatures and postoffice authorities the necessity of denying to every fraudulent and dishonest firm the use and privileges of the United States mails in every way and particular; and furthermore be it

Resolved, that the Section on Pharmacology and Materia Medica of the American Medical Association urge upon the postoffice authorities the desirability of a proper regulation for the protection of the people which will make necessary the proper and plain labeling of all poisonous tablets, powders, or other substances before admitting the same to the privileges of the United States mails.

The committee to whom was referred the **Report of the Committee on Proprietary Medicines** made the following recommendations:

That it is the sense of the Section on Pharmacology that all proprietary products should have titles as nearly descriptive as possible of their active constituents or elementary composition; and while we deplore the present necessity of trade names and titles we recognize that the evils of substitution are so prevalent that in the interests of honest progressive pharmacy the use of such names and titles cannot be avoided. It is, however, the further opinion of this section that many if not all of the objectionable features of proprietary products can be eliminated (1) by the use in connection with the trade name, of some subtitle which will express in scientific terms the nature and character of its composition, and (2) by the use of the label, or, in the disseminated literature, of a descriptive formula which will exhibit the character and proportions of the active constituents.

LEWIS spoke of the anomalous position of the section, inasmuch as an officer has so severely criticised a preparation that has received a large amount of space in the *Journal*, and he moved that the secretary of the section submit this matter to the board of trustees, asking them to investigate the status of Ovoferrin, and the position of Robinson with reference to this preparation.

Motion seconded and carried.

FOSS, the section's delegate to the House of Delegates for the term just expired, reported that among the by-laws presented to be adopted at the next convention, in Boston, was one providing that the American Medical Association pay all its own expenses, instead of asking the manufacturers of proprietary articles to pay them, as now. Also provision that the formulas of drugs shall be advertised, that hereafter the American Medical Association will print its formulas, and unless the quantities and formulas are printed it will not be accepted as an advertisement, as soon as existing contracts expire; also that papers can be read before the two sections by a member of the Association; and that the name of the section be modified by adding to it the word Therapeutics.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston, Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 561.*]

Nose and Ear Complications in Diphtheria, Scarlatina, and Measles.—JOHN H. MCCOLLOM (Boston), in this paper, emphasized the following points: 1. The frequency of otitis media in diphtheria, scarlet fever, and measles. 2. The importance of early operation in mastoiditis occurring in these diseases. 3. The necessity of frequent examination of the ears, even when there were no symptoms referable to those organs. 4. Early incision of the drum-head in the acute infectious diseases as soon as there was any bulging. McCollom also suggested that if adenoids were to be removed, cultures should be taken from the nostril in every case before the operation was done, as it not infrequently happened that a child with a profuse discharge from the nose developed a severe attack of diphtheria immediately after the removal of the adenoids or after ablation of the tonsils.

Discussion.—CHARLES W. RICHARDSON (Washington, D.C.) said he was greatly interested in McCollom's paper, although it was hardly necessary to come before a body of aurists and intimate the importance of involvement of the ears in connection with the infectious diseases. This subject should be preached into the minds of the general practitioners. They were the ones who should be influenced in connection with this condition. They should be induced to examine the ears of all their patients suffering from the infectious diseases, and if they lacked the necessary training, the specialist should be called in to aid them. As McCollom had stated, the ear complications of the infectious diseases were responsible for a large number of cases of deaf-mutism—at least 5% being due to the ravages of scarlet fever alone. In regard to the method of infection of the ears in these cases, the speaker said it did not always occur by continuity through the eustachian tubes, but also, as had been demonstrated, through the lymphatic and vascular systems. This occurred not only in scarlet fever, but also in measles and diphtheria. Another point that had been

demonstrated by pathologists was that in the course of the infectious diseases, the cavity of the middle-ear contained an exudate in from 70% to 95% of all cases. This exudate could be observed with the naked eye, and was present in many cases of imperforate membrane. Recently, a physician in Canada reported that during an epidemic of measles, in over 40% of the cases that he studied by objective measures, he observed inflammatory changes in the membrana tympani, and the physical signs of an exudate in the middle-ear cavity. In conclusion, Richardson referred to the frequency with which middle-ear complications were observed in measles during the convalescent stage. George L. Richards (Fall River, Mass.) said he wished to protest against the use of the word paracentesis, especially by the members of this society, and he offered as a substitute the term "incision of the drum membrane." To the general practitioner, paracentesis meant puncture of the drum membrane with a little spear-shaped knife while the correct procedure was a free incision of the drum membrane. In the papers and discussions on this subject he suggested that the term paracentesis be eliminated once and for all. Chevalier Jackson (Pittsburg, Pa.) said he heartily agreed with Richards, but instead of using the term "incision of the drum membrane," why not substitute the word myringotomy? Edward B. Dench (New York) said the proposition contained in McCollom's paper to take cultures from the nose before doing an adenectomy was new to him, and he regarded the idea as an excellent one, as he had seen cases where severe inflammatory changes followed this simple operation. Hitherto he had always depended on the child's temperature, but it was quite possible that there were cases of latent diphtheria which could only be discovered by the culture method. Dench said he was glad to hear that McCollom was opposed to irrigation of the nose in nasal diphtheria. The speaker said he had always objected to this practice, although it was formerly done almost as a matter of routine. He was also glad to hear the reader of the paper advocate early mastoid operation, and he hoped that this paper would be brought to the attention of the general practitioner, who was usually opposed to mastoid interference unless a decided postaural swelling could be demonstrated, and the temperature was much elevated. The speaker considered it a distinct advance to advocate early mastoid operation in these cases, even when the symptoms were not prominent, consisting, perhaps, of nothing more than a continued profuse discharge from the ear. He had known of cases where the attending physician objected to the operation because of the free aural discharge, or because there was no temperature. Many men, Dench said, lost sight of the fact that the mastoid should sometimes be opened for the purpose of preserving the hearing. Some even thought the operation would affect the hearing injuriously, while, on the contrary, it would preserve it. Dench said he would not wait for pronounced bulging of the membrana tympani before incising it, but would resort to that procedure if there was slight redness and temperature. S. MacCuen Smith (Philadelphia) said he agreed with McCollom and Dench that the idea of taking cultures from the nose before doing an adenectomy was a valuable one. The speaker said he had never heard it suggested before. As regarded the character of the bacillus causing the middle-ear involvement. Smith said that in his experience, the pneumococcus was more destructive to the soft and bony tissues than any other. Mastoid involvement was a very frequent complication of the acute exanthems, and especially so of measles. During the past winter, within a single fortnight, he had found it necessary to operate upon six mastoids in one family—that of a physician. There were two double mastoid operations, and two single, and in all of them the pneumococci were found. It was important, the speaker said, to do these mastoid operations early, both to preserve hearing and to prevent further extension of the suppuration. Smith said he was thoroughly in accord with Dench in regard to the difficulty often experienced in convincing the attending physician of the presence of mastoid disease. Unless all the classic symptoms were apparent—swelling, tenderness, temperature, etc.—many physicians considered an operation unnecessary. He recalled two such cases where operation was refused, and in both there was a rapid development of meningitis and death. The importance of early operation in these cases could not be too strongly impressed upon the minds of the physicians, and those members of the society who were engaged in teaching students should not lose sight of that fact. Wendell C. Phillips (New York) said that while he agreed, in the main, with the statements contained in McCollom's paper, he was inclined to believe that a bacteriologic examination of the nasal secretions preliminary to an adenectomy was carrying precautions a little too far. Personally, it was his practice to have the child's temperature taken 12 or 24 hours prior to the operation, and, if it was normal, to operate; otherwise the operation was postponed. In such a case that recently came under his observation, a slight elevation of temperature was discovered, and the child developed pertussis within a day or two. In several other cases he could recall, a slight temperature preceded an attack of follicular tonsillitis. Ewing W. Day (Pittsburg, Pa.) said that in the cases in which the middle-ear was involved in a rapidly destructive process complicating one of the acute exanthems, the cause of the trouble would probably be found to be an embolism of the vessels leading to the tympanic cavity and mastoid. This condition had been demonstrated in certain cases of typhoid fever. H. P. Mosher (Boston) asked McCollom how frequently he had observed diphtheria develop after removal of the tonsils of adenoids? Personally, he had seen it in but one instance. Thomas Hubbard (Toledo, O.) said that as acute nephritis was a frequent complication of scarlet fever, the choice of an anesthetic was of importance in operating on such patients. He asked McCollom whether the use of an anesthetic in these cases caused an exacerbation of the nephritis. He thought the suggestion made by McCollom to have the nasal secretions examined bacteriologically before operating on the tonsils or adenoids was a very important one. It was a wellknown fact that cases of latent or very mild nasal diphtheria were comparatively frequent, and in fibrinous rhinitis it was impossible to determine positively the character of the infection without a bacteriologic examination. These mild cases were a prolific source in spreading the disease among children. J. A. Stucky (Lexington, Ky.) said he did not quite understand whether McCollom advocated opening the mastoid during the height of the fever. The speaker said he had seen mastoiditis develop in the acute stage of the exanthems, and he inquired whether McCollom would consider it advisable to operate then? James F. McCaw (Watertown, N. Y.) said that about a year ago he was called to see a case in which a mastoiditis had developed during the height of the scarlatinal eruption; such a case as Stucky had just referred to. In that instance, McCaw said, he had no hesitancy in operating, and he regreted that he did not do a more complete operation, as a second one was subsequently necessary. Aside from that, the case was uneventful. George A. Leland (Boston) said that in the management of aural complications during the acute exanthems, he most strenuously insisted on not delaying examination for the secondary rise of temperature. The ears should be examined as a matter of routine, especially in private practice, from the beginning of the disease. Possibly, the only indication that might be found for surgical interference was the drum-head, dull and lusterless, having a macerated appearance, the evidences of a slight infection of the middle-ear, where free incision was of service in limiting the extent of the infective process, and determining the location of the perforation at the usual point of election. Still, there were cases of spontaneous perforation of the drum, it must be admitted, in which healing was just as rapid and uneventful as in cases where the drum was incised, provided the discharge was of short duration; it was not always safe, however, to count on this happy result. Leland said that for the past nine or ten years, in both his hospital and private work, he had advised against irrigation of the nose in diphtheria, and since adopting that course it was rare to meet with serious cases of ear complications in the diphtheria wards, whereas prior to that time it was comparatively common. The practice was certainly a pernicious one, and should be discouraged. In cases of mastoid disease complicated with pneumococcus infection there was usually intense inflammatory involvement at the onset. The aural discharge in these cases may persist only a short time, but there is early tenderness of the mastoid, which might persist a longer or shorter time, and the morbid process might be extending through the mastoid cells, especially if *Micrococcus tetragenes* was present (the combination seeming to be characterized by a persistent, progressive, destructive quality), until it reached the epidural space, the usual symptoms heralding this advance. That the tympanum had seemed to be convalescent should not deceive us, but should cause us to suspect the more the tender mastoid and to open it without delay. It was surprising, at times, to find so much destruction of the mastoid process, with comparatively mild symptoms after the onset. Needless to say, then, that such a destructive combination should be headed off, either in the tympanum or in the mastoid process, before deeper structures are involved. The extremely low mortality reported by McCollom, could be attributed principally to two factors—the early operation and its thoroughness, the latter meaning that every vestige of any bony cell or air space, where, macroscopically, infection can be hidden, had been removed *in toto*. John H. McCollom, in closing, said that diphtheria had developed in quite a number of cases following removal of adenoids; he did not know the exact number. It was a comparatively simple matter to have the nasal secretion examined preliminary to such an operation, and he thought it advisable that it should be done, particularly in those cases where there were excoriations about the nostrils. It was a wellknown fact that we might have nasal diphtheria with a normal temperature. McCollom said he could recall six cases of diphtheria immediately following an operation for cleft palate, and in all of those cases there were excoriations about the nostrils. In regard to the choice of an anesthetic in operating, in the course of scarlet fever, the speaker said that ether was usually given, and did not cause any trouble. He would not hesitate to advise operating on the mastoid, even in the height of an attack of one of the exanthems. The danger of postponing the operation was greater than that entailed by the operation itself. He could recall cases in which he now regreted that an operation had been postponed on account of the acute condition present at the time. McCollom said he was heartily in favor of early mastoid operation, and in that connection there was much room for missionary work among general practitioners. It was a mistake to wait for tenderness. If there was discharge from the ear, it was better not to delay operating. If acute nephritis was present, the symptoms were

not, as a rule, aggravated by the ether; he could recall a number of instances where the operation was done during the course of an acute nephritis, and the children were better after the operation.

[To be continued.]

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, Held at Scranton, September 26, 27, and 28, 1905.

[Specially reported for *American Medicine.*]

Address in Surgery.—JONATHAN M. WAINWRIGHT (Scranton). In order to prove his own conviction that ether is a marked depressant he carried out a series of experiments on dogs. In the first series of these animals he operated under etherization and observed the influence of the drug upon the blood-pressure. Soon after the ether was administered there was a slight rise in the blood-pressure incident to the stimulating effects of the ether which was followed by a fall in the pressure that continued until death occurred. He found that the easiest way to kill a dog during an operation was to drop a very small amount of ether in the trachea. Dog treated with chloroform in a similar manner died almost instantaneously. Before taking up the question of spinal analgesia he reviewed the literature on the subject, consulting about 625 references; he found that 16,000 cases of spinal analgesia have been reported, many of these were in this country; of the 16,000 cases there were 11 deaths. Wainwright subjected a series of dogs to spinal analgesia and then etherized them and found that after a short fall of the blood-pressure the pressure rose and remained so throughout the entire operation. Then he anesthetized dogs and subjected certain parts of the dogs' bodies to heat; the blood-pressure soon fell and the dogs died; if, however, the etherization was preceded by the spinal analgesia, the blood-pressure did not fall but remained even higher than before the operation. He tried similar experiments with the dog's extremities in hot water. In those dogs with crushed legs the blood-pressure fell during amputation and they died so soon as the operation was completed; in those dogs when the ether was preceded by spinal analgesia the blood-pressure did not fall and the animals did not die. He cited several cases upon which he operated with the cocain spinal analgesia, some of these were aged 60, and they appeared to be in a better condition after the operation than before. He concludes that ether increases the already existing shock; that spinal analgesia by means of cocain, followed by etherization, often prevents or stimulates the patient; that spinal analgesia should not be used when the same operation can be done under a local anesthetic.

The Results of the Surgical Treatment in Exophthalmic Goiter.—B. FARQUHAR CURTIS (New York City). The two operations which have sprung into favor for the relief of this condition are partial thyroidectomy, and removal of the cervical sympathetic ganglion; the latter operation does not, in his opinion, meet the necessary requirements, is not so easily done, and then, too, the scars are too high in the neck. He spoke of a patient in whom the goiter returned about a year after the first operation, and who died of an acute endocarditis. In six of the fatal cases there was albuminuria present after the operation but not before, while in one of the cases that recovered there was albuminuria before the operation. Many of the patients, he says, die of acute thyroidism; if an attack is pending, or if there is any evidence of the onset of such a condition, there must be no surgical intervention. He noted that the cause of the thyroidism is not known, but perhaps it is nervous in origin, or perhaps it is due to the absorption of parts of the injured gland, or to the secretion of this organ. To do partial thyroidectomy general anesthesia should be avoided, as such a procedure may induce acute thyroidism. The operation should be done under the use of cocain, locally applied. In some cases he ligates the thyroid artery, and this is done under local anesthetic. The local anesthetic may be responsible for the fever seen in some cases. Ligation of the artery has a temporary effect upon cases of relapse. The patients who were subjected to partial thyroidectomy were relieved of the distressing symptoms, the exophthalmos was lessened, the eyelids closed, the remaining gland decreased in size, the tremor and the other nervous symptoms were lessened. Of the 136 patients, 17 died of acute thyroidism. Survivors of the operation are cured of the symptoms.

Discussion.—R. G. LECONTE (Philadelphia) maintained that since the mortality of operation on these cases is but 12%, surgical intervention is perfectly justifiable. The greatest danger is the production of acute thyroidism. He, too, is of the opinion that it is due to the absorption of the gland secretion or of parts of the wounded organ. If that supposition were true, then, he thought, it advisable to subject the gland to röntgen-ray treatment to produce a perithyroid fibrosis, which condition might prevent the absorption of the secretion or the gland. He advocates drainage; should the acute thyroidism be due to the absorption of the secretion or of the particles of the wounded gland, drainage may prevent its occurrence. He does not advise the removal of the sympathetic cervical ganglion to relieve exophthalmic goiter.

Focal Diagnosis of Operable Tumors of the Cerebrum.—CHARLES K. MILLS (Philadelphia) spoke of the failure to obtain good results in brain surgery in the last generation, and he attributed it to the imperfection of the technic, the smallness of the opening, and to insufficient knowledge of localization. Recently, it has been shown, that instead of the motor area being present on both sides of the central fissure, it is really confined to a small area in front of this fissure. The area is more limited than has been usually taught. Behind the precentral fissure, he believes, is the center for some of the special senses. He informed the society that tumors have a tendency to originate in the "core" of what may be termed physiologic centers, or areas. There are six such areas. Four of the most important of these are the prefontal, midfrontal, parietal, and the motor. He said the opening should never be less than three inches and not more than four. Mistakes in localization may have been due to that fact; the present symptoms alone are taken into consideration, and those which were present when the tumor arose, are disregarded. Jacksonian epilepsy frequently has become more exended before the surgeon sees the patient. Then, too, the Jacksonian epilepsy is sometimes the symptom of other conditions, such as uremia. Paralysis of the external rectus is a very important symptom, since it is not alone a symptom of the involvement of the nerve, but also a symptom of the presence of a tumor in the immediate vicinity.

Surgery in Relation to Operable Lesions of the Cerebrum.—CHARLES H. FRAZIER (Philadelphia). The fact that surgical treatment of the lesions in the cerebrum has not attained good results is largely attributable to the length of the period intervening between the appearance of the first symptom and the time the surgeon sees the patient. Many cases of Jacksonian epilepsy, he said, are more or less general, but the patient applies for treatment. He spoke of the convulsion resulting from adhesion following operation and also upon the fact the silver foil fails to prevent adhesions. He mentioned the good results obtained in the surgical treatment of infantile or juvenile hemorrhages in the pons and beneath the dura. These hemorrhages may be due to thrombosis of an artery, are encapsulated and are followed by the formation of a cyst, paralysis, and convulsions. Frazier took the ground that in many instances the surgeon is justified in doing a palliative operation to relieve symptoms and obtain comfort for the patient. Very often choked disc is prevented by removing considerable of the cranium on either side; the dura need not be opened.

Diagnosis of Pneumonia and Empyema in Children.—ALFRED HAND (Philadelphia). In this paper he took the ground that small or even large areas of consolidation give bronchial breathing and increase bronchial resonance, while the percussion note and auscultation show nothing; sometimes all the physical signs are negative and the diagnosis must rest on the presence of the fever, the increased frequency of the pulse-rate and respirations above 40 per minute. The presence of a leukocytosis will serve to aid in differentiating it from typhoid fever, while it may be necessary to do lumbar puncture in order to differentiate the pneumonia from tuberculous meningitis. The diagnosis in such cases, he said, is confirmed by the critical fall of the temperature after which or even later the physical signs become evident. He mentioned the fact that empyema must be borne in mind. Important factors in recognizing this condition are the breaking character of the voice sounds over the base of the lungs, with bronchial breathing audible but distant, and percussion gives a flat rather than a dull note, while over the upper lobe there is bronchial breathing and exaggerated vocal resonance. In compiling 200 cases of pneumonia he was able to make the following deductions: 50% of the pneumonias were rightsided, 30% leftsided, 14% were bilateral, 4% of the cases developed empyema, 49% ended by crisis, 39.5% by lysis, and 10% of the cases was fatal.

Discussion.—J. P. C. GRIFFITH (Philadelphia) also took the ground that auscultation and percussion are of minor importance as compared with the information obtainable from the expression of the child's face and its general appearance. J. H. MCKEE (Philadelphia) noted that in all cases of pneumonia empyema must be watched for. He spoke of the practice of auscultation and percussion and said that sometimes a normal chest and lung will give a cracked pot sound with the plexiметer; if percussion is performed lightly this can be avoided.

The Sanatorium Treatment of Tuberculosis.—GEORGE B. KALB (Erie). He discussed very briefly the work done at the White Haven Sanitarium and of the work at Saranac Lake. He noted that at White Haven the presence of the tubercle bacillus in the sputum is indicative of softening of the lung. At this institution much of the work is done by the patients, but so soon as the temperature of such individuals goes above 100° they are put to bed. Little medicine is used; what drugs are used are given to meet conditions that arise. The iodids are given. In discussing the cough of a tuberculous individual, he maintained that patients should be taught to cough only when it is necessary to expectorate sputum. For hemorrhage, he mentioned rest in bed, ice, and immobilization of the chest wall; he also spoke of blistering the chest. Patients should receive about 6 eggs and 12 glasses of milk daily, beside a light breakfast, dinner, and supper. By some, olive oil is recommended instead of the eggs. Each patient should have a chest bath every morning and a whole bath once a week.

[To be continued.]

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Eighteenth Annual Meeting, held in New York City, September 19, 20 and 21, 1905.

[Specially reported for *American Medicine*.]

[*Continued from page 558.*]

Some General Principles in Conservative Pelvic Surgery.—JOHN F. W. WHITBECK (Rochester, N. Y.) said it was decidedly advantageous to have a general knowledge and a general experience before making use of special methods in the treatment of pelvic disorders. Medical and mechanical means should be tried in suitable cases before resorting to surgical intervention. Only diseased organs should be removed. Sound organs and normal parts of unhealthy organs should be preserved. Conservative plastic surgery should be employed to save such organs as could be made to functionate or to serve some useful purpose. Diseased organs should be removed in the order of their pathologic precedence and importance, with a view to benefit the patient by promoting her comfort and prolonging her life, even if a perfect cure was not to be expected.

Prolapsus Uteri and Its Treatment.—HERMAN E. HAYD (Buffalo, N. Y.) spoke briefly of the various conditions which contributed to the production of prolapsus uteri, and then discussed its treatment by surgical means only, and according to the degree of descensus and the necessity for the preservation of the uterus, the operative treatment was carried out. He believed that in minor degrees of prolapsus uteri, with rectocele and cystocele, the Alexander operation, with well-directed plastic surgery of the vagina and perineum, would cure these simple forms. When the prolapsus extended to the introitus, or the cervix pointed through the vulva, a vaginal hysterectomy, with a well-performed anterior and posterior colporrhaphy and a perineorrhaphy accomplished the best results; and the effect was permanent if the vault of the narrowed vagina was sewed firmly to the cut edges of the broad ligament. When it was desirable to save the uterus for the purpose of child bearing, or to continue the function of menstruation, the cervix must be amputated and an anterior and posterior colporrhaphy and perineorrhaphy must be done, and the uterus firmly ventrofixated to the abdominal wall through a median abdominal incision. Usually all these operations could be performed at one sitting, but if it was desirable to make two operations, the posterior colporrhaphy and perineorrhaphy must be done at the second time, say three weeks after the first operations. The author, however, preferred the removal of the uterus, as this operation had been infinitely more successful in his hands. He also deprecated the performance of all operations which closed the vagina, as he believed this was unnecessary and because he had seen much unhappiness result from this procedure. For the extreme cases of pelvic hernia, occurring in his own practice, he sewed the united vagina and broad ligaments to the abdominal wall, and the result was very satisfactory. However, such extreme measures were seldom called for, as most cases could be cured by the other operations described.

Surgery of the Liver.—WILLIAM J. GILLETTE (Toledo, O.), after discussing the control of hemorrhage, the power of the liver to regenerate itself, infection and cholemia, described a means of controlling hemorrhage from the liver in certain cases of severe bleeding when the bloodvessels cannot be easily reached. It sometimes happened that to tie them required a further enlargement of the lacerated liver substance. This of itself increased the gravity of the patient's condition. Three years ago he was called in haste to see a young girl of 14, who had been shot by a target gun, the bullet entering between the eighth and ninth ribs, near the costal cartilage, and passing through the right lobe of the liver and lodging behind the stomach. The low velocity of the bullet had caused it to make a tear rather than a perforation. When first seen the patient was nearly pulseless, and manifested all the evidences of a severe internal hemorrhage. Her face and lips were white and bloodless. The abdomen was opened. An incision was made close and parallel to the costal cartilages on the right side. The abdomen was found full of blood, which could be seen freely oozing from the torn liver. He attempted to control this first with catgut ligatures, but the friability of the tissues prevented it. Some time previously he had had an experience with a similar wound of the liver made by a bullet, and had attempted to control the hemorrhage by packing with gauze; but the patient, a strong, robust man, promptly died from the continued loss of blood. Postmortem examination revealed that the gauze packing had been entirely inadequate to control it. Having this case in mind, he did not feel like trusting to gauze again, and inasmuch as it was not controlled by direct ligation, it occurred to him that by passing sutures from within entirely through the liver substance and through the abdominal wall, making exit between the ribs after the manner of a staple, and tying firmly on the cutaneous surface, that permanent and constant pressure could be made sufficient to control the hemorrhage without the ligature cutting into the friable liver tissue. Five or six such sutures were now introduced on the proximal side of the wound, each one embracing about three-quarters of an inch of the liver substance. Care was taken to link them together so as to include all the bleeding tissues in their bite. The ligatures emerged between the ribs the same distance apart as they were entered on the liver substance, and when firmly tied all the hemorrhage and oozing ceased at once. Other injuries to the viscera, which were slight, were repaired, a drainage-tube inserted, and the abdomen closed. The patient made an uninterrupted recovery. He had since used this method in two cases, in one of which in removing a very adherent gallbladder he met with a severe hemorrhage which was readily controlled with it. Recovery was prompt. The third case was one in which a hydatid cyst, the size of a small cocoanut, was removed together with a large number of gallstones, from a suppurating gallbladder. This patient unfortunately died from peritonitis a few days later, but the hemostasis was perfect.

Papillary Cystadenoma of the Breast.—EDWARD J. ILL (Newark, N. J.) said that this disease was comparatively rare, but that he had seen eight cases in his practice. There was very little literature concerning the disease. Its characteristic symptoms were a clear, yellowish-pink to dark, bloody discharge from the nipple. On palpating the breast, a small tumor could be made out early in the disease, which might become multinodular later on. He had observed cases from a few weeks to 11, 12 and 21 years. The pathologic condition found was a papillary adenomatous mass, projecting into the milk duct. It was nonmalignant in character. The patient might get well without any interference. When the disease persisted, he advised removal of the breast.

The Byrne Operation and Its Application in the Radical Treatment of Cancer of the Cervix.—X. O. WERDER (Pittsburg, Pa.) described the operative technic employed by Byrne, and said that Byrne placed special stress on the importance of thorough and repeated cauterization of the wound surfaces and edges from which cancerous tissue had been removed, regarding it as the best safeguard against a recurrence of the disease. The most remarkable feature of the Byrne operation, when compared with all other operations undertaken through the vagina for the cure of cancer of the cervix, and one which seemed to justify Byrne's conclusions, was the almost uniform absence of local recurrence. While employing the method described by Byrne in his first cases, he invariably followed it by the ablation of the remaining portion of the uterine body and appendages. Subsequently, however, he simplified the procedure very materially by dispensing with the preliminary amputation of the cervix. The principal features of the Byrne operation had been retained, namely, thorough and repeated cauterization of all wound surfaces and edges. The operation differed from the usual vaginal hysterectomy by the use of the cautery knife for detaching the cervix from its vaginal connections; the application of the electrothermic clamps devised by Downes, and the final cauterization of the stump with the dome-shaped cautery. Of the 16 cases operated upon by Werder, only one died, about four weeks after the operation, from uremia. She is supposed to have suffered from nephritis for ten years previously. The operation, he thought, might have hastened, but not caused her death.

Indications for Hysterectomy in Puerperal Septicemia.—CHAS. GREENE CUMSTON (Boston, Mass.) stated that hysterectomy applied to the treatment of acute puerperal infection was as yet a mooted question as far as its indications were concerned, and it would be quite as illogical to advise this interference in all serious cases as it would be to systematically condemn it. All surgeons seemed to be in accord as to the great difficulty of formulating the indications for this operation, and especially the time when these became formal. To come to a conclusion all clinical methods of examination and those of the laboratory must be employed. The latter, however, were far from being of equal value, as no positive result could be obtained from a bacteriologic examination of the lochia or blood. Cytologic examination of the blood would give excellent data as far as the prognosis of the type of infection was concerned. Clinically, there was no one valuable sign, but taken altogether the symptoms obtained by careful intrauterine examination might indicate the necessity for surgical intervention when all other therapeutic procedures had failed. Septicemia occurring at once after labor could not derive benefit from surgery, but, on the other hand, it would appear that hysterectomy was indicated in cases of secondary septicemia with a slow evolution, or those taking on a pyemic type proceeding by successive stages, on the condition that there were no visceral metastases, in which case surgical treatment would be the method of exception.

Abdominal Hysterectomy for Multiple Fibroids Complicated by Pregnancy.—J. HENRY CARSTENS (Detroit) reported the case of a woman of 42, who was never pregnant before. The tumor had been noticed for five or six years, but was not accompanied by hemorrhage. Menstruation was regular until May; there was a slight show in June and July. He operated upon the woman in the middle of August, and removed the tumors. The growths became rapid during the last three months. The patient made an excellent recovery from the operation. These cases were not uncommon, still they were sufficiently rare to warrant reporting them. In nearly all cases the women were sterile; a growth developed, and after some years they became pregnant, which prompted one to suspect that there was some abnormal condition of the uterus, perhaps some malposition, which prevented impregnation, but

as the result of the presence of the growth the uterus was pulled up or pushed over in one direction or another in such a way that the ovums could pass into the uterus and cause pregnancy to take place. This seemed to him to be the correct explanation of the occurrence of pregnancy in sterile women after the development of fibroids. The cases varied so much that no definite rule could be laid down to govern all of them, but on general principles he thought cases of fibroid tumors complicated by pregnancy could be left alone if they were subperitoneal and located in the upper half of the uterus. Fibroids, however, located in the lower half of the uterus or in the broad ligament, should be removed. Fibroid tumors that were adherent or complicated with other pelvic diseases should be removed by enucleation, or in some cases an abdominal hysterectomy should be performed.

Personal Experiences in Myofibroma of the Uterus.—MILES F. PORTER (Fort Wayne, Ind.) presented some of the more important facts gained from the treatment and observation of over 125 cases of myofibroma of the uterus. The earlier cases having been seen during a rather exacting general practice, and many of them operated upon away from home, in private houses, without adequate assistance, accounted for the fact that the records of this part of the author's work were imperfect. Of the 125 cases, more than 100 were subjected to supravaginal hysterectomy. Two vaginal hysterectomies were done in which the abdomen was entered. Myomectomy through the abdomen was done six or eight times only, except cases in which small fibroids were removed during celiotomy for other causes, and these were not considered. Hemorrhage was not so prominent a symptom as was so generally thought. In two cases this was the immediate cause of operation, and in one it manifested itself first after establishment of the menopause. Pain, especially during the menstrual period, had been the most common symptom. Only one case of pyosalpinx as a complication was seen. In one an eight and a quarter pound tumor was removed from a four and a half months pregnant uterus. Normal labor at term followed, and one child had been born to the mother since, without accident. In one case the pregnant uterus was removed for pain, on the theory, which the specimen proved correct, that the woman could neither miscarry nor carry the child to term. The third was operated because of mild sepsis due to retained fetus. Both recovered. Women with fibroid tumors are peculiarly liable to infection following labor, miscarriage, or menstrual flow. In several cases this danger was the chief indication for operation. Three cases were reported to support this opinion. The rapid growth of fibroids during pregnancy was believed to be more apparent than real. Partial or complete sterility was common in fibroid patients. But one case of malignant degeneration was seen. But one patient died. This was due to the breaking down of a large vaginal tumor coexisting with a large abdominal tumor. Both were removed through the abdomen. The removal of the vaginal tumor by the vagina by morcellation, and an abdominal hysterectomy later, he thought, might have saved the patient, who died from the effect of the sepsis from which she was suffering at the time of the operation, combined with the effect of the shock and loss of blood. One case of dermoid of the ovary with multiple fibroids was met with, one practically a pure myoma, and one fibroid of the ovary complicating fibroid of the uterus.

Unusual Dilation of Cornual Bloodvessels, with Rupture into the Uterine Cavity; Hysterectomy; Recovery of Patient.—FRANK F. SIMPSON (Pittsburg, Pa.) reported an interesting case, and said that apart from their association with neoplasms, vascular changes were not infrequently found when persistent bleeding occurred near the menopause. Arteriosclerosis was rather common; but aneurysm, aneurysmal varix, and varicose veins occurring within the myometrium were rare. In this case there was an excessive vascularity of the uterus, with sclerotic arteries and varicose veins. The sclerosis was found in its several forms, varying from a slight nodular infiltration of the intima to complete obliteration. In addition, we had the unusual spectacle of greatly dilated varicose veins, which were the subject of repeated spontaneous rupture, with repeated spontaneous closure. In the author's case there was a clinical picture, which portrayed the perils of this disease in its most serious form. In the wellmarked cases that had come under his observation, arteriosclerosis of the uterine vessels had been accompanied by menorrhagia and metrorrhagia, which began between the ages of 38 and 45. They became more and more pronounced, had resisted medicinal and minor surgical measures, finally endangered life, and had yielded only to hysterectomy. In this case, however, the first symptom was a furious hemorrhage, due to the rupture of a large varicose vein into the uterine cavity. Within two months three other hemorrhages burst upon her without warning, and each imperiled her life. The gross pathologic findings made it clear that without surgical intervention hemorrhage or infection would inevitably have closed the scene within a short time.

Primary Bowel Resection Versus Artificial Anus in the Treatment for Strangulated Hernia.—JOHN YOUNG BROWN (St. Louis, Mo.) limited himself to a discussion of the surgery of those neglected cases in which at the time of operation the intestine found in the hernial sac was so damaged that the operator was forced to resort to one of two procedures, namely, the establishment of an artificial anus, or a primary bowel resection. During the last 18 months he had operated upon 7 cases of strangulated hernia; 4 of these were males, 3 females. In 4 the hernia was of the inguinal variety, and in 3 of the femoral type. In all, primary resection was done, followed by a radical operation at the hernial site. Of the 7 cases, 6 recovered and 1 died. The oldest patient was aged 70, the youngest 20. The duration of strangulation: Longest, 57 hours; shortest, 9 hours. Amount of gut removed: Longest, 4 feet; shortest or smallest, 8 inches. Portion of gut involved, small bowel. In each case the condition of the bowel was such as to leave no question concerning the advisability of its removal. In all, the resection was done through a supplemental abdominal incision, and the anastomosis was made with the Murphy button. The results obtained he attributed to the careful attention to certain points in the operative technic, a neglect of which had been responsible for the high mortality invariably accompanying the surgical treatment of this condition.

A Study of the Etiology of Floating Kidney with Suggestions Changing the Operative Technic of Nephropexy.—HOWARD W. LONGYEAR (Detroit, Mich.) selected this as the topic of his **presidential address.** December 17, 1903, while operating on a young girl of 16 for appendiceal disease, the author accidentally discovered that the right kidney, which was normally placed, could be easily pulled down and held in a firm position of complete prolapse by making traction on the cecum. This led to further observation on the etiology of displaced, loose or floating kidney, both on the cadaver and on the living subject, and afterward, as a result of those observations, to efforts to devise an operation that should have for its object the retention of the kidney in its normal position, as well as the anchoring of the ascending colon in such a manner as to remedy the prolapse of the cecum, which usually obtains in these cases, so that it should not exert further traction on the kidney and through it on the duodenum and renal vessels. The object of the address was to record the results, though unfinished, of these observations. The fact that the kidney in question could be pulled down and held firmly in this position by traction on the cecum and ascending colon was an indication that there existed a more firm and positive attachment of this viscus to the kidney than was generally believed. After considering the literature of the subject, the author naturally assumed that the kidney of his patient was pulled down by the adhesion of the peritoneal attachment, or mesentery of the colon, to the fatty capsule of the kidney, and yet the firmness of the attachment was an apparent contraindication. With the object of testing this point, three cases of floating kidney were operated upon. The peritoneal cavity was entered through the usual incision in the loin, the redundant mesentery gathered up, and attached to the incision in the fascia close to the twelfth rib at the upper angle of the wound. In the first case of extreme ptosis, having had Dietil's crises for several years, the ease with which the operation was performed, the amount of slack mesenteric tissue brought out and attached, and the immediate result which it had of entirely replacing the kidney so it could not be pushed down into the abdomen were very encouraging. In the second and third cases, however, in both of which the displacement was less pronounced, there was practically no mesentery such as was present in the first case, so that the peritoneal fixation seemed to promise less. However, while drawing out the peritoneal attachment of the bowel and making efforts to push the bowel down, away from the kidney, it was noticed in both cases that there was a cord-like structure passing downward from the lower pole of the kidney, which prevented the separation of the kidney and bowel. This was included with the peritoneal tissue and attached with it. Further investigation of the literature failed to enlighten the author as to the presence of any tendinous prolongation from the lower pole of the kidney, so further investigation was made on the cadaver. The whole upper half of the abdominal parietes being incised and turned downward, the cecum, ascending colon, with hepatic flexure and kidney on the right side, and part of the descending colon, with splenic flexure and kidney on the left side, were removed, the dissection being made from below upward and the organs removed together in such a manner as not to interfere with their normal attachments to each other. On turning the specimens over the posterior surface of bowel and kidney on each side showed a similar formation of tendinous attachment to each other. This was found to be formed by the gathering together of fine longitudinal fibers from the fibrous network which forms the framework of the fatty capsule. The tendinous ridge, formed by its attachment to the posterior surface of the ascending colon, could be followed easily between the peritoneal reflections down to the margin of the lower peritoneal attachment of the bowel and close to the junction of the ileum —in fact, near the point of the socalled origin in the female subject of the suspensory ligament of the ovary. How much of a causal factor is this embryologic remnant in the production of displaced kidney? This ligamentous union of the kidney and bowel the author claimed was the most important factor in the etiology of nephroptosis. An operation which he had found easy of accomplishment was the fixation of this nephrocolic ligament into the upper angle of the wound without severing it from the colon and also fastening the redundant mesentery, if it be present, in the lower angle of the wound. The convergence of the framework of the fatty capsule into this ligament makes a structure of sufficient strength to be depended upon to hold the displaced organs, if securely attached to the aponeurotic tissue, preferably where it was thick near the twelfth rib.

Intestinal Obstruction.—Lewis C. Morris (Birmingham, Ala.) said that delay in operating for the relief of ileus was due to one of two things: (1) Assuming that the diagnosis had been made, the adoption of expectant treatment, with the hope that it would relieve the condition, or that it would recover spontaneously; or (2) the delay resulting from a failure to make a positive diagnosis. Morris reported six cases of intestinal obstruction, and maintained that if all such cases could be given the benefit of operation the mortality from this condition would be completely revolutionized. The fact that some cases existed for days and were relieved by operation, led, in cases in which there was an element of doubt, sometimes to delay in surgical interference until the chances for recovery were materially lessened. Occasionally a positive differential diagnosis was very difficult, but the conditions from which a differentiation could not be positively made were almost invariably equally as imperative in their demand for surgical intervention as would be the existence of ileus. The author pointed out what those conditions were. Sudden severe abdominal pain, associated with nausea and vomiting, plus constipation, which did not respond within a few hours to cathartics and stimulating enemas constituted a condition in which the indications for operation were positive. The ability to isolate a distended loop of intestine, the presence of shock, and stercoraceous vomiting, go to confirm the diagnosis, but the nature of their presence caused undue delay in operating. The more sudden and violent the storm of symptoms initiating the condition, the more imperative the indications for early operation. To reiterate: After the diagnosis of ileus was made, the adoption of treatment other than surgical, with the hope that it might effect a cure, was utterly unjustifiable in the judgment of the author, and that procrastination, based on the hope of spontaneous recovery, was absolutely criminal.

[*To be continued.*]

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

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[Specially reported for *American Medicine.*]

[*Concluded from page 559.*]

Retinal Changes as an Aid to Diagnosis in Vascular Degeneration.—Thomas A. Woodruff (Chicago) called attention to the slight anomalies that are recognized from time to time, which show themselves in alterations in the caliber and contour of the retinal vessels. In some cases these changes may be so slight as to be overlooked. A very careful and closer study of the fundus will enable one to detect slight structural changes in the retinal vessels, which will lead him to form the conclusion that there is commencing degeneration of the arterial walls, also in the smaller arteries elsewhere in the body, signifying an arteriocapillary fibrosis. Tortuosity of the vessels is not a positive sign unless it is confirmed by other variations from the normal which are found in the early stages of arterial degeneration. These changes are readily recognized by an ophthalmoscopic examination in the early stages of arterial degeneration, and if appropriate treatment is promptly instituted the disease can be arrested and a favorable prognosis given.

Formalin in the Treatment of Diseases of the Ear, Nose and Throat.—Otto J. Stein (Chicago) narrated his personal experience with this drug in a variety of diseases of the ear, nose and throat.

Advantages and Disadvantages of Glasses in Railway Service.—Nelson Black (Milwaukee, Wis.) gave a report of the opinion of ophthalmologists throughout the United States as to the safeness of an employe requiring the use of glasses. The advantages of, and objections to the protection of the eyes of engine men and firemen by glasses were discussed. The question of allowing engine men who have been a long time in the service to wear glasses for constant use, when their vision has fallen below the required standard, but can be brought up to standard by lenses, has been receiving very serious consideration by railway officials. Many railroad companies allow their old engine men to run with glasses, requiring them to carry an extra pair. An opinion was asked as to the safety of such an engine man, and the following was given: "It is my opinion that a railroad employe (engine man or fireman), who has been in continued service for a period of not less than five years, and who on reexamination falls below the required standard of vision, and such vision can be brought up to said required standard with glasses, his color perception meeting the required standard, and there being no ocular disease, is a safe employe. Such employe should be required to carry at least one extra pair of glasses. He should also be reexamined semi-annually to ascertain if there has been a further decrease in vision, and if the glasses fully correct the visual defect."

Fixation of External Rectus Muscle in Nystagmus and Paralysis.—J. Elliott Colburn (Chicago) reported a case of nystagmus, a case of paralysis of the right internus, and a case of motor paralysis of the third nerve.

The Treatment of Recent Embolism of the Retinal Arteries by Digital Massage.—H. V. Wurdemann (Milwaukee) gave abstracts of all the cases he could find in the literature, including four of his own, describing a method of treatment in detail. Two of his cases were completely cured, and two others benefited by the massage, as well as a number of the cases reported in the literature. This treatment was strongly recommended by the author, as it yielded better results than any other form of treatment. In fact, other methods, unassisted by massage, were deemed of little use.

Dextrophoria.—Francis Valk (New York) said that this condition was found in the examination of the field of vision with the tropometer. It showed a tendency for the visual lines to turn to the right or left under the influence of the direct innervation of the muscles. It had probably an anatomic cause. It was found associated with esophoria and exophoria, and in the operative correction of all cases of lateral imbalance, was a useful indication of the necessary procedure.

Advancement Operation Versus Tenotomy.—Edward J. Bernstein (New York) assumed that the position of Landolt was correct, that tenotomy of the recti was unjustifiable except under rare conditions, as it substituted two weak muscles for the one normal and the relatively weak one, thereby producing insufficiency in amplitude in both lateral directions. The technic of the operation was the Weeks' advancement. With this operation the author corrected not alone actual strabismus, but also muscular insufficiencies which were not amenable to nonsurgical means.

Clinical Measurement of Torsion.—Lucien Howe (Buffalo) pointed out the difference between torsion with convergence and torsion with parallel axes. He described the earlier methods of measuring torsion with convergence, and pointed out the objections to these. The author had devised three instruments for this purpose, which were exhibited and demonstrated. He discussed the results of measurements and their clinical value.

Intranasal Pressure a Cause of Diplopia and Headache.—Kate Wiley Baldwin (Philadelphia) stated that pressure from the left middle turbinal acted as an irritant and caused diplopia. There was no relief from weeks of treatment directed to the eyes. It disappeared entirely, soon after a middle turbinectomy. Recurrence took place several months later in a case after a severe nervous strain. The patient was relieved by division of a postoperative synechia. When headache was caused by intranasal pressure, one would usually find all the nasal tissues hypersensitive, especially those, pressure on which caused pain in some particular part of the head or in the eyes. When pain was unilateral, only one side of the nose was abnormally sensitive. This sensitiveness disappeared after operation.

Further Observations on the Nose and Mouth in the Etiology of Tuberculosis.—Hamilton Stillson (Seattle, Wash.) stated that mechanical obstructions in the nose led to poor aeration of the air cells, and the accumulation of carbon dioxid to abnormal changes in moisture and heat, to failure in sifting foreign particles from inspired air, and efforts at respiration caused venous stasis, not only of blood in the chest, but of blood in the head, and stasis of the lymph channels of the chest and of the head, which stasis rendered liable the absorption and deposit of tubercle bacilli. Bacteriologically considered, the nose and mouth offered the first chance to the invasion of germs. Hyperplasia of the mucous and lymphoid glands offered a ready entrance to tubercle bacilli, and atrophic conditions, as in ozena, formed an ideal culture medium.

Treatment of the Diseased Attic.—F. C. Hotz (Chicago) stated that success in the treatment of chronic aural discharges depended chiefly on the personal attention of the attending physician, particularly if the attic was involved. Here the routine treatment of syringing, gouge, drains, and instillations of various solutions was absolutely ineffective. The diseased conditions should be attacked directly by instruments, with which we could thoroughly clean the attic and apply the proper solutions directly to the diseased walls. Instruments were shown and the treatment described.

Some Displeasing Results of the Mastoid Operation.—J. A. Stucky (Lexington, Ky.) said that the last word had not yet been said with reference to suppurative mastoiditis, the best time to resort to surgical interference, the operative technic, and after-treatment. The vast difference between the classic and radical operation was not generally appreciated. It was very essential that general practitioners should know more of the disease, how to recognize it, and what treatment to urge. Important lessons learned from failures and unpleasant after-effects of the operation were pointed out. Some of the most displeasing after-effects were protracted discharge, obstinate granulations, atresia of the external auditory canal, slow healing of the wound, unsightly scar, and postauricular fistula. The most important of these were due: 1. To neglect in urging the operation early instead of waiting until the disease had completely invaded and infected the contiguous structures of the antrum and the resistive and recuperative power of the patient was undermined by the absorption of the retained septic material. It was just as dangerous to wait for external evidence of pus formation in the mastoid process as it was in the abdomen in appendicitis. 2. Want of proper preparation of the patient before operating, by purgatives, baths, etc. The presence of indican in the urine was a most important factor in toxemia, high temperature, and slow and unsatisfactory

recovery, which followed a thorough operation. 3. Want of thoroughness in removing all diseased and infected tissue and giving unobstructed drainage to every part of the wound. 4. Carelessness and indifference shown in after-dressings of the wound and in diet and quietude of the patient for several days after the operation.

The Submucous Resection of the Septum.—WILLIAM LINCOLN BALLENGER (Chicago) gave a historic review of this subject, and pointed out the types of malformations of the septum suitable for this operation. He described the various methods for the submucous resection, and presented a critique of the methods. He described his own method with the swivel knife for removing the cartilaginous septum through an anterior incision. This knife swings upon pivots between two prongs and removes the cartilaginous septum in one piece without removing the knife. The advantages of this method, as pointed out, were: (1) Small traumatism; (2) speed in operating; (3) the removed cartilage was in one piece, and subject to critical examination. The information thus gained was of distinct value in the comparative study of other cases.

The Front Bent Gouge in Mastoid Operations.—W. S. BRYANT (New York) said that this gouge aided the operator in saving time, gave him security, and enabled him to carve the bone with perfect precision. It did away with accidental injury to the sigmoid sinus, even when irregularly placed. It permitted the surgeon to remove the posterior canal wall without injury to the facial nerve. With its aid the operator could remove the outer wall of the attic and hanging wall of the meatus without risk of accidentally opening the middle fossa. He could smooth up the bony excavation without danger of going further than he intended. When the mastoid process was sclerosed, this gouge enabled the operator to proceed rapidly with the excavation of the bone without increased risk. It was not necessary to use a mallet with this gouge, thus sparing the patient the infliction of disturbing blows on the head.

The Otoprojectoscope.—M. A. GOLDSTEIN (St. Louis, Mo.) gave a practical demonstration of this apparatus, and stated that with it he had succeeded in projecting the membrana tympani and other surfaces of the nasal pharyngeal cavities on the screen with a sufficient luminosity and size to be easily visible from all points of the lecture room. The membrana tympani, nares, all points of the fauces, and possibly the larynx, might be projected for demonstration, or might be photographed. The principles of light therapy might also be developed by means of the strong light beam that was focused on the illuminated area. The apparatus consists of a combination of the modified and simplified epidiascope and the Brunton otoscope. It might be also used in the class-room without the otoscope attachment for projecting anatomic and pathologic specimens in their natural color, depth and details. Photographs, diagrams and all forms of illustrations might be projected directly on the screen without further preparation.

Relations between Medical Practitioners and Eye Specialists.—JAMES A. SPALDING (Portland, Maine) said that many medical men would sign petitions to legalize opticians as scientific fitters of lenses, send patients with diseased eyes and foreign bodies in them to opticians, consult opticians for diseases of their own eyes, and fitting of lenses, and send friends and patients to opticians even when in their own town resided educated medical men who had specialized in diseases of the eyes. The reasons for this were thoughtlessness, jealousy, belittlement of the skill demanded in fitting lenses, desire to bave the optician and family of the patients, irritation at the large fees demanded by oculists, and the belief that the specialty was overrated, and that many of its practitioners were undereducated. Specialists must deserve recommendations from practitioners. They must be well-educated and ethical men. No one could be a specialist in six weeks. If well-educated specialists should fail in proper medical support, they could gain no living in competition with hospitals, which took the operations and opticians who advertised for and got the refractive cases in a vast majority of towns and cities in the land. Just as physicians organize, so specialists should organize, and as an organization, publish under the auspices of their publication committee, papers on diseases of the eye. They should teach that eyes with imperfect sight were diseased eyes, and needed proper treatment at the hands of medical specialists in the way of proper lenses. They should issue their own set of test types, and hang them in every school. They should send a representative into every normal school to test the eyesight of the pupil teachers and lecture before those future teachers about the eye. They should keep in touch with the colleges and their students, some member following each class through its four years of college life. They should furnish to medical practitioners a fee table, for people of moderate means who wish to know the cost beforehand. They should refuse to buy lenses of opticians who make it a rule to fit lenses. Or, better still, they should furnish their own lenses just as hosts of medical practitioners prescribe their own medicines, and so hold on to their patients and their means of living.

The Teaching of Ophthalmology in Undergraduate Medical Schools.—L. A. W. ALLEMAN (Brooklyn, N. Y.) contributed a paper on this subject, in which he said the medical profession, in its fight to preserve life, might well learn from the experience of the profession which aimed at the destruction. Special knowledge offered much aid to the general practitioner, while the efforts of the specialist were often futile, without the assistance of general medication. The specialist or the general practitioner who failed to recognize the correlation of all parts of the economy became dangerous. Ophthalmology should, therefore, be taught as a necessary part of a medical education, and not as a specialty. The longer college course had not given proportionate increase in the time devoted to the socalled specialties, nor as to the time of each. Personally, he did not attempt to cover the entire field of ophthalmology. He did not advise the student to learn to use the ophthalmoscope, and he felt reasonably successful, if at graduation his student has learned to recognize the cases which he might safely and properly treat, and those which were of so serious a nature as to at once require the assistance of the specialist. The points which he strove to impress upon the student were, the assistance that he might expect from an examination of the eye in forming a general diagnosis; also the necessity of recognizing ocular disorders as a factor in the causation of general disease—the systemic causation of many diseases of the eye.

The Mechanism of Accommodation and Astigmatic Accommodation.—EDWARD JACKSON (Denver, Colo.) said that recent physiologic examinations had shown that the increased refraction of the crystalline lens during accommodation accompanied relaxation of its suspensory ligament, but that the lens did not at this time become more spherical. Skiascopy also showed that increased lenticonus attended accommodation, and that each lens presented its individual peculiarities of aberration and astigmia. When freed from the tension of its capsule it tended to assume a shape determined by the development of the lens fibers, and on these might depend astigmatic accommodation.

Electric Ophthalmia.—EDWARD N. HECKEL (Pittsburg) reported a case, the result of exposure to an electric arc, with a general erythema of the lids and face, followed by desquamation and a large, gradually diminishing, central scotoma.

Fallacies in Ophthalmology.—JOSEPH E. WILLETTS (Pittsburg) read a paper with this title, in which he spoke of the perpetuation of obsolete theories and conditions that are set forth in modern textbooks.

Radium.—W. FREUDENTHAL (New York) discussed radium in tuberculosis and in malignant tumors of the pharynx, larynx and esophagus.

Physical Examination of the Mastoid.—A. H. ANDREWS (Chicago) gave his clinical experience and reported cases.

Hemorrhage in Nose and Throat Operations.—EMIL MAYER (New York) discussed the avoidance of hemorrhage in operations on these organs when practicable, and described methods of control and for the prevention of postoperative hemorrhage.

Angioendothelioma of the Middle-ear.—JOSEPH BECK (Chicago) reported a case under this head, and referred to the rarity of the condition. He gave a brief history of a case that had come under his observation, described the operation he performed for its removal, mentioned the result and the microscopic examination of specimens, and presented slides.

Acute Eustachian Salpingitis.—FRANK H. KOYLE (Hornellsville, New York) discussed the causes, pathology, symptoms, diagnosis, prognosis, and treatment of this condition, and reported illustrative cases.

Middle Turbinate Body in Diseases of the Accessory Sinuses.—CHARLES M. ROBERTSON (Chicago) spoke of the anatomic relation of the middle turbinated body and its form; the rule of hypertrophy for turbinates; the form of hypertrophy and frequency of types found; significance of hypertrophy; the frequency of sinusitis when hypertrophy is present; nonsuppurative inflammation of the accessory cavities, their cause and cure, and pointed out the first steps in the cure of suppurative diseases of these cavities.

Interstitial Keratitis.—THOMAS FAITH (Chicago) reported cases of interstitial keratitis that were excited by traumatism. He said there is failure to mention the exciting causes in the current textbooks and literature. The localization of general conditions by traumatism is now a recognized clinical fact. Circumscribed parenchymatous keratitis is now admitted to be caused by trauma. Reference was made to the pathologic similarity of diffuse and circumscribed parenchymatous keratitis.

The Diseased Faucial Tonsil.—WILLIAM R. MURRAY (Minneapolis) pointed out the indications for operating on this tonsil. He advocated the total removal of the gland, saying that this is the end to be attained in all cases, whether all or part of the tonsil is diseased. He described the technic of the operation with snare, knife, scissors, and traction forceps.

Clinical Significance of Otalgia.—PERCY FRIEDENBERG (New York) said that ear pain is an important symptom not only of otitic disease, but of other affections (laryngeal, pharyngeal, etc.), hence, it may be misleading. The manifestation of ear pain in children may be obscured by delirium or misinterpreted. Reflex earache may be due to morbid processes at a distance, and pain at a distance (cheek, teeth, brow, neck, etc.) may be due to ear affections. Reference was made to the character of the pain in otitis, mastoiditis, sinus thrombosis, meningitis, abscess, etc. Mastoid pressure points to the elicitation of mastoid tenderness.

Dendritic Keratitis.—GEO. F. KEIPER (Lafayette, Ind.) described a case illustrative of this condition, from which cultures were made. He described the bacteria found and the characteristics of growth in different culture mediums.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE THYROID IN TUBERCULOSIS: A PRELIMINARY STUDY.[1]

BY

WILLIAM B. STANTON, M.D.,

of Philadelphia.

Physician to the White Haven Sanatorium; Physician to the Henry Phipps Institute; Physician to the Philadelphia Hospital, Department of Tuberculosis.

(From the Laboratory of the Henry Phipps Institute.)

The observations now reported are very incomplete. There is very little literature upon the subject and my own study has been interrupted by some accidents which delayed the work. This report may serve to direct attention to some facts not generally considered by writers upon tuberculosis.

Early pathologists looked upon the thyroid gland as exempt from invasion by the tubercle bacillus. Rokitanski, in 1861, stated that tuberculosis of the thyroid never occurred and in 1865 Virchow placed it as an organ least often affected by tuberculosis. Later Lebert, Cohnheim, and others, established the fact that in general miliary tuberculosis the thyroid usually showed tubercles. Chiari, and later on, Weigert, demonstrated that tubercles of the thyroid could be found in a fair proportion of cases of chronic tuberculosis—the former found thyroid involvement in 4 out of 96, and the latter in 6 out of 50. These statistics are the ones usually quoted by writers upon the subject.

The thyroid affection is practically always secondary. Of the cases of primary thyroid tuberculosis reported, that of Bruns and Baumgarten seems most trustworthy. In this case no bacilli could be found in the sections. It is, of course, open to the objection that it may have been secondary to an undiscovered lesion elsewhere.

Two forms of involvement are recorded, the least frequent being the occurrence of nodules throughout the gland attended with increase in size and possible symptoms from compression. Bruns collected 6 cases beside his own. Miliary tubercles are the most frequent finding. The organ is not enlarged as a rule. According to Möbius these tubercles present the ordinary characteristics of tubercles in other organs. They arise in the interstitial connective tissue separating the follicles. Attention is called to the fact that very few bacilli are present in the lesions.

I have been unable to find any statements regarding the effect produced upon the thyroid function by the tuberculous involvement. Modern physiologists look upon the gland as of great importance in the maintenance of life and it is highly improbable that it could be diseased without producing some clinical manifestations.

At the present time we recognize two forms of disease as the result of interference with the function of the thyroid: (1) Myxedema or cretinism, which follows upon insufficiency of the thyroid; and (2) Graves' disease or exophthalmic goiter, in which there is an increased thyroid activity, and perhaps also, as stated by Möbius, an alteration in the character of the secretion. Manifestations greatly resembling the signs of Graves' disease can be brought about by the administration of large doses of thyroid extract. These facts justify the belief that disease of the thyroid can and does produce definite symptoms.

Those due to thyroid insufficiency are so well known that they need not be repeated, and beside, I have not noted any such in my cases and they do not apply in the present instance. Those due to increased (and possibly altered) activity are: Tachycardia and palpitation; exophthalmos and the signs of Stellwag, v. Graefe, and Möbius, either alone or combined; tremor and other manifestations; goiter or enlargement of the thyroid, usually slight; gastrointestinal disorders, and especially diarrhea; emaciation; pallor; more or less temperature; tendency to sweating.

[1] Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May, 1905.

The finding of several of these symptoms in quite a large number of cases of tuberculosis led to this study of the thyroid, with a view to discovering whether or not it might be at fault.

Clinically, two groups of cases were noted, which seemed to depend upon the stage of the tuberculosis. In the earlier stages in women there were noted slight thyroid enlargement, rapid pulse up to 120 or more, with palpitation; tremor of the hands and other signs of nervousness, as vague pains, etc.; emaciation, pallor, tendency to sweating, but no eye phenomena. With very few physical signs and only slight cough and expectoration, and with temporary absence of the bacilli in the sputum, such cases are difficult to diagnose. The second group is found among patients in the last or late stages. Here the striking feature is the usually slight exophthalmos, but with marked Stellwag, v. Graefe, and Möbius signs; there is usually tremor and often diarrhea. Of this variety I have five cases now under observation in the wards of the Phipps Institute and the Philadelphia Hospital.

The cases from which the thyroids were obtained upon which this report is based were unfortunately not examined clinically for the symptoms here referred to. In each case the thyroid was cut into small pieces and first examined macroscopically. In only one was a tubercle thus recognized. In the 26 thyroids examined, tubercles were found in 4, and in 3 of these the bacilli were demonstrated. No report is made upon the general histology of the glands. As serial sections were not made, it is probable that the proportion found to contain tubercles is much too small.

The purpose of this paper is to call attention (1) to the comparatively frequent occurrence in tuberculosis of symptoms similar to those met in disease of the thyroid gland, in which there is apparently increased activity; and (2) to the frequency with which tubercles are found in the thyroid gland at autopsy.

TITULAR SOPHISTICATION.

BY

HENRY VINCENT WALLS, M. D., D. D. S.,

of Baltimore, Md.

In an article in the *American Druggist*, attributed to Henry P. Hynson, pharmacist, of Baltimore, and professor in the Maryland College of Pharmacy, strenuous objections are offered to graduates of pharmacy being called by any other title than "Doctor of Pharmacy." Further, Mr. Hynson expresses his belief that the druggist has the same right to the title "Doctor" as the "Doctor of Dentistry," an error in nomenclature which should read doctor of dental surgery, which is the degree conferred upon graduates of dentistry.

The word pharmacist, from time immemorial, has been defined as "one who prepares and sells drugs" (hence the word druggist—synonym, apothecary). It would be as radical to apply the title "Doctor" to our ambitious friend, with his lack of knowledge of anatomy, physiology, pathology, and last, but not least, diagnosis, and so confuse the "public" as to term those who deal in surgical instruments and necessaries "Doctor."

Admitting that special education is necessary to fit the druggist for his business, it does not follow that a degree other than the one now conferred would better explain his vocation and remind him that it is legally necessary for the druggist to confine himself solely to the preparation and sale of drugs and refrain from prescribing them.

When we consider "the estimation of the general public" as mentioned by Mr. Hynson, the well-informed doctor of medicine could here say a few words, for it becomes more and more apparent that many pharmacists do not hesitate to prescribe medicines, thereby asserting to the general public a status which they do not possess through education or legal right. It behooves the medical profession to contemn the presuming fellow who, back of a prescription counter, answers his unsophisticated patron to the call of "Doctor."

The honest and conscientious pharmacist does not hesitate

to inform his patrons of his proper function when thus addressed, recognizing that his honorable vocation requires no dissembling.

From the days of Hippocrates, physicians and pharmacists have traveled hand in hand, empirically and experimentally, each doing his part toward the acquisition of knowledge useful for all and neither seeking to assume honors not rightfully pertaining to his vocation.

DILATION OF THE CERVIX UTERI: A NEW INSTRUMENT.[1]

BY

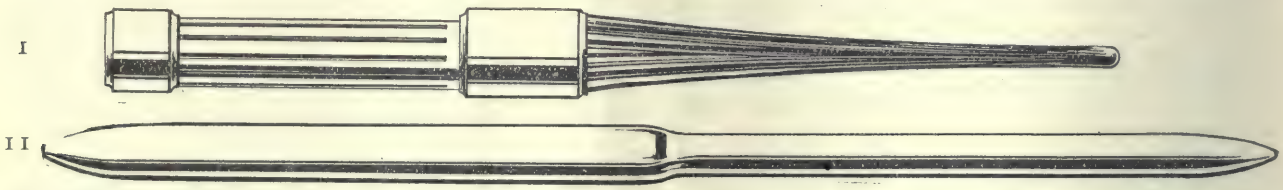
S. EDWARD SANDERSON, M.D.,

of Detroit, Mich.

Dilation of the cervix uteri is undertaken for conditions of the cervix and in any operations upon the uterine cavity. The conditions of the cervix calling for this operation are infantile uterus, stenosis, angulation (anterior or posterior flexion). The conditions within the uterine cavity calling for dilation are endometritis from various causes, retained secundines, etc.

The object to be gained in infantile uterus is stimulation of the healthy growth of the muscular tissue. The object in stenosis is self-evident, as it is in angulation. The object in the various uterine operations is twofold: (1) To facilitate reaching the uterine cavity; (2) for drainage.

While dilation appears to be a simple operation, it is sometimes followed by serious complications, or it may fail to relieve the symptoms or conditions for which it is undertaken.



Two-piece uterine dilator. I, hollow, with collapsible end; II, solid dilating obturator. To use, first insert collapsed end of I into uterine canal; then insert II until the collapsed end of I is dilated (1) to full size of small end of II (14 mm.); (2) to full size of large end of II (16 mm.). Solid tip of I measures 7 mm. in diameter.

A thorough diagnosis should therefore be arrived at before it is undertaken. This diagnosis may necessarily follow an examination under an anesthetic, and may be at the time of the operation. Dilation alone should never be undertaken when inflammatory conditions are present in the pelvic structures, but may be done in conjunction with operative work upon the adnexa. Dilation should never be undertaken except with the patient under an anesthetic, and should be with careful surgical preparation. Anticipating the possibility of the necessity of opening the abdomen, preparation for abdominal operation should always be included. Sponge tents and all manner of gradual dilation should be discarded.

Curetment is practically always indicated, as any condition demanding dilation would also call for curetment. Packing the uterine cavity is seldom called for. If it is necessary to facilitate drainage further, I often employ a rubber tube. It is cleanly, and can be used for later irrigation of the uterine cavity. Irrigation at the time of operation I believe should be accepted as routine. It cleanses mechanically, and by using antiseptic solutions, can be made to disinfect the endometrium. In my practice I find nothing better to fulfil these indications than normal saline solution for mechanical cleansing and hydrolized solution benzoylacetylperoxid (acetozone) for disinfecting. I use it in full strength, or dilute it, depending upon the degree of activity desired. The full strength is equal to mercuric chlorid, 1 to 1,000. It may be diluted with normal saline. It has the double advantage of being injurious to neither animal tissue nor to instruments, which may be said of no other potent antiseptic.

The mechanical principles involved should include thoroughness of dilation, and, I believe, dilation equally in all directions. Most dilators in use dilate only in two directions. To accomplish this I have had the instrument exhibited, manufactured for me. When collapsed it is small enough to enter any but the smallest infantile uterus. When fully dilated it produces a condition of the cervix fulfiling all requirements. It is simple, and embodies in one instrument all that is required.

[1] Read before the Section on Gynecology and Obstetrics, Michigan State Medical Society, annual meeting, held at Petosky, June 28, 29 and 30, 1905.

SANITARY CONDITIONS IN THE ARMY.

To the Editor of American Medicine:—Your editorial of August 26, 1905, very truly and accurately expresses the opinion of many medical officers, both of the army and the navy, and is the belief in which they have been reared. It is, however, a serious error. Look over the orders and regulations of the army and you will find an expert jugglery of words which in no way fixes the responsibility for the sanitary conditions on either the medical officer, or the officer in command of the troops, for neither is seated squarely on the stool of responsibility, but on a plank balanced on either side, so that when a Camp Thomas, Ga., or a Montauk Point, N. Y., arises, both fall to one side, and no one is seated on the stool.

The commanding officer is responsible—in theory—for all things in his command, including sanitation. He has not the knowledge or training to enable him to control the situation, though he has the power to do so; the medical officer advises him concerning the sanitary situation, the commanding officer, ignorant of the sanitary requirements, then duly considers this advice and acts as he thinks best. The result is shown in the history of Camp Thomas, Ga., Montauk Point, N. Y., and almost every camp of assembly in the United States. In 1898, General Wilson testified before the Dodge Committee that he reported to the Adjutant-General at Washington, the day before he left Porto Rico, that his command had 26% sick, and explained that he had only about the same number of typhoid fever cases as he had in the United States. The published reports say that he lost in the United States 191 men dead from typhoid fever and that there were probably 1,859 typhoid cases in his command alone. All of this history was published to the world. Did anyone ever think of punishing these generals who were responsible for these conditions?

Did anyone think for a single moment of punishing these general officers whose order or failure to order controlled the sanitary situation?

No; not a single expression of such a thought was made.

No; everyone fixed in his own mind the responsibility on the medical officer of the army.

The medical officer said nothing; he had been trained that he was responsible.

He sits thinking unhappily why with his knowledge of sanitary procedure it was that he had been unable to control the situation.

The truth is as was reported to General Alger, in 1898, when Camp Thomas, Ga., was horrifying the United States: "The man with the power to control the situation has not the knowledge; the man with the knowledge has no power." Neither the commanding officer nor the medical officer has any legal responsibility for the sanitary condition of the troops with which they are serving. The regulations enable each to place the fault on the other, so neither is truly responsible.

Very sincerely,

JOHN SINTH.

ORIGINAL ARTICLES

AN APPARENTLY DISTINCT AND HITHERTO UNDESCRIBED TYPE OF PARASITE IN PERNICIOUS MALARIA.[1]

BY

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The great majority of cases of malarial fever in the Philippine Islands, as seen and studied in the service of the First Reserve Hospital of the United States Army at Manila, P. I., the largest hospital in our eastern tropic possessions, belong to the estivoautumnal type.

The estivoautumnal, the tertian, and the quartan forms of malarial fevers there correspond closely to these types as observed in the United States, with this difference, that in the Philippines their resistance to treatment by quinin is considerably greater, much larger doses being almost invariably required, and hypodermic injections frequently necessary.

During the year beginning June, 1903, and ending June, 1904, 1,765 blood-examinations for malarial parasites were made at the First Reserve Hospital. Of these, 464 were found positive for malaria and were classified as follows: (1) Estivoautumnal, 366; (2) tertian, 88; (3) mixed estivoautumnal and tertian, 7; (4) quartan, 3.

Of the 366 cases classified as estivoautumnal, 247 showed typic estivoautumnal parasites, while the remaining 119 cases were placed under this head only because of the lack of a more specific and appropriate classification.

These 119 cases showed a form so peculiar and so distinct from any previously described form of the malarial organism as to render it extremely probable that this form is an entirely separate and distinct type of the parasite of pernicious malaria. The virulence of the infection in many cases and the clinical course of the disease place this type of infection in the class of pernicious malaria, while the morphology of the parasite separates it distinctly from the malignant estivoautumnal organism or other forms.

The blood of these 119 patients showed only hyaline, nonpigmented, intracellular bodies in the protoplasm of the red blood-corpuscles. At no time, either before or after death, were crescents, extracellular bodies, segmenting forms, or other forms usually to be found in malarial blood, discovered in the blood of these patients.

The parasites observed are small hyaline discs of an oval spindle form. They have a very sharply defined outline, are highly refractive, and in the center of each form is a small round dot of hemoglobin. Their short diameters vary from a fifth to a tenth the diameter of the infected red blood-corpuscles, their long diameters being about twice as great. These bodies taper gradually toward each end, and on account of the spindle shape which they invariably show they were designated on the hospital records as "spindle forms."

They have no ameboid motion whatever, but possess a motility of their own, moving around the periphery of the infected corpuscles or across them in any direction. They move by revolving on their long axis and also by swinging around on their short axis, using one end as a fixed point or pivot, as it were. When revolving on their long axis they gradually change from their oval spindle form to a linear one as the side or edge comes uppermost, and back again to their original form as the revolution is completed, indicating that this parasite is more or less flattened like a melon seed as it lies in the infected corpuscle. The motion is generally slow but easily perceptible and is the most peculiar characteristic of the parasite.

There are also larger nonmotile "spindle forms," sometimes associated with the motile parasites and sometimes not. Whether these nonmotile forms differ sexually from the others or are a different stage or age or condition of the same organism, I am unable to say. At any rate, only these nonmotile forms were found a number of times in patients suffering with the same symptoms, but in a milder degree, as the patients in whose blood the motile forms appeared. There seems to be some connection between the motility of the parasites and the severity of the infection, the more motile the forms the more severe the symptoms. As many as three parasites have been observed in one blood-corpuscle, but they usually appear singly.

In the following illustration figures *a*, *b*, *c*, *d*, and *e* show typic forms of the parasite, *e* being a larger nonmotile form. Figures *g*, *h*, *i*, *k*, and *l* show the consecutive changes in position of the parasite moving across the corpuscle, changes occurring during a 20 minutes' observation, *i* being the linear form referred to.

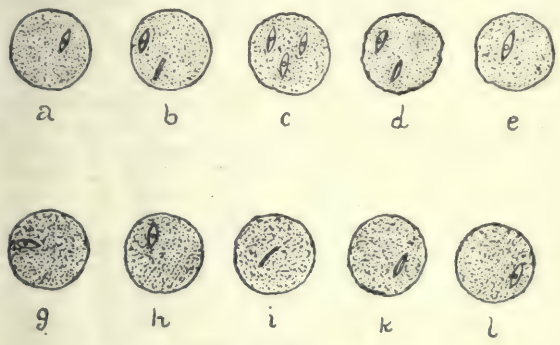


Fig. 1.

They stain with great difficulty, and even then it is only the periphery of the parasite, which takes on a methylene-blue or methyl-violet stain to a slight extent. No nucleus or chromatin dot stains in the periphery or elsewhere, the hemoglobin central dot taking the usual eosin stain with eosin mixtures. Numerous stains and modifications of the same were used, but all gave practically negative results.

When kept and observed under the microscope for as long as four days, no development or change of any nature has been observed in these parasites except a gradual loss of motility in the case of the motile forms, some retaining their motility for nearly 48 hours. Repeated examinations of the blood of these patients were made, but at no time were any parasitic forms beside these "spindle forms" ever discovered, and in no case did these parasites give any evidence of the formation of pigment.

The infected corpuscles frequently showed no change in color or form, while again they were often of a greenish hue and showed considerable shrinking and crenation. In some cases many corpuscles were infected, while in others prolonged examination would discover only a few parasites.

These forms have been found frequently in patients with a normal temperature, existing thus in a masked or latent form. After surgical operations such patients —and they all had uninfected wounds—almost invariably developed a fever, which was always controlled by quinin.

The clinical history of these patients corresponds closely to that of cases of pernicious malaria. A remittent fever, chilliness, occasional chills, headache, vomiting, frequently severe pains in back, arms, legs and joints, enlarged spleen in many cases, absence of skin

[1] Published with permission of the Surgeon-General of the United States Army. From the Annual Report of the Pathologic Laboratory of the First Reserve Hospital, Manila, P. I., 1904.

eruption, with delirium, convulsions and coma in severe cases, make up a clinical picture common to most of these cases.

These patients were at once given quinin by mouth. While some were amenable to such treatment, the great majority entirely resisted quinin administered in this manner and required large doses of quinin hypodermically, from 1 gm. to 5 gm. of quinin sulfate daily. Many of the cases responded promptly to quinin hypodermically, and the "spindle forms" disappeared from the blood. In other cases there was no response until this treatment had been continued from 5 to 15 days, these forms persisting in the blood throughout this entire time but finally disappearing, except in four fatal cases. A few mild relapses were observed.

In the four cases that proved fatal no parasitic forms but these "spindle forms" could be found in the blood before death or in the blood and organs after death. The necropsies showed that in one case terminal bronchopneumonia and purulent pericarditis, and in another case terminal bronchopneumonia could have been the immediate causes of death. The other organs showed no important pathologic lesions except the spleens, which were much enlarged and congested. In the other two cases the pathologic findings were practically negative except for the very large congested spleens in both cases, and, in addition, in one of these, in which coma, delirium and convulsions had been severe, edema of the base of the brain with punctate hemorrhages throughout the white matter of the brain. Smears from the blood and spleens in the four fatal cases showed only these hyaline nonpigmented "spindle forms" described herein.

Previous to my report of these cases to the Surgeon-General in June, 1904 (published in brief in his Annual Report for the year 1904), no one seems to have reported any observations of this form of blood parasite. Dr. J. Cropper[1] reports the finding of an apparently similar parasite in the blood of 192 patients, mostly children, examined in Palestine. At the United States Army General Hospital, San Francisco, where all officers, soldiers and civilian employes of the army, invalided home from the Philippines, are received for treatment, numerous blood-examinations have been recently made, but in none of these patients have I, as yet, found this form of parasite.

A STUDY OF THE RELATIONSHIP BETWEEN THE ARTERIAL HYPERTENSION AND THE INDICANURIA IN NEPHRITIS.[2]

BY

HARRIS A. HOUGHTON, A.B., M.D.,
of Bayside, Long Island, New York City.

What factors coexisting produce the condition known as uremia and to what extent each is responsible has by no means been entirely determined. Its toxemic nature is certainly indicated by recent researches in pathologic chemistry and animal experimentation. More or less constant kidney lesions enable us to suppose delayed excretion of waste products, resulting in greater or less deflections from health. Sufficient is known of these waste products to enable us to classify them about as follows: (1) Substances resulting from tissue metabolism; and (2) adventitious substances, which, although they may be present to a limited degree in health, are less harmful because of prompt elimination.

Without drawing the lines of classification too sharply, there may be included under the first division, urea and kindred bodies, such as the purin group; products of nitrogenous origin; certain salts, of which, perhaps, the compounds of ammonia and potassium are the most important, and the products of some glands having internal secretions.

This leaves for classification under the second heading the products of some glands having external secretions, such as the bile; products of intestinal putrefaction and fermentation, due to the action of microorganisms, or possibly the prolonged action of the pancreatic juices upon foodstuffs; and such toxins as may be ingested preformed in the food, medicines, etc. Obviously this list does not include all possible sources of uremic intoxication. Herter has shown that there may be present in the blood a toxic proteid, the source of which is unknown, and there seem to be excellent grounds for his belief. Brown-Séquard postulated an internal kidney secretion to account for certain accidents happening during the course of chronic nephritis, but his views have never been adequately substantiated.

It should also be noted that of all the causative factors, it has been found impossible to assign to each its relative importance. It is quite likely that one element is in the ascendency at one time and another element at another. Vomiting, diarrhea, and headache may in a measure at least be accounted for by an excess of urea in the blood. At another time, urea may not be in excess and another class of symptoms may prevail, caused by an entirely different class of poisons. These varying conditions may in turn be due to possible varying power of the kidney to eliminate. It may be supposed that at one time the kidney is able to select from the blood stream certain elements which at another it is unable to separate.

Without considering further the pathology of uremia, attention will be directed toward one element which is of paramount importance, that which has its origin in the intestinal tract, and is due to the action of microorganisms on foodstuffs. Toxic because of quantity or quality, it seems to be one factor which is almost invariably present. To express its true nature, and for the want of a better name, the word "enterotoxismus" is suggested.

In considering this as one source of uremic intoxication, there are many things to be taken into account. Our knowledge is still very limited as to some features, but enough is known so that the following premises may be granted.

Throughout the life of the individual there is maintained in the intestinal tract what may be termed a bacterial equilibrium. This refers not only to the numbers of organisms present, but to their virulence and activity. This equilibrium is maintained by a system of checks and balances which are easily disturbed, nearly always on the side of exaggeration, and in the causes for which we are not now immediately interested. The frequency and ease with which disturbances are accomplished, have led many to argue for its unimportance as a pathologic condition. But many of the substances elaborated are known and may be arranged thus:

1. Cellular toxins contained within the walls of the bacteria themselves, and rarely released except under some special circumstances, such as may obtain in acute inflammations of the enteric tract.

2. Products of the disintegration of foodstuffs (probably also including certain syntheses) resulting from the elaboration and secretion by the microorganisms of an enzyme. This secretion is undoubtedly one of the manifestations of the vital activity of the germ. Under this head should be included substances of similar nature resulting from the prolonged or perverted activity of the pancreatic enzymes.

Of the cell toxins contained within the walls of the bacteria, we have but little knowledge in this relation. So far as I am aware, there is no clinical measure of the extent of their absorption either in health or disease, except possibly the presence of fever or agglutinative reactions with races of bacteria immediately concerned. But it is fair to assume that they play only a small part in chronic uremia. The possibility of danger arising from this source is of interest when paralleled with what is known concerning certain terminal infections of Bright's disease.

[1] Journal of Tropical Medicine, May 1, 1905.
[2] Read before the Alumni Association of the New York Postgraduate Hospital.

An acute follicular tonsillitis in a previously healthy individual and in a patient suffering from chronic uremia are two different propositions. In the former, elimination of bacterial toxins is rapid, and the danger is at a minimum. In the latter event there is delayed excretion and possible death.

From a practical standpoint, interest especially centers in the poisons produced as the result of zymotic action, because of the possibility of reducing the quantity of their production and thus removing one factor from uremia. The colon group of bacilli are undoubtedly the chief agent. They are always present in the bowel, in a state of more or less suspended animation and multiplying with greater or less rapidity as circumstances allow, they find a maximum in numbers in the neighborhood of the ileocecal valve. Other varieties may be present and active to some extent, but the conditions are such as to lead to the survival of the colon group.

It will not be necessary to enter into a complete review of the activities of this group, how they normally expend their energies first on the carbohydrate elements and later on the proteids, and of the possibility of their creating acute and chronic disturbances of the intestinal tract, but suffice to say that of the products of their activity, one substance lends itself to observation with unusual ease—indol. With few exceptions among atypic forms, the colon group can be differentiated by the enormous quantities of indol they produce, very easily from peptones and less easily from parent proteid. The indol, formed in the intestine, is absorbed by the mucosa, oxidized into indoxyl for the greater part in the liver and later appears in the urine as indoxyl potassium sulfate, or indican. The amount of indican in the urine may be said to give us usually a rough index of the amount of proteid putrefaction taking place in the intestine, providing the kidneys are functionating properly; in other words, it is an index of disturbances in bacterial equilibrium. There are some exceptions to this rule which will be noted later.

That indol and other products of proteid putrefaction are concerned in the intoxication of uremia has been proved in various ways. Bouchard and his pupils were particular to emphasize its importance. Indol poisoning resembles that of uremia in many particulars, and the presence in nephritic urine of large quantities of ethereal sulfates, far above what may be considered normal, is pretty good evidence that its presence is not devoid of baneful effects.

A rise of arterial blood-pressure is often one of the associated clinical features of those forms of nephritis characterized by overgrowth and contraction of interstitial tissue. Theodore Janeway has set forth clearly the limitations of heightened blood-pressure in diagnosis and prognosis. It seems quite probable that many of the symptoms of uremia are dependent upon it. The various cardiovascular phenomena, such as left ventricle hypertrophy, displacement of the apex beat, dilation of the mitral ring and arteriosclerosis are but the reaction of the organism to alterations in the composition of the blood. The modus operandi is not apparent in many ways, but as the necessity for the elimination of poisons becomes greater—the renal arteries not being terminal but arranged in series with other branches of the abdominal aorta—a general rise in arterial pressure seems necessary to meet the demand for increased elimination through a kidney presenting structural obstruction. The pressure continues to rise as the power of the kidney decreases and the toxemia increases until the cardiovasomotor mechanism fails.

We have then a clinical method in the sphygmomanometer which will estimate roughly the sum total of intoxication, with the understanding that no one reading is to be, taken as a criterion, and that the variations in pressure covering a period of time will serve to estimate the variations in toxemia. It should also be remembered that the absence of hypertension does not exclude the diagnosis of nephritis. The presence of hypertension seems to be an accompaniment of only certain forms.

Keeping these facts in mind, an effort will now be made to show some sort of relationship between the arterial hypertension of uremia and the amount of indican in the urine. This may possibly serve to help in emphasizing the importance of chronic enterotoxismus as a complication of chronic nephritis.

With regard to the use of the sphygmomanometer, it is proper to say that the instrument designed by Janeway, with 12 cm. cuff, was used and that the precautions he advised were noted. For instance, the relation of the instrument to the patient when the readings were made was always the same, and readings were taken at the same time of day.

It is unfortunate that we have no easy clinical method of estimating the output of indican other than by a color reaction of a 24-hour specimen. This opens up possibilities of great error even to the trained eye. I have often noted variations in the test itself, at times presenting a brilliant, bright blue and at other times a dirty purple, even when the albumin content had been removed with lead acetate solution. In judging the color index, allowances must be made for the concentration of the urine, and in making comparative tests the reagents used should be the same in amount. In the following cases, 24-hour specimens were impracticable, because the patients were in business and away from home during a greater part of the day.

Case I.—E. S. R., aged 44, a carpenter by trade; is married and has four healthy children.

Parental History.—His father died of paralysis and his mother of some heart trouble. Family history is negative.

Previous History.—He had measles and scarlet fever at the age of 4, leaving him in apparently good health. At 37, he had a "strain in the intestine," from which he was in bed for six months and was unable to work for 16 months. The true nature of this trouble I was never able to discover, except that it was chiefly characterized by alternating constipation and diarrhea. He is a moderate periodic drinker of beer, smokes some, has regular passages of bowels, eats much meat, and drinks much water. The present symptoms include pain about the navel for an hour after eating, belching of gas, two urinations every night, occasional palpitation of the heart, and dyspnea on exertion. He thinks he has malaria.

Examination: The salient features are an enlarged area of cardiac dulness and apex beat displacement outward to the nipple line. The first cardiac sound is very indistinct, but there are apparently no valvular lesions. The second sound is accentuated.

The elements found on urinary examination are: Specific gravity, 1.005; albumin, 15% (estimated bulk by contact); no sugar. By microscope: Large numbers of small and large hyaline casts, fine and coarsely granulated casts, epitheliated and occasionally a fine fatty cast. There are a few isolated blood cells, numerous pus cells and an occasional vesicular and degenerated renal epithelium. There is also an excess of phosphates in crystalline and amorphous form.

Note on diagnosis: There seems to be no question as to the nature of the trouble when the systolic pressure of 245 mm. is taken into account. The general appearance of the urine and the cardiovascular changes indicate a diffuse form of inflammation, and I have so regarded it.

Following is a table summarizing observations:

Date.	Spec. Grav.	Albumin.	Indican.	Systolic Pressure.
March 6	1.005	15%	Enormous excess	245 mm.
	(Nephritic diet continued and naphthalin, gr. 5, q. 4. h.)			
March 7	1.003	15%	Very excessive	230 mm.
	(Naphthalin continued.)			
March 9	1.007	10%	Excessive	215 mm.
	(Naphthalin continued.)			
March 14	1.005	12%	Trace	210 mm.
	(Naphthalin discontinued.)			
March 27	1.004	10%	Very excessive	210 mm.
	(No medication.)			
April 1	1.002	12%	Enormous excess	225 mm.
	(Naphthalin as before.)			
April 3	1.003	12%	Excessive	210 mm.
	(Naphthalin continued.)			
April 9	1.005	10%	Marked trace	190 mm.

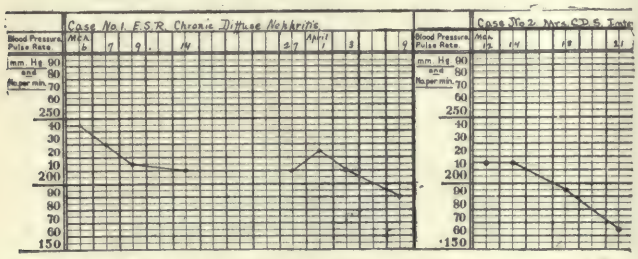
With one exception no accident occurred during the period of observation. On March 16 he was obliged to stay in bed for a day with circulatory symptoms, brought on by a long bicycle ride. He was not uncomfortable enough to interfere actively with medication.

Case II.—Mrs. C. D. S., aged 42, married, has two healthy children. Her father died suddenly at an advanced age from unknown causes. Her mother is alive and well. The previous history includes an attack of typhoid fever four years

prior to her present illness, and a gynecologic condition not bearing on the present trouble. For a year she has noted dyspnea on exertion, night urination, and occasional attacks of diarrhea. She has had headaches, for which she has vainly sought relief.

Examination is difficult, owing to the amount of adipose tissue present, but the apex beat is slightly to the left of the nipple line with a corresponding hypertrophy of the left ventricle. On auscultation of the heart there is arrhythmia cardia, accentuated second sound, a mitral murmur, soft in character and not transmitted (dilation of the mitral ring?). The urine during the period of observation (unless otherwise noted) may be said to be as follows: Specific gravity, 1.007; traces of albumin with the Esbach test; no sugar; numerous isolated pus cells (vagina?); occasionally a small hyaline cast, some with fatty degeneration, more or less marked.

Note on Diagnosis.—Even with the blood-pressure at 210 mm., there might be some question as to the diagnosis in this case. The kidney capacity was tested by the exhibition *per*



oram of .065 gm. (1 gr.) of methylene-blue. In 30 minutes urine was drawn and it was evident that the dye had appeared. What is more important, there was continued secretion of the blue color for 50 hours after ingestion (normal in 36 hours). With all of this evidence before us, diagnosis of contracting kidney is seemingly possible.

Following are the observations made:

DATE.	SPEC. GRAV.	ALBUMIN.	INDICAN.	SYSTOLIC PRESSURE.
March 12	1.004	Trace	Enormous excess	210 mm.
	(Her usual diet continued; naphthalin as before.)			
March 14	1.006	Trace	Great excess	210 mm.
	(Naphthalin continued.)			
March 18	1.005	Trace	Excessive	190 mm.
	(Proteid food stopped. Naphthalin continued.)			
March 21	1.003	Trace	Marked trace	165 mm.

The patient declined further treatment as her symptoms had disappeared. She received no other medication than the naphthalin.

CASE III.—Mr. D. D. C., a bookkeeper, aged 55, married, has three healthy children. The family history develops a well-marked strain of Bright's disease running back on the maternal grandmother's side. Otherwise negative. He had never been sick with the exception of an attack of typhoid fever at 50, from which he made an apparently good recovery. When 52, while at business, he found that he was unable to add a column of figures. There were some other cerebral symptoms lasting for a few days, but after a rest he became well again. Good habits. Symptoms have persisted for a year as follows: Feels lightheaded on exertion, scintillations in front of the eyes for an hour at a time, very moderate dyspnea, pain about the navel, backache, and night urination for eight months.

The general examination presents the following features: Apex beat not palpable, but heard with the maximum intensity just inside the nipple line. The sounds are high in tone, valvular in character, and rhythmic. Scattered areas of bronchovesicular breathing over the lungs. The peripheral arteries appeared unduly thickened. The urine: Specific gravity, 1,017; acid; 25% albumin by bulk; no sugar; only a slight excess of indican. Microscopically, there were innumerable large and small hyaline casts, fine granular, epitheliated and occasionally a fine fatty cast.

Note on Diagnosis.—This patient has been under observation for some time and has been treated in the usual way with regard to diet, stimulants to the kidney epithelium and vasodilators. For a week prior to the commencement of observations, he has received no medication. The nephritic diet was continued. The epitheliated and fine fatty casts furnish ample evidence of the character of the disease. Observations:

DATE.	SPEC. GRAV.	ALBUMIN.	INDICAN.	SYSTOLIC PRESSURE.
March 17	1.017	20%	Trace	175 mm.
	(Naphthalin as before.)			
March 21	1.014	20%	Trace	160 mm.
	(Naphthalin continued.)			
March 23	1.010	10%	Negative	150 mm.
	(Naphthalin continued for three days and stopped.)			
March 29	1.015	12%	Marked trace	140 mm.
	(No medication.)			
April 5	1.010	15%	Excessive	160 mm.

Note.—At the third and fourth readings, a not unusual occurrence presented itself. About one in every three of the pulse waves "came through," making the estimation of the systolic pressure difficult. The pressure noted on the biggest waves is given. With naphthalin, the patient developed some symptoms indicating delayed excretion, and as other medication was thereby indicated, further observations were useless for our purposes.

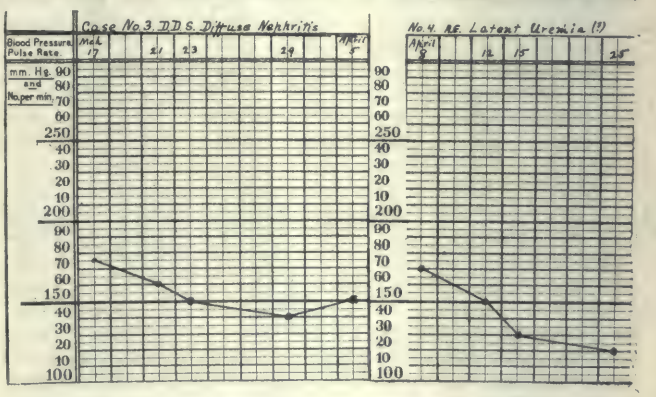
CASE IV.—A. E., aged 19, unmarried; his business is such as to call him out of doors much of the time. His father died of tuberculosis and diabetes. His previous history is negative, except that three years before he had an attack of indigestion similar to the one he complains of now. He drinks a glass of beer three times a week, and smokes occasionally. He is an excessive meat eater. He is very fond of athletic work, and is a fine amateur baseball player. For a year he has noticed the following symptoms: Starting up in bed at night; dreaming; indigestion, characterized by acid and gas; a slight feeling of suffocation under the sternum; some nervousness; and heart palpitation. No dyspnea or night urinations. The examination disclosed as to the heart a *bruit de gallop* with tremendous heaving at systole, the sounds booming in character, and the cycles following each other irregularly. There was marked left heart atrophy, and the apex beat was well outside the nipple line. The urine: Specific gravity, 1.019; acid; dark yellow; trace of albumin with Esbach's test; very excessive indican content. Microscopically, there are numerous very small hyaline and faintly granular casts, occasionally epitheliated and faintly granular casts. No fatty casts could be found.

Note on Diagnosis.—The question of diagnosis is not so clear in this case as in former ones. The methylene-blue test for delayed excretion was applied by hypodermic method, and the dye appeared in the urine in 40 minutes (delayed). It was five days before the urine attained its normal color. With the blood-pressure at 170 mm., I am satisfied that his kidneys were contracting, but inasmuch as this could be questioned, it will be classified as a case of latent uremia dependent on delayed excretion. There is apparently ample evidence for this belief.

DATE.	SPEC. GRAV.	ALBUMIN.	INDICAN.	SYSTOLIC PRESSURE.
April 8	1.019	Trace (Esbach	Very excessive	170 mm.
	(Usual full diet allowed; naphthalin.)			
April 12	1.015	Trace	Excessive	150 mm.
	(Naphthalin continued.)			
April 15	1.020	Negative	Trace	130 mm.
	(Naphthalin discontinued.)			
April 25	1.015	Trace	Marked trace	120 mm.

During the course of the treatment the digestive symptoms disappeared, and it was with difficulty that he could be induced to continue treatment.

A cursory examination of the tables indicates that the general tendency of the blood-pressure is downward following the administration of intestinal antiseptics,



and the consequent decrease of the indican reaction. But such a conclusion would not be warranted until some further considerations have been undertaken.

Does naphthalin reduce blood-pressure by any possible action on the nervous or vasomotor systems? I am led to answer this question in the negative by virtue of the following: Naphthalin was administered as indicated to two persons, neither of whom gave any evidence of kidney lesions or of indican in the urine. One was a farmer boy of 19, and another a woman of 34. In the first case the blood-pressure remained practically the same during the four days of its administration. In the second case the blood-pressure was 10 mm. higher at the close of the fourth day. In a third case in which there was a subacute enterotoxismus, and a heavy indican reaction, the subject being a man of 40, the blood-pressure was higher by 10 mm., at the end of the fourth day, the indol absorption being practically *nil*. There

was a trace of albumin (Esbach) in the urine of this last patient, but if he had any kidney lesion, it was not discoverable.

Does the administration of naphthalin cause the disappearance of urinary indican by any other means than by decreasing the amount of proteid putrefaction in the small intestine? This query cannot be answered except with certain reservations, but the evidence seems to indicate that it does to a small extent. Naphthalin is one of the aromatic coaltar products, and is soluble in water only to a slight degree. A greater part is supposed to pass through the gastroenteric tube without absorption and be evacuated with the feces. A lesser part is taken up by the intestinal mucosa and is carried to the liver. It reaches the urine in the form of naphthoquinon combined with sodium or potassium and sulfuric or glycuronic acids, under conditions to appear later. This combination will show itself in two ways. The urine of a patient taking naphthalin contains a chromogen which shows a very light canary-yellow with Jaffe's test for indican. This is appreciable even when indican is present in excess. There is also sometimes a crystalline deposit in such urine after cooling. The method whereby naphthalin may interfere with the elimination of indican suggests itself in the fact that it forms combinations with sulfuric and glycuronic acids. To appreciate the connection, a review of the reaction of the organism to those substances which appear in the urine as ethereal sulfates is necessary. Indol, phenol, skatol, etc., are oxidized within the organism and combined by a synthetic reaction with potassium and sulfuric acid, to be eliminated in the urine. This action takes place mainly in the liver, although it has been shown that it may take place in the intestinal mucosa, muscle cells, renal epithelium and other places. The supply of sulfuric acid radical is limited, and when exhausted either one of two events occurs: (1) The liver substitutes glycuronic acid for sulfuric acid in the synthesis; or (2) they are stored in the liver until acid radicals are provided. It has been shown that this is particularly true in regard to phenol. The similarity between the reactions with aromatic coaltar compounds and the products of intestinal putrefaction of which phenol is a type is apparent, and it may be said that naphthalin, by using up the sulfuric and glycuronic acid radicals, favors the storage of products of intestinal putrefaction in the liver. It apparently corresponds with clinical experience, as is particularly noted in Case I. On stopping the administration of naphthalin, the indican reaction was immediately enormously augmented, more so than could be conceivably accounted for by a return of the intestinal putrefaction. These facts may also account for the frequency with which moderate enlargements of the liver are encountered during attacks of acute and subacute enterotoxismus. That naphthalin does interfere with the urinary indican test to a certain degree must be admitted, but whether to a large degree, to say the least, is doubtful.

Does the absence of indican from nephritic urine exclude the presence of an enterotoxismus? The following will probably indicate a negative answer. Although the colon group of bacilli are mainly responsible for intestinal toxemia, other organisms may be increased and cause different urinary conditions. There may be a total increase of all ethereal sulfates in the urine without an increase of indican or with its absence. Further we may compare the elimination of indican in the urine with the elimination of the test dye, methylene-blue. With the latter in case of deficient kidney function there is delayed excretion, and the same may be said of indican. In consideration of the fact that the kidney epithelium is probably subject to fluctuations in its power to excrete certain substances at one time and another class at another, absence of urinary indican may be simply absence of excretion, failure of the liver to oxidize and combine with potassium and sulfuric acid, or fermentation of a character leading to increase of other urinary ethereal sulfates than indican. Its presence in the urine of nephritics may be looked upon as an index of what the kidney is capable of doing at the time rather than of the concentration pressure behind it.

It seems then as if we were in a moderately safe position to make a statement of present experience:

When in the course of nephritis characterized by high blood-pressure, there is indican in the urine, treatment designed to lessen the amount of proteid putrefaction in the bowel will have a tendency to lower the blood-pressure by preventing the absorption of substances, which although rapidly eliminated with a normal kidney, are allowed to accumulate in the blood and other organs of the body by reason of the reduced kidney capacity.

It is hardly necessary to indicate that the converse of this proposition is not true, for there is every reason to believe that the absence of the indican reaction indicates nothing, too many unsolved factors entering into the problem.

It may also be suggested that the amount of albumin in the urine under conditions indicated above, seems to bear no relation to the rise and fall of indican content. So far as urea is concerned, it must be remembered that urea is a normal constituent of the urine and that its excretion is accomplished physiologically without irritation. But this cannot be said of indol and allied substances which are quite as irritating as the xanthin bases.

The practical application of the conclusion in the prognosis and treatment of interstitial and diffuse nephritis is very far reaching. If, for instance, the casein of milk breaks down into indol rather than into proteoses and peptones, its use will do more damage than good, and this will be found to be true particularly when milk is used exclusively. Other foodstuffs will stand on the same basis. On the other hand, it may develop that proteid food may be allowed if the normal bacterial equilibrium can be maintained, and in this way a natural method of combating the anemia of nephritis presents itself. But in any event, it seems much better to prevent one of the causes of heightened blood-pressure in nephritis than to administer vasodilators to neutralize its bad effects.

Finally, I am indebted to Dr. H. T. Brooks for some of the urinary examinations. For many of the facts regarding the relation of indicanuria to bowel conditions, the work of Dr. C. A. Herter, "Chemical Pathology," may be consulted.

PERIPHERAL PHLEBOSCLEROSIS.

BY

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AND

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Since the interesting observations of Sack, a pupil of Thoma, it has, I think, been generally conceded that sclerosis of the veins is to be regarded as a systemic disease, analogous in origin, in topography, and in pathologic findings to arteriosclerosis. It is to the pathologist chiefly that the subject has been of interest, for clinicians have shown it but scant attention. Lobstein, who first gave it the name of phlebosclerosis, regarded it as a senile degeneration, and noted at the same time its frequency as a local condition.

So far as its etiology is concerned, it was held by Sack to be a general disease of the vascular system, induced by disturbances of general nutrition, which caused a weakening of the media. As in the case of arterial disease, so here the weakening resulted in dilation of the vessels and compensatory thickening of the intima. The same

causes which Thoma regarded as incident to arterial disease he claimed were equally effective in inducing the disease in the venous system.

Bernard Fischer, a pupil of Jores, has regarded phlebosclerosis as primarily of inflammatory origin, thus following the theory of Koestner; and in his sections he found collections of small, round cells in proof of his contention. It was further insisted upon that a definite relationship existed between diseases of the arteries and those of the veins, and that the degree of sclerosis in the individual veins was greater in proportion to the development of the arterial disease. This, however, was not an infallible rule, for even without the usual causes and in the absence, too, of arterial disease a phlebosclerosis was found to be not altogether uncommon, though in such instances the degree of change in the veins was considered too slight to interfere seriously with the theory of its analogy to sclerosis of the arteries. In all these conditions both arteries and veins suffer from the diffuse form of sclerosis. Sack indeed believes that in all cases of venous sclerosis one could distinguish between the diffuse and the nodose form, the latter being of the nature of an endophlebitis, while the diffuse is secondary to the process similar in the arteries.

Perhaps the most striking feature in connection with phlebosclerosis is its predilection for peripheral veins, and we would emphasize this fact in our findings, that the presence of thickened veins, especially in the periphery, is of far greater frequency than is generally supposed; and more especially is this the case in young adults, both male and female, without the presence of associated arterial disease.

That such a condition might be fairly common in the young was suggested from an examination in one of our cases, first observed by Dr. W. W. Francis, Resident Physician of the Royal Victoria Hospital.

The patient, a boy, aged 18, had entered the hospital for acute rheumatism. In his history, present illness, or general condition, there was nothing to account for the morbid state; nor did his occupation or habits throw any light upon the sclerosis. The physical examination, however, revealed the veins in both upper and lower extremities so thick, so hard and cord-like as to suggest abnormally sclerosed arteries rather than veins. Those chiefly affected were the internal saphenous, the popliteal, the brachial and the ulnar.

It was therefore with some interest that subsequently an examination of the young adults then present in the hospital revealed the fact that varying degrees of the condition were present in more than 60% of the patients examined. The accompanying table would indicate the findings in this series of young adults examined for this purpose, those only being noted in whom the sclerosis was present.

PHLEBOSCLEROSIS.

No.	Case No.	Diagnosis.	Age.	Occupation.	Lues.	Recent infections.	Other diseases or intoxications.	Arterio-sclerosis.	Alcoholism.	Varicose veins.	Internal saphenous.	External saphenous	Cephalic.	Basilic.	Radial.	Ulnar.	Median.	Specimen examined.
1	8448	Acute rheumatism.	18	Elevator boy.	0	.....	.....	0	0	0	+	+	+	+	+	+	+	0
2	9532	Typhoid fever.	28	Electrician.	0	Infected knee, rheumatism.	Pleurisy, pneumonia, tuberculosis, measles, mumps.	0	Slight.	0	+	+	+	+	+	+	+	v
3	9619	Acute rheumatism.	23	Valet.	0	Tonsillitis.	Measles.	Very slight.	Slight.	0	+	+	+	+	+	+	+	v
4	9757	Tuberculous meningitis.	19	Farmer.	0	.....	.....	0	0	0	+	+	+	+	+	+	+	v
5	9800	Pleurisy and tuberculosis.	21	Clerk.	0	Appendicitis.	Measles.	0	0	0	+	+	0	0	0	0	0	v
6	9801	Pleurisy.	30	Laborer.	Present.	Typhoid fever.	.....	0	0	0	+	+	0	0	0	0	0	v
7	9803	Pleurisy.	28	Boxmaker.	0	.....	Measles.	0	0	0	+	+	0	0	0	0	0	v
8	9807	Pulmonary tuberculosis.	37	Bookkeeper.	0	Gonorrhea.	Children's diseases (?).	0	Slight.	0	+	0	0	0	0	0	0	v
9	9694	Cerebral tumor.	26	Office work.	0	.....	Measles.	0	Slight.	0	+	0	0	0	0	0	0	0
10	9757	Meningitis.	22	Painter.	0	Typhoid rheumatism.	Measles.	0	0	0	+	+	0	0	0	0	0	0
11	9621	Acute rheumatism.	35	Factory hand.	0	.....	.....	Very slight.	0	Slight.	+	+	+	+	+	+	+	0
12	9691	Acute rheumatism.	27	Student.	0	Influenza.	Jaundice.	0	0	0	+	0	0	0	0	0	0	0
13	9678	Arthritis deformans.	29	Designer.	0	Rheumatism twice.	.....	0	0	0	+	0	0	0	0	0	0	0
14	9739	"Febricula."	19	Barber.	0	Gastroenteritis	Chronic gastritis.	0	0	0	+	0	0	0	0	0	0	0
15	9999	Intestinal obstruction.	31	Telegraph operator.	0	.....	.....	0	0	0	+	+	+	+	+	+	+	0
16	10050	T. B. C. peritonitis.	20	Student.	0	.....	.....	Very slight.	0	0	+	+	0	0	0	0	0	0
17	10078	Periureteral abscess.	29	Woodworker.	0	Gonorrhea.	.....	0	0	0	+	+	0	0	0	0	0	0
18	10129	Infected hand.	26	Shoemaker.	0	.....	.....	0	0	0	+	+	+	0	0	0	0	0
19	10143	Appendicitis.	23	Carpenter.	0	Typhoid fever.	.....	0	0	0	+	+	0	0	0	0	0	0
20	9776	Pneumonia.	21	Chemist.	0	Tonsillitis, bronchitis.	Measles.	0	Slight.	0	+	+	0	0	0	0	0	0
21	10126	Appendicitis.	44	Jobbing.	0	.....	Furunculosis.	Very slight.	0	0	+	0	+	0	0	+	0	0
22	9615	Typhoid fever.	29	Fireman.	0	Acute rheumatism.	Measles.	Very slight.	Very slight.	0	+	+	0	0	0	0	0	0
23	9641	Pneumonia and pleurisy.	28	Architect.	0	.....	Chorea.	Slight.	0	0	+	+	0	0	0	0	0	0
24	9687	Acute rheumatism.	50	Machinist.	0	Influenza.	Pleurisy.	Slight.	Exc'ss.	0	+	+	0	0	0	0	0	0
25	9603	Acute rheumatism.	42	Cook.	0	Jaundice.	Whoopingc'gh, measles.	Very slight.	Slight.	0	+	+	0	0	0	0	0	v
26	9591	Chronic nephritis.	50	Insurance agent.	0	Typhoid.	Gonorrhea.	M'ik'd	Exc'ss.	0	+	+	+	+	+	+	+	v
27	9732	Mediastinal tumor.	45	Housewife.	0	....	Measles, scarlatina.	0	0	0	+	+	+	+	+	+	+	0
28	9770	Multiple endocarditis.	20	Servant.	0	Rheumatism.	.....	0	0	0	+	+	0	0	0	0	0	0
29	9831	Gastric ulcer.	24	Servant.	0	Gastric ulcer.	Rheumatism.	0	0	0	+	+	0	0	0	0	0	0
30	9826	Typhoid fever.	21	Clerk.	0	....	.....	0	0	0	+	+	0	0	0	0	0	0
31	9786	Multiple endocarditis.	35	Housewife.	0	Rheumatism.	....	0	0	0	+	+	0	0	0	0	0	0

+ = present. 0 = absent. v = specimen examined microscopically.

The striking features observed from the table are, briefly, as follows: The patients noted are nearly all under 35. Males were chiefly observed, for the condition is much less common in females. It will further be seen that in most of these individuals arterial disease is either absent or very slightly present, and that in nearly all the cases there was nothing either in the past history or the present malady which would account for the con-

dition. Locally there was no obstruction or stagnation which could suggest a cause, nor were the occupation and habits such as to afford any clue.

As every one knows, wherever local stasis occurs, even without arterial degeneration, there is a tendency to sclerosis in the veins, and indeed, such conditions have been repeatedly observed, with pregnancy, with ascites, and with various cardiac lesions. In our own series, however, no such local cause could be detected, and the explanation is not readily found. Certainly one can scarcely accept the contention of Sack that such few instances of the kind as he saw, in which the peripheral sclerosis had no accountable cause, were to be explained on a basis that the patients examined were from hospital practice only. A number of the patients examined by us, apart from those mentioned in the table under similar conditions, were taken from sources entirely outside of hospital practice.

Sections were taken from the veins in nine of our cases, mainly from the internal saphenous, which was the one most commonly affected. These were variously stained with hematoxylin, with Mallory's stain, Unna's, and Weigert's, and a few also were treated with Sudan III. As in the observations of Sack, so in our own sections, the changes were rarely of a degenerative nature; on the contrary, there was chiefly a hyperplasia of the connective tissue, more especially in the intima, which was seen to protrude irregularly into the lumen of the vessel, and showed a loose structure with little elastic tissue, comparatively few cells, and for the most part little or no hyaline degeneration. The media was also affected similarly, and in some cases so intimately mixed were the conditions of hyperplasia in intima and media that it was quite impossible to determine the limitations of the individual layers. In a few sections, however, the separation was most marked. The specimens stained with Sudan III gave no evidence whatever of fatty change.

Theories as to the causation of this frequent condition would seem to lie between (1) the inflammatory nature of the malady, as described by Koestner and others; (2) the degeneration theory of Thoma; and (3) the purely mechanical process, of which more will be said later.

It was not our good fortune, however, to find in any of the peripheral veins examined, evidence of an inflammatory change, as described by Fischer. Primary degeneration of the media, moreover, was certainly not a prominent feature. It is rather remarkable, however, that Sack, in his hundred cases examined postmortem, found among the peripheral veins no evidence of disease in the radial and ulnar veins, a circumstance for which he accounted on mechanical grounds. According to his belief, the frequent slight and gentle motions of the arms assisted both the more even propulsion of the blood and the regulation of the vascular tone. Then, too, the lesser resistance in the thorax to the onflow of venous blood would contribute to spare those veins, while, on the other hand, the veins going to the abdomen met with marked obstruction, even under normal conditions, from the ordinary intraabdominal pressure.

The frequency of peripheral venous sclerosis in the lower extremities, however, gives rise to the natural inquiry as to whether, after all, this socalled sclerosis is, indeed, of a pathologic nature, and, if so, why should the changes be so marked in the peripheral veins alone? For such, indeed, is the case, and in the autopsies on subjects with peripheral sclerosis no visceral venous sclerosis was evident.

It is a well-recognized fact that in the arterial system various physiologic processes are accompanied by hyperplasias, due to physiologically active causes, as is seen, for example, in the umbilical arteries after birth, and in vessels from the pregnant uterus. Jores and Fischer make, therefore, the following distinction: When regular, even thickening of the arteries occurs in the intima, we have merely a physiologic change, and when, on the other hand, the thickening is uneven, irregular, and inclined to be nodular, one may speak of a pathologic sclerosis. Thoma's examinations of individuals over 35 showed thickened veins to be frequent, but in such cases, he said, the thickening was always regular. Our own cases, however, in still younger adults, scarcely coincided with these findings, for the thickened intima was in many instances quite irregular, though, as already stated, there was but little evidence of true inflammation. Accepting Jores' distinction, our cases of peripheral sclerosis should certainly be regarded as pathologic.

To epitomize the findings: 1. The condition of peripheral phlebosclerosis is extremely common. 2. It is much more common in young people than is generally believed. 3. Its presence in the absence of arteriosclerosis is very frequent. 4. Sections show, as a rule, absence of signs of inflammation and of marked degeneration. 5. There are not present most of the usual causes often associated with arterial disease, viz., toxic, infective, etc. 6. The essential change found is proliferation of cells of the intima and of connective tissue in the media. 7. The condition is allied rather to functional hyperplasia than to chronic inflammation.

Occurring, as it does, peripherally, and again more commonly in the lower than in the upper extremities, one would reasonably be inclined to regard the affection as largely the result of mechanical conditions: 1. Strain on the vascular walls from the posture, even though this be somewhat relieved by the valves in the vein, would make itself felt in a similar way as ordinary stasis from obstruction, though to a less degree. 2. Occupations involving the erect posture and greater use of the extremities, and leading to fatigue, more especially in those whose nutrition is poor, and who, therefore, lack somewhat the additional support which the tissues necessarily give to superficial veins. The condition is certainly not a toxic nor an inflammatory one, as may be concluded from its great frequency and from the absence of the usual histologic changes; nor can it be necessarily always related to arterial disease. It is doubtless rare to find a man with arteriosclerosis without some similar change in the veins; yet in our most marked case of arterial disease in a man, aged 50, dead from chronic Bright's disease, the peripheral veins alone showed thickening, those elsewhere being practically free from signs of degeneration or of hyperplasia.

The presumable etiology may be gathered from a reference to Dr. Adami's Middleton-Goldsmith lecture on the relation of inflammation to fibrosis, by applying his remarks to peripheral veins under above-mentioned conditions. "We have to deal with a stimulus rather than injury to the cells of the intima, and may see in the fibrous hyperplasia a response to a physiologic stimulus rather than a reaction to injury. . . . Were some irritant discovered directly capable of inducing the hyperplasia of the intima, the case might present a different facies." In the absence of this factor in cases of peripheral venous sclerosis one should regard the hyperplasia as functional in origin, the result of mechanical forces, and a condition which, even in youth, is far more commonly present clinically than is, we believe, usually recognized.

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Physicians' Fees Raised.—Because, as they declare, that in Evanston, Ill., a suburb of Chicago, living is more expensive than in that city, the physicians of that town have increased their visiting fee $1 a visit. They formerly charged $2 a visit. Recently, however, they organized a medical society, and this method of self-protection is the probable result. The society is endeavoring to secure a room in the new library for popular medical lectures, and is making an effort to bring about the physical examination of school children.

INSOMNIA AND ITS TREATMENT.

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SECTION I.

THEORIES OF SLEEP.

The theories of sleep may be classed as (1) physiologic, (2) chemic, (3) histologic.

Physiologic Theory.—The old theory was congestion of the brain as in coma. The present and most generally accepted physiologic theory is anemia of the brain. This theory has been well sustained by Hammond, Durham, Howell, Sawyer and others. That it is rationally supported is evident from such observations as the sinking of the fontanels in infants during sleep, and also that in dogs, having their skulls trephined, and watch-glasses covering the portions of the brain exposed while asleep, the bloodvessels appear as either sunken or invisible. Much the same condition has been observed in sleeping man with his skull trephined. Also it has been found that if some of the arteries supplying the circle of Willis are tied in a dog, the dog immediately becomes drowsy. Mosso, of Turin, has shown that with the contraction of the brain vessels, dilation of the vessels of the arm takes place and that all external impressions are followed by increased blood to the brain and a reduced amount to the arm. The same observer has also shown that during sleep the amount of blood going to the brain fluctuates without any apparent cause, while it is known that the amount of blood in the brain varies with the amount of the cerebrospinal fluid in the ventricles, a condition which varies with varying circumstances.

Here we may note that the arteries of the brain do not anastomose, but each independently supplies a special area. There yet seems to be some difference of opinion respecting the cerebral arteries being supplied with vasomotor nerves. Leonard Hill insists that there are no nerves controlling the bloodvessels of the brain, while Alexander Morrison has exhibited specimens of cerebral vessels possessing nerves. All things considered, the rational presumption seems to be in favor of a nerve supply to the cerebral vessels, for, as Sir Wm. Broadbent pertinently asks, why is it the arteries of the pia mater are supplied with muscular fibers if they are not under vasomotor control?

Among the physiologic theories of sleep is cortical anemia with hyperemia at the base of the brain. At this point we may recall the fact that the amount of blood supplying the cortex of the brain is five times greater than the amount supplied to the white substance of the brain.

It appears, however, that anemia of the brain resulting from hemorrhage causes wakefulness instead of sleep, so that the anemia which is normally a condition of sleep is evidently sustained by some other conditions.

Pflüger[1] thinks that sleep may result from vasomotor action, producing anemia via a direct spasm of the brain arterioles or by dilation of the vessels of the rest of the body. He observes that the cerebral arteries are unusually small in hibernating animals.

This reduced quantity of blood circulating through the brain in sleep is associated with dilation of the peripheral and abdominal vessels; by a slowing and weakening of the heart's action, while the pulse is also reduced from 10 to 20 beats per minute. The blood-pressure becomes reduced and the temperature falls about .2° C., while the sweat and sebaceous glands are more active.

In further support of the theory of anemia as a cause or condition of sleep, it is to be observed that in mania and states of mental excitement there is an increased flow of blood to the brain, while it is also found that workers in the manufacture of nitroglycerin suffer from throbbing carotids and sleeplessness. Chapin held amyl nitrate (which is well known to increase the flow of blood to the head) to the nostrils of sleeping persons with the invariable result that they awoke in from one to two minutes.

Macnish observes that the majority of animals sleep after eating, a period when the blood is known to increase its flow to the digestive organs at the expense of the brain and other parts of the body. Man has a tendency to do the same thing, although, as Lockhart Mummery[2] has observed, the blood tension in man is increased immediately after eating. Macnish further states that, generally speaking, the larger the brain of an animal is in proportion to its body, the greater is its indulgence in sleep. Birds and fishes, which have relatively small brains, require less sleep than most land animals, and, as a rule, the carnivorous animals sleep more than the herbivorous.

Chemic Theory.—Among the chemic theories of sleep is the theory of combustion and autointoxication, resulting from acid waste products (chiefly phosphoric acid) from the activity of the brain, which is supposed to induce a suspended action of the cerebral cells, and which lasts until more or less elimination of the effete matter takes place. Preyer thinks that lactic acid is the cause of sleep, while Pflüger attributes it to a decrease in gaseous exchange. It has been found that the elimination of CO_2 is reduced a fourth in sleep (Landois and Sterling), while the absorption of oxygen is relatively increased. On the other hand, Lord Playfair believed that everything which robbed the brain of oxygen conduced to sleep. Vogel found that in sleep there was a fall in the excretion of urea from 42 gm. to 36 gm.

Rayner[3] states that in respect to the condition of the brain cells of animals, Hodges found in birds and bees that fatigue produced a state of rarefaction, which is removed by sleep. Rayner also notes that Hamilton Wright narcotized animals and found in the cells of the brain corresponding to the pyramidal layers in man a condition similar to that found in fatigue.

John V. Shoemaker[4] observes that the chemic processes incessantly carried on within the animal body generate electric currents. Furthermore, he states it has been shown that irrespective of purely chemic changes, the acts of secretion and nutrition give rise to electric disturbances. Differences in this respect exist between different individuals and between the sexes. It has also (according to the same authority) been demonstrated that the electricity of a man is mostly of the positive variety, while that of a woman is more frequently negative. Persons of sanguine temperament have more free electricity than those of a phlegmatic disposition. I may here note, that, according to my own observations, wild animals in captivity show most wakefulness on nights of electric disturbances of the atmosphere.

Histologic Theory.—The histologic theory accounts for sleep by the partial paralysis of the ameboid prolongations of the neurocytes, which results in an isolation of the nerve cells. In this way the electric currents of the brain may be broken or reduced.

At this stage it will be interesting to have the briefly stated views of two representative writers respecting the natural conditions of sleep.

Sir James Sawyer[5] says there are two related but vital changes which occur in sleep: (1) Intrinsic changes in the brain elements concerned in consciousness; (2) diminished supply of blood to the cortex of the brain. The first is only inferential. "Perhaps," he continues, "for our sleep we must drown our cerebral cells in a kind of autointoxication with the ashes of our waking fires." . . . "The whole living body sleeps. The changes which the event of sleep declares, certainly extend beyond mere loss of consciousness; they extend to secretion, to the action of the heart and bloodvessels in the general circulation of the blood; to respiration, to 'reflexes,' and so extend to all the tissue modifications, and to all the other vital activities upon which such manifold transitions depend."

Dr. S. Weir Mitchell[6] says: "We are simply driven to believe that it is a state of the nerve cells, and why not of the nerves, in which they become functionally actionless in a variable degree. Whether this be true also of the other cell structures of the body, we do not know; and sleep may be a universal function, as would seem reasonable to those who believe that plants sleep. It is sure that the sleeping brain contains less blood, or it circulates less than in the brain awake, and this is the limit of what we know."

NATURAL VARIATIONS OF SLEEP.

In natural sleep, which may be defined as psychic rest, or the product of an appetite resulting from fatigue of the brain, or tire of the vasomotor centers—there exists unconsciousness without complete insensibility, *i. e.*, the optic, auditory, olfactory, and gustatory senses, while more or less out of action in relation to ordinary impressions, are awake to external stimuli. But the external stimuli require to be more powerful than ordinary, although even the whispering of a familiar but mandatory call to action may suffice to awaken an officer who is soundly slumbering in the midst of roaring cannon. Tickle the sole of a sleeper's foot and it will at once retract, a fact which goes to show that the spinal cord does not sleep or sleeps very lightly.

In narcotic sleep, however, the senses are completely shut to external stimuli, while in hypnotic sleep the senses are not only wide awake as in somnambulism, but they are excessively active, with the reflexes increased, as is the case in ether narcosis, the patellar reflexes being the most affected, then the skin, the conjunctiva, and the nose, in the order stated (Sir Lauder Brunton).

Professor Raymond[10] has recently discussed the symptoms which distinguish coma from sleep. He states that in coma the pulse is large and strong and has the characters of the cerebral pulse; that the respiration is deep and often stertorous, and that in complete coma, the most powerful stimulation does not awaken the subject. Incomplete coma may, like sleep, last only a few hours, and strong stimulation may awaken the subject, but there is not a true awakening as in the case of sleep, the subject comes out of the state of torpor only for an instant and does not quickly regain all his faculties. The coma of cerebral tumor may be continuous or intermittent, and it sometimes resembles natural sleep.

According to Dr. H. Richardson,[8] the three chief factors in sleep are: (1) Diminished irritability from fatigue; (2) voluntary withdrawal of external stimuli in the preparation of sleep, and (3) diminished blood supply to the brain. He describes the natural conditions of sleep as follows: The eyelids are closed and the eyeballs are turned upward. The voluntary muscles are relaxed, respiration is slower, and, according to Mosso, it may fall to one liter instead of seven, the normal in the waking state. Respiration also changes in character, becoming almost entirely thoracic or costal, instead of abdominal; it is also more shallow. The action of the diaphragm is also weakened, while inspiration is prolonged and may occupy five-sixths of the respiratory period instead of four-fifths, as in the normal waking state. The respiratory pauses are usually absent. Occasionally the Biot breathing, which is similar to the Cheyne-Stokes rhythm, may exist without any apparent significance.

The motor centers seem to be the first to be invaded; one group of muscles after another becomes slackened, and finally all. The exceptions are the sphincters, which remain contracted, although in health, some children sleep with their eyes open, a condition which in older persons is significant of ill-health.

The inhibition of the will is the next phenomenon observed, when the mind may revel in absurdities until consciousness is finally lost. Then follows the obscuring of the senses—vision first, then hearing, then smell, then taste, then touch. The centers in the medulla continue to work at a low rate. The arterial tension becomes lowered most markedly in children, and not infrequently the pulse may beat irregularly in a healthy child. The gastrointestinal movements are greatly lessened or are in complete abeyance, while the urine contains a larger quantity of phosphoric acid. The secretion of milk continues.

According to Lauder Brunton, the reflexes disappear in the same order as in chloroform narcosis. A sleeper can be aroused to say "leave me alone" and then fall to sleep without any recollection of the disturbance.

According to the investigations of Child, Speir and Armstrong[7] among 200 persons, nearly all students and professional men, the majority of which were between the ages of 20 and 30, they found that 40% talked in their sleep. Their figures show that a rather larger proportion of men than of women talk in their sleep, while the percentage of women who answered questions when asleep is much larger than that of men and the percentage is much higher for those under 25 than for those over that age.

The usual tests for depth of sleep are (1) sound, (2) the electric flash, and (3) touching the skin. By these it is found that persons of phlegmatic temperament have a shorter reaction time than persons of a mercurial temperament. In old age and fatigue the reaction time is slowed, as is also the case in summer time, as compared to winter.

The period of the greatest depth of sleep is generally supposed to occur normally during the second hour, after which it is believed to grow lighter and lighter. Such, however, does not appear to be the rule, according to my own observations made at the Cook County (Chicago) Insane Asylum, where, about nine years ago I made hourly tests on 10 different types of cases, during two consecutive nights, the subjects being the same both nights. While I have lost my notes on these observations, I have not forgotten that between 3 a. m., and 4 a. m. I found the greatest depth of sleep in the majority of cases, as tested by sound, light, and touch.

More recently, however, Drs. Sante De Santis and U. Neyras[9] of the University of Rome, have tested the depth of sleep in a variety of normal and abnormal individuals. They used the point of an esthesiometer which they pressed vertically on the left frontal protuberance, and awakening was produced without pain. Four subjects were normal, and five were psychopaths, all of whom had been previously studied both awake and asleep.

Hours of greatest depth of sleep in the normal individuals:

Case I.—A boy of 8, who was in the habit of sleeping from 9 p.m. to 8 a.m. Greatest depth of sleep was shown to be at 11 p.m. The sharp point of an esthesiometer was used.

Case II.—O. N., a boy of 15, rather delicate but healthy; temperate, excitable and somewhat impulsive; sleep usually deep and regular; accustomed to fall asleep soon after going to bed; not a good dreamer, but when he had dreams they were trivial. Onset of sleep 12.10 a.m.; greatest depths of sleep at 2.30 a.m. and 3.40 a.m. Sharp point of esthesiometer used. Same subject on another night; greatest depth of sleep at 1.10 a.m. and 4.30 a.m.

Case III.—E. N., female, aged 21; good constitution at the time, but slightly debilitated from study; somewhat emotional; intellect and memory very good; sleeps rather lightly and wakens easily during the night; ordinarily falls asleep a considerable time after going to bed; has frequent dreams and remembers them well; onset of sleep 12.10 a.m.; depth of sleep at 1.30 a.m.—65; and at 5.30 a.m. and 7.15 a.m.—50; awake at 8.45 a.m.; blunt point of esthesiometer used.

Case IV.—G. N., male, aged 60; very robust constitution; mentally normal; sleeps soundly during the early part of the night; falls asleep soon after going to bed; is a good dreamer and remembers his dreams fairly well; asleep at 12.10 a.m.; depth of sleep at 1 a.m.—65; at 2.30 a.m.—75; at 4 a.m.—70.

All the cases had hourly fluctuations.

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[*To be continued.*]

CERVICAL RIB WITH RESULTING GANGRENE OF THE FINGERS.[1]

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In the embryo, rudimentary elements of ribs occur in the cervical, lumbar and sacral regions. In mammals these embryonic rudiments of ribs ultimately fuse with and help to form the transverse processes of their respective vertebras, while in reptiles many or all of these elements proceed to the formation of true ribs. In man, accessory ribs occasionally develop in the lumbar and cervical regions. The former are usually short, are attached merely to the transverse process, have no head or articulating process connected with the body of the vertebra and are without clinical importance. Cervical ribs are more common, and may, as in the case herewith reported, be of great clinical importance. Normally they are represented by the anterior portions of the transverse processes of the cervical vertebras. When a distinct rib is formed it usually shows a head, neck and tubercle, properly articulating with the seventh, or more rarely with the sixth cervical vertebra. The rib may extend scarcely beyond the transverse process of the vertebra, or, more rarely, it may extend forward, being of varying length and having a free end; or it may pass to the first dorsal rib to which it has an osseous, cartilaginous, or fibrous attachment. In rare instances the rib joins the manubrium through the intervention of a costal cartilage. In about two-thirds of the reported cases the condition was bilateral, but the association of cervical and lumbar ribs in the same person seems to be unknown. The socalled bicipital rib may result from the fusion of the anterior part of a cervical with the first dorsal rib. It is only in very rare instances that more than a single cervical rib is found upon one side of the neck. The intercostal space below a well-developed cervical rib contains intercostal muscles and the close attachment of the pleura often renders it difficult to extirpate the anomalous rib without opening the thoracic cavity. The scalenus anticus muscle may be attached near the termination of the accessory rib, and the scalenus medius is at times inserted in both the cervical and the first true rib.

Clinical symptoms may result when cervical ribs project well forward, especially from those attached to the first true rib, and result from mechanical disturbances of the subclavian artery or brachial plexus. The symptoms may develop at any time between the ages of 13 and 60, but are especially prone to appear about the time of adolescence. It has been thought that cervical ribs do not develop until after childhood or early youth, but we believe it more plausible to consider that in most cases, at least, the rib is present from birth and that the symptoms appearing in early adult life result from the increased size or the greater fixity of the rib. It may be recalled that centers of ossification appear in the cartilaginous tips of the transverse processes of the vertebra at puberty, while ossification of the processes is not completed until about the age of 25. Similarly centers of ossification appear in the head and tubercle of normal ribs at about 15, while fusion with the rest of the rib occurs about the age of 23. It is obvious, therefore, that a cervical rib will tend to become progressively larger, more fixed and have greater tendency to cause pressure symptoms between the ages of 15 and 25. Moreover as indicating that the rib is preformed, we would note that these anomalous ribs are symmetric in structure and do not resemble aberrant osteophytic outgrowths and that they show muscular attachments that would hardly be contracted at the age of puberty. In the majority of cases reported no symptoms from the accessory rib were noted, the condition being discovered accidentally in the dissecting-room, in the clinic or upon röntgen-ray examination. The elevation of the subclavian artery as it winds around the anomalous rib may produce a pulsating fulness in the neck that may be mistaken for aneurysm. The chief symptoms are those of circulatory weakness with a greater or lesser degree of ischemia of the hand and arm. There is wasting of the muscles, pallor, marked susceptibility to cold, diminished temperature, and in rare cases a slight terminal gangrene of the fingers. Complete paralysis has not been reported, but frequently there are grades of paresthesia with numbness, tingling, neuralgic pains, diminution of electric excitability of nerves and muscles, and decreased motor power. As a rule the condition tends to become progressively worse, although the symptoms may be ameliorated by warm weather, by massage, by position of the arm and other local measures. The radial and ulnar pulse, and at times that of the brachial artery may be much diminished or absent. As a rule a rapid recovery follows the excision of the rib provided injury to the brachial plexus or large vessels does not occur during the operation. While it is generally advised to remove the periosteum with the rib to prevent its regeneration, cases in which return of symptoms have resulted from regeneration of the bone do not seem to have been recorded.

As to the mechanism of the ischemia, Murphy has emphasized the importance of the growing rib compressing the subclavian artery against the rather rigid scalenus anticus muscle. In a number of the reported cases, however, an enlargement of the vessel as it winds around the cervical rib, and after it leaves the interspace between the rib and the muscle, has been noticed, and from the study of the case herewith presented we are impressed with the possibility of a circulatory deficiency, not from compression, but from the retardation of current due to the angulation or tortuosity of the vessel. Normally, the subclavian artery passes obliquely over the first rib from within forward and outward in a nearly straight line, and in a gentle curve is continued as the axillary artery. The cervical rib, which always lies to the outer side and below the artery, tends to cause the artery to pass over the first true rib nearer to the sternum and in a more transverse direction, thus producing two rather sharp curves; the first as the artery winds around the inner border of the scalenus anticus, and the second as it winds around the anterior portion of the cervical rib. A third curve may also be produced by the passage of the artery from a higher level than normal to a point under the clavicle, more mesial and in closer proximity to the thorax than is normal. While in Murphy's case it was found that elevation of the shoulder and arm relieved the pain and that the patient could sleep best when the arm was above the head, in the present case the greatest relief was afforded by making traction upon the arm while it was in marked adduction, the shoulder at the same time being somewhat raised, and the head flexed toward the affected side, a position which would give the subclavian a more transverse and less oblique course across the first rib and would tend to lower the position of the artery under the clavicle. As indicating that angulation of the artery and not compression may be an important cause of the circulatory disturbances resulting from cervical rib, we would suggest the following:

1. Ligation or continuous obstruction of the subclavian usually results in the rapid formation of a collateral

[1] Read before the Philadelphia County Medical Society, June 14, 1905.

circulation, while in the ischemia, resulting from the presence of a cervical rib, there seems to be little or no tendency toward the formation of a collateral circulation.

2. Compression of one of the larger vessels of the neck usually produces a bruit which is here absent.

3. The aneurysmal enlargement or widening of the subclavian external to the rib is not in accord with a proximal point of compression.

4. In the present case the brachial pulse was well marked, although weaker than that of the opposite side. The radial artery was palpable, but pulseless, conditions consistent with an angulation or tortuosity of the subclavian so cutting down the heart impulse that an oscillation more than a distinct onward impulse of the blood in the involved terminal vessels was produced.

Venous disturbances do not result from cervical ribs alone. The subclavian vein passes to the outer side of the scalenus anticus muscle and so is not exposed to pressure. Upon the other hand, from edema or other forms of swelling in the neck or from exostoses upon the first dorsal rib, a resultant venous obstruction and edema of the arm are common.

The diagnosis may be easy or difficult. In the present case the presence of a cervical rib was early suspected, but was only clearly mapped out after repeated palpations. The coexistent deformity of the spine rendered it difficult to distinguish between accessory and normal ribs in the skiagram. Progressive circulatory changes increased by cold, unassociated with edema, and accompanied by some form of paresthesia of the hand or arm are quite characteristic evidences of the anomaly.

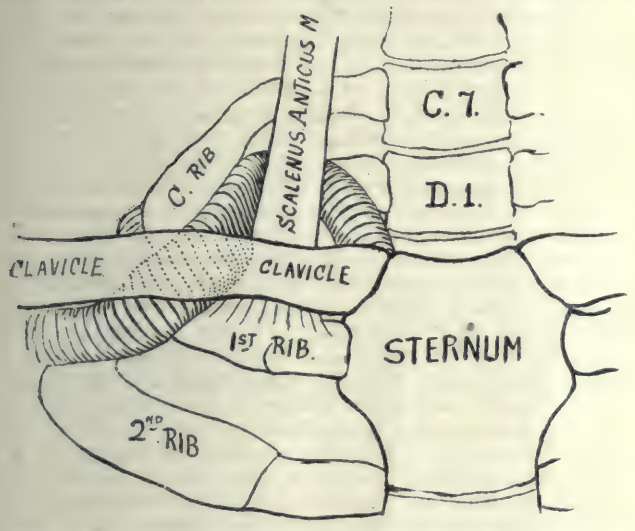


Fig. 1.—Indicating the angulations produced in the subclavian as a result of the presence of a cervical rib. These angulations may cause a flattening and apparent widening of the artery, and are advanced as important factors in the production of the circulatory insufficiency.

The history of the present case, in which the symptoms were attributed to frost-bite, is as follows:

A. V., aged 22, unmarried, farmer, is the third in a family of eight children, two of whom died during infancy, while those remaining have had good health, except one brother, who has had abscesses involving the side of the neck. His mother has suffered from rheumatism, heart trouble, and edema, but is now in fair health; his father is living, at the age of 50, and is in fair health, except for a weak back.

Previous History.—The patient has always been sickly; at 9 he had a protracted attack of scarlet fever, and he has had measles, mumps, varicella, and repeated attacks of influenza. Until he was 18, he was subject to a severe winter cough. From the age of ten he has done laborious farm work. Two years ago he developed an eruption over the abdomen apparently without local sore, adenopathy, or other constitutional symptoms. For this he was given mercurial inunctions. Several months ago an abscess developed in front of the trachea, which was incised, and healed, to break down later into a sinus after traumatism. A fistula discharging a small amount of watery pus has remained just below the cricoid cartilage.

Present Illness.—At 13 the patient noticed a stiffness of the neck and a tendency to carry his head to the left side. During cold weather the right hand became pale, cold and benumbed. He would wear two pairs of mittens on his right hand, yet the cold would produce a dull, aching pain, and prevent the use of the fingers, although the bare left hand would be warm. In summer the hands seemed nearly equally useful, but during the winter the entire right arm seemed weaker than the left. Two years ago, when the patient was 20, while doing heavy work, the tip of the middle finger of the right hand became abraded and refused to heal under various applications that were made. About a year ago a part of the terminal phalanx became black and gangrenous. During the past winter the tips of the ring and little fingers of the right hand also began to show trophic changes. In October, 1904, the pain in the hand became so severe that he could not sleep at night, except for short periods of time. The pain was dull, and felt to him as though the bone were being pulled out of the finger. Slight relief was obtained by making traction upon the hand with the arm in adduction. The hand was practically useless, and quite tender on pressure. The pain was increased by raising the elbow. During the past winter he did heavy farming, but was able to use but one hand. The pain seemed more severe at night, and during the week preceding his entrance to the hospital he was obliged to walk the floor. Through Dr. J. P. Dalby, of Gettysburg, and Dr. J. W. Croskey, the patient came to the Samaritan Hospital early in April. Examination showed a poorly-developed, prematurely aged man. "The distal phalanx of the middle finger of the right hand is gangrenous to the matrix of the nail, the bone is exposed and dry, while the surrounding tissues are grayish black, and there is no evidence of active inflammatory reaction. The tips of the third and fourth fingers show stellate atrophic depressions without ulceration. The hand is pale, cold, and thin, is tender on pressure, and after pressure the return of color requires two or three times the time required for the opposite hand. The entire arm is smaller than the left, no radial or ulnar pulse can be made out, although the radial artery is palpable as a small cord. A



Fig. 2.—Showing the terminal gangrene of the finger, the pallor of the right hand and the atrophy of the muscle of the right arm. The mark indicates the palpable portion of the cervical rib.

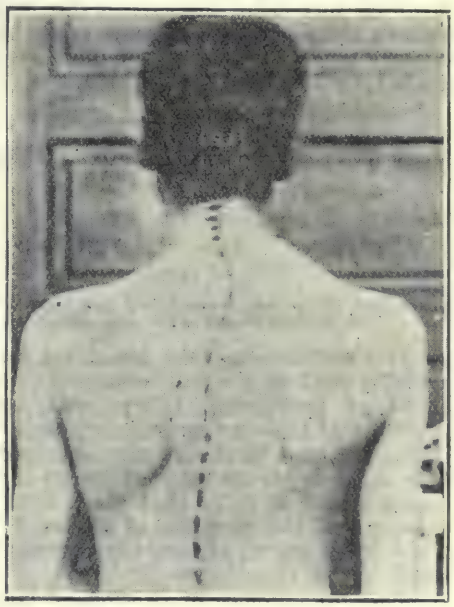


Fig. 3.—Showing the marked spinal curvature and thoracic distortion associated with the cervical rib and apparently a result of the unconscious efforts of the patient to obtain relief from the pressure effects of the false rib.

pulse is felt over the right brachial artery, less forcible than that of the left side. The subclavian artery is more readily palpable on the left side, apparently from its higher position on the neck. The pulsations of the carotids are nearly equal in intensity, the left possibly being somewhat stronger. There are no adventitious sounds. The right side of the face is more sunken and seems less developed than the left. Anteriorly the chest is flattened and narrowed. Posteriorly, the right scapula is unduly prominent. There is a marked scoliosis to the right in the lower cervical and upper dorsal regions. A small sinus with seropurulent discharge, and pale, flabby granulations, is present in the median line of the neck, just below the cricoid. Running from the right lateral aspect of the seventh cervical vertebra downward and forward, to pass under the clavicle near the junction of the inner and middle thirds, a deep-lying bony rod may be felt on very careful palpation. The patient tends constantly to assume a position with the head inclined to the right side, the shoulder elevated and carried forward, and arm pulled downward and carried close to and across the body."

Operation.—April 8, 1905. Ether anesthesia. Transverse incision above right clavicle. Brachial plexus retracted out and up, subclavian artery down and in, exposing the termination of the cervical rib. The rib was found to expand at its junction with the first dorsal rib, forming a very firm, bony union. The rib was divided near its center, but its terminal attachments were so strong that it could not be mobilized. It was therefore separated from the first rib, together with the accompanying bony expansion, by a large burr revolved by a surgical engine, and the lower half of the rib removed. The upper half of the rib was removed back to the transverse process by means of gouging forceps. The subclavian artery seemed rather small, and adjacent portions of the first rib were freely removed to give it ample space. No drainage.

After-history.—The day following the operation, a severe throbbing and burning pain developed in the right hand, and the tissues of the hand became red, less shrunken and warmer. The third night, the patient was able to sleep without an anodyne for the first time for several months, and the pain in the right hand had almost entirely disappeared; 10 or 12 days after the operation, a faint radial pulse was perceptible.

I am indebted to Dr. Dalby for the report of the patient's condition two months after operation. There is considerable improvement in the circulation of the right arm. The radial pulse is distinct and of fair volume, although not as good as the left. The tips of the third and fourth fingers have become calloused and fallen off, leaving healthy tissue. The gangrenous tip of the middle finger has sloughed off, and a healthy stump remains. The general physical condition is not good, and the sinus above the suprasternal notch persists.

In this case, it seems not unlikely that the marked scoliosis has been a result of the patient's attempt to relieve himself of the pressure of the growing rib. The history is very typical of the more severe type of symptoms resulting from cervical rib.

THE AFTER-TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

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The enthusiasm that has been aroused by the extremely creditable results obtained by the rational treatment of pulmonary tuberculosis, as shown by the statistics of the various sanatoriums of this country and of Europe, and by the results obtained in private practice by those giving especial attention to this subject has reached such a point that there appears to be danger among both the members of the medical profession and the laity of taking almost too optimistic a view of the curability of the disease.

The chief object of this paper is to emphasize: (1) The wellknown tendency toward relapse and chronicity of pulmonary tuberculosis; (2) the length of time necessary for a moderately advanced or what is commonly considered an "incipient" tuberculous lesion to become thoroughly healed. At present the pendulum appears to be swinging too far in the direction opposite that taken some 20 or 30 years ago. At that time the disease was generally considered incurable, and its victims made as comfortable as possible until the inevitable termination came. Now we seem to be threatened by an error diametrically opposed to this, viz., the tendency to consider the disease too lightly, and not fully appreciate the severity of the disorder, its relapsing character, and the inherent chronicity of tuberculous processes in the lungs as well as in the other tissues, *e. g.*, the skin or bones. In many cases patients do not seek medical advice until the incipient stage has passed, their suspicions not having been aroused by the indefinite clinical symptoms present during this period. A correct interpretation of the earlier physical signs of pulmonary tuberculosis is often difficult and seems to be as yet attained by a comparatively small number of the physicians in general practice.

The tuberculin test, which can in many cases be of valuable assistance, is used as an aid to diagnosis by a limited number only. As a result the diagnosis is not made in the great majority of cases until tubercle bacilli can be demonstrated in the sputum, or in other words, before tubercles have degenerated, ulcerated, and discharged their necrotic cellular material. The lungs of the average patient are therefore the seat of more or less advanced tuberculous changes, from the pathologic standpoint, before the disease is recognized. We must consequently expect to deal with the advanced rather than the incipient cases until the beneficent effects of such societies as this one have impressed the minds of the members of the profession and the laity more generally.

A tuberculous ulcer, no matter in what tissues of the body it be situated, is usually sluggish in nature and not infrequently progresses in one direction while it is healing in another. The hyperplasia of connective tissue in the lung incident to tuberculous ulceration and essential to the cure of the disease is a conservative reparative process that is necessarily slow. In a lung that is the seat of active tuberculosis the tubercles are almost invariably in different stages of development, so that while some are cicatrizing, others are frequently degenerating and ulcerating. It can readily be seen then that the complete and permanent healing of a tuberculous area in a lung cannot, except possibly in the truly incipient cases, be either a simple or a rapid process. It is well for us to recall in this connection the words of Cornet:[1] "Phthisis, even in the early stages, is a severe disease. . . . No single element in the cure, neither air, nor food, nor hydrotherapy, nor medicine, affords any guarantee of success; it is only the satisfaction of all the physiologic and hygienic demands of the organism, from the greatest to the least significant that can bring about this result, and of this fact the physician should not for a moment lose sight." Dr. Osler,[2] in his address at the Henry Phipps Institute on "The Home and the Tuberculosis Problem," states, "benefit is usually a matter of months, complete arrest a matter of years, absolute cure a matter of many years." Dr. Trudeau,[3] in emphasizing the importance of early diagnosis in tuberculosis, states that at the Adirondack Cottage Sanitarium during a period of 15 years, there were only 11% of advanced cases that ended in cure, in contrast to 68%, of patients with truly incipient cases, that were discharged as apparently cured.

In giving some of the statistics of this institution, Dr. Lawrason Brown[4] finds that out of a series of 563 patients admitted with advanced cases, and who have been away from it from 2 to 18 years, 28.6% are well and 52% are dead. When we consider the excellent conditions under which patients are placed at this institution and that a fair, if not even a large percentage of these advanced cases would still be considered incipient by many, the figures given make more significant the point that it is here desired to bring out. Dr. S. G. Bonney,[5] in a study of 546 patients who sought climatic change on account of tuberculosis, found that they had made an average delay of 18½ months after definite symptoms of the disease had appeared before leaving home, giving ample time for the formation of advanced

*Read at the annual meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 18, 1905.

lesions, and that in 71% of the cases both lungs had become involved. There are individuals, it is true, whose resisting power to the disease is so great and whose virulence of infection is so low that they seem bound to and do recover in spite of unfavorable surroundings and methods of living. To this class belong those who recover, notwithstanding considerable indoor work, improper nourishment, irregular habits and hard physical exercise such as horseback riding, mountain climbing, the usual ranch work and similar laborious occupations. While some patients do recover under these conditions of life, let us bear in mind that they do not do so because of these conditions, but in spite of them.

It is well known, on the other hand, that a certain percentage of patients have either such poor resistance, or such virulent infections, as demonstrated respectively by the acute pneumonic type and acute miliary tuberculosis, that even under the nearest approach to ideal conditions of life they will eventually succumb to the disease. A large percentage of the cases met in practice, however, belongs to neither of these classes. The majority of these patients (unless their disease is recognized in its very earliest stages and many even then), require a continuous life for some years under the best possible hygienic and the most favorable meteorologic conditions before we can feel assured that their lesions are thoroughly and permanently healed. Many patients can undoubtedly be cured through proper methods of living in their own homes, even though climatic conditions and mode of life there be far from ideal. If they can recover under these conditions a larger percentage would recover and those who do recover under such conditions would do so in a shorter length of time, if all the conditions essential to the cure of the disease were improved or if any one of them was improved, provided it was not done at the expense of other factors of equal importance. The welfare of both the patient and the public demands that the person suffering from pulmonary tuberculosis should be cured in the shortest possible length of time. Until his lesions are thoroughly cicatrized he is in constant danger of relapse and extension of his disease, and so long as tubercle bacilli are present in the sputum he continues to be to some extent a menace to the public, no matter how careful he attempts to be in regard to the disposal of his expectoration.

During a service of one and a half years at the Adirondack Cottage Sanitarium I was impressed by the comparatively short time required in many cases for the disappearance of constitutional symptoms, or, in other words, the arrest of the *phthisis*. A stay of from only a few weeks to a few months under favorable conditions was, in many cases, sufficient to cause fever and nightsweats to subside, appetite and digestion to improve and a considerable gain in weight to be acquired. During this period of service my attention was also called to another point, this impression having been since augmented by a six years' experience in one of the high and dry climates, viz.: that although such a condition may mean an arrested *phthisis*, it does not by any means signify that the tuberculous lesion in the lung is healed or has even ceased to progress. It signifies only that the system has been enabled to react to the toxins of the tubercle bacillus temporarily, and that for the time being the disease, instead of being a constitutional disorder or toxemia, has been changed to a local tuberculous ulceration, the absorption of toxins from which is not sufficient to produce any recognizable constitutional disturbance. A patient who has reached this stage, but who, as frequently happens, still has expectoration containing tubercle bacilli even after several years of treatment, although he may be well started on the way toward recovery, must be regarded as having the sword of Damocles continuously above his head. In these cases it is impossible for any one to prophesy when an acute bronchitis, an attack of grip, a lowered resistance of the body from some other disease, or an indiscretion in regard to exercise or method of living may precipitate a relapse that is usually more disastrous in its effects than the original attack. A residence of six months or a year in a properly equipped and conducted sanatorium or under proper hygienic conditions outside of an institution is undoubtedly of great benefit to the patient; in case his disease is not too far advanced, it gives him a good start toward getting his lesions healed, and is of great value in teaching him how to live afterward so that the healing process may continue. But, six months or a year under the above conditions, as has been observed by many competent phthisiologists, is altogether too brief a time in which to hope for a thorough healing of the tuberculous lesions, except in those cases that are incipient in the true sense of the word, and not in the sense in which this term is still frequently used.

Many patients leave their homes and go to more salubrious climates who have little or no conception of the seriousness of their physical condition, nor the length of time necessary for their recovery.

Many have the erroneous idea that a stay of a few months or a year under favorable climatic and hygienic conditions will result in a cure of their illness in the same sense in which this term is used in relation to pneumonia, typhoid, or other acute diseases, and that it will be sufficient to enable them to return to their homes and resume their previous occupations and methods of living. Many patients who are in fairly good general condition, but who have moderately advanced pulmonary lesions are met, who have the idea that they can with safety immediately take up work that will confine them indoors a good share of the time and will cause them considerable physical and mental exertion. While it is true that some patients do recover under these conditions, let us reiterate they do so in spite of them, and it is perhaps needless to add that experience has taught us the almost uniformly unfavorable results of such a life for this class of patients. The majority of these persons will, unless their minds are early disabused of these erroneous impressions, eventually die of tuberculosis. Their lives may be prolonged it is true, but their lesions seldom become thoroughly healed and they gradually drift on into a chronic ulcerative or fibroid tuberculosis, or die from an acute exacerbation and dissemination of the disease from the old focus of infection. On the other hand, the number of people whom one meets in some of the high and dry regions who have gone there on account of tuberculosis and whose disease has become apparently cured is striking and instructive. Some of them, on account of poor digestion and frail physique, would hardly be expected to recover anywhere. In the majority of these cases one will find upon careful inquiry that the patients have had the pluck, perseverance, and necessary means to stick to the proper rules and regulations of life for from two to five years; and many of them continue to do so in part at least, for years afterward. In an analysis of 100 cases of pulmonary tuberculosis that have been at least quiescent for from one year to ten years, the average period of quiescence being three years, nine months. taken at random from the records of my colleagues, Dr, W. H. Bergtold and Dr. C. E. Edson, of Denver, and from my own records, I find that at the present time 87 are either quiescent or the patients cured and able to work. Twenty-five of the 100 cases have at some time relapsed. In thirteen of these there have been relapse and recovery, in eight, relapse and death, and four of the patients are at present chronic invalids. One patient died from cancer of the stomach without relapse of his pulmonary trouble. Sixty-seven of these cases were originally classified as incipient and 33 as moderately advanced or advanced. The period of quiescence in these 100 cases before working or returning home varies from no time to 36 months, the average being eight months.

The 87 cases remaining either quiescent or cured at the present time were classified as follows:

Incipient, 62 or 71%.—Time quiescent before working, 62 incipient cases, remaining well at present, 0 to 36 months. Average 8½ months.
Time quiescent before working (87 cases), 0 to 36 months. Average 9⅔ months.
Advanced, 25 or 29%.—Time quiescent before working, 25 advanced cases, at present quiescent, 0 to 36 months. Average 10⅔ months.

The 25 cases which relapsed were classified as follows:

Incipient, 11.—Time quiescent before working, 11 incipient cases that relapsed, 0 to 36 months. Average 8 months.
Time quiescent before relapsing, 1 to 7 years. Average 2½ years.
Advanced, 14.—Time quiescent before working, 14 advanced cases that relapsed, 0 to 24 months. Average 10⅛ months
Time quiescent before relapsing, 1 to 7 years. Average 3¼ years.

The 13 cases which relapsed and ended in recovery were classified as follows:

Incipient, 7.—Time quiescent before working, 7 incipient cases that relapsed and recovered, 0 to 36 months. Average 11½ months.
Time quiescent before relapsing, 1 to 7 years. Average 2¼ years.
Advanced, 6.—Time quiescent before working, 6 advanced cases that relapsed and recovered, 0 to 24 months. Average 8½ months.
Time quiescent before relapsing, 1 to 7 years. Average 4⅚ years.

The 12 cases which relapsed and in which the patients are at present dead or chronic invalids were classified as follows:

Incipient, 4.—Time quiescent before working, 4 incipient cases that relapsed and failed, 0, 0, 0, 6 months.
Time quiescent before relapsing, 1½ to 3 years. Average 2⅜ years.
Advanced, 8.—Time quiescent before working, 8 advanced cases that relapsed and failed 8 to 18 months. Average 12½ months.
Time quiescent before relapsing 1 to 4½ years. Average 2 years.

Of the 87 cases, either quiescent or having ended in recovery, and in which the patients are able to work at present, 53 or 61% have continued to live in the climate in which they recovered, or in a similar climate, and 34 or 39% are living at their former homes after having lived in Colorado an average time of 9¼ months after their lesions became quiescent.

Of the 12 patients who died or are chronic invalids after the disease had been quiescent from 1 to 4½ years, the average being 2⅛ years, 8 continued to live in the climate in which their lesions became quiescent. Four returned to their homes after having lived in Colorado an average time of 11 months after their lesions became quiescent.

The proper advice and management after the patient's lesions have become quiescent, after his constitutional symptoms have disappeared, and after he has been well started on his way to recovery, appear to be the points in the treatment of the disease on which there seems to be danger of laying too little stress. In the majority of cases it is only this continuation of the out-of-door life, proper nourishment and conservation of energy that eventually leads to the goal for which we are working, *i. e.*, the cure of the disease, and its value for the future welfare of the tuberculous patient can hardly be overestimated.

Many patients are unable to take advantage of our advice in regard to this point, on account of having insufficient means, but we all meet patients quite frequently who are hopelessly ill whose lives we feel confident might have been materially prolonged if they had fully appreciated the necessity of carrying out the details of treatment for a period of years, rather than months.

Although socalled quiescence of the lesions is, of course, greatly to be desired, our efforts should not relax when this stage is reached, and we should not lose sight of the fact that this means only an arrested tuberculosis, which is but the first step in the cure of a disease which, on account of the nature and severity of its pathologic lesions, is essentially of long duration.

These points should, in my opinion, be fully explained and abundantly emphasized to patients by their physicians; and those patients who are obliged to leave home, if they improve in a satisfactory manner in the locality to which they go, should, if possible, reside there permanently, not forgetting, however, that unless their conditions of living continue in a great degree similar to those that were necessary for the arrest of their disease, relapses and extension of the disease are prone to occur even in those localities best adapted to its cure.

In summarizing, I beg to mention once more the following points:

1. The supreme importance of early diagnosis, and of *proper medical advice* when the disease is still incipient.
2. The great tendency toward relapse and chronicity of the disease.
3. That although quiescent lesions and temporary arrest may often be obtained in a short time, permanent arrest and cure usually require a period of years, even under the best possible conditions of living.
4. That patients should be instructed not only for their present, but for their future welfare.

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SPECIAL ARTICLES

THE STATE AND FEDERAL PUBLIC HEALTH SERVICES.[1]

BY

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of Baltimore, Md.

To have been chosen as your presiding officer is an honor which I cannot suitably acknowledge in words, and which I shall be as little able to requite in deeds. At the deliberations of men well seasoned in council and knit to one purpose as you are, the duty of presiding is so cleared of difficulty as to be essentially a sterile function. I can see little need of precise formality in the meetings of this conference, and I think you will agree that its proceedings have often been most profitable when conducted under the lightest restraint. I have not, however, borne lightly the dignity which you have conferred. On the contrary, I have heartily wished to set forward the work of the conference in such a way as to show substantial if not adequate appreciation of my office. In the past history of the conference one finds much useful work accomplished; the items need not be recounted, for you all know them, having been the makers of that history. In the future one can see the promise of even greater usefulness; but in the present one must recognize a transition period involving some uncertainty as to the relations of the component units of the conference. The changes which seem to me impending are not in all respects agreeable changes, and that change which appears most imminent is the least welcome. I more than suspect that the meeting at New Haven in 1902 was the last which can with strict truth be referred to as a Conference of State and Provincial Boards of Health of North America. Since that meeting the tendency, always strong, to nationalize this body under the stars and stripes has fairly taken possession of a majority of the delegates. This has occurred without forethought or design, and solely through the unconscious influence of numbers. Unless we compensate for it in some way, we shall be heavy losers in the lapse of our friends representing the dominion on the north and the republics on the south of the United States from affiliations with the conference. No such loss was contemplated in the federal legislation which has drawn us to Washington for the last three sessions. The act of Congress which enlarged the powers and changed the name of the Marine-Hospital Service marked one of the most important

[1] President's address to the Conference of State and Provincial Boards of Health of North America, Washington, May 16, 1905.

events in the history of public hygiene in America. It provided a basis for new and helpful relations among the sanitary authorities of the United States, but it has interrupted by accident, and not of necessity, other helpful relations previously established with Canada, Cuba and Mexico.

This act of Congress was intended, if its intent can be so briefly stated, to nationalize the practice of public hygiene in the United States, while the tendency of our yearly conferences with the sanitary authorities of Canada, Mexico and Cuba was to denationalize the practice of public hygiene. Both of these tendencies are wholesome and necessary. In one direction we had made substantial progress which we should on no account sacrifice; in the other, we began overlate, and must make up for lost time. Cordial and confident relations with other countries will repay us in more than safety for our own. That degree of security, which, in the twilight of preventive medicine, was purchased at the cost of suspicion, quarantine and espionage, was perhaps as good as the times afforded. Foreign commerce has always involved risks of pestilence, and time was when violence and fraud were also included in the risks of trade. These last adverse chances have passed from living memory, and the hazard of pestilence, though persisting, is no longer a disturbing factor in the amity of nations. The four great plagues which have driven the nations together in sanitary conferences are typhus, cholera, plague, and yellow fever. With the first of these, typhus, America long ago ceased to be concerned. With cholera and plague the United States has not been seriously threatened in 40 years. Since 1901, our interest in yellow fever has consisted wholly in the propagation at home and abroad of that knowledge which we ourselves demonstrated as all-sufficient for the extinction of yellow fever wherever in the world enlightened governments exist. With the construction of a scientific basis of preventive medicine, and with the simplification of defensive methods, the health of nations has no such hazard in the course of trade as was the case 15 or 20 years ago. The world's trade now proceeds on the credit of nations, and the last vestige of distrust will disappear when quarantine regulations are conformed to modern knowledge concerning the propagation of disease. The justifying ground of necessity has slipped from under nearly all those extraordinary powers by which sanitary authorities formerly tried to exclude exotic diseases. Much of our expensive armament is now useless, and may as well go to pot. Means and energies are released for employment on near-at-hand problems. We have lost our emergencies and found our routine. What we want is not a harnessed and bulwarked safety, but the light weapons which suffice against the dangers of these times. In sanitation, as in business, we must get credit proportionate to the stability and efficiency of our sanitary institutions; and similar credit, measured by similar standards, we must extend to those from whom we expect credit. In the family of nations, not one has more to gain than the United States in mitigating as rapidly as scientific progress allows the restrictions upon trade. We must know our neighbors well, and must be by them well known. If the defection of which I have been speaking has occurred, or is likely to occur, to this conference, we should take immediate steps to renew and to strengthen our relations with the sanitary authorities of neighboring countries.

Now a word or two as to the results promised by the organization of a national bureau of public health, and especially of that provision of the law which invites the Boards of Health of the several States to an annual conference with the Surgeon-General in Washington. For the United States Public Health Service I shall say at present no more than that in the several lines of activity upon which it has already entered, its performance justifies its existence; and its permanence as an arm of the federal government, if not already secure, must be made secure by our influence, as of substantial value to the local interests represented by us.

The act of Congress which created the Bureau of Public Health established for us two very definite means of general consultation and cooperation with the bureau. One of these is intended for ordinary and the other for extraordinary use. For the former, the annual conference, the law itself gives explicit instructions; for the other, the extraordinary conference, the initiative power is left in the hands of the authorities of the sovereign States. The terms of the law are mandatory upon the Surgeon-General; he must call a general conference once a year, and he must call an extraordinary conference whenever five State Boards of Health request it. No express obligation rests on the State Boards of Health in either of these matters. They can nullify the regular call by nonattendance, or they can make the bureau servile by calling extraordinary conferences. It is most unlikely that we, who have known each other and the bureau well and favorably, will be guilty of positively abusing our power, but unless we weigh well the merits of the proposition laid down in this law, we might lose its good fruits by merely passive neglect. Considering the number of States which have no interest in the ordinary conference, and the unstable character of some of the State boards, there is reason to fear that the power of organizing a conference under federal auspices might be used to purely local advantage, or to the general detriment of the country, or might, at all events, put us to considerable expense in order to prevent some serious abuse of this power. A rational choice, I believe, is impossible between the two evils of deliberately ignoring the annual call and unnecessarily demanding an extraordinary conference. To neglect the annual call is, in ethics if not in law, to forfeit the right to recognition in an extraordinary conference. It is our business so to develop the influence of the annual conference that extraordinary conferences shall be extremely rare.

It happened that the provision for an extraordinary conference was utilized by the States before the date arrived for the first ordinary conference under the terms of the act. In the Plague Conference of January 19, 1903, the State Boards of Health made effective use of a power which had been granted by Congress with probably no idea that an occasion would soon arise to prove the utility of such a provision. In this circumstance the act of Congress received an unequivocal and most unexpected ratification before a wheel was turned by the inherent power of the act.

After having found, as we did in January, 1903, our purposes served by the power which Congress thus put into our hands without our asking, and having tested the utility of a kind of recognition never heretofore accorded by the federal government to any department of State government, an obligation rests upon all of us to contribute in the full measure of our ability to the success of the new bureau in its ordinary routine relations with local health authorities. Some of us were of the opinion, when first considering this law, that it would have been better if the government had appropriated money to pay the expenses of the conference. Further reflection has led me to believe that it is better for us to come here at the expense of our several States. The bureau might and probably would realize a profit by bringing all of us here once a year as its guests, but neither the States nor the bureau would be so richly profited by a full attendance under that arrangement as by a smaller attendance of men who must justify their attendance to the satisfaction of their own people. The true index of growth of this unifying and coordinating scheme will be the increasing number of States giving their adhesion to this conference. Of those who must tend and till this growth a majority are at this moment before me. They are the same faithful souls who have assembled year after year, to reason together and to regret that any State should be without representation. We cannot see as yet that the Surgeon-General's call has added to the numeric strength of our conference, and the Surgeon-General has doubtless observed that those who respond to his yearly invitation are the same people who used to send their annual invitation to the Marine-Hospital Service. The status of affairs is, however, materially changed in one particular, namely, that we have now a recognized influence extending to the limits of the country, and may, by intelligent cooperation with a powerful arm of the federal government, bring a compelling force to bear, the progress of American sanitation.

The conference should include every State Board of Health which is really a respectable factor in American hygiene. We could then proceed with our real function, to wipe out the old spectacle of confusion and discord, of high and constant efficiency in this State, utter and unvarying inefficiency in that State, alternating worth and worthlessness in the next State; and to show the world, instead, a federation of States differing,

as they must, in the kind and value of their sanitary work, but all in close affiliation and all making sound progress. If the business of sanitation has, as we believe and profess, passed the stage of occasional utility, and become a constant necessity, such regular conferences as the law contemplates must be recognized as necessary by every State in which sanitary organization is not lingering in the category of once-and-a-while stopgaps.

It is the chief reproach of American sanitary government, as illustrated by State Boards of Health, that in the matter of efficiency the distinctions are antipodal. Some of the State boards are well and favorably known the world around; others are unknown not only to us, but to a majority of the intelligent citizens in the States where they exist. Two years ago, I met the secretary of a State Board of Health, which was once honorably represented in this conference. He told me that it has for many years been the practice in his State to elect a new executive officer every year. Each member of the board is entitled by custom to be secretary and to receive all the emoluments of the office during one year of the term of his appointment. My informant was the executive when I met him, and his wife was his assistant. Both were on salary, and comprised the whole working force of the State Board of Health. The personnel and location of the office change so often, that the information found in "Polk's Register" about this Board of Health is correct once in about nine years. Such a Board of Health is not even a stopgap. It is not worth its postage account to the State which supports it. If the whole appropriation to that board for a year were spent in sending all its members to this conference, the State would be well rewarded if but one of its members could be properly humiliated by a few days' intercourse with earnest public officials.

Several grades above this base level are the States where public health positions are part of the spoils of politics. It must be acknowledged, I think, that State Boards of Health are in general less liable than municipal Boards of Health to damage from this cause, but we have seen in our own number changes which, as we are advised, came about through political traffic, and many boards, though fairly stable as to their executive leadership, have not control of the minor positions. The tendency to exempt Boards of Health from political exploitation is constantly growing stronger in this country. The people begin to realize that public hygiene is a highly specialized branch of medical science, and that it cannot be successfully practised by men who divide their interest between public and private medicine. Among the influences combining to lift the administration of public hygiene above the spoilsman's reach, one must recognize the Federal Bureau whose officers are not endangered in the vicissitudes of politics. The very large place assigned to research, the utility of its routine work in the examination of vaccines and antitoxins, and the liberty exercised by the bureau in choosing men for its various departments, all tend to distinguish the hygienist as a strongly differentiated man of science.

We may profess, I think, a growing devotion, less and less inclination to divide interest among those who are called to responsible positions in sanitary government. The development of the laboratory, necessitating the transgression of State boundaries and city limits in search of competent directors, furnishing to physicians aid in diagnosis, making and distributing antitoxins, bringing us into direct and friendly relations with the people, has helped to fasten upon us the badge of public service, and to disqualify us for private pursuits, albeit, without rewarding us by increased salaries. It is difficult, however, to fall out with a servitude which yields such satisfaction as one may find in the relation of medical attendant to a commonwealth. In the old days when one had to shoot vaguely at the general causes of ill-health, the hygienist may have had dull sport; but in these days when so many of the agents of death expose a vital spot to our aim, and the hits and misses can be scored, there is zest a plenty in the practice of hygiene. For some of us certainly, and eventually for all of us, I hope, it may be said that the progress which has marked out limits of activity for us has given us, within those limits, many activities which are in themselves and in their results most agreeable. Within our family circle we may be excused if we magnify our office, being convinced that however richly our friends in private practice fare, and rejoicing with them in the vastly augmented resources of curative medicine, they are yet a little beneath our envy. If there be any who find the accumulation of daily tasks disheartening, the present is a most auspicious time to abandon the service of Hygeia, for the present is a rapidly passing phase in the history of preventive medicine. Daily tasks are not going to diminish, Legislatures are not going to reassess the value of our services, and the generous public will not consider the weariness of our bodies. We have built swift machines and we are running them. In a little while the machines will run us. For years we have been scolding at the apathy of the world, and the world has awakened. Even those of us who, in our localities, have led the work of public hygiene, are likely soon to be driven, and those who have not developed speed and endurance are likely soon to be out of the race. The people have thrust upon us the most tremendous task ever proposed in the history of preventive medicine, the extinction of tuberculosis. They are sure it can be done, because we, they say, have told them so. The conquest is so magnificent that they propose to have a share, and as large a share as possible, for themselves.

The number and the enthusiasm of the voluntary associations now actively engaged in the American movement against tuberculosis are positively alarming. In about a third of the States represented here such agencies are at work, one or two of them being old enough to have demonstrated a certain efficiency. A national association, including the ablest medical men and the most distinguished sociologists in the country, will hold its first annual meeting in this city very shortly. In the first year of its existence, this association has established itself as one of the strong philanthropic agencies of the country, and the campaign which it will make against tuberculosis will be the greatest ever seen in America. The National Association for the Study and Prevention of Tuberculosis has brought to the campaign methods which are unfamiliar to us. The fine scorn of certain members of the executive council of this association for financial difficulties puzzles and humiliates the medical members. In my own State, a similar association, organized on the same lines, has attacked a very expensive problem with a degree of confidence about ways and means that fills me with amazement. The situation is for us rather exciting. We must get into a game which we originally proposed, and, for a time, perhaps a long time, we shall follow pace where we expected to make the pace. Possibly some of us may realize, before long, such sensations as the Cuban insurgents experienced during the American intervention, when there was glory enough to have gone round, if the insurgents had been counted in the partition of the glory. I am sure, however, that we shall greatly impair our own effectiveness in this great movement if we concern ourselves deeply with the question of our importance among the forces engaged. The sociologists have acquired a fund of knowledge concerning tuberculosis which is quite as scientific and as useful as that possessed by hygienists and medical men. They believe that the methods, which have been developed in the remarkable history of organized charity, may be successfully used in the campaign against tuberculosis. The particular utility of the sociologist in this campaign will be to spread among the people a knowledge of the nature and cause of tuberculosis, and to supply the kind of information not obtainable through the channels which hygienists are accustomed to use. That these lay students can collect useful data, such as physicians rarely obtain, I have been convinced by experience in my own State.

A point of great importance in the study of tuberculosis relates to the economic effects of the disease on the State, and on the family. Hitherto the economic argument has been too vague to impress the legislative or the popular mind. Physicians have insisted, sincerely enough, upon the great cost of tuberculosis, but for want of reliable data they have not been able to speak with definite conviction. It was found in Maryland that physicians are inapt at economic inquiry, but that investigators trained in social work obtain such details without difficulty. It might be supposed that the social levels, in which these investigators are engaged, would narrow the range of their records to the lowest class of wage earners. They do

not, it is true, reach far up in the economic scale, but in 277 individual records made by such investigators in Maryland, the range of earning power was from 50 cents to $6 a day, which, you will admit, is a range wide enough to uncover for us a very large part of the economic burden of tuberculosis. A study of these 277 cases by the medical officer of the Maryland Tuberculosis Commission, Dr. Price, is the only convincing detailed exhibit known to me of this aspect of the subject.

I have spoken of an alliance with these forces as in a measure alarming. To be sure, we are able to learn whatever they are able to teach us. We shall appropriate their information certainly, and their methods as far as they prove adaptable. Meanwhile, our new allies will, no doubt, learn something from us, and will, perhaps, think better than we do of our efficiency in this line. When I reflect, however, that the fundamentals of sociologic work are so much better laid than those of public hygiene, I admit a certain professional sensitiveness about the intimacy, and inquisitiveness, perhaps, of these new relations. The great default of public hygiene in this country is in its vital statistics. When our lay comrades discover that our sanitary bookkeeping is very bad, they may, if charitable, wonder how we maintain respectable efficiency, or if critical, they may doubt our efficiency. Within the reasonable limits of an occasional address I cannot spend more time upon this, the most important single topic my remarks have touched. It will do a world of good if a flood of public inquiry turned upon this subject. While I, as a professional hygienist, hate to be judged on this fundamental point, I believe it would be a kind of delinquency in our new allies if they should fail to note the exceeding backward state of registration in this country. It is a bit humiliating to be found in any respect unprepared for leadership at the moment of a great popular uprising which we have helped to generate, and which calls for the leadership of hygienists. Whether this movement will result in the extinction of tuberculosis may admit a doubt or two, but the awakening of the people to the possibilities of preventive medicine certainly means the crack of doom for amateur sanitarians, and our days for devout meditation and self-examination are few and short.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 30, 1905. [Vol. XLV, No. 14.]

1. Cylindroma of the Orbits and Lids. JOHN E. WEEKS.
2. Differential Diagnosis of Intraorbital Tumors. FLAVEL B. TIFFANY.
3. One of the Causes of Imperfection in the Radiographic Image. HENRY POWER.
4. Operation for Cancer of the Mouth. W. W. GRANT.
5. A Case of Excision of the Cervical Portion of the Esophagus. WALLACE I. TERRY.
6. Cancer. W. L. RODMAN.
7. A Plea for National and Local Boards of School Hygiene. ALICE M. SMITH.
8. The Relation of the Water-supply to Diseases of the Isthmus. D. N. CARPENTER.
9. The Nasal Septum: A Description of the Author's Present Manner of Performing the Window-resection Operation for Deflections. OTTO T. FREER.

1.—See *American Medicine*, Vol. X, No. 13, p. 514.

2.—Differential Diagnosis of Intraorbital Tumors.—F. B. Tiffany remarks that, as in the case he reports, a differential diagnosis of the nature of an intraorbital tumor cannot always be made, but that as a rule, with careful examination and definite knowledge of all the symptoms, one can be fairly certain of the real nature of the growth. Malignant tumors run a rapid course and sooner or later cause pain, sometimes severe, and if unchecked they destroy vision and attain enormous dimensions. Benign tumors, on the other hand, grow slowly, rarely cause pain, and do not usually destroy vision, unless they produce optic neuritis and atrophy by pressure on the optic nerve. One symptom, proptosis, is common to all forms except a luxated lacrimal gland, and the direction taken by the exophthalmos indicates the locality of the tumor. If on palpation the growth is hard and immobile, it is probably osseous, especially if of slow development. If soft and fluctuating it may be serous, phlegmonous, or sanguineous. If soft and yielding without fluctuation or pulsation, it may be fatty, as a lipoma. If less yielding, it may be fibroid or glandular, as an adenoma. Pulsation and bruit ceasing with pressure on the carotids characterize vascular tumors, but it is difficult to determine the varieties of pulsating tumors. The vascular are more resistant than aneurysms, and patients with angioma complain of a knocking, roaring, or buzzing in the head and ears. In angioma, in all cavernous tumors and in aneurysms, the exophthalmos is reduced on pressure or when the patient takes the supine position. Tiffany reports at length a case illustrating some of the difficulties of diagnosis.

3.—Imperfections of the Radiographic Image.—H. Power reports and illustrates certain experiments performed by him to determine the cause of some imperfections observed in the röntgen-ray image. In one, different portions of the photographic plate were exposed in different ways. In one part, the exposure was made in the usual way; another portion was exposed at the same time, but a sheet of lead a sixteenth of an inch thick was interposed between the object and the target, producing a fainter image, and over another portion of the plate, and in apposition to it, narrow lead strips were interposed. The shadow under the strips was much denser than that under the suspended sheet lead, though the thickness of the lead was the same in each case. The inference, therefore, is that the rays must have passed around and not through the suspended sheet lead. If this be so, three suppositions are possible: 1. The rays may come from some source in the tube remote from the target, *i. e.*, accessory rays. 2. They may have been bent from their normal straight line, *i. e.*, refracted rays. 3. They may have been produced by the action of the well-known rays from the target, *i. e.*, induced rays. That they are not accessory rays, he considers proved by the experiment of giving a long exposure to a plate inclosed in a lead box with only a pinhole aperture, and which revealed only the image of the target, or more particularly its central active portion, though other portions of the plate must have been exposed to rays emanating from any other parts of the tube. He concludes, therefore, that the interfering rays in röntgen-ray work are produced in one of the two other ways, and probably by the regular rays inducing new rays.

4, 5, 6.—See *American Medicine*, Vol. X, No. 7, p. 260.

7.—See *American Medicine*, Vol. X, No. 4, p. 136.

8.—See *American Medicine*, Vol. X, No. 11, p. 431.

9.—See *American Medicine*, Vol. X, No. 7, p. 261.

Boston Medical and Surgical Journal.

September 28, 1905. [Vol. CLIII, No. 13.]

1. The Mechanism of the Normal Spine and Its Relation to Scoliosis. ROBERT W. LOVETT.
2. First of a Series of Articles on the Appendix Vermiformis. WM. A. BROOKS, JR.

1.—Mechanism of the Normal Spine and Its Relation to Scoliosis.—R. W. Lovett states that no summary is possible of a paper which in its entirety is only a summing up of certain facts in a field of study large enough to fill a volume. The points that he has tried to establish from anatomic and clinical data are that total postural scoliosis is to be regarded as within physiologic limits and that it can be accounted for by the normal mechanism of the spine; that the same normal mechanism will account for the production of compound curves from simple ones, but that it will not account for bony rotation on the convex side of the lateral curve, which must be regarded as a superadded pathologic change. Certain of the anatomic facts considered should be of direct use in making more exact the gymnastic treatment of slight scoliosis, but that they can be carried over into the gymnastic treatment of structural scoliosis without very careful consideration in each case does not seem likely. In the latter condition we are no longer dealing with a spine distorted by the normal mechanism, but by a malposition, to which is added a distorting pathologic process. That a knowledge of spinal mechanics will make clearer the treatment of structural scoliosis he does not question, but the application of this knowledge will require further study and careful investigation. [H.M.]

2.—The Appendix Vermiformis.—W. A. Brooks, Jr.,

states that should the ascending colon fail to become attached to the posterior abdominal wall, the appendix may be found almost anywhere in the abdominal cavity. Anything which obstructs its lumen or interferes with its circulation will bring on an attack. Appendices whose mesenteries do not extend well to the tip are more liable to become gangrenous when their lumens are occluded; those with complete mesenteries are more subject to the suppurative type of the disease. Tenderness is the most reliable and most constant symptom, but if the appendix lies in the pelvis pressure cannot be put on it. Operation is advisable whenever within a few hours of the initial symptom, improvement has not taken place. Perforation may occur with the initial pain, gangrene within a few hours. The only positive knowledge is obtained by opening the abdomen. The gridiron incision should never be used in an acute attack. As soon as the abdomen is opened, walling-off gauze should be introduced above and below the appendix. The cecum can then be drawn into the wound and the appendix be brought outside, ligated, and severed with the cautery. The stump may be taken in the head of the cecum by means of a pursestring suture, spaces between the peritoneal surfaces being closed by fine intestinal sutures. This lessens pain and the dangers of fecal fistula. A small wick should extend to the base of the appendix. [H.M.]

Medical Record.

September 30, 1905. [Vol. 68, No. 14.]

1. A Study of Failures in Ophthalmic Practice. GEORGE M. GOULD.
2. The Technic of Abdominal Section. DENSLOW LEWIS.
3. Counterirritation. JOHN W. WAINWRIGHT.
4. Some Notes on Typhoid Fever in the Philippines. WILLIAM DUFFIELD BELL.
5. Physicians in Fiction: Physicians as Seen by Oliver Wendell Holmes. C. D. SPIVAK.

1.—A Study of Failures in Ophthalmic Practice.—George M. Gould sets forth the details of 15 reasons for failures to relieve the common systemic results or reflexes of eyestrain: 1. The want of a single good refraction school in the world. Instead of ophthalmology, being as Helmholtz said, the most accurate and scientific of the departments of medicine, he thinks it the most inaccurate and unscientific; and this is due to the lack of systematic and adequate training in the difficult art of refraction. 2. Bad case recording, omitting the life history of the patient's ailments, or "the biographic clinic," leaves the cure or noncure unknown or indefinite. 3. The inexperience, ignorance, or impertinence of the optician, incapable of doing his proper work, and aspiring to be an oculist, also prevents good results. 4. Changes in the patient's refraction, not followed by retesting and changes in glasses are another source of failure. 5. Incorrect diagnosis of ametropia is the most frequent cause of failure. 6. The presence of head-tilting often causes an inexact placing of the axis of astigmatism. 7. The morbid writing posture, coupled with its result, lateral spinal curvature, continue the consequences of eyestrain. 8. Nonallowance for the patient's personal equations may frequently account for nonsuccess. 9. Tenotomy for heterophoria does not cure the cause of the heterophoria, which is ametropia. 10. Ascription of the morbid symptoms to general disease will not end in cure if they are due to neglected eyestrain. 11. Subnormal accommodation is far more frequently present than is suspected, and distance correction of the ametropia alone will not give relief. 12. "Hysteria" often caused by eyestrain may persist, when chronic, although the eyestrain has been neutralized. 13. Patients living at a distance because they cannot be watched closely, are likely to prove "failures." 14. Despair of curing in an obstinate case may lead to too speedy renunciation of effort. 15. The secondary results of long-continued eyestrain may be too chronic or deep seated to cure at once or to cure at all. Despite all these reasons, however, it is contended that in no department of medicine are the cures so near 100%, so speedy, or so gratifying as in skilled refraction work.

2.—The Technic of Abdominal Section.—Denslow Lewis advocates, in abdominal operations, the use of an incision large enough to enable the operator to see what he is doing; he secures perfect hemostasis throughout the operation; he turns in all raw surfaces so that only smooth peritoneum is left at the end of the operation; in pus cases, removal of the source should be carried out at once, without unnecessarily prolonging the operation and endangering the patient's life. After operation no opium should be given, and as little anodyne as possible. The bowels should be moved early by calomel and enemas, and thirst relieved by salt solution by rectum. Uterosuspension, the author disapproves of, since the symptoms are referable to metritis and other conditions, which should be relieved, when the prolapsus or retroversion will be cured. In suppurations one should open and drain, but not make the operation any more severe than is necessary, as the patient's strength is easily exhausted. Through drainage may be established through the vagina. Suppuration in peritonitis requires drainage, and irrigation is of value. In cases of rupture of the bowel or traumatism the wound should be closed at once with a Lembert suture, the edges well turned in. When part of the gut must be removed, the author prefers closure of the ends and a lateral anastomosis. In ruptured ectopic gestation the sooner the abdomen is opened the better. The cesarean section should be used more frequently for contracted pelves, etc. Small fibroids should be enucleated, and for large or multiple ones, supravaginal amputation is to be preferred.

3.—Counterirritation.—John W. Wainwright says that local irritation cannot exist without causing general changes which affect the entire organism. A distinct relation exists between irritation of an internal organ and that part of the skin supplied by the same segment of the brain or spinal cord. The nervous influence from the diseased organ affects the superficial areas supplied by the sensory nerves from the same segment of the cord. The most correct explanation of the action of counterirritation is through the reflex effect of sensitive cutaneous nerve areas on the deeper parts. Counterirritation is used to lessen congestion and inflammation of the deeper organs, to relieve pain, and to promote the absorption of the deep products of inflammation. Rubefacients produce a mild redness and irritation, and do not destroy the skin; they are used in functional disturbances. Vesicants cause structural changes of the skin and underlying tissues, and are used in chronic conditions or when inflammation has produced a permanent change in organs or tissues. Pustulants cause a pustular eruption and are seldom used. Blisters of various kinds are useful in many conditions. The ethereal tincture of capsicum forms an elegant and effective pustulant. Blisters are contraindicated in the aged, in gout, diabetes, and debilitated conditions, and in pregnant women. They should never be applied to the mamma or scrotum or over bony prominences. They are applied over a point intimately connected by nerve fibers with the seat of inflammation. The actual cautery is one of the best means of counterirritation.

4.—Typhoid Fever in the Philippines.—William Duffield Bell declares that typhoid fever can be stamped out in the Philippines, as well as cholera, and the endemic spots that dot the islands, and from which the poison emanates, can be readily eliminated. But the work must be done by intelligent white men, as the natives are entirely untrustworthy. Their food is insufficient, there are no sewers, excreta are deposited anywhere, often near the wells or streams used for drinking water, and mussels growing in sewage are a frequent source of animal food to the craving native. Milk is rare in the islands, and hence the disease is rarely spread by its use. White troops who use only boiled water for drinking and washing dishes are free from the disease when it is rife among the natives in the same locality. The type of the fever is similar to that in the United States, but the mucous membranes are always congested and hemorrhages are frequent from the nose, as well as from the bowels.

New York Medical Journal.

September 23, 1905. [Vol. LXXXII, No. 13.]

1. Rheumatic Poison and Its Treatment. F. LE ROY SATTERLEE.
2. Some Original Ideas in Interdental Splints, and the Result from Their Use. H. J. KAUFFER.
3. Surgery at the Dawn of the Nineteenth Century. (Concluded.) NATHAN JACOBSON.
4. Six Lectures on the Diseases of the Blood. JOHN M. SWAN.
5. The Mephisto of the Pale Brotherhood of Disease; a Study of Masked Rheumatism, Based, Not on Books, but Experience. GEORGE F. SOUWERS.

6. The Food Factor in Asthma: Hyperpyremia. (Concluded.) FRANCIS HARE.
7. The Menopause. JOHN N. UPSHUR.
8. The List Practice. D. W. BEDINGER.

2.—Interdental Splints.—H. J. Kauffer says that which is principally required of such a splint is that it will allow perfect approximation, maintain immobilization, permit of hygienic treatment, and interfere in the smallest possible degree with the functional activity of the part, as in mastication and speech. To meet the requirements of the last consideration, the position and nature of the fracture will determine the form of splint. When the fracture is in front of the last remaining tooth in the lower jaw and there are no serious complications, such as compound comminuted fractures, gunshot wounds, etc., we need not immobilize the temporomaxillary joint. Such fractures constitute about 90% of these cases. When they occur behind this tooth we must immobilize the joint. For each of these fractures Kauffer has designed an adaptable splint. This splint does not cover the entire crowns of the teeth, so that we can see whether we have, and maintain, a proper approximation. It permits of hygienic treatment and does not interfere with the functional activity of the mandible. It allows massage without removal, being entirely in the mouth, nor is it perceptible when the lips are closed. Two cases are reported in detail.

5.—Masked Rheumatism.—George F. Souwers gives a study of masked rheumatism. Its many different manifestations are considered in detail and cases cited to illustrate the points. The article is continued in four numbers of the journal, being concluded in this issue. The study does not lend itself well to abstracting. [C.A.O.]

6.—Food Factor in Asthma.—Francis Hare says that hyperpyremia, that is, accumulation of unoxidized carbonaceous material in the blood beyond the capacity of the physiologic decarbonizing processes, is an essential factor in some cases of asthma; and in such, the recurrent asthmatic paroxysms may be regarded as ultraphysiologic, that is, pathologic reinforcements of inadequate physiologic decarbonization. But even so, he says that hyperpyremia is only one of many factors in asthma. For example, the asthmatic paroxysm depends upon the vasomotor response to hyperpyremia; and this responsiveness of the vasomotor system may be vastly increased by numerous factors. When this is so, the vasomotor responsiveness (irritability) becomes a much more important factor in determining paroxysms, and consequently calls more urgently for therapeutic attack than the food factor; and there are many other factors to be considered. Hence, he says, it must not be inferred that asthma can always be successfully treated by diet of any kind. Nevertheless, the food factor is usually, if not always present, and its due recognition will often make the difference between successful and unsuccessful therapeutics. For those who are inclined to make a trial of the treatment by restriction of the carbonaceous intake, he suggests that commencement be made with asthmatics, with a tendency to corpulency. [C.A.O.]

7.—The Menopause.—J. N. Upshur says that treatment at this period should be to sustain the system in such a manner as to allay nervous irritations and supply stimulus and nourishment, which will keep the patient as nearly as possible at the normal standard of health. The more exact management must be directed to the administration of sedatives, nerve tonics, such as strychnin, zinc phosphid, or sumbul, combined if necessary with some form of iron; such means, or such drugs, as will control hemorrhage, suitable food, necessary rest, and freedom from worry, or such surgical procedure as will retard or remove disease threatening or established in the pelvic organs or other parts of the general system. [C.A.O.]

Medical News.

September 30, 1905. [Vol. 87, No. 14.]

1. The Student Life: A Farewell Address to Canadian and American Medical Students. WILLIAM OSLER.
2. Two Experiments in Artificial Immunity against Tuberculosis. E. L. TRUDEAU.
3. Studies on Immunity in Tuberculosis: The Properties of the Serum of Immunized Rabbits. E. R. BALDWIN, H. M. KINGHORN, and A. H. ALLEN.
4. Studies on Immunity in Tuberculosis: A Histologic Study of the Lesions of Immunized Rabbits. JOSEPH L. NICHOLS.
5. The Vitality of Tubercle Bacilli in Sputum. DAVID C. TWICHELL.
6. The Serum Diagnosis of Tuberculosis. HUGH M. KINGHORN.

1.—See *American Medicine*, Vol. IX, No. 22, p. 892.

2.—Two Experiments in Artificial Immunity against Tuberculosis.—E. L. Trudeau finds that dead bacilli increase, though to a very slight degree, the animal's resistance to subsequent inoculation. 2. The living attenuated bacillus gives a stronger degree of immunity than the same bacillus killed by heat. 3. The degree of attenuation of the vaccine bears a distinct relation to the degree of protection. 4. Cultures derived from cold-blooded animals and which grow only at room temperature have brought about no appreciable degree of immunity. 5. The chemic changes produced by killing the bacilli by heat cannot wholly explain the lack of protective power in dead bacilli, since a less virulent living culture fails to give as much protection as one more virulent. [H.M.]

3.—Studies on Immunity in Tuberculosis: The Properties of the Serum of Immunized Rabbits.—E. R. Baldwin, H. M. Kinghorn, and A. H. Allen refer to the tuberculin-like reaction on inoculating with a virulent culture a previously vaccinated animal, a reaction not noted in the controls. An intimate knowledge of this immunity might explain some phases of the clinical course of human tuberculosis in its relapses and pneumonic forms. The temperature of the vaccinated animals was higher for the first 10 days, and of the controls during the second 10 days, after which both subsided. Agglutinin developed in the vaccinated animals far in excess of the controls showing a specific reaction product. Whether we must regard it also as having some important function in combating the infection, is less certain at present. The vaccinated serums were usually below the controls in opsonic power from the beginning. If intense reactive infiltration is regarded as an active phagocytosis, which it appears to be in part, the lower opsonic power of the serum may be accounted for by its exhaustion, though evolved in excess of that in the controls. On the other hand, the higher opsonic value of the control serum and the excess of agglutinin, simultaneously with lower opsonin in the vaccinated, are phenomena that need explanation. [H.M.]

4.—Studies on Immunity in Tuberculosis: A Histologic Study of the Lesions of Immunized Rabbits.—J. L. Nichols describes the microscopic picture in vaccinated animals and controls killed simultaneously at intervals varying from 24 hours to 30 days. In the vaccinated animal there was an immediate and powerful reaction, with characteristically formed tubercles. There was no very marked reaction in the controls up to the seventeenth day. At this date, however, there was a marked advance. At the end of 30 days the vaccinated were practically free from tubercle bacilli, and nearly entirely cleared of all signs of their invasion; in the controls, on the other hand, the great majority of the tubercles were still progressing, undergoing fragmentation and caseation, and containing many tubercle bacilli in their centers, while their periphery and intervening substance were apparently undergoing a change into more durable fibrous tissue. [H.M.]

5.—Vitality of Tubercle Bacilli in Sputum.—D. C. Twichell reports in detail a number of experiments undertaken to prove how long the tubercle bacillus would live in sputum under natural conditions, it being of interest to know how long it may retain vitality in handkerchiefs, rooms, etc. From these it appears that the conditions most conducive to prolonged life are darkness and moisture. Under these conditions the bacilli were alive at the end of 5½ months. Dryness hastens their destruction; 37° C. is less favorable than room temperature as is also the freezing-point. The direct sun rays kill them in a few hours. [H.M.]

6.—Serum Diagnosis of Tuberculosis.—H. M. Kinghorn finds that in far advanced cases, with very extensive or virulent lesions, the serum reaction is generally absent, and appears most often with the most favorable cases. A certain number of the latter with wellmarked signs of disease fail to show any agglutination. Nine out of 12 persons in robust health reacted to the test; 6 of the 9 were in close contact with tuberculous patients. In the tuberculous cases the average

agglutinating power was 1 to 10, in the healthy 1 to 23. Up to the present the author does not rely on the serum test as reliable. The tests covered 62 cases, 43 tuberculous, 7 suspicious, and 12 in robust health. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Tea vs. Alcohol.—An English physician recently stated that "the great majority of mankind are the slaves to one or more poison habits. Of these habits the tea habit is one of the most subtle, insinuating and injurious. It is a moot point whether tea does not do more harm in England than alcohol." As might be anticipated, the enunciation of this very comprehensive statement has had the effect of calling forth a contradictory comment from a practitioner who did not share the view expressed. He dwells, of course, on the broadcast evils which are traceable to alcohol, and—in inevitable sequence—on the insidious ills produced by tobacco. "Hospital physicians of experience," he says, "will state that, directly or indirectly, alcohol is responsible for over 50% of the diseased conditions that they meet with in the wards. Coroners in large cities only know too well that the cases of suicide, murder, and other criminal acts that they are called upon to investigate show in the majority of instances a perverted mentality due to alcoholic influence. Police courts, asylums and destitution generally speak all loudly of the course of alcohol in some shape or form." Of course, it is the experience of all of us that these statements are substantially true. The evil effects of alcohol are necessarily more noticeable in city life. But we should remember in such discussions that the bulk of a nation are not denizens of lunatic asylums or almshouses, nor are they casual objects of public interest in the police courts, nor do their persons finally come under the notice of the coroner, nor are they even inhabitants of large cities. And the almost universal employment of tea in the present day makes it an item of the physician's daily duty to be ready to advise and to warn, in connection with its properties and uses. Even our English confrere, who has undertaken to revarnish the reputation of tea, admits "harmful effects of tea drinking, and they may be definitely grouped into two classes. In one the tea has been taken in excess by the brain worker, who by dint of circumstances has to keep his mental condition at its highest standard of efficiency for lengthened periods, and in the other we find a large mass of the poorer, ignorant folk which allows the tea to infuse so long that the resulting concentrated infusion of tannin naturally plays havoc with the digestion." In the main we can arrange our own experiences on corresponding lines. But one must further emphasize that the daily use of such overcooked tea throughout vast geographic areas is gradually undermining the physique of many people, while necessarily admitting that the more explosive and more obvious effects of alcohol in the genesis of crime and of disease are incomparably more glaring to the passing eye than any of those referable to the use or abuse of tea.

Tea Drunkenness.—Concerning the tea habit, Dr. John H. Clarke says:

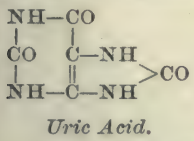
> Persons addicted to tea do not always drink it; cases occur in which the tea habitue eats it. In one case of this kind, the victim, a woman who ate quantities of tea, actually developed delirium tremens. This, though an exceptional occurrence, shows the power of the drug over the nervous system and, of course, it is just for its stimulating power that tea is taken. Many people do not understand how it is that they have such an appetite for tea, when they have little or no care for any other meal—if we except the morning cup of tea brought up to the bedroom, without which they would never get up at all. The reason is this: The sinking, empty feeling, accompanied often by irritability, low spirits, and shortness of temper, means that the stimulating effect of the last dose of tea is passing off, and the stage of reaction setting in. It is just the same with the tea drinker as it is with the alcohol drinker, when the effect of the last dram is passing off another must be taken to keep up the stimulating effect. Thus the vicious circle is kept up. And what is the effect of it? The effect is an increased wear and tear on the nervous system. Tea belongs to a group of nerve stimulants, of which erythroxylon coca (the source of cocain), coffee, and cocoa, are also members, which enable a person to get more out of himself in the shape of mental or bodily energy than he would be able to get without them. This is drawing a bill on the bank of his nervous system, of course, and the bill will have to be met. If the emergency is a passing one, the bill will be met by food and rest, and no great harm will be done. But this is not the usual case, and when once a habit is established, an abnormal rate of wear and tear will go on, and this results in a fruitful crop of cases of that latter day fashionable complaint—neurasthenia.

These observations are for some countries and individual cases generally, as true as they are important. It is very desirable that the insidious ill-effects which may be produced by overindulgence in an intoxicant of such world-wide distribution and relative unobtrusive properties, should be kept prominently in the public eye. The same may be said of coffee.

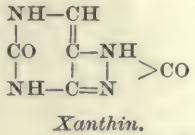
Tea Dyspepsia and Tea Anemia.—Dr. Clarke further urges as to the constitutional damage effected in many directions by tea drinking. "Allied to neurasthenia, and nearly always associated with it, is dyspepsia of the nervous or flatulent type. Tea may produce any one of these and all combined. Another effect of tea is to produce anemia. Servant girls especially are great tea drinkers, and drinkers of the strongest kinds of tea. To this habit much of the anemia and dyspepsia from which they suffer is due. Tea contains not only thein—the active principle which has the stimulating effect on the nerves—but also much tannin. It is owing to this latter that much of its indigestion-causing properties are due. 'High teas' are a digestive atrocity. Tea turns meat into leather; and all who are not equal to digesting leather should carefully avoid this mixture. The cheaper teas, so much in use now—those which give the people 'the most for their money'—contain the most tannin. A tea taster informs me that if the infusion of these teas is left in the tasting cups for any time it will eat off the enamel; from which it is easy to understand the effect the infusion produces on the human stomach." The last quoted stroke at the enemy hits rather "below the belt"; it is a usual enough method of producing an unfairly effective impression on the "general"—that of illustrating an argument by assumed analogy or identity between matters and phenomena, organic and inorganic. But, although the "any time" thus given for the eating away of enamel by such tea infusion is surely a very prolonged one, one must admit the essential truth of Dr. Clarke's accusation. Might he not have added gastric ulcer to the other effects of excessive tea drinking? It is one of the characteristic plagues of tea-drinking servant life.

Chemistry of Tea.—The chemistry of tea is necessarily of special interest. Beside the inevitable tannin, of which the extraction should be eschewed as systematically as possible by the tea drinker, there is some gluten, and a volatile oil of whose properties little is known. The China tea contains less tannin in proportion; but on the other hand, a larger quantity of the leaf is required for a cup of the infusion, so that the difference in the amount present in the two varieties of the latter can hardly be said to be of importance. The essentially characteristic constituent—to whose properties the specific effects of tea are always attributed—is the "active principle," thein, which has been shown to be structurally identical with the corresponding one of coffee, caffein. A comparison of the constitutional

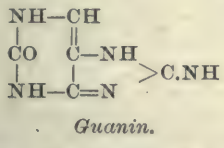
formula of this compound with those of some of the metabolic waste products of the animal body shows an unusually close approximation of the textures produced by the chemic machinery of the animal and vegetable kingdoms, respectively:



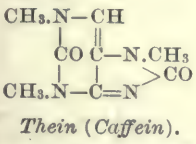
Uric Acid.



Xanthin.



Guanin.



Thein (Caffein).

The propriety of the application of the term vegetable uric acid, which has been given to the trimethyl substitution product, thein, admits of no question.

Progress of Tea in History and Commerce.—The enormous consumption of tea in the present age gives the plant a high commercial importance, as the cheering and stimulating qualities of the infusion of its leaves confer upon it a peculiar social interest. Then, the physiologic and pathologic problems which have been raised, add their respective contributions to the tea question. The fact that European civilization remained in ignorance of tea till toward the close of the sixteenth century, is an interesting one. The entertaining Pepys wrote on September 28, 1660: "I did send for a cup of tee (a China drink) of which I had never drank before." And, two years later, the same delightful diarist noted: "Home, and there find my wife making of tea, a drink which Mr. Pelling, the Pothicary, tells her is good for her cold and defluxions." In 1678, the English East India Company imported tea to the amount of 4,713 pounds; now the British consumption is annually reckoned by hundreds of millions! It is indeed a striking item in the evolution (or devolution?) of human progress. The use of the beverage, and indeed the culture of the plant, were formerly almost entirely associated with China in the European mind. A Chinese legend states that tea was brought into China from India about 500 A. D., and the plant appears to have been found wild only in Assam. The expansion of tea culture in Ceylon since its introduction into that island in 1839, has been phenomenal.

REVIEW OF LITERATURE

Disease of the Heart.—J. F. Goodheart,[1] in the Cavendish Lecture, discusses first systolic murmurs, some basal, some apical, which are most marked when the patient is nervous under examination and the heart quickened. Another apical murmur is brought out only by making the patient lie down. This murmur, if looked for, will be found as often as movable kidney. He prefers the designation "postural" rather than "functional" for these murmurs. Yet such cases are often refused for life insurance and the public service. They should be watched, especially in children, without committing oneself to any irrevocable diagnosis or prognosis. Dulness is a safer sign of disease than position of the impulse, yet great increase in size may be present without any increase in dulness, and vice versa. In the narrow chested, the dulness is often large, because the lungs are not fully inflated. It is therefore impossible to agree with those who detect small differences in the heart area after Nauheim baths. The warranty of the latter treatment is in results, not topographic argument. Cardiac irregularities may also be either evidence of serious disease or only functional. Even bradycardia and pain may be temporary only. Tachycardia is often mere excitement and may exist for years without producing evidence of disease. The author asserts that angina pectoris without disease of the coronary arteries or of the aorta is common in a mild form. It comes paroxysmally, especially on walking up an incline, and disappears in a few seconds on resting, its departure being associated nearly always with an eructation of wind. It is often mistaken for indigestion, but is more usually one of the most intractable of the neuralgias with which we have to deal. It is best to regard it as a storm emanating from the great abdominal brain. Angina is, if anything, a disease of low tension, high tension is found in only a small proportion of cases. Among the signs of a failing circulation are not to be included giddiness and fainting. Dilation is one of the worst of all the heart's diseases, and the significance of the above departures from normal function is dwelt upon in order to aid in the diagnosis, treatment, and prevention of real disease. [H.M.]

[1] West London Medical Journal, July, 1905.

The Diazo Reaction in Tuberculosis.—Ernesto Cavazza[1] exercises a polite scepticism in summing up the value this sign should have. It was first indicated by the researches of Ehrlich, who so extended the field of study of its peregrinations that now scarcely a syndrome but needs note of its relative importance. Yet, it must be held in mind that we are virtually ignorant of the nature of the reaction, and we do not know the substance contained in the urine, which as chromogen becomes transformed. The uncertainty of the occurrence adds to our perplexity. Wood, in April, 1903, asserts that the negative diazo is favorable, although 10% of grave cases give negative results. Sixty percent of patients having the positive reaction will die. The persistence of a diazo is indicative of a grave outcome, and should be so regarded in the prognosis. A positive diazo is not sufficient ground for excluding a tuberculous patient from a sanatorium. Ehrlich remarks that the diazo is a "signum mali ominis" and further emphasizes the relation of severe tuberculous disease to the persistence of a positive diazo, but no such parallel can be found between the reaction and the thermic curve. All writers unite in praising the diazo for its relative value. Cavazza concludes that the sign cannot be taken as a positive aid in diagnosis of tuberculosis, but it is found in those cases which have a rapid or fatal projection, and in these is of first importance in estimating the probable course. While bronchial inflammation or pleuritis gives little scope for its use, in pulmonary inflammation the presence of a diazo ought to serve as a grave warning. Here and there cases cross the rule, but in a majority of all, tuberculous pulmonitis a fatal outcome is heralded in the development of a diazo positive. [T.H.E.]

The Positive Centrifugal Venous Pulse in Anemia.—W. von Leube[2] gives a number of cases of chlorosis, illustrating the occurrence of a positive venous pulse in the jugulars in that affection. In some cases it is more evident than in others, and in one patient was made plainer by pressure on the liver or inferior vena cava. This positive venous pulse is the result of a functional, muscular, tricuspid insufficiency, which is produced by the anemia in the same manner that the mitral insufficiency of chlorosis is brought about. The symptoms of the mitral and tricuspid insufficiency, together with the venous pulse, disappear as the patient recovers from the anemia. The coincidence of the phenomena at both valves, together with their occurrence without more marked circulatory disturbances, is proof of the diagnosis of mere relative insufficiency. If endocarditis were at the basis of the condition, the tricuspid lesion would follow as a secondary phenomenon to the mitral insufficiency. In anemia the venous pulse may occur without a demonstrable tricuspid murmur, and is then to be attributed to a latent insufficiency of that valve, which may become more evident in the further course of the disease. [B.K.]

Seasickness.—A. L. Benedict[3] says nausea and vomiting are by no means as conspicuous symptoms as popularly supposed; the characteristic symptom is a wretched feeling of languor and depression, often justifying the term collapse and quite comparable to surgical shock. Benedict believes the secretion of hydrochloric acid is generally in abeyance, and the gastric irritability for this reason may be considered as limited to the motor phenomena. The cause has been ascribed to the

[1] Il Policlinico (Rome), August 27, 1905.
[2] Zeitschrift für klinische Medicin, Bd. lvii, p. 199.
[3] International Clinics, Vol. ii, Fifteenth Series, 1905.

inertia of the fluid in the semicircular canals; Benedict is inclined to accept this to some degree, but considers seasickness due largely to the inertia of the liver and to a less degree of the other large viscera. The inertia of the liver can be plainly felt in an elevator and often in making sudden horizontal movements. This theory also explains rationally the connection between nausea and vomiting and disturbances of equilibrium on the ground that the reflex is in the area of the same nerve. Cardiac depression is similarly explained. Benedict does not claim that seasickness is a manifestation of movable kidney in the anatomic sense, although it happens that several of his worst cases have been in women who had general indications of splanchnoptosis, and a tight abdominal bandage has given marked relief; it is not necessary, in support of this theory, to postulate an absolute pathologic movability of the liver. As to prophylaxis, a calomel purge and light diet immediately before a voyage and especially the avoidance of the too prevalent farewell indiscretions are to be enjoined. Benedict questions seriously the justifiability of drugging as a preventive. [A.G.E.]

Pulsus Alternans and Pseudoalternans.—F. Volhard[1] reports several cases of true and false pulsus alternans, giving 10 tracings of his findings at different periods; from a careful study of these and other similar cases he concludes that in man we may meet with true rhythmic alternation of cardiac beats: that there may be a rhythmic change between strong and weak sounds of both the auricles and ventricles. This rhythmic disturbance, however, is noted only at the pulse and not at the heart; it is due to the small pulse wave arriving too late. The retardation is not due to disturbances in conductivity, but rather to a slowing and lengthening of the muscle contraction during the smaller systole, the higher pressure in the aorta and the slower passage of the small wave along the arteries. The appearance of extrasystoles in the pulsus alternans makes the alternation so pronounced as to produce intermittency of the second pulse. He states that there is but one form of pulsus alternans, that with a retarded small wave; should this small wave appear at the normal interval, or even earlier, we are dealing with the type known as pulsus pseudoalternans, and which is due to extrasystoles entirely. The pulse retardation in pulsus alternans destroys the regularity and seems to produce a rhythmic disturbance; in pseudoalternans the disturbance in the rhythm is obliterated and regularity simulated. The true alternating pulse should be separated from the other, because of the difference in prognosis. The former is a sign of a grave condition, the latter used to be considered so, but of late its harmlessness has repeatedly been demonstrated. The auricular type, however, is graver than the ventricular, the former being of muscular origin, the latter of nervous, usually. [E.L.]

Summer Diarrhea in Infants.—G. H. Weaver, R. N. Tunnicliff, P. G. Heinemann, and May Michael[2] study this subject with great care from a bacteriologic standpoint. Cultures were taken from a large number of cases. These investigators were unable to find the dysentery bacillus in all the cases in which mucous and fluid stools were present. The cases in which the bacillus was discovered presented the symptoms of ileocolitis. The symptoms exhibited by the cases of ileocolitis in which the bacillus was isolated did not differ from those of cases of ilecolitis in which the bacillus was not found. [J.H.W.R.]

Significance of Dermography for the Diagnosis of Functional Neuroses.—Dermography has long been considered as a phenomenon pertaining to the functional neuroses, especially hysteria. From observations made in about 250 cases of all sorts, H. Stursberg[3] finds that a reddening of the skin, after moderate mechanical irritation, occurs in the vast majority of cases. Complete absence of this phenomenon is a rare exception and apparently depends upon an abnormal condition of the skin. Dermography is perhaps a little more evident in cases of functional neurosis, but is valueless as a diagnostic feature, as it occurs when there is no evidence whatever of any nervous disturbance. [B.K.]

[1] Münchener medicinische Wochenschrift, 1905, lii, 590.
[2] Journal of Infectious Diseases, January 13, 1905.
[3] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 586.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON LAWRENCE HENDEE
J. COLES BRICK JOHN W. CHURCHMAN

EDITORIAL COMMENT

The Bacillus of Syphilis.—Professor E. J. McWeeney (of the Medical School of the Catholic University, Dublin) has promptly followed the lead of Schaudinn and Hoffmann in microscopic investigation of the organism of syphilis. The results of his researches are embodied in a communication which appeared in the *British Medical Journal*, June 10, 1905. In every one of 9 cases of undoubted syphilis, in the primary and secondary stages, which were examined by this observer, "spirochætas were readily demonstrable." In an advanced case of tertiary ulceration of the palate, the results were negative; and the spirochæta was not discovered in a case of mucopurulent vaginitis—not supposed by the medical attendant to be syphilitic, and not accompanied by ulceration. Dr. McWeeney's description of the spirochætas found by him is as follows: "Spirally twisted, extremely delicate organisms, actively motile, with peculiar corkscrew movement in either direction. Length from 7μ to about 18μ, averaging about 12μ. Thickness too small to measure. Some were equally thick throughout; others, more especially the larger ones, were decidedly thicker in the middle, and tapered, slowly at first, afterward more rapidly toward the ends; the coils were often seven or eight in number, not regularly spiral, more open toward the extremities, sometimes nearly effaced. The smaller spirochætas looked like detached flagella of the typhoid bacillus in a Pitfield preparation. As regards structure, with the magnification at my disposal, I could make out no more than a granular appearance, more highly alternating with less highly refractive dots, in the fresh preparation. In certain specimens I convinced myself that nearer to one end lay a granule larger than the others and projecting from the sides of the organism (? a nucleus or blepharoplast). In certain other specimens an excessively thin line seemed to fringe the concavity of some of the coils, and to suggest a trace of an undulating membrane. These may have been double forms." Professor McWeeney also noticed in several of the stained preparations, forms which agreed closely with those figured by Schaudinn in his description of the reproduction of his *Sp. ziemanni*. "Thus I saw pairs of individuals lying close together and almost parallel, but united at one end. At the first glance the pair might have readily been mistaken for a trypanosome. Again, some of the larger forms presented a gap or unstained spot exactly in the center, as though composed of two individuals that had been united end to end and were in the act of coming apart." In regard to relationship to cells, they were all "extracellular." But "in the fresh state they were often attached to the pus cells by one end and caused them to sway to and fro, or even dragged the cells along a little way by their vigorous movements. The end of the organism was sometimes seen to be completely buried in the cell protoplasm. Both ends of the spirochætas were sometimes attached to cells." Among the very interesting concluding remarks of Professor McWeeney's paper, are mentioned the facts that Metchnikoff has found spirochætas in the syphilitic lesions, which he recently produced in apes by inoculation; that kala-azar, a disease due to Leishmann-Donovan bodies, which are almost certainly a stage in the life-history of a trypanosome, has just been shown by Leonard Rogers to be propagated by sexual cohabitation; that a species of trypanosome (*T. equiperdum*, Doflein) is the cause of a sexual disease of the horse—known in France as *mal de coit*, or dourine—not unlike syphilis in some of its manifestations (edema of genitals, cutaneous plaques, and subsequent degeneration of the spinal

medulla); that although trypanosomes are, as a rule, conveyed by an invertebrate intermediate host, the rule is not an invariable one—the trypanosome of dourine being conveyed from stallion to brood-mare by direct contact, and Rouget having shown that it can pass through the unbroken mucosa; and, that as a species of spirochæta has lately been shown by Schaudinn to be a stage in the life-history of a trypanosome (*T. ziemanni*) of the stone-owl—a discovery which raises the question "whether all spirochætas—for example, those of relapsing fever, pseudodiphtheric angina, and of tropic spirillosis (to which the lamented death of Dutton was due) are also protozoa, and mere stages in the life-history of flagellates."

REVIEW OF LITERATURE

The Enlarged Prostate.—Cuthbert Wallace[1] says only three of the nine theories advanced to account for the enlargement of the prostate require serious consideration. These are: (1) That it is due to a chronic inflammatory process; (2) an inflammatory catarrhal process due to septic organisms; (3) a newgrowth, adenomatous in nature. Wallace believes the change is an adenomatous one, the exciting cause of which may be chronic inflammation. It is possibly yet too early to lay down dogmatic rules regarding the time for operative treatment. Operation is needful when the catheter cannot be passed, when its passage is accompanied by much pain or hemorrhage, and when there is complete retention. When retention is not complete, the indications vary with the social state of the patient. If he is a laborer, operation should be undertaken when catheter life has become established. In case of the well-to-do, educated man, who can pass the catheter at home, operation may be deferred. If the patient is compelled to be away from home, Wallace advises operation fairly early. He is sure that in the future, prostatectomy will be undertaken earlier and earlier. As to the operation, castration has rightly been abandoned and vasectomy must be regarded as useless. Suprapubic prostatectomy is likely to replace all other operative proceedings. In cases of acute retention, Wallace advises suprapubic cystotomy, with several days' drainage before enucleation of the tumors is performed. [A.G.E.]

Typhoid Appendicitis without Other Intestinal Lesions.—W. R. Stokes and A. L. Amick[2] have been unable to find records of any other case of uncomplicated primary appendicitis from which the typhoid bacillus has been isolated. The patient had typhoid fever 13 years before his attack of appendicitis. The case is of interest for several reasons: 1. The isolation of the typhoid bacillus and *B. pyocyaneus* and the absence of *B. coli communis*. 2. The production of the Widal reaction in a primary mixed typhoid infection, apparently limited to the appendix. They believe the infection was so limited, because 48 hours after operation the temperature dropped to normal. 3. The presence of fecal concretions, which resembled partly digested peanuts, following the history that the patient had eaten many peanuts 20 hours before the attack. 4. The lesions found were also mixed. The diffuse purulent infiltration of the various coats was probably produced by *B. pyocyaneus*, while the proliferative changes in the intertubular tissue and submucous coat were the result of the typhoid bacillus. [H.M.]

Multilocular Branchiogenous Cysts of the Neck.—The origin of certain cystic tumors of the neck from branchial slits has been well established. However, the great majority of reported cases refer to unilocular cysts. Very few observations have been made on multilocular forms. Therefore, the report of B. Bogoluboff,[3] being very thorough and scientific, is not without significance. It concerns a woman of 54, who noticed, 11 years ago, a small tumor on the right side of the neck. The tumor gradually increased in size, finally reaching enormous dimensions. It was removed and found to be a multilocular cyst of branchial origin. The author dilates upon the various clinical and surgical aspects of these tumors. [L.J.]

[1] The Practitioner, September, 1905.
[2] Johns Hopkins Hospital Bulletin, August, 1905.
[3] Medizinskoe Obosrenie, lxiv, No. 13.

Intestinal Obstruction by Gallstones.—T. E. Gordon and William N. A. Wright[1] reported an unusual and interesting case of this character in a woman of 73, who was suddenly seized with acute pain in the hepatic region, associated with vomiting. Jaundice followed in two days, and tenderness persisted over the region of the gallbladder for a month. Six months later she suddenly was attacked with intense pain in the pit of the stomach, followed by retching and vomiting, which was so copious and so readily expelled that there was no doubt it was due to intestinal obstruction. After a hypodermic of morphin there was a period of quiescence lasting three days, at the end of which time fecal vomiting made its appearance. An operation was decided upon, and an impacted gallstone was removed from the upper bowel. A speedy recovery followed. [J.H.W.R.]

Pneumothorax in Tuberculous Subjects.—F. Parkes Weber[2] says that pneumothorax occurs in 3.5% to 10%, of all cases of tuberculosis. Perhaps 80% to 90% of pneumothorax cases are due to tuberculosis. Some cases of pneumothorax in tuberculous subjects may be due, not to an active lesion, but to the rupture of an adherent emphysematous bulla, connected with a local, obsolete lesion. In other cases a secondary infection may be responsible for the softening and rupture. Several clinical examples of tuberculous pneumothorax are given. The physical signs depend upon whether the pneumothorax is complete or limited by adhesions. The onset is usually marked by urgent distress, dyspnea, sometimes faintness, and often sharp pain. In cases of limited pneumothorax the onset is more likely to escape attention, especially in weak subjects. In a few days the physical signs show that liquid, as well as air, is present in the pleural cavity. The dyspnea and distress usually become less marked, but the condition must generally be regarded as the terminal stage of the disease. In some cases, however, the pneumothorax may develop in the earlier stages, and in a few cases it has disappeared without the effusion of liquid. The treatment is that of pneumothorax generally, together with hygienic measures directed against the tuberculous element. At the time of onset stimulation may be necessary, and at times sedatives are required for the pain. If the distress is due to excessive tension of air, as in "valvular pneumothorax," the chest may be punctured to allow its escape. In cases of pyopneumothorax, without extensive tuberculous lesions, repeated paracentesis or an operation for empyema may be performed. Anything like Estlander's operation, however, is out of the question. [B.K.]

Influence of Injury of the Nerves in Healing of Fracture.—Nello Biagi[3] finds that an intact nerve supply of a part is of first importance in securing prompt and satisfactory union of the bone injured. Twenty-two experiments are reported. Excellent plates are included, and a concise bibliography. [T.H.E.]

Present Status of the Surgical Treatment of Undescended Testis.—C. M. Echols[4] believes that practically all cryptorchids, if seen before puberty, should be operated upon whether symptoms referable to the deformity are present or not. This seems justifiable when we consider that (1) a potential if not an actual hernia is always present; (2) that strangulation and torsion of the spermatic cord are strongly predisposed to by this condition; (3) that an inguinal testis is peculiarly liable to trauma from external violence and from muscular exertion; (4) that imperfectly descended testes appear to be affected by malignant neoplasms oftener than when in their normal habitat in the scrotum; (5) that psychic disturbances may arise later; (6) that even should operation fail to lead to further development of the gland it will usually do no harm by way of disturbance of function, for it has been shown that practically all misplaced testes lack the spermatogenic function anyhow, and (7) that many able surgeons tell us that their results in these cases have been such as to warrant the foregoing conclusions. The most favorable age for operation is from 5 to 12 years. Orchidopexy or fixing the testis in the scrotum is the operation of choice. Removal of one testis is

[1] Dublin Journal of Medical Sciences, September, 1905, p. 182.
[2] The Lancet, September 16, 1905.
[3] Il Policlinico (Rome), August Surgical Section, 1905.
[4] Wisconsin Medical Journal, August, 1905.

rarely justifiable and castration never unless the gravest complications demand it. Many reports of operations are worthless because ultimate results have not been observed with sufficient care. [H.M.]

Subperiosteal Fractures, Their Clinical Diagnosis and Recognition through the Röntgen Picture.—Hennig[1] considers subperiosteal fractures more common than was formerly thought; the röntgen picture makes the diagnosis in many cases, in which formerly it would have been impossible, and which would have been considered as contusions, periostites, etc. They are more common in children than in adults, as in them the periosteum is thicker, softer, and more elastic. Rachitis predisposes to them by producing periosteal thickening. In such cases there is neither deformity, abnormal mobility nor crepitus, the unbroken periosteum preventing all these; the pain and loss of function are often but slight. The only means of diagnosing them is by means of the röntgen rays. Their prognosis is very good, if recognized early and treated properly; in many instances very little treatment is required. In infants the cases are usually overlooked until callus forms. The author reports seven cases. [E.L.]

Removal of a Large Pin from the Lung by Transpleural Pneumotomy.—R. Hamilton Russell[2] operated upon a boy of 12, who drew in his lungs a large black-headed shawl pin, three inches in length. It was not until a week later that he began to be troubled with a cough and expectorated bloody sputum. A radiograph taken three weeks after the accident located the pin in the left bronchus, the head lying 2½ in. below the bifurcation, and the point projecting into the trachea. Later the pin was found in the lower lobe of the lung, and all efforts to remove it with an electromagnet proved futile. An operation was done seven weeks after the accident occurred. A free curved incision was made on the right side, with the convexity downward and a portion of the left eighth rib was resected. Air was cautiously permitted to enter the pleura through a small puncture, and the collapse of the lung which followed was unaccompanied by serious symptoms. The fingers of the left hand were inserted between the lung and the diaphragm, and the lower lobe gently drawn toward the opening. A small incision was made over the pin's head, through which an unopened sinus forceps was pushed until it reached the head of the pin, which was then grasped. No hemorrhage followed, but the presence of a small abscess around the head of the pin was noted. The lung was not sutured. The flap of integument was sutured, with the exception of two inches in the middle. The boy left the hospital, perfectly well, in 12 days, having developed consolidation of the lobe immediately after the operation, from which he was fairly convalescent in four days. [J.H.W.R.]

Instrument for Deep Ligature.—When the fingers are unable to reach the necessary point, the device of Oreste Sgambati[3] will facilitate the work, and its very simplicity and the ease of taking the several parts to pieces for disinfection, appeal to the surgeon. The total length of it is 25 cm. The diagram in the original article gives evidence of its practical value. No patent has been taken. [T.H.E.]

Results of Kidney Decapsulation in Children.—E. E. Graham[4] gives a summary of 10 cases recorded in literature and adds one of his own. The patient was a girl of 26 months, suffering from postscarlatinal nephritis of eight months' duration. When death seemed imminent the two kidneys were simultaneously decapsulated. Marked improvement occurred within 24 hours, the dropsy becoming distinctly less. The child now seems perfectly well, eight months after operation, is free from all dropsy, is not anemic and is bright and cheerful. Histologic examination of a small piece of one kidney showed the lesion to be acute diffuse nephritis. Among the 11 cases in the series considered, there were 5 deaths, 4 were probable, or at least possible, complete cures, 2 were not improved. Of the deaths, one patient was much improved for a year and died of an acute attack and one was distinctly improved by operation. The forms of nephritis most benefited by operation are the acute or subacute, but of these only the ones not doing well under medical treatment should be operated upon. Results in the chronic cases are not favorable. Graham specially mentions the fact that hundreds of adults and but only a few children have been operated upon; everything points to the fact that better results might be anticipated in the latter. Children going from bad to worse should be given the benefit of the doubt. [A.G.E.]

Penetrating Wound of the Skull and Brain, with Recovery.—M. Cantas[1] reports a case of gunshot wound of the head, in which the rifle ball entered 1 cm. above the middle of the right eyebrow, and made its exit 1 cm. above and behind the right ear. The patient was in a state of complete coma and operation was decided upon. The cranium was laid completely open and the wounds of entrance and exit united by means of the scissors, the osseous vault being destroyed in this region. In cleaning the wound, about 75 gm. of pulpified cerebral substance was removed, together with splinters of bone and other debris. The wound was lightly packed and allowed to granulate. Cerebrospinal fluid escaped abundantly at first, but finally stopped in 25 days. Cicatrization was completed in four months. At the end of five months the patient had gradually acquired some power of voluntary movement and cerebration. He was then lost sight of, but to the astonishment of the author, presented himself two years later in a state of complete recovery of motion, sensation, memory, cerebration, and all senses. A study on the cadaver had shown that the parts of the brain affected by the gunshot were the anteroinferior part of the second right frontal convolution, the anteroinferior and inferoexternal part of the third frontal, the middle of the first temporal, and the middle of the second temporal. This case shows that the right frontal and temporal lobes may be extensively destroyed without giving rise to any disturbance. The psychic predominance given to the frontal lobes is not maintained, and it is probable that the intelligence is a function of the whole cortex. The predominance of the left temporal lobe in audition is confirmed. The author believes that the abundant flow of cerebrospinal fluid was an advantage in securing drainage of the wound; it did not give rise to any complication. About three years after the wound was received the patient began to complain of vertigo and later of some loss of memory. The author attributes the first to circulatory disturbances of cicatricial origin, and the failure of memory to the extension of neuroglia tissue into the surrounding cortex. [B.K.]

Postanesthesia Sickness.—Thomas D. Luke[2] states that the factors influencing the postanesthesia sickness are: 1. The nature of the anesthetic. 2. The nature of the operation, especially its duration. 3. The skill in which the anesthetic is administered. 4. The thoroughness of the preparation of the patient, and the after-treatment. 5. The patient's condition especially that of the digestive and alimentary tracts. 6. Finally, the patient's age, sex, and temperament. He believes that patients who are anesthetized by means of "ethyl chlorid ether sequence" suffer less than when gas and other sequences are employed. In the treatment of postanesthesia sickness he acknowledges that no drug or combination known at present can do more than alleviate the condition. It is important to eliminate as rapidly as possible the chloroform remaining in the stomach and tissues, by means of skin, bowel and kidney, by stimulating the functional activity of these organs. [J.H.W.R.]

Longitudinal Fracture of a Metacarpal Bone.—This variety of fracture is very rare. Rammstedt[3] describes such a case. The injury was produced by a horse stepping on the soldier's hand; his hand became badly swollen, but there was neither deformity, crepitus, nor abnormal mobility; the fluoroscope did not reveal any injury. The condition not improving, a skiagraph was taken, and this showed that the metacarpal bone of the thumb was split into four pieces, in a longitudinal direction; the sesamoid bone also was crushed. One of the fractures extended into the carpometacarpal joints. The usefulness of the finger was recovered only in part. [E.L.]

[1] Deutsche Zeitschrift für Chirurgie, Vol. lxxv, 262.
[2] The Lancet, September, 1905, p. 746.
[3] Il Policlinico (Rome), August 27, 1905.
[4] Archives of Pediatrics, September, 1905.

[1] Lyon Médical, September 17, 1905.
[2] Edinburgh Medical Journal, September, 1905, p. 212.
[3] Münchener medicinische Wochenschrift, 1905, lii, 607.

American Medicine

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Esthetics and Nutrition.—It is remarkable how largely the appearance, color, etc., of food governs the choice and sale of it rather than its nutrient value. The government has issued a pamphlet which brings out what this esthetic factor is in a striking way. The color of butter, as we all know, has everything to do with its sale, but it seems that a very decided or dark color is demanded in New Orleans, while the pale tint permitted by Chicago would not do in Washington. New York and San Francisco prefer white eggs, while in Boston brown eggs command the better price. Tomato catsup if artificially uncolored is not of the vivid hue demanded by all housekeepers. Caramel is used to color cider, vinegar, and whisky, with the unnatural tint the public thinks is best. In our city and artificial life we are far removed from the farm and simple observation of agricultural life. Is the appearance becoming everything and the reality and actual qualities minor affairs? Much of the adulteration of food products consists in this use of artificial colorations. If we spent the force of our criticisms upon the adulterations, which really impair the nutritive values of foods, or are really poisonous, we would show better market acumen and get better food.

Fake foods have been under investigation by the New Hampshire Board of Health, and the analyses published in its *Sanitary Bulletins* show that even yet skim milk masquerades as cream. From the hygienic standpoint it is certainly fortunate that as a rule these frauds consist of the substitution of one kind of wholesome food for another. Yet it is disconcerting, to say the least, to learn that we may never know what we are eating. Nearly half of the foods examined proved to be adulterated or were artificial products. A large number of the jams, preserves, and jellies were made wholly of apples, appropriately sweetened, flavored, and tinted with some harmless coaltar dye, and then sold in attractive jars with fancy labels. It is said that English "jams" are made of carrots. The consumer who pays big prices for such truck is apt to buy nothing but the apple sauce of his bread and butter days. The poor, who have no money to spend on delicatessen, and who must buy cheaply, are just as well off as those who have funds to throw away on coloring matters and artistically shaped bottles. The board paid special attention to vinegars and maple products, and found less adulteration than formerly, yet all the specimens of lime juice were adulterated; of honey, a third were; of lemon extract, nearly nine-tenths; of vanilla, 83%, and so on through a long list, few of which are used in any household except in small amounts, and mostly as condiments or flavoring. Staple articles of food are rarely adulterated, and that is a satisfaction. Indeed, they could not be degraded in quality very much and the race survive. We practically live on bread and meat, with a trifle of fresh fruit and vegetables, and a bit of starch and sugar thrown in. If these are pure, we need not worry over any tremendous damage to health.

The demand for secondary foods seems to be a normal appetite, and by secondary we mean the little extras, the flavors, spices, "preserves," and tid-bits in general. Among races, like the Chinese, whose national diet is so simple, there is an enormous trade in such articles, and the Japanese are filling the demand with imitations of about everything the occident manufactures. Perhaps an unvaried diet does not supply everything which the tissues need, and little dietetic excursions are necessary. Sameness of diet is considered by biologists to be a cause of all sorts of phenomena—from sexual conjugation of unicellular organisms to senility of mammals. Certainly those races of men whose food is too plain and unvaried do not resist infections as well as those races of individuals financially able to vary their diet. The nutrition experiments which have been carried on in such numbers in the last two or three decades seem to point to such a conclusion. If it is a correct one, then these extra foods in which there

is such an enormous trade, are really necessary, and the national health demands that they should be pure and should be exactly what they are said to be. The more expensive tid-bits are not necessary, and if they are frauds the buyers are injured only in pocket-book. The victims are those who have a tendency to wander from the plain and wholesome fare of our ancestors. Yet it is to be hoped that these exposures of frauds will continue, for if we ever do want to kick over the dietetic traces, we do not want to pay too dear for it. Harmless frauds are, nevertheless, frauds.

The demand for sugar is a modern phenomenon which needs explanation. It is but a few centuries ago that sugar of itself became an article of diet. Formerly the only sugars we ate were those in the fruits and vegetables, but the consumption per capita has grown to an enormous amount. Every race instinctively craves it, and our Indians will barter almost anything for it. It is the only carbohydrate on which the young mammal begins life, and the ability to digest starch into sugar is acquired later. As a dietary article, sugar certainly relieves the organism of the work of digesting starch, and experiments on soldiers prove that it relieves fatigue more quickly than other foods and permits more work than the starches alone. There is also some evidence that it is craved in all conditions of undernutrition or exhaustion from any cause, though its exact relationship is not fully worked out. The child's desire for sweets is but a lingering of its natural baby appetite, but an intense craving for sugar in adults is apparently unnatural. It is a suggestive field, for it may explain why the nervous American people have such a marked tendency to consume enormous quantities of all kinds of sweet foods and the curiously named breakfast cereals, composed in great part of half-digested starch. It almost seems pathognomonic, but if it is a racial necessity due to weakened digestive powers, it might mean the beginning of an actual evolution of a future race unable to subsist on starches. If all these prepared or artificial foods, which are becoming more and more common, are to be necessary, it is certainly good policy to see that they are wholesome and not fraudulent. They should be subjected to analysis, and their manufacture supervised. At the same time, some pathologic facts of value might be found by investigating the reasons why some of our patients gorge themselves with sugars.

The purification of reservoir water by copper sulfate is probably the most important contribution to municipal sanitation in many years. The discovery is the result of the investigations of Dr. George T. Moore, physiologist and algologist of the Bureau of Plant Industry of the Agricultural Department. They were undertaken with the definite plan of finding some remedy for the nauseating odor and taste which are apt to appear in stored waters during warm weather and which were found to be due to the growth of certain algæ. Engineers and sanitarians had given up hope of preventing the conditions, and it was generally conceded that for several months, each year, the water of such towns would be practically useless. Analyses showed that there were no chemic or bacterial impurities, and though there was nothing to be condemned as prejudicial to health, yet the odor and taste compelled a resort to imported bottled waters or the use of local wells. Even the sprinkling of lawns had to be discontinued in some towns on account of the fishy odor of the algæ which are said to have given a perceptible odor to the whole town. It is quite evident that, aside from the esthetic questions involved, health is not possible if disagreeable sensations are constant. The discussion of this subject with its remedy at the last meeting of the Washington Academy of Sciences brought out very clearly the value of the discovery.

Algæ are Killed by Minute Amounts of Copper Sulfate.—In the laboratory experiments it was necessary to use one part of the salt to 1,000,000 of water, but in the practical application to reservoirs it was found that a sixth to a tenth of this amount sufficed. The crystals are enclosed in a bag suspended from a boat which is rowed around the reservoir until they are dissolved. In a day or so the algæ die, the odor and taste disappear, the water becomes clear and there is no trace of the copper to be detected. An outlay of $60 or $75 accomplished that for which municipal governments were almost willing to spend millions. As a rule one treatment is sufficient and need not be repeated for several years, though occasionally it fails and must be repeated within a few days or weeks. It is not known whether the copper acts as a poison or through some electric disturbance. The objection to the process is due to the fear that the salt will be poisonous, but this is baseless as it is harmless in such extreme dilution. The popular idea that copper cooking utensils are the causes of poisonings is found to be groundless—such cases are now known to be mostly due to ptomains. Indeed, France is now permitting the use of copper vessels for cooking, and even permitting the use of copper salts for preserving the green color of canned food products, and has modified the drastic laws which formerly forbade such measures. As the algæ require very pure water the pest is apt to appear in towns having an ideal sup-

ply. Cities which are content to use diluted sewage, not being bothered by this particular bad odor and taste, are less interested in the cure.

Copper and its salts are extremely toxic to intestinal bacteria, even in solutions so weak as to be harmless to a water-supply. Yet the experiments show that the results are about the same quantitatively as a good filtration system. The system is then unsafe, as it is clearly undesirable to allow any of such bacteria to enter the mains. The proper view to take of all such proposals of partial cures is to harp upon the necessity of obtaining a grade of water which does not need disinfection. All cities in the world have the same problem, as it is the penalty for the unsanitary urban growth of the past century, and the necessities of commerce compel such growths at places furthest from good water. The distances from which it must be brought are so great as to be prohibitive, from the initial cost. Sanitarians are, therefore, forced to use a cheap system of disinfection. In this view of the case, the copper method by its very cheapness and partial efficiency, is an evil. Its proper place is not in cities rich enough to buy good water, but for places where good water is wholly unattainable. For isolated military camps, particularly in the tropics, where good water is the exception, it may find a field of usefulness. The large cities must learn the lesson of modern surgery, that asepsis takes the place of antisepsis. It will be cheaper in the end to buy the water before it is infected, and any delusive methods of cheap disinfection only delay the inevitable plans for securing a proper supply.

Mosquito Larvas are Destroyed by Copper Salts in Weak Solution.—The youngest larvas are killed by solutions as weak as one part to five millions of water, though the older larvas require a much stronger one. Even copper foil is fatal to the young larvas. Experiments in this line have been made by Dr. C. L. Marlatt of the Bureau of Entomology, and they suggest practicable means of preventing mosquito propagation in fire buckets, rain barrels, and other small collections of water around tropic houses. It is doubtless a valuable discovery, for in many situations it is neither practicable nor safe to use kerosene. In the tropics, particularly for military sanitarians, the whole subject is one of extreme importance, and deserving of extensive trials and greater elaboration. If it is possible to kill all pathogenic bacteria in a quart of water by simply immersing in it for six or eight hours a strip of copper foil three and a half inches square, it will be a valuable if not an essential household process in the tropics, where boiling the water is attended with difficulties, and the result is so unpalatable. It is necessary to have the matter investigated in the Philippines.

The reasons for quackery are interestingly treated in a paper read before the Yale Biological Club by Dudley F. Sicher.[1] Attention is called to the wellknown fact that quacks have flourished as far back as ancient times or even further, yet the impression is conveyed that they are relatively more numerous now than ever before. New York City is credited with 20,000, and as it has but 6,000 regular practitioners, it is likely that quackery is at least more highly paid than honest efforts to cure. England is being overrun, and even Berlin has had an increase of 1,600% in 30 years. It is quite properly considered a sociologic phenomenon whose causes can be discovered. The medical profession can have no quarrel over the charge that the basic cause is found in the insufficiency of orthodox medicine, but it can take exception to the charge that modern medicine is insufficient because it has not been brought to the rank of an exact science, and it is not correct that "the doctor must stand idly by, and, only half intelligently, assist *vis medicatrix naturæ*." It is self-evident that we are not able to furnish the sick with something for which they are willing to pay liberally. That something is not health and long life, for quacks fail in this regard as a rule, while honest efforts are fairly successful. Every man must die some time, and the sole end of scientific medicine is to postpone death. The modern evolution of medicine into an exact science shows what can or cannot be done, and has had the natural result of sharply delimiting legitimate efforts to cure. Each decade there are discoveries which enable us not only to cure cases we formerly could not, but also to determine at an early stage that a condition is hopeless—knowledge which is important in that it enables the patient to devote his whole energies to prolongation of life, instead of wasting them on useless efforts to effect a cure.

The incurable are the chief victims of quacks and this is the ghastly side of the whole nefarious business. Advertisements fairly bristle with references to bogus cases which were cured after the doctors had given them up. A drowning man will clutch at a straw, and even the most intelligent invalids will grasp at any offer of cure, no matter how absurd. There is no mystery about the success of the degraded men who thus play upon the dying man's desire to live. Every physician can furnish scores or perhaps hundreds of illustrative cases who have knowingly tried these alleged cures just

[1] Popular Science Monthly, September.

before death—payment in advance. It may possibly be more than a coincidence that modern quackery should increase at the same rate as our knowledge of the incurability of certain diseases. Perhaps we are furnishing more patients with the sad facts which make them grasp at false hopes—patients whom we once hopefully treated ourselves, to the very end. In other words, the very exactness of modern medicine may be a factor in the modern increase of this crime. The sick demand assurances of cure, and it is a nice point of ethics and honor as to how far one can go in giving such assurances, but to hold out false hopes so as to keep the patient from falling into the hands of a quack, is quackery itself. This is the insufficiency of orthodox medicine, and a very laudable insufficiency at that. The remedy is in the hands of the lay press which has done the most to aid the modern quacks, and it is particularly desirable to have more and more addresses such as Sicher's, who emphasizes the necessity for this kind of a crusade. It is too much to hope for the complete destruction of quackery, for it seems to be a fixture of every form of civilization, but it can be kept within bounds. It will cease when all crimes cease. Then, too, it is a fact that the average man has but little discrimination and we may expect too much of him—may even talk over his head. A paternal protection inconsistent with American institutions would help to solve the great problem, but unfortunately is Utopian at present, though a good beginning has been made.

The postoffice fight on objectionable advertisements was brought to the attention of the section on pharmacology at the recent meeting of the American Medical Association in a report of the committee appointed to further this work.[1] It seems that great political pressure is being brought to revoke any decisions looking toward the exclusions of even fraudulent advertisements from the mails, and a permanent lobby for this purpose can be confidently predicted. It is shown that so many Senators and Representatives are using worthless quack remedies in their homes, and are firmly convinced of their value that it will be a difficult matter to obtain proper legislation at the best. With a powerful lobby to oppose, there is nothing to do but patiently expose one fraud after another, in the hope of eventually enlisting the aid of the legislators themselves. Unfortunately the public exposures are made in journals which are rarely brought to the attention of laymen. It is desirable then, that the fraudulent nature of the numerous advertisements already investigated by the committee will receive more publicity. It is remarkable that the public will permit itself to be victimized by such childish means. The boldness of the claims made for the remedial nature of materials of no medicinal power whatever, and the financial success attained, make one almost doubt that man is a reasoning animal. If he cannot be enlightened perhaps he might be protected. The committee states that it would be a gracious thing for the Association to encourage the cabinet officers who are engaged in this laudable effort.

[1] Journal American Medical Association, September 19, 1905.

BOOK REVIEWS

Saunders' Question Compends, No. 3: Essentials of Anatomy.—By CHARLES B. NANCREDE, M.D. Seventh edition, thoroughly revised. Philadelphia, New York and London: W. B. Saunders & Co., 1904.

The seventh edition of this wellknown compend retains the original plan of the book, and the nomenclature has not been altered. The entire book has been revised and the chapter on the nervous system has practically been rewritten. The work is abreast of the times and still merits the popularity it has always been accorded.

How to Cook for the Sick and Convalescent.—By HELENA V. SACHSE. Second edition, revised and enlarged. Philadelphia: J. B. Lippincott Company, 1904.

To the first edition the author has added 70 recipes and has also furnished a classification of the recipes in the book from which to choose diet lists for special purposes. The latter is a most valuable feature and is alone worth the price of the book to a physician who wishes at a glance to see the list of foods that contain fats, those that contain phosphorus, iron, or other elements in abundance, and many other similar points. The recipes are brief and practical and will save the physician tedious explanation of formulas to his nurses, each of whom should possess a copy of the book. It is a pleasure to commend such a practical work.

Diseases of the Eye and Ear.—A Manual for Students and Physicians. By ARTHUR N. ALLING, M.D., and OVIDUS ARTHUR GRIFFIN, B.S., M.D. In one 12mo volume of 263 pages, with 83 illustrations. Cloth, $1, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

This volume is the seventeenth of the Medical Epitome Series, edited by Dr. Victor C. Pedersen, and in common with its predecessors considers the subjects treated in a manner as clear and thorough as the necessary limits of space will permit. It will prove of value as an aid to memory to both student and practitioner, especially in preparing for examinations.

The Detection of Poisons and Strong Drugs, Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials.—By DR. WILHELM AUTENRIETH. Authorized translation from the third enlarged German edition by WILLIAM H. WARREN, Ph.D. P. Blakiston's Son & Co., Philadelphia, 1905.

The translator states this book is a translation and not an adaptation; that he has purposely refrained from altering references to the German Pharmacopeia so as to make them correspond with the standards of the United States Pharmacopeia, believing that the student would like to have the opportunity of comparing the two authorities. It is rather an introduction to the subject than a complete treatise, and therefore deals only with the more important organic poisons. The last chapter deals with the quantitative estimation of active principles, alkaloids, etc., in crude materials used in medicine, as likewise with the estimation of caffein in coffee and tea, theobromin in cacao seeds, and nicotin in tobacco leaves. Sections upon the chemic and biologic recognition of the blood have been added likewise to give the book completeness. It should prove a valuable handbook for students of pharmacy and for practising

pharmacists who may be called upon to perform the manipulations described. The original is concise and accurate and the translator's English is clear.

Outlines of Inorganic Chemistry.—By Frank Austin Gooch and Claude Frederic Walker. New York: The Macmillan Company. 1905.

A new method of presenting chemistry is adopted in this book, and we believe the plan is a very good one. Part I, of 233 pages, is devoted to inductive methods of presenting the principles of chemistry, while Part II, 493 pages, discusses the properties of elements and their compounds. The first part is a most valuable introduction to the study of the elements, and will prove very helpful to the student. The plan of the book necessitates two styles of type in the index to differentiate the parts; we believe consecutive numbering would have been better.

A Manual of Practical Hygiene.—By Charles Harrington. Third edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1905.

This wellknown book has been made to include recent advances in the subject, the principal addition being a chapter on immunity, which is a very able discussion of that intricate problem. The work as a whole remains one of the very best presentations of general hygiene.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Human Physiology.—By Joseph H. Raymond, A.M., M.D., Professor of Physiology and Hygiene, Long Island College Hospital, New York City. Third edition, thoroughly revised. Octavo volume of 687 pages, containing 441 illustrations, some in colors, and four full-page lithographic plates. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $3.50 net.

The Treatment of Fractures; with Notes on Dislocations.—By Charles L. Scudder, M.D., Surgeon to the Massachusetts General Hospital. Fifth edition, revised and enlarged. Octavo of 563 pages, with 739 original illustrations. Philadelphia and London: W. B. Saunders & Co., 1905. Polished buckram, $5.00 net; half morocco, $6.00 net.

Dietetics for Nurses.—By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhräh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. 12mo volume of 363 pages. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth $1.50 net.

Handbook of Anatomy.—By James K. Young, M.D., Professor of Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery, Woman's Medical College of Pennsylvania. Second edition, revised and enlarged. With 171 engravings, some in colors. Crown octavo, 404 pages, extra flexible cloth, rounded corners, $1.50 net. F. A. Davis Company, Philadelphia.

Therapeutics: Its Principles and Practice.—By Horatio C. Wood, M.D., LL.D., Professor of Materia Medica and Therapeutics in the University of Pennsylvania, etc. Twelfth edition, thoroughly revised and adapted to the eighth (1905) edition of the United States Pharmacopeia, by Horatio C. Wood and Horatio C. Wood, Jr., M.D., Demonstrator of Pharmacodynamics in the University of Pennsylvania. J. B. Lippincott Company, Philadelphia and London, 1905.

A Manual of Organic Materia Medica and Pharmacognosy.—By Lucius E. Sayre, B.S., Ph.M., Dean of the School of Pharmacy; Professor of Materia Medica and Pharmacy in the University of Kansas; Member of the Committee of Revision of the United States Pharmacopeia. Third edition, revised. With histology and microtechnique by William C. Stevens, Professor of Botany in the University of Kansas. With 377 illustrations, the majority of which are from original drawings and photomicrographs. P. Blakiston's Son & Co., Philadelphia, 1905.

Abdominal Operations.—By B. G. A. Moynihan, M.S. (London), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, England. Octavo of 695 pages, with 250 original illustrations. W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $7.00 net.

The Diagnostics of Internal Medicine.—By Glentworth Reeve Butler, Sc.D., M.D., Chief of the Second Medical Division, Methodist Episcopal Hospital; Attending Physician to the Brooklyn Hospital; Consulting Physician to the Bushwick Central Hospital; formerly Associate Physician, Departments of Diseases of the Chest and Diseases of Children, St. Mary's Hospital, Brooklyn, N. Y.; Fellow of the New York Academy of Medicine; Member of the Medical Society of the County of Kings; Fellow of the Society of Science, Letters, and Art (Lond.), etc. With 5 colored plates and 238 illustrations and charts in the text. Second revised edition. D. Appleton & Co., New York and London, 1905.

Twenty-eighth Annual Report of the State Board of Health of New Jersey and Report of the Bureau of Vital Statistics, 1904.

The Principles and Practice of Medicine.—By William Osler, M.D., Fellow of the Royal Society; Fellow of the Royal College of Physicians, London; Regius Professor of Medicine, Oxford University; Honorary Professor of Medicine, Johns Hopkins University, Baltimore; formerly Professor of the Institutes of Medicine, McGill University, Montreal; and Professor of Clinical M..cine in the University of Pennsylvania, Philadelphia. Sixth edition, thoroughly revised from new plates. D. Appleton & Co., New York and London, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

Marine-Hospital Service Inquiry.—A Washington report says that Secretary Shaw, of the Treasury, has decided to recommend the abandonment of 11 hospitals in the Marine-Hospital Service, out of 23 in the United States. Secretary Shaw started investigation to find out why the Marine-Hospital Service is annually costing the government at least twice as much every year as it did only a few years ago. He has concluded that the system of contracting for the care of sick sailors should be reorganized.

Personal.—Col. William A. Stokes, president of the Williamsburg (N. Y.) Hospital Board, has resigned. The reason has not been made public.—Howard A. Kelly, T. S. Halstead and W. H. Welch, of Baltimore, and William Osler, of Oxford University, sat recently in London for a group portrait by Sargent. The portrait will be presented to the Johns Hopkins University by Miss Mary Garrett. It will probably not be brought to this country within a year, as the artist wishes to exhibit it at the Royal Academy next May.

Health of the Army.—The report of Surgeon-General Robert M. O'Reilly says that the enlisted strength of the army, as shown upon the monthly sick reports, was 58,740 and on the returns of the military secretary 60,139, and calculations are made upon the latter figures. There were 79,586 "admissions to the sick report" during the year, 406 deaths from all causes, and 1,377 discharges for disability. The figures show a steady and progressive improvement. By far the most important diseases affecting efficiency during the year have been those resulting from immoral habits, which caused 16% of all admissions. Pneumonia advanced to first place in the causes of death, and tuberculosis second. There were 206 admissions for gunshot wounds, with 44 deaths and 2,850 admissions for wounds other than gunshot, with 15 deaths; 21 men were killed in action, and 42 wounded; of the killed 2 were by gunshot wounds; of the wounded 28 were by gunshot; 45 soldiers were drowned; 27 soldiers committed suicide; 10 deaths were due to homicide. The strength of officers was 3,421 from the medical department reports, and 3,815 from the military secretary. There were 2,276 admissions, 27 deaths. The strength of the army in the Philippines was 11,996, and there were 20,246 admissions to the sick report and 105 deaths.

Anemia League for Porto Rico.—The Surgeon-General of the army has received from Captain B. K. Ashford, of the medical department, who is conducting such important work for the benefit of the public health in Porto Rico, a plan for the establishment of a league against anemia in the island. Captain Ashford has been prominent in the investigations which have been made, and with his associates on the commission, has contributed much to improving hygienic conditions. It is now proposed to establish a league which shall make these conditions permanent and shall operate as a safeguard of public health. The plan is to divide the island into five or ten medical districts, and establish a government station in each district, with a hospital of about 40 beds and 2 or 3 physicians in charge. The work is to be taken up systematically under a central commission, which will direct the operations of the district surgeons. The league will include in its membership all physicians in active practice, and all prominent citizens who are willing to serve in that useful capacity and who will devote themselves to the spreading of information and the collection of funds. The former service will be accomplished by using the rural school teachers, giving weekly talks to the poor and the distribution of pamphlets.

EASTERN STATES.

Large Public Bequests.—Public bequests amounting to $245,000 are contained in the will of Charles Tidd Baker, a Boston insurance broker. Among them are $15,000 each to the Boston Convalescent Home of the Children's Hospital, and the Boston Children's Friend Society.

Medical Inspection in Chelsea, Mass.—Drs. E. J. Powers, E. B. Schallenbach, and F. B. McClinton have been appointed by the school committee of Chelsea, medical inspectors in the public schools of that city. This is the first time Chelsea has ever had medical inspectors for the public schools, and the move was taken in response to a suggestion from the superintendent, who believes it will greatly lessen the danger from the spread of contagious diseases among pupils and in their homes, and also will be beneficial to the general health of the city.

Boston Mortality Report.—The number of deaths reported for the week ended October 7 is 196, as against 188 the corresponding week last year, making the death-rate for the week 1.627. The cases and deaths were: Diphtheria, 23 cases, 1 death; scarlatina, 17 cases, no deaths; typhoid fever, 33 cases, 5 deaths; measles, 22 cases, no deaths; tuberculosis, 46 cases, 23 deaths; smallpox, no cases, no deaths; pneumonia, 15 deaths; whoopingcough, 1 death; heart disease, 17 deaths; bronchitis, 6 deaths; marasmus, 7 deaths; violent causes, 9 deaths; children under 1, 49 deaths; under 5, 65 deaths; persons over 60, 53 deaths; deaths in public institutions, 57.

NEW YORK AND VICINITY.

Typhoid Conditions in New York.—Since January 1 there have been 60,000 cases of typhoid in New York and 500 deaths in Greater New York alone. Were this rate to continue throughout the year, the number of cases would approximate 80,000. Most streams of the State are more or less polluted, and some of them are little better than open sewers.

Many Typhoid Cases at Paterson, N. J.—Typhoid fever is epidemic at North Paterson. There have been four deaths. The local physicians, aided by the State Board of Health, are doing all they can to stamp out the disease.

PHILADELPHIA, PENNSYLVANIA, ETC.

New Jersey Homeopaths Fix Fees.—The homeopathic doctors in New Jersey have adopted a scale of fees to be charged for operations. The fee for stomach operations shall not exceed $500, nor be less than $50. A patient can have a finger cut off for $5, or a leg removed for $150. They have also appointed a committee to oppose in the State Legislature any attempt of the osteopaths to become a recognized medical body.

Rapid Strides in Sanitation.—The Advisory Board of Commissioner of Health Samuel G. Dixon held its first meeting last week. The commissioner gave a brief summary of the work done by the new department, so far, in its many and broad lines of labor. Commissioner Dixon has prepared regulations to prevent an epidemic of smallpox in Pennsylvania, which will be sent to physicians and others who may have anything to do with the treatment of contagious and infectious diseases. His instructions to local health authorities for the sanitary management of smallpox provide that upon the receipt of a notification of the existence of a case of the disease, action by the responsible health officials should be immediate and exhaustive. He also directs that the quarantine of the patient and household be absolute; that the house be conspicuously placarded, and if guards are considered necessary to enforce quarantine, they should be placed immediately; trace every possible source of infection; quarantine domestic animals and pets; continue the quarantine for a period of 20 days after the entire recovery of the most recent case, and the disinfection of the premises, and in the case of school children for a period of 30 days.

SOUTHERN STATES.

Want Surgeons on Guard.—Because of the record made at New Orleans in control of the federal forces which are stamping out yellow fever, a movement is about to take form to have Dr. J. H. White permanently stationed there as a sanitary adviser to the authorities and to interest the governors of nearby States to ask the similar assignment of a Marine-Hospital officer.

New Orleans's Low Deathrate.—According to local authorities, the deathrate in New Orleans is today lower than in any other southern city. The following figures for the months of August and September will shed further light on the subject by showing the improvement made during the month: August, total deaths, 735; whites, 535; colored, 200. From yellow fever, 217; whites, 210; colored, 7. Deathrate per 1,000, whites, 26.86; colored, 27.91; total, 27.17. September, total deaths, 576; whites, 370; colored, 206. From yellow fever, 111; whites, 102; colored, 9. Deathrate per 1,000, whites, 18.57; colored, 27.77; total, 21.26. The figures for September show a lower deathrate than in any southern city save one, and those for the last week of September are the best in the South.

Better Fever Conditions.—Jefferson Parish, St. Mary Parish, in which Patterson is located, and La Fourche Parish, in which Leeville is situated, are the only parishes in which there is now any serious yellow fever infection. In New Orleans, the cases under treatment are less than 200, the lowest since the fever started. In the originally infected district, there has been but one new case in five days. The situation at Baton Rouge presents a striking example of what can be done through an effective mosquito fight. As soon as the fever appeared, a mosquito crusade was started, with the result that when a case developed, there were scarcely any stegomyia in the town. There has been practically no spread of the disease. To business men, the most encouraging feature of the yellow fever situation is the disposition on the part of parishes and towns in Louisiana to raise their quarantines. For several days no deaths have occurred in the emergency hospital, while the cases under treatment there have dropped to 38.

WESTERN STATES.

To Extend Meat Inspection.—Secretary Wilson of the Department of Agriculture, is working out a plan regarding the inspection of meat products at packing houses which involves the payment for such inspection by the packers, and if carried into effect will enable the department to give service to every packing plant in the United States. The small packers offered to pay the cost of the inspection, providing a fixed fee of so much per carcass was made by the department.

Oculists in the Engines.—To make eye tests and study conditions under which train signals are displayed, oculists will be placed on the engines that pull the fast trains on the Chicago, Milwaukee and St. Paul railroad. The tests will be made preliminary to a revision of the system of examining trainmen for defects of sight and may result in a change in the present manner of displaying lights and semaphore arms. The road men complain that their eyes are tested theoretically rather than along practical lines.

FOREIGN NEWS AND NOTES

GENERAL.

Cholera Not Stamped Out.—The official bulletin issued October 7 announced that two fresh cases of cholera and two deaths had been reported; one of the deaths being at Marienburg, and the other at Georgenburg, making the totals 261 cases and 89 deaths.

Plague in East Africa.—Bubonic plague has broken out at Chinde, in Portuguese East Africa. Several deaths are reported. Chinde is a port at the mouth of the Chinde river, in Portuguese East Africa, and is connected by telegraph with Blantyre, a mission station and settlement in British South Africa, named after the Scottish birthplace of Dr. Livingstone, the African traveler.

Cholera, Plague, and Smallpox in the Punjab.—The report on the sanitary administration of the Punjab shows that cholera did not prevail in any severe epidemic form in the province during the year, the total mortality amounting to only 716—that is, 0.04 per mille of population. There are about 33,000 towns and villages in the province, and of these there were only 107 in which deaths from cholera were reported. In 10 whole districts not a single death was registered. Smallpox, unlike cholera, appears to have kept its ground instead of retreating. The deaths attributed to that epidemic during the year under review numbered 9,624, which shows a rate of 0.48 per mille, a little over the mean ratio of the previous five years, though 0.3 lower than that of 1903. The highest mortality, as is very often the case, was registered in the month of May, and the lowest in October. As regards seasonal prevalence, plague and smallpox follow a similar course. Plague, like smallpox, breaks out on the approach of the cold season, increases steadily in the winter, attains its maximum intensity by about the same time as, or some weeks earlier than smallpox, and declines with the commencement of the hot weather. In plague the decadence is rapid, while in the case of smallpox it is gradual, but on the whole the two epidemics exhibit a curious inclination to march hand in hand.

OBITUARIES.

HENRY DARWIN DIDAMA, aged 82, October 4, from the effects of a fracture of the hip, at his home in Syracuse, N. Y. He was graduated from the Albany (N. Y.) Medical College in 1846. He had been a resident and practitioner of Syracuse for 45 years, and was dean of the medical college of Syracuse University for more than 20 years; last year he retired from active duties and was made dean emeritus. Dr. Didama was one of the founders of the New York State Medical Association, and for many years one of its members; also a founder of *American Medicine*. He was noted as a writer, and for his advocacy of temperance, refusing to prescribe liquor for a patient, or to treat a patient who used either liquor or tobacco.

C. M. SHANLEY, formerly of Lidgerwood, N. D., October 9, from yellow fever, at his home in Bayou Barataria, La. When yellow fever broke out in Bayou Barataria, Dr. Shanley volunteered his services, and for days and nights visited and administered to the sick, until he himself was stricken. He was graduated from the Baltimore Medical College, Baltimore, in 1894 and took a postgraduate course at the Johns Hopkins University in 1897. He was a member of the North and South Dakota and the Ohio State Medical Societies, and of the American Medical Association.

JOHN ARVID OUCHTERLONY, aged 67, October 9, at his home in Louisville, Ky. He was graduated from the University of the City of New York, New York City, in 1861, and from the University of Louisville, medical department, Louisville, in 1893. He was professor of medicine and clinical medicine in the University of Louisiana, consulting physician to the City Hospital and visiting physician to the St. Mary and Elizabeth Hospital; member of the American Medical Association, Mississippi Valley Medical Association, Kentucky State Association and Louisville Medico-Chirurgical Society.

ARTHUR WEIR JOHNSTONE, aged 52, of Cincinnati, September 28, after an operation for appendicitis, at his private hospital, Walnut Hills, Cincinnati. He was graduated from the New York University, New York City, in 1876, making abdominal surgery his specialty. He was a fellow of the American Gynecological Society; member of the Kentucky State Medical Society, Ohio State Medical Society, Cincinnati Obstetrical Society, and the British Gynecological Society.

WILLIAM P. TONRY, aged 65, October 3, from angina pectoris, at his home in Baltimore. He was graduated from the Baltimore Medical College, but devoted his attention to the study of chemistry, at one time being assistant chemist in the laboratory of the United States Army Surgeon-General's office in Washington. For seven years he was professor of chemistry, toxicology and hygiene at the Baltimore Medical College, and later chemist to the city Board of Health.

P. J. KIRSCHNER, aged 52, September 22, from nervous disorder, at his home in St. Joseph, Mo. He was graduated from Bellevue Hospital Medical College, New York City, in 1879. For several years he was physician of Buchanan county, Mo., and coroner for four years, and president of the board of managers of State Hospital No. 2, St. Joseph, from 1889 to 1892.

ELLERY C. CLARKE, aged 69, October 5, at his home in Baltimore. Dr. Clarke was a veteran of the Civil war, being a surgeon in the Eighth New Hampshire Volunteers. He received several wounds while in service, and these kept him in poor health. At one time he was medical examiner in the pension office at Washington.

GEORGE B. NICHOLS, aged 65, September 21, from cancer of the ear and throat, at his home in San Luis Obispo, Cal. He was graduated from Long Island College Hospital, Brooklyn, in 1871. He served as coroner of San Luis Obispo county for 17 years, and was the oldest and best known practitioner of that county.

HARRY D. HULL, aged 51, September 24, from locomotor ataxia, at his home in Adrian, Mich. He was graduated from Bellevue Medical College, New York City, in 1877. For several years he was a member of the Board of Pension Examiners, and surgeon of the Wabash Railroad, and for three years city physician.

WILBUR F. MYERS, aged 55, of Franklin, Pa., was found dead at his desk, October 4, having expired of organic heart disease. He was graduated from the University of Pennsylvania in 1875. He was one of the best known practitioners of Venango county.

BASIL GEORGE, aged 57, of Enterprise, Miss., October 2, at the home of his brother. He was graduated from the Medical College of Alabama in 1872. Owing to poor health he retired from active practice several years ago.

WILLIAM A. MCPHEETERS, of Natchez, Miss., September 27, suddenly, at Springfield, Mo. He was graduated from the University of Pennsylvania in 1855. During the Civil war he served in the Confederate ranks.

UPTON A. SHARRETTS, aged 45, formerly of Frederick, Md., October 8, from hemorrhage of the lungs, at his home in Colorado Springs. He was graduated from the Homeopathic Medical College (Philadelphia) in 1883.

OSCAR B. B. EWELL, aged 49, October 6, at his home in Marion, Somerset county, Md. He was graduated from the College of Physicians and Surgeons, Baltimore.

THOMAS MILTON TODD, aged 66, September 15, at his home in East Auburn, Cal. He was graduated from the Miami Medical College, Cincinnati, in 1869.

WILSON T. BASSETT, aged 84, October 3, at his home in Cooperstown, N. Y. He was graduated from the Albany Medical College in 1844.

THE PUBLIC SERVICE

Health Reports: The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the period from September 30 to October 9, 1905:

SMALLPOX—UNITED STATES.

California—Los Angeles, September 16–23, 1 case; San Francisco, September 16–23, 1 case.
Illinois—Chicago, September 23–30, 1 death; Galesburg, September 23–30, 3 cases.
Ohio—Cincinnati, September 22–29, 1 case.
Pennsylvania—Altoona, September 23–30, 1 case.
Washington—Tacoma, September 16–23, 1 case.

SMALLPOX—FOREIGN.

Africa—Cape Town, August 19–26, 1 case.
Brazil—Pernambuco, August 1–15, 215 deaths.
China—Hongkong, August 19–26, 1 case; 1 death. Niuchwang, August 5–12, 3 cases.
Ecuador—Guayaquil, September 5–12, 4 deaths.
France—Marseilles, August 1–31, 1 death. Paris, September 8–16, 22 cases; 5 deaths.
Gibraltar—September 3–10, 2 cases.
India—Madras, August 19–25, 8 deaths.
Mexico—Dona Cecilia, September 25, 1 case.
Russia—Odessa—September 9–16, 4 cases; 1 death.
Spain—Barcelona, September 1–10, 1 death. Cadiz, August 1–31, 1 death.

YELLOW FEVER—UNITED STATES.

Florida—Brent, September 26, 1 case; 1 death. Pensacola, August 29–October 1, 158 cases; 26 deaths.
Louisiana—Ascension Parish, to September 28, 77 cases; 4 deaths. Assumption Parish, to October 2, 38 cases. Avoyelles Parish, to September 29, 11 cases; 2 deaths. East Baton Rouge Parish, to September 30, 7 cases; 1 death. East Carroll Parish, to October 2, 278 cases; 33 deaths. Iberville Parish, to October 3, 30 cases; 8 deaths. Jefferson Parish, to October 2, 428 cases; 46 deaths. Lafourche Parish, to October 2, 381 cases; 47 deaths. Madison Parish, to October 2, 307 cases; 18 deaths. Natchitoches Parish, to September 27, 80 cases; 5 deaths. Orleans Parish, New Orleans, July 21–October 4, 3,083 cases; 398 deaths. Plaquemines Parish, to October 2, 54 cases; 8 deaths. Rapides Parish, to October 3, 24 cases. St. Bernard Parish, to October 3, 24 cases; 3 deaths. St. Charles Parish, to September 29, 117 cases; 16 deaths. St. John the Baptist Parish, to September 27, 151 cases; 14 deaths. St. Mary Parish, to October 3, 756 cases; 29 deaths. St. Tammany Parish, to October 2, 7 cases; 1 death. Tensas Parish, to September 30, 6 cases. Terrebonne Parish, to October 1, 271 cases; 13 deaths.
Mississippi—Gulfport, August 15–October 1, 90 cases; 2 deaths. Gulf Quarantine, July 22–September 16, 65 cases; 1 death. Hamburg, September 15–October 1, 39 cases; 5 deaths. Mississippi City, August 22–October 1, 65 cases. Moss Point, to October 1, 3 cases. Natchez, to October 1, 62 cases; 3 deaths. Port Gibson, September 27–October 1, 4 cases. Rosetta, October 1, 2 cases. Scranton, September 29–October 1, 17 cases. Vicksburg, August 30–October 1, 81 cases; 7 deaths.

YELLOW FEVER—FOREIGN.

Guatemala—Zacapa, September 21, 18 to 20 deaths.
Honduras—Chamelicon, September 8, 6 cases. Choloma, September 8, 1 case. San Pedro, September 8, 2 cases; 2 deaths.
Mexico—Coatzacoalcos, August 19–26, 2 cases. Vera Cruz, September 9–23, 4 cases; 2 deaths.

CHOLERA—INSULAR.

Philippine Islands—Manila, August 23–25, 21 cases; 17 deaths.

CHOLERA—FOREIGN.

China—Shanghai, August 19–26, present.
India—Bombay, August 31–September 5, 1 death.
Japan—Yokohama, August 13–20, 1 case; 1 death.

PLAGUE—INSULAR.

Philippine Islands—Manila, August 12–19, 1 death.

PLAGUE—FOREIGN.

India—Bombay, August 31–September 5, 43 deaths. Karachi, August 27–September 23, 22 cases; 17 deaths.
Japan—Formosa, August 1–31, 2 cases; 2 deaths.

Changes in the Medical Corps of the U. S. Army for the week ended October 7, 1905:

GAPEN, First Lieutenant NELSON, assistant surgeon, is granted leave for one month, with permission to visit the United States, effective about September 15, on account of exceptional circumstances.

YEMANS, HERBERT W., contract surgeon, is relieved from duty at Mariveles, Bataan, and will proceed to Toledo, Cebu, for duty.

KIRBY-SMITH, First Lieutenant REYNOLD M., assistant surgeon, is relieved from duty at Oras, Samar, and will proceed to Manila, reporting to the officer in charge of the medical supply depot for duty as his assistant, with station in Manila.

WOLFE, Captain EDWIN P., assistant surgeon, is granted leave for one month and fifteen days, with permission to visit China and Japan, effective when he is relieved by his successor.

HARRIS, HERBERT I., contract surgeon, will proceed to Camp Connell, Samar, for duty.

HESS, Captain LOUIS T., assistant surgeon, now at Cuartel de Espana, will proceed to Fort William McKinley, Rizal, for duty as special sanitary officer during the present cholera epidemic, upon the termination of which he will return to his proper station.

The following changes in station of medical officers are ordered: Contract Surgeon Preston S. Kellogg, now at Fort William McKinley, Rizal, will proceed to the Mariquina Valley and report at pumping station, Rizal, for duty. Contract Surgeon William E. Hall, United States army, now at San Pedro Tunisan, Laguna, is relieved from further duty at that station and will proceed to Mariquini, Rizal, for duty.

BANISTER, Major WILLIAM B., surgeon, is granted leave for one month.

TRUBY, Captain ALBERT E., assistant surgeon, is granted leave for one month.

GLENNAN, Major J. D., surgeon, leave granted for ten days, September 23, is extended ten days.

NICKEL, AUGUST, sergeant first class, depot of recruits and casuals, Fort McDowell, will be sent to Jefferson Barracks for duty.

Gorton, Glen D., sergeant first class, Army General Hospital, Washington Barracks, on or before expiration of furlough, will be sent to the depot of recruits and casuals, Fort McDowell, to report and be sent to Manila, P. I., on the transport leaving San Francisco, Cal., about January 5.

Williamson, J. William, contract surgeon, now at St. Louis, Mo., will report to the commanding general, Northern Division, for assignment to duty as attending surgeon in that city.

Hill, Edward J., sergeant first class, Jefferson Barracks, will be sent to Fort Greble for duty.

Hardenbrook, Burton, sergeant first class, now at the Army General Hospital, Washington Barracks, will be sent to Allegheny Arsenal, Pa., for duty.

Scott, Sidney L., contract surgeon, is relieved from duty at the Army General Hospital, Washington Barracks, to take effect September 30 to enable him to comply with the requirements of orders of September 26.

Juenemann, First Lieutenant George F., assistant surgeon, is granted leave for 15 days, to take effect when his services can be spared by the department commander.

Williamson, Captain Llewellyn P., assistant surgeon, resignation has been accepted to take effect December 15, 1905.

Watkins, Victor E., contract surgeon, will proceed from Perth Amboy, N. J., to Plattsburg Barracks for duty.

Dade, Waller H., contract surgeon, is relieved from duty at Fort Duchesne to take effect when his services shall no longer be required with troops in the field from that post, and will proceed to Fort D. A. Russell for duty.

The following transfers are made: Chester B. Leedom, sergeant first class, Presidio of San Francisco, to Fort Columbia; Amos S. Kinzer, sergeant first class, Fort Columbia, to Fort Wright.

Doran, George C., sergeant first class, Fort Wright, will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer who will send him to Manila, P. I., on the transport leaving San Francisco about November 5.

Brown, Harry T., sergeant first class, Fort Greble, will be discharged under the provisions of G. O. 48, W. D., March 15, 1904.

Koerper, First Lieutenant Conrad E., assistant surgeon, in addition to his present duties will report to the commanding officer, Washington Barracks, for duty as surgeon of that post during the temporary absence of Captain Edward R. Schreiner, assistant surgeon.

Kennedy, James S., contract surgeon, is granted leave for one month to take effect when in the opinion of the commanding general, department of the Missouri, his services can be spared from that department.

Grossjohann, Ernst, sergeant first class, upon arrival at the depot of recruits and casuals, Fort McDowell, from the Philippines Division, will be sent to Fort Barrancas to relieve Paul Compton, sergeant first class. Sergeant Compton upon expiration of furlough for two months authorized August 14, will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him to Manila, P. I.

Ford, Captain Clyde S., assistant surgeon, is relieved from temporary duty at Fort McPherson, and will proceed to Fort Barrancas, Fla., his proper station.

Changes in the Medical Corps of the U. S. Navy for the week ended October 7, 1905:

Moore, J. M., passed assistant surgeon, orders of September 27 modified; ordered to the navy recruiting rendezvous, New York—September 29.

McCullough, F. E., surgeon, detached from the Pensacola and ordered to the Albatross—October 5.

Blackburn, T. C., acting assistant surgeon, detached from duty with naval recruiting party No. 2, and ordered to the naval recruiting rendezvous, St. Louis, Mo.—October 3.

Bradley, G. P., medical director, detached from the Naval Hospital, Washington, D. C., October 15, and ordered to the Navy Yard, Portsmouth, N. H., and to additional duty in command of the Naval Hospital at that place—October 4.

Dickinson, D., medical director, detached from the Navy Yard, Portsmouth, N. H., and ordered to command the Naval Hospital, Washington, D. C.—October 4.

Law, H. L., surgeon, retired, detached from the naval recruiting rendezvous, Boston, Mass., and ordered home—October 4.

Huntington, E. O., surgeon, detached from the Albatross and ordered to Washington, D. C., and report at the Navy Department—October 5.

Stuart, A., passed assistant surgeon, detached from the Naval Hospital, Chelsea, Mass., and ordered to the Pensacola and to additional duty at the naval training station, San Francisco, Cal.—October 5.

Michels, R. H., assistant surgeon, ordered to the naval recruiting rendezvous, Kansas City, Mo., October 9—October 5.

Elmore, B., assistant surgeon, detached from the Naval Hospital, Washington, D. C., December 1, and resignation accepted, to take effect same day—October 5.

Changes in the Public Health and Marine-Hospital Service for the week ended October 4, 1905:

Gassaway, J. M., surgeon, to rejoin station at St. Louis, Mo.—September 28, 1905.

Greene, J. B., passed assistant surgeon, to proceed to Port Gibson, Miss., and report to Surgeon Guiteras for special temporary duty—September 28, 1905.

McMullen, John, passed assistant surgeon, to proceed to Gulfport, Miss., for instructions relative to special temporary duty at or near Scranton, Miss.—October 2, 1905.

Amesue, J. W., passed assistant surgeon, relieved from temporary duty at Cairo, Ill., and directed to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—October 3, 1905.

Berry, T. D., passed assistant surgeon, to proceed to Gulfport, Miss., for instructions relative to special temporary duty at or near Scranton, Miss.—October 2, 1905.

McLaughlin, A. J., passed assistant surgeon, relieved from duty at Hamburg, Germany; proceed to Berlin, Germany, for duty—September 30, 1905.

Collins, G. L., assistant surgeon, granted leave of absence for one day under paragraph 191 of the regulations—September 28, 1905.

Stewart, W. J. S., acting assistant surgeon, leave of absence granted for thirty days from October 1, 1905, revoked—September 30, 1905.

Scott, E. B., pharmacist, granted leave of absence for seven days under paragraph 210 of the regulations—September 27, 1905.

Hall, L. P., pharmacist, granted leave of absence for two days from September 9, 1905, under paragraph 210 of the regulations.

Board Convened.

Board convened to meet at Tampa Bay Quarantine Station, October 3, 1905, for physical examination of Chief Engineer H. L. Boyd, Revenue Cutter Service. Detail for the Board: Assistant Surgeon R. E. Ebersole, chairman; Acting Assistant Surgeon C. H. Altree, recorder—September 28, 1905.

SOCIETY REPORTS

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston, Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 600.*]

Scarlatinal Otitis.—FRANK B. SPRAGUE (Providence, R. I.) said that otitis media was the most frequent complication of scarlet fever, and, everything considered, the most serious. Like the general infection, its severity varied with the epidemic, the climate and the seasons of the year. It was more common in the winter and spring months, and in the colder climates. Statistics showed that from 3% to 9% of cases of scarlet fever had ear complications, and in about 50% of these cases, both ears were affected. Statistics further showed that of 5,613 deaf mutes in New York, 572, or nearly 10%, owed their condition to otitis complicating scarlet fever. In view of the serious consequences of this condition, Sprague emphasized the importance of its early recognition. We should not wait for the ear to "break and run," as was so often done, for that was but little short of criminal negligence. As soon as there was the slightest indication of inflammation in the middle-ear, the tympanic membrane should be incised, so as to preserve, if possible, the function of one of the most important organs of special sense.

Discussion.—EDWARD B. DENCH (New York) said that while it was well known that a certain number of cases of otitis occurred in the course of scarlet fever, accurate statistics on that point were wanting, and for that reason papers of the character of Sprague's were very valuable. Usually, in seeking information on this subject, we had to depend on textbooks which were many years old.

The Indications for Operating in Acute Mastoiditis.—PHILIP D. KERRISON (New York) said these indications might be summed up as follows: 1. Sudden cessation of the aural discharge, other symptoms persisting; deepseated pain in the mastoid region; marked sensitiveness to pressure upon the mastoid over an area extending well beyond the limits of the antrum. These symptoms, in the presence of a sudden and considerable rise in temperature, would justify an immediate operation. 2. In the absence of fever, the above symptoms, unless yielding promptly (within 24 to 48 hours) to abortive measures, would constitute a sufficient reason for operating upon the mastoid. 3. Marked tenderness over the antrum, persisting four or five days after free incision of Shrapnel's membrane would point to necrotic changes within the antrum, calling for operative intervention. 4. Marked variations in the quantity of pus discharged, its maximum flow being apparently too great to be explained by the tympanic lesion, its periods of diminution being coincident with the development of mastoid pain or tenderness, or both. Such a combination of symptoms constituted one of the most positive indications for opening the mastoid. 5. Mastoid tenderness having been present and having disappeared, a discharge from the tympanic vault which resisted all rational nonoperative measures, might, by reason of its persistence, justify the hypothesis of a necrotic area in the aditus or antrum. In such cases an operation was often the only means of saving the integrity of the organ, and preventing serious impairment of function. 6. Evidences of mastoid involvement having been present, the development at any time during convalescence of symptoms of septic absorption would, in the absence of other concurrent disease, constitute a positive indication for immediate operation.

Discussion.—EDWARD B. DENCH (New York) said the distinction attempted by Kerrison regarding the aditus and antrum as connecting the tympanic vault and the mastoid antrum was analogous to whether we called a strait a narrow neck of water connecting two larger bodies, or a constriction of a large body of water. He did not regard the distinction as material. According to Kerrison, tenderness over the lower cells was more important as a diagnostic sign than tenderness over the antrum. Dench said that in the past four or five years in almost every case of acute otitis, especially those complicating grip, there was tenderness over the lower mastoid cells and none over the antrum until wellmarked changes in the antrum had taken place. Whenever there was mastoid tenderness, it could always be looked upon as a sign of inflammation. The speaker said he had seen caries of the cells in the posterior wall of the canal occur very early in acute mastoiditis. Its occurrence there depended on the conformation of the cells in the mastoid, as in some cases the posterior wall of the canal was very thick. The posterior wall of the canal was simply the anterior mastoid wall, and it was very frequently affected in acute disease. The speaker said he could recall a number of cases in which the only symptom of mastoiditis was a sinking of the upper posterior wall of the auditory canal. Clinically, he regarded this as one of the strongest signs that the mastoid was not draining satisfactorily. S. MACCUEN SMITH (Philadelphia) said that of all the symptoms of mastoid disease, he placed the most reliance upon bulging of the posterior wall of the auditory canal. He had never yet seen that sign fail. He did not mean to imply, however, that bulging of the posterior and superior walls was an invariable symptom of mastoid disease, nor would he operate on the strength of that sign alone, although he regarded it as very important. In a case that recently came under his observation, the patient was a child aged 1 year, the daughter of a physician. That child had never had any ear trouble, had never had any discharge, and had never lost any sleep. One morning, the nurse observed a slight swelling back of the ear, over the mastoid. An examination through the external auditory canal failed to reveal the slightest redness, but there was distinct bulging of the posterior and superior walls, with characteristic redness. The case was operated on the same morning, and, to his surprise he found a carious opening through the cortex; the antrum cells were filled with pus. J. A. STUCKY (Lexington, Ky.) said that while sagging of the posterior superior wall of the canal might be pathognomonic of mastoid involvement, still the reverse was not necessarily true. We might have very extensive involvement of the mastoid cells, with absolutely no abnormal indication of it in the posterior superior wall. He said he had seen several such cases in which there was a history of ear discharge lasting some weeks, and no bulging of the superior wall at all. The ear in those cases was apparently draining well, but the patients had a septic look and ran a septic temperature, and on deep pressure, there were signs of mastoid involvement. In one such case where the patient was operated on, Stucky said he was amazed at the extensive destruction of bony tissue. He said that in the section of the country where he came from there was still much room for missionary work among the general practitioners, and even among the otologists. Many of these still waited for this bulging of the posterior superior wall, and he could recall two instances when they waited too long. In both of those cases the patients developed meningitis, and died. L. L. MIAL (New York) said that in connection with this subject of mastoid tenderness, as indicative of mastoid inflammation, he wished to mention two cases that came under his observation during the past six months. One was that of a man of 23, who complained of severe pain in the ear and mastoid. There was excruciating tenderness over the tip of the mastoid, but no bulging or other indications of mastoid trouble. It was finally discovered that he had a badly decayed tooth on the lower jaw of that side, and when this was extracted, all his symptoms disappeared. The second case was that of a child aged 14, in which a similar train of symptoms was traced to the same cause. FRANCIS R. PACKARD (Philadelphia) said that bulging of the wall of the canal was a particularly valuable symptom in cases where there was no discharge. He recalled such a case in which he was called upon to operate, by A. W. Watson, of Philadelphia. There was no discharge, but on opening the mastoid it was found to be rotten, and every cell was filled with pus. It was in this class of cases that the bulging was particularly valuable, as it indicated that the pus was penned in and could not get out. EDWARD B. DENCH (New York) said that if the mastoid tenderness persisted for four or five days, he would be inclined to operate. The tenderness very frequently

began at the tip of the mastoid, and spread up to the antrum, and it was this last tenderness that was important. Philip D. Kerrison, in closing, in reply to Dench's statement, that he had seen necrosis of the bony wall, said he did not see any reason why that should not occur in cases where the process went on to a distinct mastoiditis. Personally, he had never seen it. In his paper, he had tried to bring out the point emphasized by Dench, namely, that bulging of the posterior wall was the very best sign we had that drainage was not perfect. Kerrison believed that it was an important sign of severe tympanic infection, but did not necessarily point to mastoid inflammation. In the case reported by S. MacCuen Smith, the doctor had stated that there was some swelling behind the ear, which everyone agreed was an absolute indication for immediate operation. In Smith's case, this postauricular swelling was stated to have been present some days before the sagging of the posterior canal wall was noticed. Kerrison said that while much had been written regarding antral tenderness and bulging of the canal as pathognomonic signs indicating operation, he could recall a large number of cases where both those signs were present and disappeared, and the patients made a perfect recovery without operation.

[*To be continued.*]

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Eighteenth Annual Meeting, held in New York City, September 19, 20 and 21, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 603.*]

Diagnosis.—John B. Deaver (Philadelphia, Pa.) said there was a tendency at present of making diagnoses (or of not making them) by means of a consultation of specialists—hematologists, bacteriologists, skiagraphers, and microscopists—instead of by a minute, painstaking, and complete physical examination, together with a careful study of the clinical history of the patient. Too much stress could not be laid upon the latter. Pathognomonic symptoms were one by one disappearing before the advance of medical and surgical science; but some pathologists and bacteriologists were still ready to give their diagnoses, based solely upon their special findings, with the utmost disregard of the physical examination and of the natural history of the disease in question. As to diagnosis by exclusion, he said it was manifestly impossible to exclude all but one organ or portion of the body, and therefore a diagnosis by exclusion was an illogic and unscientific method of making a diagnosis. It should always be the last resort. The tendency to base a diagnosis solely, or almost entirely on laboratory findings, was widespread and becoming more constantly prevalent. The reason that this fondness for laboratory diagnosis was so widespread was, he thought, because the students of medicine were taught laboratory methods to an undue extent. The constant cry in all medical colleges at the present day was for funds to build and equip laboratories. The students were forced to spend hours at a time in the laboratories studying the products of disease or the causes of disease, while the time formerly allotted to the study of the disease itself was reduced to a minimum or was altogether expunged from the roster. Instead of drilling into the minds of students the eternal principles of surgery, the faculty sent them into the laboratory, to the end that they might become adepts in the art of blood counting, or may be rendered capable of distinguishing between consanguineous tribes of microorganisms. In his judgment this was a fatal mistake. While Deaver earnestly advocated that every young physician returning to his country town should take a good microscope with him, and should examine his patient's blood and urine on every suitable occasion, yet he was thoroughly convinced of the fact that laboratory diagnosis, as it was called, required now, and ever would require, a well-equipped laboratory to render it of any service whatever, and until every physician could possess his own laboratory, or could have a position on the staff of a hospital so equipped, it was worse than useless, it was a criminal waste of time, and a menace to their future patients to endow students with no skill but in such mechanical methods.

Appendicitis as a Factor in the Diagnosis and Treatment of Abdominal and Pelvic Tumors; Also Complicating Pregnancy.—Rufus B. Hall (Cincinnati, O.) believed that the diagnosis of appendicitis, when associated with pelvic and abdominal tumors, or in the pregnant woman, had not received the attention on the part of the general profession that the subject deserved. He called attention more forcibly to the early recognition of the cardinal signs of appendicitis in these cases. It was a common supposition on the part of the general profession that when a patient known to have an abdominal or pelvic tumor was taken suddenly ill with pain in the abdomen, that there was something wrong with the tumor, and the cardinal signs of appendicitis were ignored or overlooked. The author then discussed the differential diagnosis of appendicitis complicating fibroid tumors of the uterus and ovarian tumors; the differential diagnosis of appendicitis complicating tubal disease; the differential diagnosis of appendicitis associated with pregnancy; the treatment of appendicitis complicating fibroid tumors and ovarian tumors and tubal disease, as well as the treatment of appendicitis associated with pregnancy.

Cesarean Section.—Henry Schwarz (St. Louis, Mo.) reported an unusual case of a child wife who was in labor 60 hours, with repeated attempts at forceps delivery by the family physician. Apparently she was not infected. Instead of a Porro, as was usual in such cases, he did the classic cesarean operation, which was followed by the recovery of the mother. The baby was asphyxiated; membranes and amniotic fluid yellowish-green. His assistant worked over the baby an hour at artificial respiration before spontaneous breathing was established. Pressure marks on the scalp showed locking of the head between the promontory and symphysis; necrotic tissue dropped out a few days afterward, and the baby recovered.

Pregnancy Associated with Diabetes.—Magnus A. Tate (Cincinnati, O.) mentioned the reports of numerous investigators, calling attention to sugar in the urine of pregnant women. He collected all cases that could be found in literature where pregnancy was complicated by diabetes. He reported an additional case, and presented a study of these tabulated cases as to their frequency, results, mortality, and other similar data.

Cysts of the Mesentery.—Orange G. Pfaff (Indianapolis, Ind.) said that these growths were comparatively rare; their diagnosis was difficult, if not impossible. Their pathology was not fully and clearly understood, but most of them, if not all, were of probable embryonal origin. He reported two interesting and instructive cases of mesenteric cysts.

Abdominal Pregnancy Persisting Beyond the Normal Period of Gestation, with Report of Cases.—Charles A. L. Reed (Cincinnati, O.) read a paper which was based, first, upon three cases that occurred in his practice, as follows: 1. Extrauterine pregnancy with extraperitoneal development of gestation, operated upon 15 months after conception by marsupialization, and terminating in recovery. 2. Extrauterine pregnancy with retroperitoneal development of gestation, operated upon by marsupialization 11 months after conception, and ending in recovery. 3. Extrauterine pregnancy with the development of gestation within the anterior abdominal wall, complicated with uterine fibroids, operated upon four years and nine months after conception, ending in recovery. He next presented reviews of seven cases in the practice of other operators, representing various other forms of development of extrauterine pregnancy. The conclusion reached was that the placenta presented the chief factor of danger in operation upon these cases. In instances in which the fetus was already dead, and in which there were no symptoms of sepsis demanding immediate operation, a delay for a few weeks was desirable, as thereby the vascularity of the placenta would be greatly reduced, if not entirely destroyed. One case indicated that it might persist to an embarrassing degree after six weeks. The operation by marsupialization was recommended, as it avoided hemorrhage, facilitated perfect drainage, and placed all conditions under control. The importance of the yeast ferment in eliminating attached fragments of placental detritus was emphasized.

Observations on the Treatment of Face Presentations.—AUGUSTUS P. CLARKE (Cambridge, Mass.) said that typic cases of face presentation were not common. Undoubtedly, nearly all cases of such presentation were originally brow positions, but by some irregular uterine contraction and other incidental factors, they changed to the character of face presentations. If the occiput was anterior in a face presentation, naturally delivery became impracticable. Schat's method for relief by external manipulation, had its advantages as an initial measure. In dolichocephalic cases, other methods would be demanded. Podalic version would sometimes be successful. In mentoposterior presentation, rotation of the chin should be made toward the symphysis pubis. If the child was not dead, and the case was that of mentoanterior presentation, and impaction was taking place and the maternal pelvis was not too narrow, forceps might, with benefit, be used. In a mentoposterior presentation, when the case was seen late and the position of the face could not be conveniently changed, and the child was still alive, symphysiotomy offered the best method of procedure for saving both the mother and the child.

Myomectomy.—WALTER P. MANTON (Detroit, Mich.) contributed a paper in which it was stated that the ruthless sacrifice of the uterus in many cases of single and multiple fibromyomas of that organ was greatly to be deprecated, and the influence of good surgery should be toward the discountenancing of such unnecessary procedure. Myomectomy afforded relief in a large percentage of these cases, and had the advantage over hysterectomy in that the uterus was conserved, its tissues put in the way of renewed health, and functional activity restored. Under modern methods, in skilful hands, the dangers from this operation—hemorrhage and sepsis—so greatly feared by the older operators, had been practically removed, and in suitable cases, almost any number of tumors, wherever situated, might be enucleated with satisfactory results. In determining on myomectomy as the operation of choice, the age and physical condition of the patient, the arrangement and distribution of the tumors, and the amount of uterine musculature present, must be given chief consideration.

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, Held at Scranton, September 26, 27, and 28, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 600.*]

The Adaptation of the Public to the Principles and the Practice of Tuberculosis.—HOWARD S. ANDERS (Philadelphia). He laid considerable stress upon the adaptability of the public to conditions incident to the disease tuberculosis. The laity must not be slow to fall in with the crusade started and directed by the physician. It is very doubtful in his opinion whether victory can be achieved without the hearty cooperation of the public. He spoke of the instruction in sanitary laws which the public should receive.

Open Air and Confinement in the Treatment of Bone Tuberculosis.—H. AUGUSTUS WILSON (Philadelphia). He maintained that capillary stasis is an important factor in bringing about the onset of tuberculosis, and he spoke of the manner in which the stasis was relieved when the patient is given fresh air and sunshine. He is a strong advocate of seashore resorts for the benefit of such patients' health. At these places sinuses which have been running for long periods of time, heal, the appetite increases, and the patients gain in weight. These patients should be out in the open air as much as possible, and they should sleep with all the windows open at night. In the treatment of osseous tuberculosis the high atmospheric pressure is not necessary.

Discussion.—MAZYCK RAVENEL (Philadelphia) announced that each physician must learn to auscultate according to methods devised by himself, because neither it nor percussion is scientific. Forced feeding to a tuberculous patient may do harm. The patient must take so much as can be digested easily. He spoke as to the quality of the milk used. It must not contain bacteria of all description. G. W. GUTHRIE (Wilkesbarre) declared that when possible, local foci of this disease should be removed, as the disease may arise in other parts. He spoke of the foci as being present in the breast, which he removed, and also of a fissure which was of a tuberculous nature.

Additional Observations upon the Treatment of Empyema, with Especial Reference to Irrigation of the Pleural Cavity.—P. Y. EISENBERG (Norristown). In his opinion the mere resection of a rib and insufficient drainage are a waste of time. He advocates a good size opening, as afforded by the Shede operation, douching at the time of the operation and at each subsequent dressing. He believes that the irrigation aids in getting rid of the noxious bodies in the thickened pleura by opening the lymph channels. When irrigating, the patient must be in the recumbent position. Warm irrigating fluids, such as salt solution, sterile water, and boric acid, are used. He mentions the method of irrigation by immersing the patient in a bathtub of irrigating fluid and allowing the act of respiration to do the irrigation.

Discussion.—F. J. BARDWELL also advocated a good size opening in these cases, but he believes that if the diagnosis is made early, in the first week of the disease, the treatment would be much easier. He states that the clots of fibrin must be removed and the adhesion of the pleura should be disintegrated.

Fractures of the Head of the Radius.—T. T. THOMAS (Philadelphia). The infrequency of fractures of the head of the radius is due to the fact that they are not recognized, so that they may not be infrequent if physicians once come to know how to make the diagnosis. In the records of four of the men who work with the röntgen ray he has found more fractures of this character than are recorded in the literature. Only 6 of the 42 recorded cases were recognized during life. These fractures are usually due to a fall on the hand. Although a valuable aid to determine the diagnosis of fractures of the head of the radius, Thomas maintains that the diagnosis can be made easily without the assistance of the röntgen ray. Pain, limitation of motion, are the principal factors in the symptom-complex. The pain is severe and is localized to an area not more than 0.5 cm. in diameter. While there are some disturbances in flexion and extension, the rotary movement is almost entirely lost. He stated that the majority of surgeons favored the operation of cutting down on the fragmented pieces and then applying direct fixation; he agrees with von Bergmann, who applies a splint to the forearm and advises gentle motion at each; Thomas allows the splint to remain in position very much longer than the author quoted, and insists that the arm should be kept in the splint for three weeks, when passive motion should be begun.

Ectopic Gestation.—CHARLES P. NOBLE (Philadelphia). Of the 90 cases which he has seen in the last 16 years, 42 were in the left tube and 40 were in the right. Ovarian cysts were present in six cases; in seven the tubes were unruptured, and 70 were tubal abortions. In three cases both tubes were involved at different periods of time. In nearly all the cases the opposite tube evinced an inflammatory condition, but pyosalpingitis was never present. He is strongly inclined to the belief that the cause is largely mechanical, as infection may destroy the ciliated epithelium so that the onward progress of the ovum is not accomplished. He insists upon operation before the rupture. In 14 of the cases in which rupture existed there was present a free hemorrhage; and of these, 14 six died. Hemorrhage is more severe when the rupture is near the uterine end of the tube. In one of Noble's cases the rupture took place between the folds of the broad ligament—a condition not frequently seen. The physician can obtain very little information by pelvic examination when a rupture exists; the diagnosis depends upon the symptoms of hemorrhage and the history of a patient who has missed one or perhaps two periods of menstruation. Hemorrhage demands immediate operation. From the peritoneal cavity he removes the blood clots, washes with salt solution, and allows some of the fluid to remain in the cavity, he then closes without drainage. In the only case of intraabdominal pregnancy he has ever seen the sac was removed intact. The delay incident to making the diagnosis and sudden hemorrhage are responsible for death in ectopic gestation.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A CONTRIBUTORY CAUSE OF APPENDICITIS.

BY

M. R. DINKELSPIEL, M.D.,

of Philadelphia.

To the Editor of American Medicine:—Insofar as the evolution of appendicitis is distinctly a recent one, while the structural evolution of the appendix itself is necessarily a slow and gradual one from a morphologic standpoint, it can be seen immediately that in the disparity between these progressions there must lie something relating to the cause of the disease. While bacterial invasion seems undoubtedly to contribute to the exciting cause, there are also very important predisposing factors which present themselves for our consideration. One of the predisposing causes which has, I believe, received too little attention is that of constipation; and another, the distention of the intestines with gas, which is often the result of the constipation. The distention of the intestine with fecal matter, especially at the point of insertion of the appendix, cannot but produce a condition of relative congestion favorable for the lodging of bacteria and subsequent inflammation. Add to this the accumulation of gas, and it will be readily conceived what effect these conditions will have when directed toward the lumen of the appendix. The restless element present in the progress of modern civilization has much to do with the abuse of the alimentary tract. The short "lunch hours" of the clerical and mercantile part of our working classes and the accompanying rapidity of ingestion, and deficiency in the mastication of food accompanying this condition, may play a prominent part in the etiology of this disease. Increase in the consumption of materials which lead to fermentation in the gastrointestinal tract, is also of etiologic significance. The hurry and flurry of beginning business duties at regular hours has contributed largely to the causes of constipation in modern times, as it is of no uncommon occurrence for persons to neglect attending to the daily evacuation of the bowels for the sake of personal convenience. Naturally a current of fecal material, with associated gaseous fermentation, cannot but perniciously influence the appendix, toward which it is necessarily directed during its passage.

THE DOCTOR OF PHARMACY: HIS HIGH IDEALS.

BY

L. W. LORD, M.D.,

of West Ossipee, N. H.

Every practising physician should read the first editorial in the September number of "The Western Druggist," and note the marvelous strides the art of pharmacy has taken while he has been busy with the sick. Truly the man of mortar and pestle has experienced a wonderful evolution since the days when he did the physician's dirty work. One is forcibly reminded of the camel of fable, which having obtained permission to have his nose inside the tent, pleaded that his head be allowed entry, with the result that in the end he entered bodily and kicked his master out.

Doctors of medicine have been so engrossed with the alleviation of suffering that they have not been awake to the fact that their pseudo friends, the druggists, have been encroaching into their honored fields, until now they feel so strong that they are about to enact legislation to prohibit the M.D. from being a free moral agent. As an exhibition of assurance, this article reaches the climax. It asserts pharmacy has too long been the handmaiden of medicine. No doubt the positions will soon be reversed, and a person who is taken ill will first notify the doctor of pharmacy, who will then call a physician, much as he would a district messenger boy, and send him to the house to make a diagnosis, upon receipt of which HE, with the brains, will issue the proper remedies. Poor medico! He must attend a medical college for four long years, followed by two or more of hospital attendance; he may then perform operations, even upon druggists, when the mistake of a hair's breadth would mean the loss of a life; he may diagnose intricate maladies, manipulate the most delicate instruments, but he cannot with safety be allowed to dispense the drugs he prescribes, because, as our friend quotes, he signs the death certificate!

The pharmacists of Illinois are now come forward as self-constituted censors of the medical fraternity.

What is the object of all this? Why are druggists so interested in the public good? Long have they been writhing because the public has looked upon them as tradesmen, while they have yearned to be in the profession. Notice the schools of pharmacy that during the last few years have dropped their old degree of Ph.G. to adopt that of Phar.D., in order that the coveted "Doctor" could be warbled under their tongues. And now the "milk-shakers" of the town next to Zion ask that the pharmacy boards be empowered to confer the degree!

Our esteemed critic pleads for a middleman to act as a check on the mistakes of physicians. But who is to check the self-appointed "Doctor" behind the counter, who does a dispensary business, who deals out narcotics with a lavish hand, and who poses as the originator of a 10-day clap cure?

Pharmacists are losing the respect of reputable physicians, because many of them are dishonest, and the best of them are so greedily after the almighty dollar that their stores are more like bazaars than places where prescriptions can be filled intelligently.

Should physicians insist that they are competent to handle the drugs they use, our critic advises an amendment to the medical practice acts, so he and his department store brothers can prescribe. As if they did not do it now to their heart's content. It is incumbent upon the physicians of Illinois to demonstrate whether they are able to practise their profession with the help they can give each other, or whether they must be supervised by the venders of soda-water and nostrums.

PORTO RICO ANEMIA COMMISSION.

To the Editor of American Medicine:—It has come to our notice that the report of this Commission, published December 1, 1904, is being used by the manufacturers of Gude's Pepto-mangan, to advertise their preparation of iron. As this advertisement puts us in a very unenviable and erroneous light before the medical profession generally, will you be kind enough to publish the following statement:

The advertisement in question purports to be a review of this report, and, having attracted attention, proceeds by erroneous deductions and half quotations in such a manner that one might believe that the Commission endorsed their preparation of iron as the best hematic in the treatment of the anemia of uncinariasis.

As a matter of fact, the report (page 119), clearly states that we found carbonate of iron to give the best results. Our report, on account of the limited edition, has never reached the majority of our professional brethren, and for this reason we quote the portion referred to:

"It will be noticed that slight cases readily recover without iron, and here the difference in the tables is more marked, while there is less difference among the marked cases in proportion to their number. In other words, in the more resistant cases, all grades received iron, but even then, did not generally recover as rapidly as those less rebellious without; for, while ferruginous preparations seem to act readily in some instances, still, in the majority, its effect was not marked. The rapidity of cure is due, apparently, more to the personal equation of the patient and the rapidity with which the parasites are expelled, than to the amount of reconstructive treatment. Thus it is quite difficult to judge accurately the comparative value of different iron preparations, yet it was noticed, even by some patients, that Blaud's pills gave more rapid results."

We do not believe that a perusal of the histories of the 18 cases which the advertisement quotes, demonstrates the superiority of pepto-mangan (Gude), as these patients recovered more slowly than others of the same type who took Blaud's pills or Vallet's mass. In fact, on account of this slow recovery the carbonate of iron was substituted for pepto-man-

gan in 5 of the 18 cases (Nos. 8, 9, 10, 13, and 15.) We ceased to use pepto-mangan, and gave none in the later cases.

To support our statement we invite attention to the following figures taken from those given in the very report which M. J. Breitenbach Co. cite as proving the superiority of their preparation:

There are 61 cases reported in full with complete blood records and clinical histories. In 18, pepto-mangan was used, save toward the termination in five when Blaud's pills were substituted. In 11 cases, Vallet's mass was used, supplemented by Blaud's pills. In 29 cases Blaud's pills were used exclusively. Three cases have no bearing on the subject.

Reconstructive treatment.	Pepto-mangan (Gude).	Blaud's pills.	Vallet's mass.
Average hemoglobin before treatment	20.7%	26.5%	18.1%
Average number days under treatment	80.7	47.9	69.8
Average gain in hemoglobin during treatment	62.3%	66.8%	66.6%

But to bring out the difference between these drugs more vividly, 18 pairs of cases of like type have been tabulated in which initial hemoglobins absolutely or nearly correspond. One of each pair was treated by Blaud's pills, the other by pepto-mangan. The demonstration is all the more potent in that both drugs were used in their true role as blood regenerators, in conjunction with thymol administered to both alike.

Case No.	Form of iron used.	Hemoglobin before treatment. Percent.	Days under treatment.	Total gain hemoglobin. Percent.
1	Pepto-mangan.	33	100	68
56	Blaud's pills.	33	56	70
3	Pepto-mangan.	25	71	78
52	Blaud's pills.	25	36	75
4	Pepto mangan.	28	97	72
50	Blaud's pills.	27	36	75
6	Pepto-mangan.	22	101	48
25	Blaud's pills.	22	43	78
7	Pepto-mangan.	10	63	93
28	Blaud's pills.	11	71	90
8	Pepto-mangan.	34	101	44
46	Blaud's pills.	35	36	69
9	Pepto-mangan.	20	99	83
43	Blaud's pills.	20	50	81
10	Pepto-mangan.	20	92	84
51	Blaud's pills.	20	50	63
11	Pepto-mangan.	32	95	48
47	Blaud's pills.	32	36	70
12	Pepto-mangan.	27	80	3
53	Blaud's pills.	25	50	84
13	Pepto-mangan.	14	94	95
23	Blaud's pills.	14	50	66
14	Pepto mangan.	16	93	85
45	Blaud's pills.	16	57	46
15	Pepto-mangan.	11	84	99
22	Blaud's pills.	12	71	92
16	Pepto-mangan.	20	92	70
60	Blaud's pills.	19	28	71
17	Pepto-mangan.	9	36	6
21	Blaud's pills.	13	71	89
18	Pepto-mangan.	16	98	66
59	Blaud's pills.	18	53	57
19	Pepto-mangan.	28	49	75
42	Blaud's pills.	31	57	3
33	Pepto-mangan.	9	8	6
20	Blaud's pills.	22	27	48

That is to say, of 18 pairs of almost identical cases, the initial average of hemoglobin percentage in the patients treated by Blaud's pills was 21.9; in those treated by pepto-mangan (Gude), 20.7; the average number of days under treatment was 48.7 in the patients treated by Blaud's pills; in those treated by pepto-mangan (Gude), 80.7; the average gain of hemoglobin under Blaud's pills was 68.1%; under pepto-mangan (Gude), 62.3%.

We tried to use a variety of iron preparations and were offered the peptomanganates made by this company. We had no idea that this preparation differed essentially from any other iron peptomanganate, and it certainly may not, but had we considered the peptomanganates of superior value as blood regenerators, we would have said so. As it is, we have said the contrary and wrote this company to that effect at the time we became convinced of it.

This Commission does not wish to be understood to consider the use of reconstructive treatment as a necessity in the anemia of uncinariasis. Such an idea is all the more absurd in view of the fact that in the 12,000 patients treated under its direction since June 1, 1905, comparatively little reconstructive treatment has been used, many patients receiving none at all. As our experience with this disease widens, our opinion is strengthened that anthelmintic treatment is not only curative but promptly so in the vast majority of cases, iron or no iron.

BAILEY K. ASHFORD,
W. W. KING,
PEDRO GUTIERREZ YGARAVIDEZ,
Members of the Commission.

APPENDICITIS IN 1779.

BY

W. BRUCE ALMON, M.D.,
of Halifax, N. S.

To the Editor of American Medicine:—The following account of a case of appendicitis which I found in the appendix of the *Medical Register*, of Great Britain, for the year 1779, and which from the preface I should judge was the first medical register published in England, might be of some interest.

The article is the first of a number of clinical cases reported in the Philosophical Transactions of the Royal Society of London, Vol. lxvii, Part 2, and reviewed in the appendix of the *Medical Register* for Great Britain, 1779.

The case of Ann Davenport, by Mr. F. B. Fynney, surgeon at Leek in Staffordshire.

The patient had been in a bad state of health, and subject to frequent and excruciating fits of colic from the age of 5 to 21, when Mr. F. B. Fynney saw her. About a year before this, she had perceived a painful swelling just above the right groin, which gave her inexpressible uneasiness, as if something stabbed her in that part, whenever she attempted to stretch out her thigh. An abscess formed here, and much pus was discharged; the integuments of the abdomen put on a gangrenous appearance, but by judicious treatment, the mortification was soon put to a stand. The discharge of the matter continued to be excessive, and not long after another abscess appeared somewhat lower down. In this was felt a hard substance, which was making its way to the integuments from the appendix vermiformis of the cecum, which probably, by former inflammations, had adhered to the peritoneum. The extraction of this substance was followed by portions of excrement, and some dark-brown particles, which were found to be filings of iron, which the patient had formally taken. The nucleus of this hard substance proved to be the smaller end of that part of a silk engine called a star, at which machine the patient had been employed before the age of 5, and which, from her symptoms and her remembering nothing of swallowing it, must have been at least 16 years lodged in the appendix.

At the time Mr. Fynney dates his account, which was six months after the extraction, all the wounds were healed except one, the discharge of excrement through which was sensibly diminished, and the patient's health was greatly improved.

Suicides of German School Children.—Several distressing instances of children's suicides have occurred in Germany since the autumn school term began. This has brought on a discussion of the changes of school and home life, and endeavors are being made to trace the causes of that increasing feebleness of the desire to live which it is affirmed the 11,000 suicides of 1903 indicate. Critics of the school systems assert that children are forced too much and are set tasks which are impossible of accomplishment for those slightly below the standard of capacity, and that punishments, the fear of reproofs and injury to self-pride push the child toward suicide, of which he often hears his elders refer to as a refuge. An instance is given of a boy of 12 who had failed to do a Latin exercise properly and was sent home to his father. The boy, the moment he entered his father's room, shot himself. In identical circumstances another boy threw himself out of a window. The total number of children's suicides in Germany during 18 years was 447, just under 42 annually.

ORIGINAL ARTICLES

PATENT URACHUS.[1]

Review of the Cases Reported. Operation in a Case Complicated with Stones in the Kidneys. A Note on Tumors and Cysts of the Urachus.

BY

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Interesting surgical conditions are found in the umbilical region as a result of the imperfect development of two fetal structures, namely the allantois and the vitelline or omphalomesenteric duct. In order to understand these conditions let us glance at the embryology of the subject.

Kirk says: "The splanchnopleure, lined with hypoblast, folds in and pinches off, as it were, a portion of the yolk sac, inclosing it in the body cavity. This forms the rudiment of the alimentary canal which ends blindly toward the head and tail, while the center communicates freely with the cavity of the yolk sac through the canal termed vitelline or omphalomesenteric. . . . Growing out from or near the hinder portion of the intestinal canal with which it communicates, is the allantois."

From this it is seen that at one time both the yolk sac or umbilical vesicle and the allantois communicate by means of tubes with the alimentary canal. After a while a separation takes place in the alimentary canal, it grows longer, into a tube-like formation, and the hinder portion becomes separated and is converted into the urinary bladder which still communicates with the allantois through the navel by means of a tube known as the urachus; while the intestine communicates with the umbilical vesicle through a similar tube through the navel, the vitelline duct. Normally, both these communicating tubes become obliterated or converted into impervious cords in the process of development. Occasionally this fails to occur; then in the one case we have either a patent vitelline duct which extends from the intestine to the navel, through which the intestinal contents may be discharged, or the vitelline duct may be obliterated partially, from the navel to within one, two, or three inches of the intestine, leaving a diverticulum attached to the intestine (ileum), known as Meckel's diverticulum. In the other case we have a patent urachus—that is, a tube leading from the summit of the bladder to the navel through which urine is discharged.

It is my purpose simply to discuss the latter condition.

In a search through the surgical literature afforded by the army medical library, I have found reports of 52 cases, a brief outline of which I have given.

Although Cabroll, in 1550, recognized and treated a case of patent urachus, it seems that considerable difference of opinion existed among the older anatomists as to the nature of the urachus, as to whether it was a tube or a solid cord, and if a tube, when, if ever, its lumen became obliterated. Thus Wutz, in 1883, says that for a long time there have been differences of opinion as to the nature and construction of the middle ligament of the bladder which was said to be formed from the urachus.

Blasius, in 1674, says the urachus is sometimes pervious for a short distance from the umbilicus, and in other subjects it may be said to form a duct extending from the bladder to the umbilicus.

Littré, in 1701, says the urachus in the human fetus easily admits a bristle.

Haller, in 1739, says there has been a dispute since the time of Harvey as to a pervious urachus and allantois in the human subject, some claiming erroneously from dissections of animals that it receives the urine from the bladder, while others deny it. Still, others admitted the existence of an allantois or third membrane, but did not believe it communicated with the bladder. He had an opportunity to examine the body of a fetus in a woman who died in the fifth month of pregnancy, and states as the result that there are really three membranes surrounding the fetus, but that no water exists between the allantois and the amnion, and that there is no natural channel through the urachus.

Peyer, in 1741, says the urachus in the fetus is open until the last days of pregnancy, when nature wisely closes it, differing in opinion with Bauhin, De Graaf, Meckel, and Arnold.

Böhmer, in 1764, says that he has seen the human urachus open from the bladder six and a half thumb-widths toward the navel.

Portal, in 1769, says that, after all, the urachus is a ligament intended for the suspension of the bladder. He describes it as containing four cords extending from the navel to the bladder, one going to each side in front and behind, in the form of a "goosefoot."

Walter, in 1775, after the examination of more than 100 corpses, states that the urachus is always pervious in the fetus, nor is it always closed in the adult.

Cruveilhier always found the urachus solid both in adults and in the fetus, and when found pervious, Bichat and most anatomists regarded it as anomalous.

Bourgeois, in 1821, presented a male fetus, 3 or 4 months old, in which he demonstrated the continuation of the bladder by means of a canal through the navel into the umbilical vesicle.

Wutz, in 1883, after having examined 74 bodies, of both sexes and different ages, concludes that in most bodies the urachus is permeable from the bladder for a short distance upward, the opening into the bladder being guarded by a valve-like fold of mucous membrane, which makes it difficult to pass a probe and which during life prevents the escape of urine from the bladder into the urachus. Doran has suggested the name of "Wutz's valve" for this little fold of mucous membrane.

The patent urachus has been found in different forms, which may be included under the following headings:

1. The complete, in which the duct is open all the way, forming a continuous communication between the bladder and the outside of the body at the navel.

2. The blind internal, in which the navel remains closed, but the duct communicates with the bladder.

3. The blind external, in which the communication with the bladder is closed, but the navel end of the duct remains open.

4. The blind, in which both ends are closed, but the duct remains open in the middle.

Sometimes the bladder extends quite to the navel—the urachus being dilated into a funnel-shaped tube with the small end attached to the umbilicus and the large end gradually enlarging into the bladder without any point of constriction or demarkation between the urachus and bladder. Such were the cases reported by Garrigues and by Tuholske.

The complete patent urachus is not always congenital, as it may be acquired by the bursting open of the closed end of one of the blind varieties; in the large majority of instances, it is the blind internal, which is thus converted into the complete variety by rupture through the navel or by the opening of an abscess or swelling at or near the navel.

Of the 53 cases reported, 46 were complete, 26 congenital, and 19 acquired (in 1 the history did not indicate the time of occurrence); 4 were blind internal, and 3 were blind external.

Obviously, the diagnosis is difficult or impossible in the blind cases when both ends are closed, unless the cavity becomes distended with pus or other fluid.

[1] Read at the meeting of the American Surgical Association, San Francisco, Cal., July 5 to 7, 1905.

Undoubtedly in the majority of cases the condition is one of congenital malformation or arrested development. In twenty-six of the 53 cases the condition of complete patent urachus was present at birth.

According to Walter and Wutz, the majority of persons have naturally the blind internal form of patent urachus. So long as Wutz's valve is competent and no urine or infection gets into the urachus, no trouble occurs. When the urachus becomes distended with urine, infection soon follows with the formation of an abscess, which points at or below the navel, through which it bursts or is opened by the surgeon, or it may empty itself into the bladder, as in Hird's case.

Obstruction to the passage of urine through the urethra existed in many of the cases of acquired patent urachus, such as tumors, stone, or inflammation of the bladder, phimosis, hypertrophy of the prostate gland, or stricture of the urethra. In some of the cases, after prolonged retention, urine suddenly burst through the navel. (See the cases of Guisy, Lexer, and Leviè.)

Sex is important. Of the 50 cases in which the sex was given, 32 were in males.

As to age, of course in the congenital cases, the condition appeared at birth, or soon after the stump of the cord separated.

Of the 24 acquired cases of all varieties, the ages at which the fistula appeared varied from 6 months to 79 years, the average age being 27; 13 over 20 and 11 under 20; 6 under 10; 5 between 10 and 20; 4 between 20 and 30; 2 between 30 and 40; 1 between 40 and 50; 4 between 50 and 60; 1 between 60 and 70; and 1 between 70 and 80.

Although Cabroll operated as early as 1550, there seems to have been no other operations for the relief of this condition until the nineteenth century arrived, and not infrequently the physician advised against operation.

The following are the various methods of treatment used in the cases under consideration:

1. The application of caustic or of the actual cautery to the umbilical opening. Three patients were treated in this way, with two recoveries and one death.

2. The use of the cautery and ligature or suture. Two patients were treated in this manner and both recovered.

3. The application of ligature or suture only. Four patients were treated by this method and all recovered.

4. Plastic operation—dissecting up the skin to cover the opening. Two patients were treated thus with one recovery and one death.

5. The urachus was slit up, curetted or cauterized and packed. Six patients were treated this way, with four recoveries, one death, and one result not given.

6. Removal of irritation—such as removing stones from the urachus, keeping up drainage, and keeping the parts clean—sometimes using adhesive plaster to approximate the edges of the opening. Five patients were treated in this manner with four cures and one failure.

7. Removal of obstructions to the normal outflow of urine—as a tight prepuce, stone or tumors in the bladder, hypertrophy of the prostate gland, or stricture of the urethra. Five patients were treated in this way, and all were cured.

8. Extirpation of the urachus, and sewing or ligating the part next the bladder, as in excision of the vermiform appendix. Eleven patients were treated by this method with ten cures, and in one case the result was not given.

9. No treatment. This includes the cases in which the patients declined treatment, the surgeon advised against operation, or no statement of treatment was given.

Some of these patients were otherwise in excellent condition, without infection or excoriation and only had the annoyance of slight leakage; while others had infected tissues, with discharge of urine and pus from the urachus and excoriation about the navel. This list includes 15 cases with three deaths.

In all, 38 patients were operated upon, with 32 recoveries, three deaths, and in three cases the result was not given.

The methods, which have for their object closing only the umbilical end of the urachus and possibly leaving a tube often infected, which may or may not communicate freely with the bladder, are not to be commended. The first four methods come under this classification and include 11 cases with two deaths—in one case, (Ball's) death was due to peritonitis following rupture of the urachus and escape of urine into the peritoneal cavity.

Method 5, slitting up the cavity and packing, is a rational method, and ought to give good results; although there was one death from uremia in the six cases thus treated—but this would probably have followed any method of operating.

Extirpation of the urachus with the entire diseased area and closing of the opening in the bladder by sutures with union of the muscles and skin, with or without drainage, is the method of election.

Of 16 patients treated by extirpation or by removal of obstructions to the urethra, 15 recovered, and in one case the result was not stated.

CASES REPORTED.

CASE OF CABROLL.

(1) The earliest case, in the human, seems to have been that of Cabroll, quoted by Lexer and Guignes, in a 20-year-old girl, in whom all the urine passed through the navel. She was cured by ligating the protrusion at the navel and by dilating the urethra.

CASE OF LITTRÉ.

(2) Littré reported, in 1701, the case of a girl of 12, who passed urine through an opening in the umbilicus. The neck of the bladder was closed by a fleshy growth.

CASE OF PAGET, 1844.

(3) In 1844, Paget reported the case of a man, aged 40, who had passed urine through his navel since his birth. He complained of frequent painful micturition, and examination revealed a stone. A catheter was made to pass through the urethra into the bladder, out through the navel. Introducing the finger through the opening in the navel, it engaged in the ring-shaped calculus, which was withdrawn. The calculus had formed around a hair, which was coiled like the ring, and was composed of lithic acid. It was thought best not to interfere with the congenital defect.

CASE OF R. G. CABELL, 1847.

(4) In 1847, R. G. Cabell examined a mulatto girl, aged 14 or 15, in good health, with an umbilical fistula, through which she had passed urine since earliest childhood, though most of it passed through the natural way, and she claimed to have the power of passing it either way at will. No treatment.

CASE OF DORAN, 1851.

(5) Doran reports a case which occurred to Stanley, in 1851. A boy, aged 2, had suffered several months from irritation of the bladder, and just before death a fluctuating tumor in the hypogastric region was punctured and fluid and pus evacuated. After this, all the urine was discharged through this opening. Necropsy showed an abscess of the urachus and numerous small tumors in the bladder.

CASES OF THOMAS BRYANT, 1862.

(6a) A boy of 8 had had from birth, discharge of urine through the navel. The mother refused to allow any treatment to cure the condition.

(7b) A man of 35 had a swelling, extending from the umbilicus to the pubes, which he had noticed for years. The bladder seemed all right. The tumor was incised and an offensive fluid escaped and later urine passed through it. It was packed and subsequently contracted and the patient recovered.

CASE OF ANNANDALE, 1869.

(8) A man of 39 had passed a portion of his urine through an umbilical fistula since birth. When making water in the upright position, about two-thirds would come out through the fistula, the other third coming by way of the urethra, which seemed to be abnormally small. Operation was suggested, but was refused.

CASE OF HOFFMANN, 1870.

(9) A man who died at 28 had an umbilical fistula at birth, which was closed by the use of caustic when the patient was aged 3. At the age of 27, a tumor appeared below the navel,

was punctured several times, evacuating urine and bloody pus. Death occurred from acute peritonitis, and the necropsy showed cancerous degeneration of the urachus.

CASE OF JOSEPH WORSTER, 1877.

(10) In 1877, Joseph Worster reported the case of a girl, aged 21, who had diphtheria at 8, followed by cystitis and the formation of a tumor at the navel, from which pus was discharged and then most of the urine passed by the navel. Later on a second swelling appeared below the navel, which also burst and discharged urine. The urachus was excised, the parts closed with sutures, and recovery followed.

CASE OF J. J. CHARLES, 1875.

(11) A boy, aged 1, had an open urachus, through which nearly all the urine passed. There was congenital phimosis, with a very small opening. After circumcision, all the urine passed through the urethra, and the umbilical fistula closed spontaneously.

CASE OF PRESTON, 1876.

(12) In 1876, Preston saw an infant, malformed so that its sex could not be determined, with an opening at the navel, through which the urine came. Two years later it was still passing urine through the navel and was robust and masculine in its habits.

CASE OF A. ROSE, 1876.

(13) A boy, aged 11, had passed his urine through the navel since birth. A catheter was passed through the navel into the bladder and the fistula was closed by a plastic operation.

CASE OF H. D. VOSBURGH, 1877.

(14) In 1877, H. D. Vosburgh saw a man, aged about 50, who had been complaining of soreness and constant pain at the navel. Examination showed redness, tenderness, and a hard swelling around the navel. The tumor was incised and at the depth of half an inch a stone was felt and removed. The stone was phosphatic with a strong urinous odor. Recovery followed. The patient stated that about 20 years before a stone had been removed in a similar manner from the urachus.

CASES OF M. JACOBY, 1877.

(15a) In 1877, M. Jacoby had a patient, aged 18, previously normal, in whom rupture of the navel occurred after 24 hours' retention on account of stricture of the urethra. Nearly all the urine flowed through the navel during the six months that the patient lived, he finally dying of tuberculosis.

(16b) Jacoby reported another case of congenital fistula of the navel cured by two applications of red-hot iron wire.

CASE OF CADELL, 1878.

(17) In 1878, Cadell had a case in an 8 year-old girl who had suffered difficulty in voiding urine, when suddenly it broke through the navel, and continued to discharge by this route till death. The necropsy showed the entire urachus open, and that the cause of obstruction to the urethra was chronic cystitis with hypertrophy.

CASE OF ASHHURST, 1882.

(18) A male child, 9 months old, had an opening in the navel through which urine had escaped since birth. The operation consisted in the application of the actual cautery into the fistulous tract, and the ligation of the projection at the navel. Recovery.

CASE OF C. B. BALL, 1883.

(19) In 1883, C. B. Ball had a case in a boy of 8, who suffered from incontinence of urine since birth, at night, but for six weeks by day also. In March, 1882, the urine was bloody and contained pus, but the boy improved. When he next appeared, in January, 1883, he had a navel fistula, which he stated had occurred three weeks previously, when an abscess broke, and since that time all the urine had passed through the navel. The treatment consisted in cauterizing the opening, and this was done three times, the parts remaining healed only a short time. A fourth operation, of a plastic nature, was done, but this kept the opening closed only two months. A month later death occurred from peritonitis. A necropsy showed that rupture of the dilated urachus had taken place, with escape of urine into the peritoneal cavity.

CASE OF C. B. WALLER, 1884.

(20) In 1884, C. B. Waller had a patient, male, aged 5 months, who had passed urine through the navel ever since the cord had separated. Caustic had been applied several times, without closing the opening. A catheter was passed into the urachus and the urachus exposed by section, the upper part removed and the lower part ligated with silk. The parts were united and recovery followed.

CASE OF A. VANDERVEER, 1886.

(21) In 1886, A. VanderVeer had a case with Dr. DuBois in a female, aged 20, who since the tenth day after birth had discharged urine through the navel at irregular intervals. For the last two years there had been pain, the discharge had become offensive, and the parts about the navel excoriated. The operation consisted in slitting up the urachus, curetting, suturing the lower part, and packing the upper part with iodoform gauze. Recovery.

CASE OF F. BRAMANN, 1887.

(22) In 1887, F. Bramann reported a case in von Bergmann's clinic of a girl, aged 12, normal until her ninth year, when she had pain and frequent urination with discharge of pus and a little blood. About two years later, the urine suddenly discharged through the navel, and had continued to do so since, although her physician had tried by permanent catheterization to cure her. The urachus was dissected out to the bladder and the opening closed. A fistula followed, which in the short time which had elapsed when the report was made, had not healed.

CASE OF W. J. PENNY, 1887.

(23) In 1887, W. J. Penny reported the case of a healthy child, 11 months old, sex not given, who since separation of the cord on the ninth day, had been passing urine through the navel. A probe passed into the fistula could be felt to touch a catheter which had been passed by the urethra into the bladder. Operation was declined.

CASE OF DE FOREST WILLARD, 1888.

(24) In 1888, DeForest Willard reported the case of a female child, aged 2, who had passed urine through the navel ever since birth, about a half dram escaping during the course of the day. The discharge was offensive, and excoriation had taken place around the navel. Several vain attempts to close the opening by cauterizing with silver nitrate had been made. The operation consisted in freshening the edges of the navel, from which union resulted, but in a month broke down, and the discharge returned. The parts were then opened, scraped out, cauterized, and a drainage-tube put in. Cure resulted.

CASE OF TRENDELENBURG.

(25) Male, aged 66, with a tumor the size of the head between the navel and pubes. A sound could be passed through the navel, from which urine continually flowed. The tumor was opened and a liter of urine and pus evacuated, and the cyst wall extirpated.

CASE OF W. R. SMITH, 1892.

(26) A female child on the second night after its birth began to bleed from the navel, and two days later from the urethra. This continued at times for four days and ceased when the cord came away. He thought the blood came from the hypogastric arteries at the umbilicus, then through the urachus into the bladder.

CASE OF W. VAN HOOK, 1894.

(27) A female child, apparently normal at birth, had abdominal pain, diarrhea, and vomiting when three weeks old. When five months old was sick again, and the mother noticed a protrusion of the abdominal wall below the navel. Hot applications resulted in an opening at the navel and the discharge of a large quantity of pus. Later on, cystitis developed and pus continued to be discharged through the navel. Under chloroform, a probe was passed down almost to the pubes, but did not enter the bladder. The opening was dilated, a drainage-tube put in, and recovery followed in a week.

CASE OF FORGUE AND MORER, 1895. (Quoted by Guignes.)

(28) A soldier, aged 20, had from birth passed urine through an umbilical fistula at each micturition, but not at any other time. Most of the urine passed naturally. A sound passed through the navel into the bladder, a distance of 16 cm. The patient was perfectly healthy. No treatment.

CASES OF E. LEXER, 1897.

(29a) A man, aged 20, had nothing abnormal about the navel until a year and a half before, when pain and swelling occurred, followed by rupture and discharge of urine and pus. After treating the infection by irrigation, the urachus was excised, the lower opening sewed up, and the parts sutured, leaving a tampon in the lower end. Recovery.

(30b) Another of Lexer's cases was that of a man of 67, suffering from prostatic hypertrophy. In June, 1897, after prolonged retention, the urine suddenly burst through the navel. The operation consisted in slitting up the urachus, the opening in the bladder being seen, packing with iodoform gauze, and the introduction of a permanent catheter. Death in 14 days from uremia.

(31c) Lexer's third case was one of great interest, being complicated by the presence of a Meckel diverticulum. A boy aged 1½, had discharged urine through his navel ever since the cord dropped off. The urine came slowly and by drops from the urethra, and a high degree of congenital phimosis existed. The prepuce was slit up, with the result that at the end of four weeks very little urine came through the fistula. To close the fistula, a pocket around the navel was opened and the mucous membrane at the mouth of the fistula was seized with forceps and pulled out, when a kind of sheath about 5 mm. thick was drawn out through the navel for a distance of 7 cm., where it

was cut off, sewed up, and the stump pushed back and the skin closed over it. Recovery. Microscopic examination showed the excised sheath to be a Meckel diverticulum.

CASE OF W. L. REID, 1897.

(32) A woman, aged ?, about six months previously began to have pain in the umbilical region. Two weeks later, a swelling appeared at the navel, which burst and through the opening, pus had been discharged, with occasional intervals of a week, ever since. A probe was passed through the navel into the bladder, and the end emerged at the urinary meatus. Operation: The urachus was opened on a probe, showing a dilation in the middle with a constriction above and below where it connected with the bladder. The actual cautery was used to destroy about an inch of the lower part of the urachus, and the portion above was packed with iodoform gauze. Recovery.

CASE OF A. KENNEDY, 1899.

(33) A child, aged 7 months, sex not given, had been passing urine from the navel since birth. A probe passed into the urachus, three inches. A sort of flattened, button-shaped tumor, with a short pedicle and an opening in the center presented at the navel. Ligation of the pedicle resulted in cure.

CASE OF LEVIE.

(34) A 79-year-old man who had suffered many years with difficulty in passing urine on account of prostatic trouble, had the urine suddenly break through his navel and continue to flow by that route. A necropsy showed a pervious urachus.

CASE OF H. J. GARRIGUES, 1899.

(35) At a necropsy on a woman, aged 45, who died after hysterectomy, the bladder was found extending by means of the dilated urachus to the navel, where it was closed.

CASE OF GOLDSMITH.

(36) A boy, aged 10, had a navel fistula, probably caused by stone in the bladder. The stone was removed by suprapubic section, and the fistula at the navel healed.

CASES OF B. GUISY, 1900.

(37a) A man, aged 60, had for five years been passing urine through an umbilical fistula. His previous history showed that he had suffered many years before with gonorrhea, and later, severe attacks of renal colic and the passage of gravel from the urethra. The patient also had urethral stricture. He developed pain and swelling about the navel and a physician opened the swelling, evacuating urine and pus, since which time the urine has continued to flow by this route as well as through the urethra. External urethrotomy was performed and two large calculi removed from behind the stricture. Recovery.

(38b) A man, aged 32, on account of stricture following gonorrhea, had great difficulty in passing urine and for two years had suffered pain in the navel. Later a swelling appeared and one day, during complete retention, this swelling ruptured and urine and bloody mucus were discharged. Since then, for several months, there has been constant leakage through the navel. A small sound passed through the navel into the bladder. The urethral stricture was treated by internal urethrotomy and dilation, and urine ceased to flow through the navel.

CASE OF L. IMBERT, 1901.

(39) A girl, aged 6, had passed urine through the navel ever since the cord dropped off on the twelfth day. Operation: The urachus was excised and the lower end ligated with catgut and the wound closed, leaving the end of the catgut ligature projecting. The patient had scarlet fever and the wound opened superficially, but it was reunited and healed without further trouble.

CASE OF F. GRIFFITH, 1902.

(40) A male infant, aged 5 months, from whose navel there had been a discharge of clear fluid since the detachment of the cord. The fluid was clear, colorless, limpid, and did not have a urinous odor. Treatment: The parts were kept clean, dressed frequently, and adhesive plaster used to approximate the edges. After three months, recovery took place.

CASES OF W. HIRD, 1902.

(41a) A male child, who, when at the age of 5 weeks, began to discharge urine from the navel. Inflammation from extravasation of urine around the navel took place, and the child died.

(42b) A girl, aged 6, complained of pain about the navel. Later, there was a discharge of pus from the navel and a tender lump below. A probe entered 1½ in., and pus of a creamy character came out. Suitable dressings resulted in cure.

(43c) A girl, aged 4, had a chronic discharge from the navel, and pain below. A probe was passed in, cut down upon, and the urachus ligated and cut out, like a vermiform appendix. No opening into the bladder was found. Recovery.

(44d) A middle-aged man complained of tenderness and irritable bladder when jolted. A fixed pain set in above the pubes, and there came an increased desire to urinate, with pain on pressure and hardness above the pubes. Suddenly the patient felt something give way, and pus passed from the bladder through the urethra, with great relief. Recovery followed, and three years later the patient was well.

CASE OF MATTHIAS, 1902.

(45) A man with a neglected gonorrhea developed symptoms of cystitis and a tumor just below the navel. The cystoscope showed cystitis and a diverticulum from the summit of the bladder, with a small opening in the mucous membrane, through which pus entered the bladder. Operation showed it to be an abscess of the urachus.

CASE OF W. S. YATES, 1902.

(46) A male child, 3 weeks old, had passed urine through the navel ever since the cord dropped off. The umbilical opening was closed by passing a pursestring suture around the protruding portion, tying and cutting off the protruding part.

CASE OF T. H. STITES, 1903.

(47) A negro girl baby, aged 9 months, had ever since the separation of the cord, discharged urine through the navel. A mass of granulation tissue, with an opening in the center, was seen in the position of the navel. In five or six weeks cure was effected by cauterizing the orifice several times at intervals.

CASE OF B. C. STEVENS, 1904.

(48) A boy, aged 17, had all his life passed urine through his navel. Operation: Excision of the urachus and closure of the lower end communicating with the bladder, by means of a pursestring suture and inversion as with the vermiform appendix. Recovery.

SWIRT'S CASES, 1904.

(49a) A woman, aged 58, complained of retention of urine while urine dribbled from the navel. A vesicovaginal fistula was established and the urachus closed spontaneously. Later, the vesicovaginal fistula also.

(50b) A girl of 17 had constant dribbling of urine from the navel; also, of blood, at menstrual periods. She was cured by splitting the edges of the fistula and applying a pursestring suture.

(51c) A boy, aged 1½, had a discharge of urine from the navel, also marked phimosis. Circumcision failed to cure the fistula. The navel was excised and the urachus successfully closed with a pursestring suture. Recovery.

CASE OF H. TUHOLSKE, 1905.

(52) A man of 52, who in infancy passed urine through the navel. This condition ceased in his fourth year, without treatment, and he had no further trouble till 48 years of age, when urine again, apparently without cause, began to flow through the navel. The margins of the opening were pared and sewed together, but without effecting a cure. Six months later, operation was performed as follows: The canal was exposed by incision, and a half inch beyond the margin was found to spread out into the bladder, no division existing between bladder and urachus. The urachus was split down to what should have been the bladder summit, and sewed across a distance of two inches. The operation was extraperitoneal. Recovery.

MY CASE IS AS FOLLOWS:

(53) A. W., white male, aged 40, superintendent of nurses, was admitted to Georgetown University Hospital, June 21, 1904.

History: Parents died, father of old age, mother of pneumonia; two sisters died of tuberculosis; three brothers and two sisters are living and in good health; no history of malignant diseases in the family; patient had the usual diseases of childhood, also diphtheria and typhoid fever; when 3 he suffered with leg ulcers, with foci of necrosis of the tibia; ulceration continued at intervals for five or six years, often resulting from traumatism. At the age of 6 he was confined to bed for two weeks with severe lumbar pains, fever, and disturbance of digestion. When 26 he had gonorrhea, from which he made a good recovery. His present troubles began when he was 17, with pain in the suprapubic region, extending up to the navel, with induration and tenderness of the part to pressure. These symptoms grew worse; poultices were applied, and two weeks later an opening appeared at the navel, through which was discharged a moderate quantity of pus. From this time the fistula has remained patulous almost constantly, with a discharge of pus and urine. Occasionally it would close, never longer than for two days, during which time there would be considerable pain, especially on urination. When closed, the area around and below the navel would become inflamed, and when opened, spontaneously or by the patient, there would be immediate relief from pain and the escape of a large quantity of dark, offensive smelling fluid. The odor was worse after the fistula had been closed for a day or two than when discharging freely, but at all times it was offensive, to a great extent barring him from the society of his friends. The discharge has always been most profuse during urination and in the morning when he would

begin to move about, but there was at all times enough to keep his clothing soiled. At 34 he had an attack of pain in the region of the right kidney, with nausea, vomiting, and elevation of temperature, and he had to keep his bed for three weeks. Since then he has had other attacks of less severity, and usually beginning with pain in the loin, extending to the testicle, sometimes accompanied by vomiting and the passage of blood through the urethra. The attacks have always been most severe after exertion. Examination shows a large, robust, well-nourished man, with good color and apparently in excellent health. In place of the navel is a flat area of scar tissue of a bluish color, containing a small opening, into which a probe passes downward and slightly backward for a distance of three and a half inches into a pouch, which lies in front of the bladder.

Urine from the bladder gives the following result on analysis: Color, amber; reaction, acid; specific gravity, 1,018; urea, 10.5 gr. to the ounce; urates and epithelial cells.

Urine from the fistula: Pus, chlorids, and 2.4 gr. of urea to the ounce.

A diagnosis of complete patent urachus was made, with dilation into a pouch and infection of its contents, and operation was advised and was performed June 25, 1904. Under ether, the bladder was filled with water through the urethra and a grooved director was passed through the fistula to the bottom, the cavity was opened, and considerable bloody pus, with an offensive urinous odor, was evacuated.

The sac was pyriform in shape, small end above, and lay in front of the peritoneum and above and in front of the bladder, with which it communicated through a very small opening.

The sac was about 3 in. (7.5 cm.) in length and had a capacity of about 3 oz. (75 cc.) and contained many laminated blood clots, and very much resembled a small urinary bladder, the walls containing muscular and fibrous tissue and being lined with mucous membrane. The sac was carefully dissected out, the peritoneum being opened in two places accidentally, and the muscles and skin were united.

Recovery was without incident, except for the high temperature which occurred on the day after operation, namely, 107° F. in the axilla, and he was discharged, recovered, three weeks after the operation.

August 13, 1904, just a month after leaving the hospital, the patient had a severe attack of renal colic on the right side, with chill, vomiting, bloody urine, delirium, swelling of face and extremities, pulse 140, and temperature 104°. August 21, the right kidney was incised and a round stone, ½ in. (1.25 cm.) in diameter was removed.

After this the patient had no further trouble until February, 1905, when he had an attack of renal colic on the left side, with the passage of several small pea-sized calculi from the bladder. A month later he had another attack, only it was much more severe and was complicated with almost complete suppression of urine for 48 hours, delirium, chill, and a temperature of 106°. May 1, 1905, the left kidney was incised, and two stones were removed.

Up to the present time, June 27, 1905, the patient has had no further trouble with his urinary apparatus, but has had an attack of appendicitis, which he managed to pass through without operation.

TUMORS AND CYSTS OF THE URACHUS.

Besides being so often the seat of abscess due to infection, the urachus is sometimes the origin of tumors and of cysts. Wutz found, in his examination of 74 bodies, 24 in which the urachus contained small cysts; that is, cysts varying from microscopic size to that of a bean. All were situated in the lower third or fourth of the urachus, the most of them in old persons, and of the 24 cases, 15 were in males and 9 in females.

Such small growths have rarely, if ever, given symptoms by which a diagnosis could be made, but the large cysts are more important, and give well-recognized symptoms. These cysts are probably of the exudation or retention variety, the material accumulating in a closed cavity formed by the urachus when it is closed at both ends. Such cysts have been reported by a number of observers, among them Tait, who reported 12 "allantoic cysts"; Doran, Carroll and Park, Douglas, Page, and Pratt and Bond.

Cysts of the urachus may be confounded with ovarian cysts, or ascites. In urachal cysts, the history would be that of a tumor first appearing between the navel and pubes, in, or very near the median line, soon followed by symptoms of irritation of the bladder. Later on, the cyst may extend into the pelvis and may occupy the greater part of the abdominal cavity, as in the case reported by Douglas. Gallstones may even give symptoms resembling cyst, or abscess of the urachus, as was shown by von Bergmann's case, reported by Bramann, in which a woman, aged 63, presented herself, with a tumor between the navel and pubes, and a fistula at the navel discharging pus. Fifteen years before, the patient had suffered a long spell of illness, with pain in the right side of the abdomen, after which the tumor mentioned appeared. Two years later, rupture took place through the navel, and the discharge had kept up ever since that time. The tumor was opened over a sound introduced into the fistula, evacuating a considerable quantity of pus and a number of calculi, four of which were as large as pigeon-eggs, and on examination proved to be gallstones. Bramann mentions some cases in which gallstones were discharged through the urethra, possibly, as he suggests, from communication between the ligamentum teres of the liver and the urachus.

In many cases the diagnosis cannot be made before the operation; then the cyst is found lying in front of the peritoneum, usually with a pedicle, or attachment, at the site of the urachus.

A few cases of malignant tumor, sarcoma and carcinoma have been reported as originating from the urachus.

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QUARANTINE, THE DELIRIUM FEROX OF AMERICAN SANITATION.[1]

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At the proximal end of the scale of insanity the alienists recognize a delirious mania which occurs without warning to persons in good physical condition, though it sometimes marks the onset of an acute disease. It is a sthenic madness, recoverable usually, but very sharp while it lasts; without systematized hallucinations or delusions, but characterized, above other insan-

[1] Part of a symposium on quarantine at the meeting of the American Public Health Association in Boston, September 27, 1905.

ities, by incessant vigilance, noise and movement. Our forefathers, who saw this type of mental disturbance in the early stages of smallpox and other acute fevers, called it *delirium ferox*.

In the past few months we have heard much criticism of the "quarantine madness" in the Gulf States, and indeed the newspaper accounts of quarantine excel in interest the news about yellow fever, the exciting cause of quarantine. But there have been no new vagaries in recent quarantine. The appearance of yellow fever in the South, and especially at New Orleans, has invariably engendered panic, and subjected stricken communities to hostilities as furious as those of 1905. Every southern health officer, indeed every southerner, knows that instant quarantine is the penalty of yellow fever, and, in the matter of diagnosis, nothing short of certainty will justify the admission by a southern health officer that yellow fever exists within his jurisdiction. Prompt notification of the occurrence of yellow fever is not expected of southern health officials. Appearances are deceptive just now, for relations of amity and comity are preserved among southern health officials in evil times as well as good. It is nothing new for the presence of yellow fever in New Orleans to be first published after a visit by the health officials of Mississippi. Alabama officials, on occasion, do the same courtesy for Mississippi, and Louisiana officials for Texas. Downright lying about yellow fever (if it be not) might be among the resources of some southern health officials without grievous offense to normal consciences. It is beyond me to admire a virtuous act which devotes one's own people to a sacrifice so bootless and inhuman as that which inevitably falls upon a community invaded by yellow fever. Such quarantine as we have recently witnessed is essentially brutal, being actuated only by the instinct of self-preservation. One cannot see in it the spirit of helpfulness; it is without pity—an incoherent, raging, fierce delirium; more destructive than the disease against which it is aimed. The South is not the exclusive habitat, nor yellow fever the only excitant of this form of anarchy. The history of smallpox in the United States during the past seven years furnishes examples of quarantine madness, and in the history of cholera and plague there are many incidents showing that maniacal self-defense is not peculiar to certain times and peoples. Quarantine has always been incoherent; it arose when the idea of contagion first became rooted in the popular mind, and has never been saner than might consist with popular ignorance concerning the causes of disease. Its excesses have been the logical penalty of that ignorance, and to foster that ignorance was the grievous sin of medical men for centuries.

If American quarantine were free from its panic-bred extravagances, it would still lack much of conformity with medical common sense and business principles. While their viciousness needs no proof, the occurrence of insane quarantines in recent practice demands some consideration as a serious phase of social disorder. When we are told that the sanitary authorities protested against these irrational procedures, but that the functions of sanitary administration were violently usurped by the people, or by other departments of local government, I am at loss to distinguish such a state of affairs from revolution. Such disturbances have occurred in towns and counties in Georgia, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, and Kentucky. Boards of Health have experienced violent discord in Georgia and Alabama, and the throes of revolution in Mississippi and Arkansas. Whenever such things occur they signify that the sanitary arm of government is too weak to be relied upon. It makes little difference that some of these boards went down, not under the weight of official tasks, but before epidemic lawlessness. A real Board of Health is an integral part of governmental machinery, and able to maintain its integrity against any odds which the local government can withstand. In unfavorable political environment, in professional unfitness for the work of public hygiene, in popular ignorance, and official apathy, one sees but the minor causes of failure in sanitary operations. Mend all these conditions, and the stability of sanitary government would not be assured. The chaotic spectacle of public sanitation in the South at this moment is, I am convinced, not incidental, and does not justify any sweeping criticism of southern officials. The prevailing conception of sanitary government is essentially weak, and it is not at the South only that sanitary defenses break down in emergencies. In a majority of the United States, even in most American cities, Boards of Health are organized for no constant utility, but for emergency use only. The Board of Health of Louisiana is organized to resist yellow fever. It possesses a large and expensive quarantine equipment, but has no hand-to-hand engagement with any sanitary problem of any sort, in the absence of yellow fever. At the beginning of the present yellow fever epidemic, the State Board of Health of Mississippi was heard of for the first time in some years. Here, too, yellow fever alone sets the sanitary branch of State government in motion. The State Board of Health of Alabama is not so easily forgotten, for the Alabama State Medical Society is the State Board of Health. But the State Board of Health of Alabama, except when yellow fever is present or impending, does not concern itself with any of the interesting and important hygienic needs of Alabama. In Texas there is no State Board of Health. All the sanitary authority is vested in a State quarantine officer, and the recent panic has caused but little internal discord in Texas, because the State, as a whole, is committed to medieval quarantine methods.

I dare say that the people have received from nearly all these boards as good service as can reasonably be expected. Without data concerning the people, without regular exercise in the hygienic tasks which these States offer, how can the officials either know or be known by the people of Alabama, Mississippi, Louisiana, or Texas? What else can they possibly hope to bring to rare emergencies except stout hearts and willing bodies? Skill is no fairy gift, nor attainable otherwise than by use. Men who fail in such situations are not delinquents, but victims. When these four States recognize the supreme importance of ever-present and familiar causes of death, when health officers can sharpen their wits in seeking out and relieving common needs of the people, there will be an end of delirious quarantine. Meantime, governors and mayors will now and then assume to know as much about public hygiene as do the hygienists, and occasionally so much may be assumed without inordinate conceit.

Considering those quarantine measures which most southern health officers approve, we find the utmost disorder in their operation. Hundreds of independent local quarantines spring up on every hand, and very often they spring up, not on information, but on suspicion. Small towns, lacking the sources of reliable information, and often in disregard of authoritative advisers, become *incommunicado* toward the round world and all that is therein. No one knows how many independent quarantines there are in any of the four States most concerned. It is impossible to know, for the scene is kaleidoscopic. A traveler cannot ascertain upon what conditions he may go about his business. Even health officers sometimes fall into each other's man-traps.

There are, however, examples of yellow fever quarantine which proceed in orderly fashion and represent the hygienic tactics soberly approved by good officials. These tactics include restrictions upon the traffic of common carriers, transfer of passengers and freight to fresh cars at the borders of infected territory, with disinfection and return of the emptied cars; official surveillance of through passenger trains, by armed guards usually; certification of passengers in the matters of

possible exposure, physical condition, point of departure, route and destination; state border defense, by armed men, at bridges, ferries, fords, railway stations, public and private roads, and steamer landings; arrest and detention of travelers unable to prove nonexposure.

Contrasting the meager dimensions of an ordinary sanitary organization with the requirements of such a program as this, the expansion is stupendous. The men and means necessary to repel yellow fever in this way would go far to prepare a State for actual war. The fact that people willingly incur such enormous expense and endure such hardships, invests yellow fever with horrors difficult—impossible perhaps—for the inexperienced to imagine. It is not to be expected that those who confront such possibilities will promptly abandon long-established defenses in favor of cheaper ones, highly recommended but new. Until four years ago preventive medicine had no attractive proposition to offer in the prophylaxis of yellow fever. Without the intervention of yellow fever itself, a sound conversion of public opinion on this subject probably could not have been effected in so short a time. The truth concerning the agency of mosquitos in the spread of yellow fever is now permanently impressed on the thinking people of the South, and to those who knew the status of popular and professional opinion a year or two ago, the present status of that opinion is most encouraging. It is but natural that this new truth should have been utilized at first as supplementary to customary procedures, and not as profoundly modifying or abrogating them. But the southern people have now a chance to criticise their former methods, and it is most gratifying to note that dissatisfaction with quarantine methods is now strong enough to prevail in the South. The recent failures of inland quarantine have not been more conspicuous than those of former times, but in former times prophylaxis meant quarantine or nothing, while today it is possible to apply a constructive criticism to the prophylaxis of yellow fever.

Inland quarantine has always failed, and just in proportion as quarantine has been more stringent, its failure has been more complete. The unmistakable signal that yellow fever has appeared is not in the statements of local officials nor in the opinions of visiting officials. It is in the movements of the people. Exodus from New Orleans always begins before the quarantine bars fall, and this exodus occurs not so much because yellow fever is present as because the rigors of quarantine are impending. In the recent epidemic, private information about yellow fever got loose in the stock exchange, creating an extraordinary flurry. The people took notice and exodus began at once, anticipating quarantine by about 10 days. Quarantine is intended to stop this exodus, but probably has the opposite effect of increasing the number of refugees. The more stringent the attempted restriction, the more is quarantine resolved into a game of wits between the officials and the people, and in this game all the odds are against the officials.

If the people of New Orleans had been convinced at the beginning of the present epidemic that no general quarantine would be declared, a majority of those who left the city would probably have remained at home. If the regulations concerning travel had required nothing more than a certification of no known exposure and a notification of the authorities at the point of destination, there would have been less panic in New Orleans and practically no concealment or evasion on the part of refugees. Such moderate regulations would have intensified the existing panic in noninfected towns, but the added fear would have been wholly unreasonable, for every town, where the truth about yellow fever is believed, can afford to take the chances involved in travel under these simple regulations. With the destruction of mosquitos in railway cars, with notification of outside health authorities concerning passengers en route, and with proper medical certification of nonexposure at the point of departure, railway quarantine would hardly be recognized as quarantine at all, but would nevertheless meet every requirement of public convenience and safety.

The prevailing methods of certification of passengers is far from satisfactory. No health officer can write a certificate with a comfortable assurance that it will prove acceptable to the end of a journey. Whenever public officials are agreed upon the proper form and contents of such a certificate, it will include a reasonable identification of the passenger, the proposed route, the destination (including address), and the number of the train; it will allege some satisfactory means of ascertaining the fact of nonexposure, will be issued by a responsible official without fee, and will be delivered by the passenger to the health authorities at the destination point. Offices for this business should be established at the railway stations, and telegraphic reports should convey to outside health officials information concerning passengers to be expected, in advance, if possible, of the arrival of their trains.

A rational plan of defense, prepared before hand on some such lines as these, would reduce to insignificant proportions, or perhaps abolish forever, the detention camp, cordon militaire, and other costly features of border quarantine, and would concentrate the more intense activities on and immediately round the infected areas. This brings up two objections. The first is that operations for the defense of outlying territory cannot and ought not to be conducted by local authorities. For the sake of avoiding the extreme penalties of quarantine, a great commercial city, as New Orleans, might consent to carry such a load, but fairness and sound policy forbid that such a responsibility, or any part of it, should rest upon an infected city.

The other objection is that such a plan would require prearrangements, entered into by all local authorities having interests at stake, whereby the responsibility could be equitably distributed, and freedom of action might be assured to officials operating outside their ordinary political bounds. That such prearrangements are impossible is obvious. The equities of a joint campaign could not be determined beforehand, and could not be adjusted afterward. No sort of unity is possible under any general terms of agreement, for in these matters the unit of local government cannot be defined—at least not in terms familiar to American politicians. Rational, uniform, and effective inland quarantine can only be had in the United States through the medium of the federal government. A powerful arm of the federal government is already authorized to render these services, and I know no field of practical work in which the Bureau of Public Health can earn greater distinction than in demonstration of the definite and orderly procedures by which the spread of yellow fever can be closely limited, without seriously increasing the burdens of an infected locality.

I count it somewhat unfortunate for the United States Public Health Service, and for the State of Louisiana, that the conduct of the New Orleans campaign was turned over to federal officers. Satisfactory as their work has been, I do not believe that the government officials have handled the New Orleans situation much better than was possible to the local authorities. What Louisiana expected to gain by the transfer was not a better local fight, but better credit with her neighbors, and less rigorous quarantine. The profit may justify the deed, but the precedent is a bad one. It would have been much better for all concerned if the health authorities of Alabama, Mississippi, Louisiana, and Texas, had asked the United States Public Health Service to set up effective barriers between them and the city of New Orleans. In that case the federal officers would by this time have established intimate and confident relations with local health officials throughout the infectible territory; rendering services which the general govern-

ment can properly offer, and local governments can properly ask, without offense to local pride or self-love. As matters stand, the energies of the service are wholly absorbed in searching out and extinguishing local foci, services which the general government should not expect to render, save under conditions of acute and general necessity, and which local governments will not request except as a last resort.

In our insular and territorial possessions, where States are in the making, the general government may very properly undertake the control of epidemic situations. But the dignity of statehood implies self-sufficiency against the emergencies which a State may reasonably anticipate, and I am convinced that it is as bad for a State, as for a man, if it be easier to find a substitute than a remedy for weakness. Circumstances have determined that the United States Public Health Service should attempt but one, and that the lesser one, of two first rate chances to bring the country into its debt. From this time on, the defenses against yellow fever will not be weakened by popular or professional unbelief as to the essential cause of yellow fever. It would be difficult to overpraise the demonstration which has been made in the epidemic now expiring, but I cannot help regretting that the United States Public Health Service had not a chance at the same time to suppress forever the fierce delirium of quarantine.

In recent years, the control of maritime quarantine has been gradually passing into the hands of the United States Treasury Department. Within a year, the quarantine stations of four Atlantic States have been transferred, and it is quite evident that American States and cities will invest no more in this business. If the history of maritime quarantine could be obliterated, and the subject could be discussed as new business, a proposition to leave the matter in the hands of seaboard States would receive scant consideration. The seaboard States would resist such a proposition, and would be supported by a good majority of the inland States in favor of government control. Important ports of entry have always seen the equity of this question, and have often succeeded in pushing the responsibility of maritime quarantine back to the State government, or, failing in this, have equipped and operated their own quarantines. Local governments, thus obliged to carry responsibilities properly belonging to the general government, have avoided expense by levying direct taxes on foreign trade, and thus it happens that maratime quarantine, by producing its own revenues, is not recognized as an unfair burden upon the locality. While local authorities do not wish to be rid of them, some of these quarantines may continue indefinitely under local administration; but the best of them are not serving the country as they should, and eventually they will have to assume certain outside obligations, or else make way for the proper performance of these services by the general government. Fortunately, the occasions are rather rare when inland interest in maritime quarantine becomes very acute. In 1892 and 1893, American Boards of Health realized very deeply their interest in seaboard quarantine against cholera. The port of New York was at that time a center of very embarrassing solicitude, and the quarantine service at New York did not satisfy the legitimate demands of the situation. A great many health officers have remained steadfast since then, in the conviction that local maritime quarantines probably cannot, and certainly do not, in defending their local interests, meet the reasonable needs of the country.

In November a conference of the governors of Southern States will review the whole subject of quarantine. Recent newspaper comments suggest rather drastic reforms. In this matter, I, for one, have little fear that considerations of public convenience and commercial freedom will cut too deeply into prevailing methods. Every amelioration which is likely to be demanded in the matter of quarantine can be secured, and preventive medicine should be called on to justify this profession. The business of the coming quarantine conference, difficult enough no doubt in execution, may be very briefly stated. It is to ascertain the price of modern sanitary administration and to buy enough of it to extinguish the more expensive features of quarantine.

NORMAL SHORT SLEEP, SLEEPING-SICKNESS, AND SLEEP IN ANIMALS.

BY

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SECTION II.

Short Sleepers.—It is a matter of general observation that the sleep of the active-minded (as distinguished from the petty-minded) is much shorter than that of the listless and indolent; and MacNish has remarked, the heavy-minded, phlegmatic persons are both long and deep sleepers, and hard to awaken, while on the other hand, persons of an irritable, nervous, hypochondriac temperament, are the reverse. Furthermore, it appears that the short sleepers can usually do much more work and endure more fatigue than the long sleepers.

While it appears that the majority of people require from eight to ten hours sleep, many individuals of great energy and intellectual eminence have habitually lived on much less. It is recorded of Frederick the Great, of Prussia, and of John Hunter, the surgeon, that neither of them slept more than five hours in the twenty-four. Edison, our distinguished inventor of electric devices, has been in the habit of sleeping no more than from four to five hours a day. The same habit is said to have existed with the first Napoleon and the elder Pitt, the British statesman. I have personally known a number of individuals of great talent and mental activity who habitually slept about four and a half hours, while they remained in the best health.

According to MacNish,[13] the celebrated General Elliott never slept more than four hours out of the 24, and in other respects he was strikingly abstinent, his food consisting wholly of bread, water, and vegetables. The same authority states that in a letter communicated by Sir John Sinclair to John Gordon, Esq., of Swinly, Caithness, mention is made of a James MacKay, of Skerry, who died at Strathnaver, Scotland in 1797, at the age of 97, who, on an average, slept only four hours a day, and was a remarkably robust and healthy man.

It is said of Jeremy Taylor that he slept only three hours a day, while it is recorded of Humboldt, the traveler and writer, that he slept only two hours in 24. Dr. MacNish tells us that the distinguished French General Pichegru, informed Sir Gilbert Blane that during a whole year's campaigns he had not had an hour's sleep in a day.

It is not a very rare occurrence for doctors who practise over extensive territories to have spells of prolonged privation of sleep, owing to excessive and imperative professional calls during certain seasons. Dr. Geo. M. Gould[1] refers to a number of such instances, which covered periods ranging from 8 to 18 days, during which time the doctors had no more sleep than what they secured while riding in a buggy, on horseback, or sitting in a chair for brief intervals. Some 20 years ago, I had several such experiences, lasting for a week or 10 days at a time. For the first three days but little effort was required to keep awake, but after that time, sleep had to be fought or obtained by short snatches. On one occasion at night, while on horseback, I was awakened by the horse stopping in front of an extensive prairie fire.

Sleep Walking.—Dr. H. Gibbons[2] mentions that during Sir John Moor's disastrous retreat to Corunna, Spain,

many of his soldiers steadily pursued their march while fast asleep, and Dr. Carpenter Burdach states that this is not uncommon among soldiers.

Sleeping at Will.—Sir Wm. Moore knew of persons who could not only go to sleep at will (as was the case with Wellington, M. Thiers, Napoleon, and others), but could sleep for as long or as short a period as they desired. He further states,[3] that some persons possess the faculty of snatching a few minutes of much-needed sleep with the din of battle raging around them.

Age and Sleep.—Men require less sleep than women, as a rule, and a man's pulse on an average is five beats less than a woman's. Aged people usually slumber but little and not at all profoundly. Sometimes, however, when they get into a state of dotage, they pass the greater part of their time in sleep. Infants sleep very long, usually from 18 to 20 hours a day. From 10 to 20 years, 9 to 10 hours of sleep appears to be required. In middle age the usual length of sleep is about 8 hours.

Large and generous feeders commonly sleep more than small and careful eaters, while in summer time sleep is naturally shorter than in winter.

Long Sleepers.—Dr. Robert MacNish, of Glasgow, in his work: "The Philosophy of Sleep," has noted from the memoirs of the Royal Academy of Sciences, of Berlin, of 1777, the case of the "Lady of Nismes," who had attacks of sleep periodically at sunrise, which lasted until about noon each day, when she had a brief interval of wakefulness. The first attack always commenced about daybreak, whatever might be the season of the year. During the brief intervals of wakefulness which ensued shortly before noon, she had only time to take a little broth before the second attack of the day began, and which lasted until evening. She was awake all night. When the disorder had lasted six months and then ceased, the subject had an interval of perfect health for the same length of time. When the disorder lasted a year, the subsequent interval of health was of equal duration. This affliction at last wore gradually away, and she lived entirely free from it for many years. She died at the age of 81, with dropsy, a complaint which apparently had no connection with her preceding disorder.

According to the same writer, Dr. Moivre slept 20 hours daily, and a noted player by the name of Quin could slumber for 24 hours successively. One, Elizabeth Orvin, is said to have spent three-fourths of her life in sleep, while another person by the name of Elizabeth Perkins is said to have slept from a week to two weeks at a time. A Mary Lyall slept for six successive weeks from time to time.

Dr. L. M. Sharp[4] attended a woman, aged 82, who slept quietly for three weeks, during which time she could only be awakened long enough to take some liquid nourishment. Her bowels did not move until about the close of the third week, but she passed urine daily. When she came out of the sleep she thought she was in a hospital instead of her own room, which she had occupied for a long time. She had no other delusion and no other disorder at any time except that some 10 days before the onset of the attack of sleep she appeared to suffer from the passage of gallstones.

Dr. Henry Hayman[5] had a female patient who at the time of his recording her case, had slept "with next to no nourishment" from March, 1871, to May 15, 1880, and was even then in the same condition. Nothing had passed her bowels for five years, but about every fourth day she passed a considerable amount of urine. Dr. Gray[6] reports a similar case in a woman of about the same age. He cured her by administering .065 gm. (1 gr.) doses of tartar emetic on three different visits.

Dr. B. F. Slaughter[7] had a patient to whom he refers as a "sleeping beauty." Her name was Susan C. Godsa. She was born in Gibson county, Tenn., in 1842, and was aged 26, at the time of his report. She had slept 18 years. He was unable to count her pulse "owing to a tremor that constantly pervaded her whole frame, during both sleeping and waking." She had convulsions between 10 and 11 o'clock every night. At 8 years of age she had intermittent fever and was given large quantities of opium, which was followed by convulsions. She micturated, defecated, and menstruated regularly, but took no mental or physical exercise of any kind. Her respirations were 16 per minute.

Sleeping-sickness.—In certain parts of the world, especially in India and Africa, there is a disease known as "the sleeping-sickness," and it is said to be invariably fatal. The symptoms are progressive drowsiness and lethargy and progressive weakness of the body and mind without any distinct paralysis or mental aberration. It is probably the result of some toxic product. *Filaria perstans* is found in the blood of these persons. But this parasite is also common in the blood of the natives who do not have the sickness. A somewhat similar ailment is sometimes experienced by visitors to tropical and semitropical countries, but it is usually followed by recovery after leaving the country.

Suspended Animation.—There are numerous animals, such as frogs, prairie dogs, etc., which hibernate or live in a state of suspended animation for a prolonged period. Fishes have been revived after being frozen in ice for considerable periods. Sir John Lubbock tells of a remarkable instance of a snail brought from Egypt and which was thought to be dead. It was placed on a card and put in position on a shelf in the British Museum in March, 1845. In March, 1850, after it had been gummed to a label for five years, it was noticed to have a growth on its mouth and was taken out and placed in water, when it soon began to show signs of life and ate cabbage leaves which were offered to it.

Human hibernation is an extremely rare event. So far as known only the fakirs of India have developed this power, and even among these it is not common. They seem to be indifferent to money offered them, and none has been known to give exhibitions outside of his own country. Trustworthy observers have testified to their faculty of entering a long trance, during which time the functions of life are almost entirely suspended. According to Dr. Harley,[8] the fakirs begin their performances by taking large doses of "bang" (cannabis indicus), which creates stupefaction. In this state they are lowered into a cool, quiet tomb, where they remain for six or eight weeks. When resurrected they are only by degrees revived and are in an extremely weak and emaciated condition. Braid writes of a fakir who was buried in an unconscious state in Lahore, and when dug up six weeks later he presented all the appearances of a corpse. The legs and arms were shrunken and stiff and there was no pulsation of the heart or arteries. By degrees he was restored to life. In this case every precaution had been taken to prevent the possibility of fraud, for during the period of interment the grave was guarded day and night by soldiers of the regiment stationed at Lahore.

Dr. Honigberger, a German physician in the employ of Rujet Singh, gives an account of a fakir of Punjaub, who agreed to be buried in a strong vault for 40 days. At the end of this period he was gradually revived and lived many years afterward. Sir Henry Lawrence also testifies to the truth of this statement.

Suspended animation sometimes results from suspension of the pulse. According to Gould and Pyle,[9] a case is recorded by Schenck in which the pulse ceased for three days, followed by recovery. Another case is recorded in which the pulse was absent nine days and recovery followed. According to Gould and Pyle,[9] Saint Augustine speaks of a priest named Reitilut, who could simulate death by an act of will. Both his pulsation and respiration were apparently abolished while he was in this condition. This case appears similar to that of the noted Colonel Townsend of recent years.

It is not extremely rare for physicians to meet cases

of suspended animation lasting a few hours or more. Early in my practice I was called to a very old lady apparently suffering with gallstone colic. I at once administered about 9 mg. ($\frac{1}{7}$ gr.) of morphin with atropin hypodermically. Two or three minutes later she entered a state of suspended animation, which lasted about four hours, followed by spontaneous recovery and freedom from pain.

Forced Privation of Sleep.—Professor Patrick,[10] of Iowa University, reports an experiment upon three healthy young men who were forcibly deprived of sleep for 90 consecutive hours. During the experiment they took their regular meals, and reaction tests were applied every six hours. At the conclusion of the experiment the various tests, physical and mental, showed but comparatively little difference from the normal, except in regard to memory, which varied as follows:

In the case of A. G. S., it fell from 170 to 106; in G. A. B., it fell from 115 to 88; in G. N. B., it fell from 540 to 125.

In respect to their sleep following their sleep-fast in relation to the whole amount of sleep lost, it was found that A. G. S. only required to make up 16% of the lost sleep as measured by time. In the case of G. A. B. it was 25%; in the case of G. N. B. it was 35%. Restoration in each case was apparently complete so that they presumably made up by *depth* of sleep.

Prof. Patrick suggests that they were only partially awake during the experiment, as they exhibited a tendency to short semiawaking dreams. During the wake-fast they all passed a relatively larger amount of urine, and an increase in the excretion of both nitrogen and phosphoric acid, but relatively more phosphoric acid than nitrogen. One had hallucinations of sight, the nature of which he quite realized at the time. They all gained in weight.

It is or was no uncommon practice for Chinamen to be condemned to death by privation of sleep. Dr. H. Gibbons, Jr.,[11] refers to the case of a Chinese merchant who was convicted of wife murder, for which he was sentenced to die by being deprived of sleep. He was placed in a prison and guarded by three officers, who relieved each other every hour, and who prevented the prisoner from falling asleep, night or day. At the commencement of the eighth day his sufferings were so intense that he implored the authorities to strangle, guillotine, burn, drown, garrote, shoot, quarter, or blow him up with gunpowder, or put him to death in any conceivable way.

Dr. Hugh T. Patrick, of Chicago, thinks that three weeks is the limit of a wake-fast in man. Under exceptionally favorable circumstances the time is probably much longer. Professor G. T. W. Patrick, of the University of Iowa, states that in the lower animals it is from four to five days.

Sleep in Animals.—From Mr. C. H. De Vry, the head animal keeper at Lincoln Park, Chicago, I learn that birds, hares, cats, fishes, fish otters, sea lions, storks, blue herons, pelicans, ducks, opossums, and the mylghau of India, are among the lightest sleepers; many of these are very active in the daytime. A female orangoutang, five years old, healthy and active, almost invariably sleeps soundly from sundown to sunrise. All monkeys usually sleep soundly throughout the night, unless disturbed. Tigers, lions, leopards, and panthers usually sleep from dark to dawn, although some of them often have a short interval of wakefulness after the first two or three hours sleep, when they will rise and survey their surroundings, and then retire to slumber for the remainder of the night.

The elephant has the habit of lying down to sleep about 10 p.m. or 11 p.m., and sleeping for about two or three hours, after which it rises to eat hay for a short time and then lies down to sleep until daylight.

At about 10 p.m., for several nights in succession during the week preceding July 4, I visited the house in Lincoln Park, in which the lions, tigers, leopards, etc., were, and each time I found all the animals awake or easily awakened by turning on the electric light. But about the same hour on the night of July 4, just after atmospheric storms of rain and while continuous explosions of fireworks were taking place in the portion of the city close by, I found the carnivorous animals were either sound asleep or slumbering quietly, and although the turning on of the electric lights caused most of them to open their eyes, nearly all retained their sleeping postures. Animals, like man, sleep more in the winter than in the summer and their young, as in the case of man, sleep much longer than adults.

Flesh-eating animals and animals that eat hay, such as camels and cattle, are commonly observed to indulge in a "snooze" during the daytime.

In the wild state, the bears are known to hibernate in winter, but in captivity they do not hibernate, although they eat about half the amount of food in winter that they do in summer. Mr. De Vry also informs me that the prairie dogs of the Southern States do not hibernate even when brought to live in the Northern States, but it has been observed that they keep in their holes only during stormy weather. The prairie dogs of the Northern States regularly hibernate during winter.

Carnivorous and herbivorous animals usually sleep on their sides, but sometimes on their backs, while cranes, flamingoes and blue herons sleep on one leg. The ostrich is an exception to most birds, as it sleeps very soundly, lying on the ground with its legs under it.

Flying foxes in the wild state sleep in the daytime, suspended head downward and often exposed to the sun, but in captivity they sleep at night and eat in the daytime.

In this connection it may be remarked that Dr. Lockhart Mummery[12] found that the blood-pressure is considerably increased in normal man awake with the head down, while the pulse-rate is reduced about three beats per minute, which is perhaps due to an increase of vascular pressure in the fourth ventricle.

Among the night prowlers who sleep in the daytime are the hyenas, kangaroo mice, skunks, beavers, kinkajous, porcupines, raccoons, wolves, etc.

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[*To be continued.*]

PROFESSIONAL RESPONSIBILITY IN THE CARE AND DIAGNOSIS OF INSANITY.[1]

BY

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Although the long and arduous study which a good knowledge of psychiatry exacts from the student of mental disease, and the few opportunities to study insanity which occur in the course of a general practice, have rendered this branch of medicine of but little interest to the general practitioner, he cannot escape from the heavy responsibility which the failure to recognize and properly advise in cases of insanity entails. Not only might the full development, by the removal of causes and proper mental hygiene, of many incipient cases be prevented, but the failure to recognize and

[1] Read before the Medical Association of the Greater City of New York, January 9, 1905.

warn the relatives of the dangers which belong to many seemingly harmless cases, has not infrequently resulted in physical harm to the patient or to others, or in the mismanagement of property.

The physician, from the nature of his education, is a trained observer; and the law holds, consequently, that his observations are of peculiar value. It is evident, therefore, that the responsibility for the early recognition rests with the general practitioner.

Insanity has never been successfully defined, for the reason that our classification at the present time is purely clinical and with the exception of general paresis, based upon no definite knowledge of the real nature of the disease, there is no sharp line separating sanity from insanity; and there is nothing found in insanity which is not an abnormal form of something which is normal in the human mind.

The law of this State wisely makes no attempt to define insanity, but it has for obvious reasons, both by legislative enactment and judicial decision, established a well-defined line between responsibility and irresponsibility from insanity or other causes. This test is founded upon the ability to distinguish the difference between right and wrong; or, in more precise language, did the person at the time he performed the act in question, possess sufficient understanding to know its nature, quality and consequences? This rule applies both to criminal and civil acts. Thus it not infrequently happens that the physician is called upon to decide the mental condition of a patient who has made a will or deed; he should be able to aid the cause of justice in deciding as to the mental health of his patient. It will be seen that this principle of law excludes from among the irresponsibles those cases which are recognized in medicine as moral or impulsive insanity. This the law clearly does, both in statute and judicial decision. Although this view may appear unjust from a scientific standpoint, it is clearly in accord with a sound public policy. The same rule of law also applies to those cases of temporary mental derangement which follows the use of drugs, if taken voluntarily—the law assuming that this person takes the drug of his own free will, and holding him responsible for the consequences of his act.

It appears, then, that it is the duty of the physician to detect abnormal mental processes in the young, and advise proper mental and physical means for their correction; and this duty is becoming more imperative each year, as is shown by the rapid increase in the number of the insane. It is also his duty to advise the family when restraint by means of a commitment as an insane person is necessary, or when a committee is necessary to take charge of the affairs of a person incapable of managing them through insanity or other causes.

The legal recognition of insanity being predicated upon the assumption that insanity is a disease of the mind, distinctly excludes from among the class of the insane those who have lost their minds from idiocy, imbecility, organic brain disease, alcoholism, and old age. Such persons, however, if they retain sufficient mental power may become insane.

As already stated, there is no clear dividing line between sanity and insanity, and the question at issue often is, how insane must a person be for the physician to advise his restraint by commitment? Here there is often a wide difference of opinion between physicians. As a lunacy commitment is a legal act, and the consequences with the committing physician, the only safe rule of procedure is to conform to the principle of law already stated, and so long as the insane person knows the nature, quality, and consequences of his acts, conducts himself with propriety, and is not dominated by delusions which render him dangerous to himself or others, commitment should be refused.

Kraepelin has recently presented a new clinical classification of insanity; and the medical profession having long recognized the faults of the older classifications seem to have accepted his with perhaps too much enthusiasm, for like its predecessor, it is now recognized as imperfect. Imperfect though it be, it is however an improvement over the older classification and I shall adopt it in describing the diagnosis of the various abnormal mental conditions which form the insane condition. Insanity may develop suddenly but as a rule its invasion is insidious. In the majority of cases we find it develops on a neurotic basis. It is in the failure to recognize these insidious cases before their full development, that most of the errors in diagnosis are made.

As has been said there are no elements found in the abnormal mental states of the insane which are not normal in the mind; however, these elements are changed and it is our ability to recognize the real meaning of these changes that enables us to distinguish the true insanities from the abnormal mental states found in hysteria and neurasthenia. For of all mistakes these are probably the most common; and it is not until the quiet melancholic patient commits suicide, or the hard-working paretic does some outrageous thing, or the paranoiac commits a murder, that the real nature of the disease is recognized.

Early in the disease the ego is often not much disturbed and even in old cases the patient may recognize that his mental state is abnormal; but as a rule such appreciation on the part of the patient is soon lost. Early in the disease the patient commonly presents what are known as neurasthenic symptoms, such as insomnia, easily produced fatigue, cerebral paresthesia and depression; but with these we also find mental abnormalities which do not belong to simple states of nervous exhaustion. The mood is often profoundly changed, just as normally we feel depressed or gay, so we recognize states of exaltation as in exalted paresis, the maniac stage of maniac-depressive and puerperal insanity; or of depression as in melancholia; or the mood does not correspond with the apparent mental condition of the patient as in dementia præcox.

Memory being the fundamental factor of mentality is often less affected than the more highly differentiated forms of mental life. It may be abnormally acute as in melancholia and paranoia; or partially or completely destroyed so that the patient no longer recognizes those about him, his environment, or time. He is said to be disoriented, as in dementia præcox, demented paresis, mania, maniac-depressive insanity, puerperal, traumatic, and alcoholic insanity. In testing memory it should be remembered, that the patient may answer readily and apparently correctly, while in fact the answer contains facts that are entirely false.

These disturbances of the volitional centers lead to marked changes in the flow and arrangement of the ideas or concepts. Psychologists assert that no impression made on the brain is ever lost, but is stored up in the subconscious mind. Such concepts are the result of the impressions received through the special senses and from the internal organs. Such concepts are continually arising in the conscious mind from association, similarity, and contrast. The higher volitional centers, probably situated in the left prefrontal lobe, have the power of suppressing all concepts from the mind except those which we wish to use, and it is impossible for two trains of thought to occupy the mind simultaneously. This power to select our concepts and trains of thought is known as attention; the power to refer a concept to its cause as reason; and to form our concepts into a definite plan of action as judgment. It is in this higher sphere of mental life that we find, as would be expected, the most marked changes in the abnormal mental state known as insanity.

The flow of the concepts may be so retarded as to leave one group fixed in the mind, as in melancholia, the depressed forms of dementia præcox and maniac-depressive insanity, and paresis; or one group may simply dominate all others, as in paranoia or reasoning

insanity; or the power to recognize any concepts may be lost, as in the stuporous forms of dementia præcox and the demented form of paresis; or all control over the concepts is lost, so that they continually arise in the mind without order, as in the maniacal form of maniac-depressive insanity, exalted paresis, excited form of dementia præcox, traumatic, alcoholic, and puerperal insanity, and epileptic mania. Thus the patient becomes rambling and incoherent, with rapidly changing delusions and hallucinations. In such patients the power of attention is destroyed and they are said to be divertible. With every concept there is its motor equivalent, and if the patient cannot control this he says or does the opposite to the thing wished. This is most marked in dementia præcox and is known as negativism.

The motor expression of a concept is, of course, normal in the mind, and its control is regulated by judgment. When the latter is destroyed, the patient may recognize the character of the abnormal ones and yet not have sufficient power or will to resist the impulse. This forms the leading symptom in the degenerate class of defectives, as the pyromaniac, dipsomaniac, pervert, and kleptomaniac. Such cases alone form the moral or impulsive insanity, and are not recognized by the law.

These mental changes found in insanity lead as a rule to changes in the volitional actions and ethical feelings of the patient. When the attention of a patient is so disturbed that he does not recognize the real nature of the impulses received through his senses or from his internal organs, he is said to have an illusion. These also occur in the normal mind, but it is able by increased attention to correct them.

Impressions stored up in the volitional centers may also arise in the mind without peripheral irritation, and the patient is then said to have an hallucination. These also occur in the normal mind in dreams, and occasionally in the waking state.

Concepts may be grouped into beliefs or delusions which have no foundation in fact. These are common both in the sane and insane. In the sane they are due to imperfect reason, judgment, or education. The difference between an insane and sane delusion is that in the insane form it is fixed and the patient cannot be made to see its absurdity. Delusions are most marked in paranoia and melancholia, and around them the patient forms his whole mental life. In paranoia they form the sole abnormality, volition being otherwise undisturbed. A marked difference between those of paranoia and melancholia exists in this fact, that the melancholiac refers all his troubles to himself, while the paranoiac refers them to outside sources. Delusions are also marked in the paranoic form of dementia præcox, senile and alcoholic insanity, while in the maniacal form of maniac-depressive insanity, general paresis, traumatic insanity, and delirium tremens, they are constantly changing. These mental changes produce corresponding ones in the appearance and actions of the patient.

In melancholia and the melancholic stage of maniac-depressive insanity we find the expression of grief, and the patient remains motionless or paces about in mental agony. Questions are answered slowly or not at all.

In the maniacal states of maniac-depressive insanity, disturbed paresis, traumatic and puerperal insanity, epileptic mania, and delirium tremens, we find the wandering gaze, the constant movement, the rapid change in mood and expression, the rambling incoherent speech, and the extreme divertibility.

In dementia præcox, the expression is vacant, combined in the paranoic form with suspicion, and in the melancholic form with anxiety. The patient may be stuporous or cataleptic, is extremely divertible, negativism is well marked, and frequently there is a constant purposeless repetition of certain movements or katatonia. The mood does not correspond with the delusions. In paranoia, there is but little change in speech or actions, but the patient forms his life in conformity with his delusions. These patients are frequently difficult to examine, as they often conceal their delusions.

In paresis, we note physical signs, such as ataxia of gate and movement, imperfect speech, general muscular tremor, spastic-miotic or Argyll-Robertson pupil, and exaggerated or abolished knee-jerks. With these, in this country, we most frequently find the mental state of dementia, less frequently that with grandiose delusions, and least commonly that of depression.

Alcoholic insanity frequently resembles paresis, but in it we do not find the Argyll-Robertson pupil. Another type of this affection resembles paranoia, with its delusion of persecution.

In senile insanity, we note the demented look, the improper arrangement of the clothing, the general tremor, the defective memory, a change in the morals and ethical feelings, and often delusions of persecution or of poverty.

REPORT OF SEVEN CASES OF BILHARZIA HÆMATOBIUM: SOME OBSERVATIONS REGARDING THE HATCHING OF THE EGGS.[1]

BY

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I shall not attempt to give a review of the observations of the different investigators of *Bilharzia hæmatobium* (*Schistosoma hæmatobium*), but shall simply report the seven cases which have recently come under my observation, and also make report of some observations concerning the shape of the egg, the anatomy of the embryo, the hatching of the egg, the motility and vitality of the larva, etc.

The seven cases which I report were found among the Boer soldiers who were brought to this country in 1904, together with some English soldiers, to produce the Boer war spectacle at the World's Fair, at St. Louis. After the close of the fair they made a tour of this country, exhibiting in the various cities, and in March last they appeared in Atlanta. Upon seeing these soldiers parading the streets of Atlanta, I was convinced that they were genuine Boers and English, and recalling the report that the above disease is very common in the Transvaal, it occurred to me that probably some of these soldiers might be affected with it. Through the courtesy and cooperation of Dr. S. G. C. Pinckney, of Atlanta, and of Captain Hyndon, of the Boer contingent, I was enabled to obtain specimens of urine from 41 Boers and from 4 of the South African negroes.

It was my desire to obtain specimens from every member of the company, both Boers and English, more than 300 in all, in order to determine the exact number of cases of the disease, if any, which might be present. But as they were in Atlanta less than three days, and as their various duties kept them quite busy most of the time, it was not possible to obtain more than the 45 specimens. Of these, seven were found to contain the eggs of *Bilharzia hæmatobium*, one of the cases being among the negroes, and the other six cases being among the Boer soldiers.

When Captain Hyndon was first spoken to regarding the disease, he stated that no doubt many of the men had had the disease in the past, as the symptoms were very common in the Transvaal, but that he felt sure that none had the disease at this time. Also, in talking with the soldiers none seemed to think that they were affected with the disease at this time, but almost all with whom I talked gave a history indicating that they had con-

[1] Reported before the Atlanta Society of Medicine, March, 1905.

tracted it at some time in the past. Many of the English soldiers also gave histories indicating that they had contracted the disease, as many of them had lived in the Transvaal for a number of years. However, no specimens were obtained from them.

All of the cases were apparently old chronic cases, as macroscopic inspection did not indicate the presence of any blood, or blood clots in the urine. In three of the specimens the eggs were somewhat numerous, in the others they were somewhat scant. Microscopic examination showed a few red corpuscles in each specimen, and two of the specimens contained quite a number of pus cells. No tube casts were found in any of the specimens. Some of the eggs appear to have been prematurely discharged, being sometimes as small as half the size of the adult egg, and not containing an embryo, but instead containing a few granules or globules without any definite arrangement. Others show further increase in size, and contain definitely arranged masses of granules, and close inspection with a one-sixth objective showed a "boiling" motility in some of these masses. The comparative size of these premature eggs and the adult ones is shown in Fig. 1.



Fig. 1.—A, enlarged drawing, showing embryo in the shell (internal structure); 2, pouches; 3, conical valves; 4, globules. B, enlarged drawing, showing appearance and comparative size of premature egg.

The illustrations in nearly all of the works upon this subject give the impression that the egg is a flattened body, and this impression is also received when first seen through the microscope. In reality the eggs are more or less cylindric, one end being bluntly rounded, while the other runs to a point, or "spine." While viewing the egg through the microscope, if the fluid in which it lies is slightly disturbed the egg will roll over and its exact shape can readily be seen. The "spine" is said to be sometimes located upon the side of the egg, especially when the egg is passed in the feces, but I have observed it only upon the extremity of the egg.

The space occupied by the embryo is variable. In some it fills the shell completely and seems to be greatly crowded. In others there is considerable space between the embryo and the shell, the embryo having such an abundance of room that when it begins its movements at the time of hatching it can readily turn around inside of the shell. The head of the embryo can readily be made out, sometimes pointing toward the rounded end of the shell, and then again toward the sharp end.

The embryo is completely covered with cilias which on account of their transparency, are difficult to make out upon the upper and under surfaces, but are readily seen in profile. Lining the shell is a thin membrane, which, as a rule, can be detected only after the rupture of the shell and the expulsion of the embryo. Enclosed in this membrane and between it and the embryo can usually be seen at various points a number of granules and globules.

In the anterior third of the embryo two large pouches can be seen, and these pouches terminate by a slender neck on either side of the head. Between these two pouches is another oblong pouch which empties through the middle of the head.

Just external and slightly posterior to the two pouches mentioned are two little conical valve-like bodies, apparently enclosed in a channel or tube. In the posterior third of the body two others can be seen. As long as the embryo is alive these little bodies possess a wave-like motion which ceases as soon as the eggs lose their vitality. However, this motion is not easily detected, and it is only by carefully focusing the one-sixth objective that they can be made out.

An inspection of the anterior third of the embryo shows a series of ridges running from the head to the body and ending in low broad eminences.

Passing backward from these eminences and covering the middle third of the body, are a series of rectangular sections, probably eight in number. At the posterior extremity of these sections (at the junction of the middle with the posterior third of the body) are several conical protuberances. These are about eight or ten in number. It is practically impossible to be exact as to the number. The covering of the posterior third of the body presented no definite structure, being covered (like the middle and anterior thirds) by the innumerable transparent cilias.

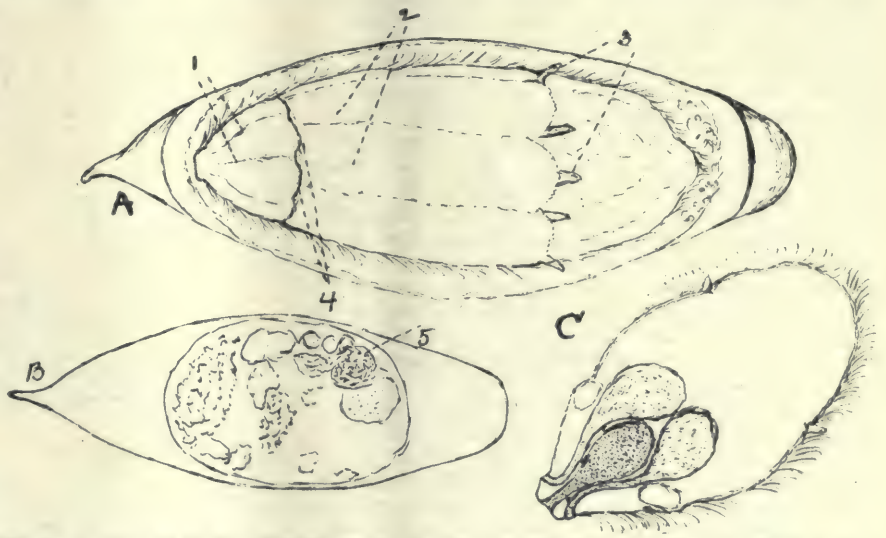


Fig. 2.—A, enlarged sketch, showing external surface of embryo; the cilias are shown only in profile; 1, ridges; 2, rectangular plates; 3, conical projections; 4, eminences. B, one form of premature egg; 5, granules with boiling motion. C, enlarged drawing of free swimming larva.

So long as the egg remains in the urine in which it is passed from the human body, it undergoes no change. It can be kept for months in this urine and the egg will retain its contour perfectly. However, the egg loses its vitality in about a week's time, sooner in warm than in cool weather. If the urine containing the eggs is kept

in a cool place the eggs will retain their vitality for about a week, but if kept in a warm place where the urine decomposes rapidly the eggs die in two or three

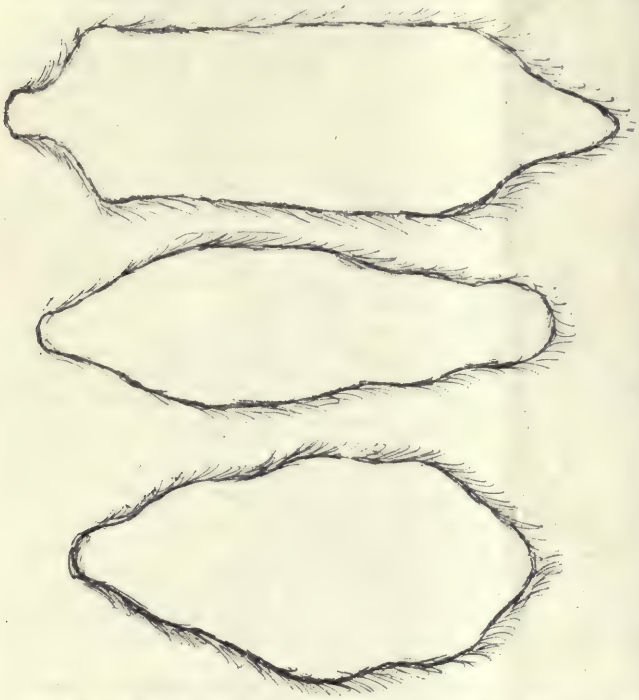


Fig. 3.—Different shapes the larvas may assume while swimming.

days, but at the same time they do not disintegrate or become altered in shape.

The hatching of the eggs is accomplished by placing them in water. The urine containing the eggs can be poured into fresh water, or better still, the urine can be centrifugated and the urine decanted, leaving the eggs at the bottom of the tube, then by filling the tube with water and again centrifugating and decanting the water, the eggs can be obtained in a concentrated mass at the bottom of the tube in a drop of water. A drop of this water placed upon a slide will usually contain a number of the eggs, and the process of hatching can then be watched. If the water is at the ordinary room temperature, by the time the slide with the eggs upon it can be placed under the microscope you may observe that the cilias near the head of the embryo are beginning to vibrate. This vibration you will notice is slow at first, but gradually increases in rapidity, and at the same time you will notice that this vibratory motion gradually passes backward involving the cilias upon the body and finally those at the posterior extremity. By the time that all the cilias are in motion you will also notice that the ridges connecting the head with the body appear to have a wave-like motion, and that the head may be drawn from side to side, and that the head is occasionally retracted and extended. If the embryo is not too much crowded it may turn completely around.

These movements of the embryo take place with great rapidity, and the embryo appears to be seeking a way of escape from the shell. While the rapid vibration of the cilias all over the body is going on, you may notice that the embryo is slowly revolving from side to side.

While watching these various movements of the embryo, you may be somewhat startled to see the shell rupture and the embryo suddenly expelled into the water. The membrane surrounding the embryo is sometimes partially expelled with the embryo, and this is the time when it can be observed, if at all. When the embryo is expelled from the shell, the lively movements which you have been watching, cease for a moment, and the organism slowly turns about as if stunned. However, this is only for an instant, and the next second it has darted away with a speed which is remarkable, and you must move the slide about quite rapidly if you would keep up with it, as it moves through the water.

As the organism darts away after being expelled from the shell, you may notice that it elongates considerably, and in some instances appears to be almost a third again as long as the shell from which it has just escaped. As the larva moves through the water, it revolves from side to side, but this motion is difficult to detect when it is moving rapidly. The organism darts here and there in the water, occasionally stopping and retracting, and extending its head as if it were feeding. However, you may notice that while it has stopped moving forward, yet the cilias covering its body are still vibrating rapidly. We would suppose that its rapid movement through the water was accomplished by the vibration of these cilias, yet the continuation of the vibration after the larva has stopped, appears to be contradictory to such an idea.

After moving through the water for about an hour, the larva finally stops and slowly dies. If it dies in this short time, under natural conditions, it would indicate that it finds its intermediate host very quickly.

The body of the larva is very flexible, and it exhibits many changes in its shape. The different shapes are shown in Fig. 3.

After observing the rupture of the shell while the rapid movements of the embryo are going on inside of the shell, it at first appears that the rupture of the shell is produced by these movements of the embryo. However, I have observed that if the egg be placed in water of a very low temperature, the embryo is very sluggish in its movements, or may not exhibit any movements

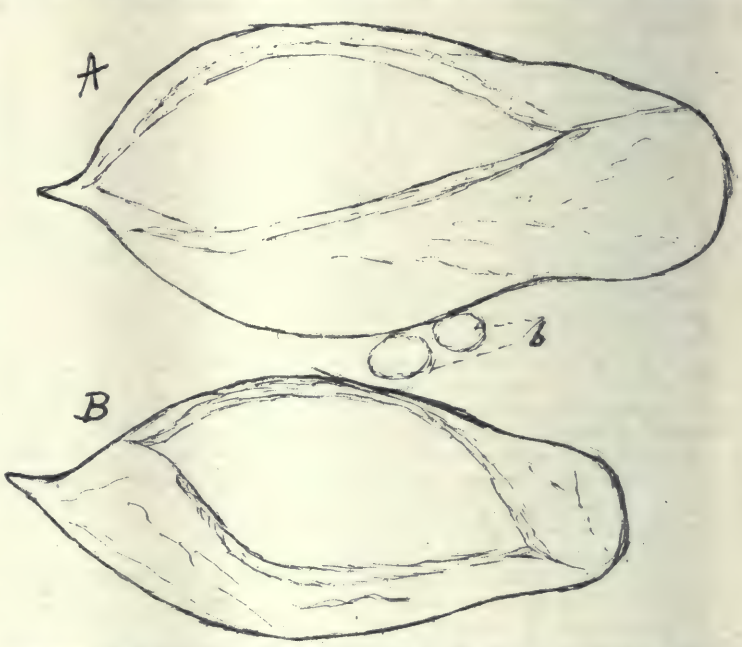


Fig. 4.—A, enlarged drawing of shell, showing opening through which the embryo was expelled; the opening usually extends almost the length of the shell and slightly oblique. b, Pus cells. B, enlarged drawing, showing shell with opening through which embryo was expelled; the shell is usually wrinkled and flattened.

whatever, and yet the rupture of the shell takes place just the same, and the embryo is expelled into the water where it remains perfectly still, or if it showed some slight movements while in the shell, it will move off

very slowly, and at this time the revolving from side to side can be easily seen. This rupturing of the egg appears to be due to the change in the specific gravity of the fluid surrounding the egg, and if this is true, then lowering the specific gravity of the urine of a person passing the eggs, would result in finding the free swimming larvas in the urine. While the disease is never autoinfectious on account of the necessity for an intermediate host, yet there is a possibility of irritation resulting from these free swimming larvas. Whether such a thing is possible, can only be determined by investigation.

From the fact that 7 cases of the disease were found in 45 persons examined, and the history of others indicated that the disease existed among them in as great a proportion, it would appear that there might be a considerable number of cases of the disease among the others of this company from South Africa. And, while there is some uncertainty as to just how this parasite gets into the human body, whether by food or drinking water or by means of the skin, we know that the history of the cases and the development of the larvas indicate that it finds its intermediate host in the fresh river water. Whether this intermediate host belongs to the crustacea, as reported by some, or other organism, it is well for us to consider the possibility of contaminating our streams with this parasite, for which we have no remedy. This is of importance, not only on account of the number of cases among these Boers, but especially so in view of the fact that at the present time the question of establishing Boer colonies in some of the States of the union is being seriously considered.

In talking with the Boers I learned that quite a number had been in the "fly" country in South Africa, and therefore there is a possibility that in this same company there may be cases of chronic trypanosomiasis. I did not have an opportunity or time to make any observations along this line, but as these people are still in the United States, perhaps someone may have an opportunity of determining the presence or absence of this disease, and possibly other diseases among them.

I also learned that the company carries with it some "salted" horses, that is, horses which are supposed to be immune to trypanosomiasis. There is a possibility that these animals have a mild form of the disease as it exists in horses, as produced by *Trypanosoma brucei*, and while we do not know of the existence of any one of the seven varieties of the glossina, or tsetse fly, in this country, yet we cannot be sure that some other insect in this country does not possess the power of transmitting the trypanosoma to cattle and horses, and as long as there is any uncertainty, it at least calls for investigation.

I wish to acknowledge my indebtedness to Mr. F. W. Schnauss, undergraduate of the Atlanta College of Physicians and Surgeons, for valuable assistance in securing specimens.

HEMORRHAGIC TYPHOID WITH TYPHOID PAROTITIS: RECOVERY.*

BY

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According to Osler,[1] about 6% of typhoid fever cases show intestinal hemorrhage; but the type known as hemorrhagic typhoid (hemorrhagic putrid fever of Trousseau) is of such relative infrequency that the following case history is not without interest:

J. R. H., aged 38, Scotch, married, no children, 11 half-brothers and sisters, all well. Mother dead, cause unknown. Father died at the age of 59, of "bronchial" trouble. No history of hemophilia or of syphilis.

Personal History.—Negative up to two years ago, when he suffered an attack of bronchopneumonia. A few months following this trouble, he developed acute pulmonary tuberculosis and came West. For the past six months he has had no symptoms of active trouble, no cough nor expectoration · weight, temperature and pulse normal; he has always been a total abstainer; there is no history of syphilis.

Present Illness.—For 10 or 12 days he has complained of headache, backache, persistent, hacking cough, languor, almost complete anorexia and diarrhea the past seven days; epistaxis has occurred on three occasions during the past four days. He became so ill four days ago that he sought his bed and called a physician, who diagnosed grip.

Examination.—The patient is a well-developed, well-nourished man, weight 190; tongue tremulous, covered with a dirty brownish coat; marginal indentations from teeth; temperature 104°; pulse 84, good rhythm and volume; vessels normal; chest—slight dulness on percussion over right apex, extending down to second rib; no rales; otherwise negative; heart sounds, normal; abdomen—a well-developed crop of rose spots; tympanites moderate, gurgle, and tenderness on pressure in right iliac fossa; spleen palpable; stools pea-soup in character, 8 to 10 in 24 hours.

Diagnosis.—Typhoid fever (tenth to twelfth day of illness).

A trained nurse was placed in charge, and the following treatment carried out: An initial purging with castor-oil, 2 oz.; liquid diet every four hours, milk, beef juice (fresh made), plain broths, or albumen water; cold sponging for temperature of 102° or over, as required; an enema of sterile water, twice daily, morning and evening; and acetylbenzoylperoxid (acetozone), in saturated solution, 8 oz. every three or four hours.

From April 12 to April 19, the progress of the case was very satisfactory. The abdomen was less tympanitic and diarrhea less marked, the mental condition good, and the temperature easily controlled by sponging (see chart). Pulse averaged 84 to 90. April 17: 12 noon, the pulse suddenly jumped to 108 without any discernible cause. (Later events would make it appear that the first intestinal oozing took place at this time.) April 19: 5 p. m., the first intestinal hemorrhage took place, profuse, no clots, blood dark "coffee-ground." April 20: Stools dark brown, but no clots. April 21: Intestinal hemorrhage same; persistent vomiting begun. Vomitus claret colored, no clots; marked oozing from gums, mucous membranes of mouth, tongue, nose and throat. Blood appeared in the urine. April 22: All conditions practically the same, except the appearance of a few clots in stools. (Examination of the urine, on this day, revealed a trace of albumin; under the microscope a few blood and epithelial casts and large number of blood-corpuscles.) April 23: Less blood in the urine; old blood in stools, no clots. April 24: Vomiting controlled, urine less bloody, and intestinal hemorrhage less; left parotid gland swollen. On right leg and foot a number of purpuric spots developed, from a dime to a quarter in size. April 25: Copious intestinal hemorrhage, marked tympanites, purpura involved the entire right leg to hip, and pressure points on posterior surface of body. (Hypodermic punctures and punctures for subcutaneous saline solution were followed by extravasation of blood into skin and subcutaneous tissues.) April 26: Urine shows slight tinge of blood; less blood in stools; right parotid gland swollen. April 27: Both parotids greatly swollen; stools pea-soup, no blood in urine; oozing from mouth, nose and throat ceased. April 28 and 29: No blood in stools or urine. April 30: Copious intestinal hemorrhage; urine clear, swelling in parotids subsiding. May 1: Some blood and clots in stools. May 2: Stools dark, no clots; parotids practically normal. May 3: Stools and urine clear of blood. April 19 to 24, subsultus tendinum was present. Delirium was of active type, not violent; but with the development of the parotitis the subsultus became very marked and the delirium took on the low muttering type.

Treatment.—April 19 to May 1: Acetylbenzoylperoxid was stopped immediately when hemorrhage appeared. Tepid sponging was substituted for cold. Diet consisted chiefly of albumen, barley water or rice water. Iced champagne was used in small quantities, frequently repeated. Ergot, hamamelis, aromatic sulfuric and gallic acids were used, with no apparent benefit. Turpentine, adrenalin, gelatin and calcium chlorid were not tried. Subcutaneous injections of normal saline solution did their work well in filling up the vessels after the most severe hemorrhages.

On April 30, when the patient's condition was most desperate, and a fatal termination seemed imminent and unavoidable, during an interval of 14 hours, three subcutaneous injections of a quart each were given and readily absorbed. Strychnin and atropin were administered as required, but were unsatisfactory. For a period of 48 hours camphorated oil, 15 drops to 30 drops, hypodermically as indicated, supported the patient when all other measures failed.

Turpentine stupes were applied to overcome tympanites and meteorism. From May 1 the progress of the case was uneventful, although the patient made a tedious convalescence.

Remarks.—It is interesting to note that the patient's tuberculous trouble failed to show any activity, in spite of the bronchitis accompanying his typhoid, and his great emaciation and exhaustion.

I saw the patient again in September, 1904, and found him in perfect health.

A study of the clinical chart of this case shows: (1) That the pulse elevation and change in character were the first signs

* Read before the New Mexico Medical Society, Las Vegas, N. M., May 10, 1905.

to be noted when hemorrhage occurred; (2) that the hemorrhages were followed closely by a marked and abrupt drop in body temperature; (3) the beginning of an inflammatory process in the parotid gland was accompanied by a marked rise in temperature and corresponding pulse elevation; the mental condition became much worse; (4) that the urinary secretion for 24 hours averaged 40 ounces, with the exception of the 24 hours when he received three quarts of normal saline solution subcutaneously, when the amount voided reached the enormous quantity of 192 ounces; (5) that the number of stools during the period of hemorrhages averaged seven in 24 hours; (6) that the respirations were affected very little, ranging from 16 to 23 per minute.

The literature on this subject is not exhaustive, very little light having been thrown on the causation and etiology of this unusual and fatal type of typhoid fever during the past 50 years.

One has but to read Trousseau's classic and quaint description, and then pass to Hamburger's[2] masterly article on hemorrhagic typhoid, to note how little progress has been made in this direction.

Nicholls and Learmonth[3] report one fatal case. In summing up 12,000 cases from literature, they found 18 instances of general hemorrhagic diathesis. Hamburger collected from literature, up to May, 1899, 22 cases. Since that time Eshner and Weisenberg[4] report 2 fatal cases. Longenecker and Akerman[5] report 1 case ending in recovery. Of 1,900 cases during the Basle epidemic, only 3 were of the hemorrhagic variety, while in a series of 6,513 cases, of the 439 fatal ones, Uskow observed only four of the general hemorrhagic type. Samohrd[8] adds five more to those already reported. According to Hamburger, two-thirds of these cases terminate fatally. Hemorrhagic typhoid occupies a distinct position, according to Osler, but so far no satisfactory theory has been advanced to account for its occurrence.

Etiology.—Three classes are made by Hamburger:[2] 1. Those of epidemic influence; hemorrhagic cases developing more frequently during an epidemic of the virulent type. 2. Hemorrhage as a result of secondary infection (possibly the absorption of septic products); being a symptom of the septicemia developed during the progress of the disease. 3. Hemorrhage as a manifestation of cachexia.

Syphilis, tuberculosis, alcoholism, a history of hemophilia, either personal or family, have all been mentioned as possible causative factors. In this case we know our patient had suffered from a wellmarked tuberculous infection at a comparatively recent date and the resulting cachexia (although not apparent) may have been one of the causative factors in the development of the hemorrhagic diathesis.

I recall having seen several cases of purpura, of the socalled rheumatic type in tuberculous subjects, especially those markedly anemic.

Eugene Wasdin[6] says: "It is probable that *Bacillus typhosus* bears an important relation to all purpura hæmorrhagicas of febrile type," but the fact that purpura is seen in a number of other infectious diseases, viz., yellow fever, smallpox, scarlet fever, diphtheria, and measles, especially when the disease takes on the virulent type, would seem to point to the toxemia as the probable cause.

The older observers were wont to speak of the "changed fluidity" of the blood—in other words, a delay in the coagulation time. This change has been noted in practically all hemorrhagic conditions; this can probably be accounted for in hemorrhagic typhoid by the fairly constant leukopenia which exists, not so much as a result of the destruction of white corpuscles, but because of a decreased influx.[9] That the reduction of white corpuscles favors the hemorrhagic tendency is proved by Openschowski's case of hemorrhagic typhoid. In his case, a complicating pneumonia, with an accompanying leukocytosis, checked hemorrhages from the mouth and tongue which had resisted all treatment. He attributes the cessation of the hemorrhages to the leukocytosis.

In the case under discussion, it is interesting to note the hemorrhagic tendency became much less marked with the development of the parotitis; an infectious, inflammatory process which was no doubt followed by at least a moderate leukocytosis.

Ewing[10] attributes the leukopenia to the action of the typhoid toxin. Boston[11] speaks not only of the diminution in the number of blood plates, but also of a decrease in the fibrin content.

Thayer, who made an analysis of the blood findings in all typhoid fever patients in Johns Hopkins Hospital during a period of 11 years, found: 1. That during the febrile period there is a progressive reduction in the number of red corpuscles, this reduction averaging 1,000,000 per cm. 2. The hemoglobin shows a reduction to 80% or 75%, rarely lower. 3. That typhoid fever fails to show an increase in the number of white corpuscles, in uncomplicated cases; a moderate leukopenia being found in a majority of the cases.

A transitory leukocytosis is often seen following hemorrhage. The presence of the bacillus of Eberth in the circulating blood has been well established by a number of observers. The change in the blood itself, however, is scarcely sufficient to account for the development of the multiple hemorrhages seen in this condition. An increased permeability of the vessel walls probably exists. Typhoid arteritis and accompanying gangrene, phlebitis, and thrombosis have all been observed. Is it not logical, then, to assume that as a result of the bacillemia, toxemia, or both, a degenerative change takes place in the intima of the bloodvessels, a pathologic permeability of the vessel walls resulting?

Some authors have attributed the hemorrhagic type to a mixed infection, but in Samohrd's fatal case, pure cultures of Eberth's bacillus were obtained from the hemorrhagic deposits. He attributes this type of the disease to an infection with an unusually virulent species of the bacillus.

That the hemorrhages in this case were by diapedesis, oozing from the mucous membranes, would seem likely from the appearance of the blood—dark, coffee-brown, and no clots, with the exception of April 22 and May 1, when several clots appeared in the stools, and the hemorrhage was probably by rhexis, erosion of some of the larger vessels taking place as a result of the breaking down of the intestinal ulcers.

Trousseau,[7] in discussing the question of hemorrhagic typhoid, says: "At the autopsy of persons who have died of dothienteria, we often find bare mesenteric vessels at the bottom of the intestinal ulcerations. Hence, it might be supposed that these hemorrhages are due to the rupture of a mesenteric vessel during the process by which the furuncular core is eliminated. Still, for the most part, if not always, this is not what occurs. The blood is exuded by the mucous surface, exactly as it is in hematemesis and epistaxis. The immediate cause of this sanguineous exhalation is an essential change in the blood, which is in a dissolved state, etc." He speaks of this changed "fluidity" of the blood being found in other fevers, yellow fever, diphtheria, measles, and smallpox. To this "dissolved state" of the blood he attributed the intestinal, renal, and nasal hemorrhages.

A study of this quaint description shows us that Trousseau recognized practically all that modern pathologists have been able to point out, viz.: 1. Blood changes, resulting in a delay in coagulation time. 2. That the hemorrhages are usually by diapedesis, as a result of changes in the vessel walls.

Parotitis as a complication of typhoid is met less frequently than formerly, probably because of greater care being given to the mouth since the pathology of the disease is understood. It occurs in about 1% of the cases and is regarded as a severe and dangerous complication. In most cases the glands go on to suppuration, but in this case both glands were reduced (application of ichthyol ointment 50%) without pus formation. The

marked rise in temperature and pulse and increased delirium were noted when this complication developed. The parotitis had a decided effect on the hemorrhages, only three occurring after this complication developed.

Owing to a lack of laboratory facilities, the Widal test or test for the diazo reaction could not be made, but the typic onset of the disease and its clinical course during the first two weeks presented a picture that could not well be mistaken.

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SPECIAL ARTICLES

THE IDENTITY OF VARIATIONS AND MODIFICATIONS.

BY

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For nearly 20 years the writer in his official duties has been compelled to study the human variations and modifications which disqualify for military or naval service, and for eight years he has been trying to classify these anomalies under the current theories of heredity. It was soon discovered that a degenerate generally has some anomaly or stigma, such as poor eyesight or hearing, which is a disqualifying defect, so that the accepted recruit, as a rule, is a normal man in every sense of the word. On account of this rigid physical examination, the army and navy personnel contains fewer degenerates than any other class of men. Among the rejected candidates, there is a great field for the study of the degenerates who flock to the recruiting offices. The few who succeed in passing the examination are borderland types, and the great majority of the deserters in peace times are restless, unstable defectives. The deserter in war is always a degenerate.

In explaining the defects or stigmata of these men, it was found impossible to class them as hereditary variations, or as nontransmissible modifications, for no matter which view one takes of them, he soon comes to a contradiction of evidence. For this reason, the literature of the etiology of human degeneration is in a chaotic condition. The followers of the newer Lamarckian school of biologists find that the anomalies and the underlying condition of the nervous system, being direct results of an unusual environment, including excessive use or disuse of parts, are modifications, and are necessarily transmitted to offspring; yet there is indisputable proof that, in many of the cases, they are not transmitted at all, and there is a wealth of evidence that anomalies may not be transmitted, unlikeness to parent being the rule in such families. On the other hand, the followers of the opposite biologic teachings of the later Darwinism also find that the anomalies do not agree with our conception of variations, but being in great part mere modifications, due to adverse conditions of the environment, are not transmissible. This class of writers is then inclined to look upon the underlying condition of the nervous system as a temporary one, sure to disappear if subsequent generations are placed in a proper environment during development; yet, in spite of all this, there is the unfortunate fact that degeneration is sometimes like a variation, known to appear in subsequent generations, and seems to be a hereditary condition, even if it is a modification in the first generation affected.

It is of the greatest importance that the matter should be settled, for the welfare of mankind is at stake. Already society is demanding protection from its own anomalous types, and has taken the first steps here and there in confining its incorrigible criminals for life, whether they are degenerate or not. This is such a burden, that society demands preventive means and is calling upon science for enlightenment. If these abnormalities are hereditary variations whose offspring are bound to become degenerate no matter what the environment, then society must take up some one of the numerous proposals to prevent marriage of the unfit or to sterilize them, if it is not practicable to confine them in asylums. If the condition is a nontransmissible modification due to an adverse environment or unnatural modes of living brought about by society itself, then it is a duty to compel parents to place their offspring in such a normal environment that proper development will occur, and if the parents cannot do this, then society for its own protection will do it for them, also making arrangements whereby these parents shall not produce more children which will burden the community to rear them properly.

Man is one of the best, if not the best species of living thing in which to study variations and modifications because each specimen is carefully studied. The botanists have heretofore almost monopolized the field, having an organism under complete control. They have discovered that plants are easily modified by changes in environment, and that these modifications may apparently become hereditary, so there has been a remarkable revival of the century-old Lamarckian explanations of the appearance of those differences which by natural selection give rise to new types. Zoologists on the other hand have until recently had much more to do with the survivors after selection has been at work, and, except in the case of some fossil remains, have not seen the variations which have perished from unfitness, and which have not been the progenitors of future types. Hence zoologists, as a rule, have been much inclined to consider variations to be accidental, fortuitous, independent of the environment, or as just simply happening to appear without cause. When forced to express an opinion as to the cause of variations, they invariably presume some cause in the environment and thus practically place all variations in the class of modifications.

Even Weismann, who has occupied the most extreme position among biologists, in his denial of the transmission of somatic modifications, admits that his transmissible variations may be developmental results of the action on the germ plasm of some environmental cause. DeVries, who is often looked upon as a Lamarckian in his theory of mutations, but who is really a Darwinian, also explains his mutation on Lamarckian grounds—that is, as results of a changed environment, such as a rapid succession of periods of reproduction. Yet he finds, paradoxically, that sports or mutations are independent of the environment as they occur by the side of the parent type which remain wholly unaffected, giving rise later to many new types by mutation in other directions. This view probably follows from our ignorance of the cause which has acted on some of the specimens to produce mutations, but not upon others. It is a curious contradiction to find many other writers asserting that a hastening of the period of reproduction is itself always a result of a changed environment, hence mutations, if due to such causes, are the remote effects of the environment.

In discussing the somatic modifications due to a changed function of a part, such as its hypertrophy from excessive use or its atrophy and disappearance from disuse, botanists have had no data at all and are inclined to depart from this, the major part of the newer Lamarckian theories. The zoologists are divided in opinion. Formerly they all inclined to the view that such acquired changes are hereditary, but there seems to be a goodly number who believe that such modifications are not transmitted to offspring at all. There is not the slightest evidence that the modifications acquired by a man are ever transmitted to his child, which must acquire for itself anew, and if it is so placed that it cannot acquire modifications as its parent did, it will not acquire them at all. Nevertheless, anthropologists as a rule are still governed by the older Lamarckian view and are the most reluctant of all zoologists to acknowledge that modifications are not transmitted.

This error has taken complete possession of our educators, who, almost to a man, believe that if we educate a negro a suf-

ficient number of generations he will grow enough brains to make him equal the higher races.

The general conception of a variation is a difference from the parent, due to some inherent difference in the protoplasm of the ovum (the germ plasm of Nussbaum and Weismann) which causes that ovum to develop into something more or less different from the parent. The difference is transmissible, and the ovums of this new type will develop into a type more or less like the parent, and not into a type more or less like the grandparent. At the instant of its creation, that is, at the union of the germ and sperm cells, the ovum has the power to produce all the variations it will possess in its life. The mutation of deVries is merely an exaggerated variation.

A modification, on the other hand, is some difference acquired by the multicellular ovum later and is due to some cause in the environment. For instance, the thickening of the skin of the sole of the foot from friction is a late modification not seen in newborn infants nor in an adult whose feet have been protected. A modification is therefore not inherited, and in addition, cannot be transmitted. The most evident modification is a mutilation, and it is a matter of common knowledge that it is not transmitted, for no one ever heard of a man who had lost an arm or leg whose later children were born minus an arm or leg. Some years ago there was a belief that a mutilation would eventually become hereditary if repeated a sufficient number of generations. In spite of the fact that scientists should never have a belief which is not based upon facts, there were many who advocated this baseless theory and it required many experiments to disprove it. We may amputate the tails of newborn mice forever, and yet subsequent mice are always born with tails, as far as our experiments prove. So it is now safe to say that no prominent scientist believes in the transmission of a mutilation.

Both variations and modifications can occur at any period of life from the moment of conception to old age. A child may be born with a variation, such as a different complexion than its parents; or it may be born with a modification, such as the scars and pits of smallpox from an intrauterine infection. Hence, the mere fact of an anomaly being congenital does not indicate that it is a hereditary variation. Likewise any difference appearing late in life, such as baldness, may be a hereditary variation and not a modification.

It should be noted, first, that we have no sure means of distinguishing a modification from a variation. It was first thought that a congenital anomaly was surely a variation, but that idea had to be dropped, as in the above-mentioned scars of smallpox from an intrauterine infection; likewise an anomaly appearing later in life might be a variation or a modification, according to the time of the action of the cause. Consequently, we find that it is apt to be uncertain whether a given anomaly is a hereditary variation or an acquired modification. Many anomalies which have been considered variations are doubtless due to causes acting long after birth, and there are quite as apt to be variations which are now considered to be acquired modifications due to late acting unknown causes.

It is a remarkable fact that in anthropologic literature there are many instances in which degenerates with wellmarked stigmata have been photographed and studied as normal variations, whereas they were modifications due to some exceptional cause in the environment. Degenerates are figured among the types in Ripley's Racial Geography of Europe, and it is astounding that an anthropologist studying our Filipinos should have actually pictured the degenerates in the prisons as normal variations of the Malay. Quite a few are types modified by disease or other adversities, just as among our own degenerates.

Now, in applying these first principles to the differences among the men of any one racial type, whether due to degeneration or other causes, we meet so many contradictions that it is necessary to go back and examine our premises. The first patent fact is that the dividing line between variations and modifications is artificial. As stated before, every biologist knows that a variation must have a cause. Results are never causeless. It seems remarkable, then, that there should arise a belief that if the cause acts upon the germ and sperm cells before their union, the result is a transmissible variation, but if it acts upon the resulting ovum a few minutes later, it is a nontransmissible modification. For instance, we know that if food is scanty the organism is dwarfed and that the condition is not hereditary, but that subsequent generations are of full size if the proper food is supplied. It has been proved that shortness of stature of certain races is due to poor food, and that where they are better fed the children grow larger than the parents, even if the ancestors have been of short stature for many generations. What right then have we to assert that a changed food supply to the germ plasm can produce a hereditary variation, while a changed food supply to the ovum a trifle later will produce a nontransmissible modification?

Prof. Bateson, in a late address, described variations as inherent and not something imposed, and he deplores the confounding of all divergences from type into one heterogeneous heap under the name of variations. He thinks that there are qualitative as well as quantitative differences, either permanent or temporary, as to size, number of parts, chemistry, and all other characters usually considered specific differences. To sort out these differences into variations and modifications seems and is a hopeless task, and it is the opposite task of the advocates of orthoplasy who are to determine when a difference shall cease to be called an imposed modification and shall be called an inherent variation.

On the other hand, Prof. W. E. Castle,[1] Professor of Zoology, Harvard, states that variations are the transitory results of varying conditions of food, temperature, moisture, light, etc. That is, he uses the word variation as others use the word modification. With that curious inconsistency which characterizes all these bootless discussions, he states that a mutation has an internal origin and is wholly independent of the environment. Mutations being nothing more than marked variations, are probably due to causes which acted very early in the life of the ovum, though they might sometimes be due to late acting causes. Prof. Wheeler[1] states that there is no explanation of the origin of mutations, de Vries' theory merely referring them to some inherent tendency of the germ to act abnormally. Yet Eimer asserts that mutations are due to external causes.

Dr. G. Adlerz has attempted to prove that variations are in great part the result of abundant food, and that this is the reason why well-fed domestic animals vary so much more, both actually and relatively, than wild animals. He thinks that if wild animals are equally well fed, they will vary as much as domestic animals, and he has considerable data that they do vary greatly in those years when they are numerous and have abundant food. Th. Eimer, and many other experimenters, have produced differences by varying the food and other means such as heat, cold, etc., and yet they assert that these are acquired characters which are transmissible and are not variations at all.

Prof. Standfus, of Zurich, Switzerland, has so modified butterflies by subjecting the eggs, larvas or pupas to various temperatures that northern or southern species have been produced, and old species now rare or extinct have also appeared. This shows conclusively that what we call specific characters are mere results of the action of the environing forces; that is, inherent variations are really acquired modifications.

In our efforts then, to explain heredity, we have actually created two classes which do not exist. No matter at what period of development a cause acts upon the protoplasm, whether before the union of the sperm and germ cells or after the birth of the ovum months later, it merely modifies the organism, and the modification may not appear in the next generation at all if the cause does not act again.

In the effects of poisonings of the developing organism, there is a wealth of data on this point. It has now been quite decisively determined that very many human anomalies are due to poison circulating in the mother's blood during pregnancy. In tuberculosis, for instance, there is apt to be serious interference with normal development and many anomalies are traced back to tuberculous mothers. Maternal alcoholism is another very potent cause of anomalies. In the case of paternal alcoholism, there are less reliable data, for the only way it can affect the fetus is through the protoplasm of the spermatozoid. There

[1] Science, April 7, 1905.

is much literature wasted upon the alleged degenerate products of a drunken intercourse, whereas we know that the actual spermatozoids ejected at this occasion may have been stored up for some days in the vesicles behind the bladder, uninfluenced by the alcohol. We do know that drunken fathers have far more degenerate children than the sober ones, but we are far from able to decide how much of this is due to the alcohol itself or to the defective physique caused by the alcohol, or to the underlying condition of the nervous system, which has caused the paternal alcoholism.

In an article on pathologic heredity, Dr. Alfred Gordon[1] very accurately shows the trend of medical opinion on the subject of the influence of the environment. It is clearly pointed out that the harmful agents, such as poisons of alcohol, syphilis, tuberculosis and lead, have a powerful influence in modifying the germ or sperm cells and diverting them from their normal course of development, and, therefore, a great deal of abnormality is not inherited at all. As the deleterious agents act mostly upon susceptible tissue—the nervous system—it is in that system that we find so many stigmata of this harm. He distinctly calls it degeneration, and shows how it arises in the environment. He calls particular attention to the harm of alcoholic excess.

M. Charrin[2] recounts experiments, which go a long way toward explaining the apparent heredity of certain cases where one organ is weak or diseased in several generations. He believes that there is a transmission of poisons from the mother to the fetus, and that these have a selective action on the particular organ diseased. Gravid goats were experimented with by injecting emulsions of liver tissue. The kids born were apparently normal, except the liver, which was reduced to a pulp. He thinks that toxins from other organs, say the lungs, likewise affect the lung of the fetus. Here we have a clear case of a modification by poisons, which appears in every generation only as long as the cause appears. Likewise, the anomalies due to alcohol may not be hereditary, unless the cause is repeated. Monstrous forms of developing chicks can be produced at will, through mechanical interference or poisonings, and are clearly modifications which differ in no essential from the minor differences which we call variations.

Charles Féré's wonderful work in this direction has shown that almost every form of anomaly which afflicts man, can be experimentally produced in the lower animals.

There is also a tendency at present to deny the hereditary nature of all diseases, a conclusion to which John Hunter arrived over a century ago. A bad physique is inherited and it may not become diseased as the parents' did, but in some other way. In all these cases the diseases are modifications, due to causes in the environment, and do not follow our conception of a variation at all.

In the degenerate, the underlying nervous condition which we call instability, must have a cause somewhere, for if we trace back such neurotic families, we are sure to come to the normal in a few generations. Hence, the neurotic line arose from a normal one through some adversity of the environment, and, though degeneration itself is thus a modification acquired by one generation, yet it may be handed down as though it were hereditary. To believe it is hereditary, we must either prove that it is variation without environmental cause or that acquired modifications are hereditary, and both of these are yet to be proved. The explanation of the difficulty is suggested by those neurotic lines which do return to the normal; that is, degenerates can have normal children, and there is a wealth of data in proof. The condition is not always hereditary, but follows the law of modifications, which appear in every generation in which the cause acts.

To explain, we might take the extreme case of mutilations, as in the experiments to produce tailless mice. As long as the cause exists—the experimenter with his knife to clip the newborn broods—we will have generations of tailless mice, but as soon as the cause ceases the mice remain normal. Likewise as long as the causes of nervous instability exist, just that long will the condition appear in subsequent generations as though it were hereditary, but upon removal of the causes, the line becomes normal. Experiments in this line in rearing the children of the slums in proper homes are already yielding magnificent results, even in cases where degraded parentage would have led us to believe that the children would surely turn out bad, even under proper rearing.

And yet we are bewildered by the contrary reports, which describe children born of vicious parents, adopted as infants by respectable people, then given the best rearing possible, but who subsequently go wrong in a manner similar to their parents. I have been told of an unpublished case, where a foundling adopted by a clergyman went directly from the parsonage to a house of prostitution when she was 17. One explanation of these cases is that at birth the organism is already too far from the normal to be restored. The above child, if reared by its mother, may not have lived to be 17.

Botanists are constantly at work varying the environment of a plant to produce modifications, which promptly return to the normal in a few generations or even in one generation if the original environment is restored. Some of our best fruits are merely modified growths, kept up by grafting and impossible of transmission to offspring, for the seeds may not produce the kind of fruit from which they were obtained. The main work of advanced botanists seems to be to find out the exact changes in the environment which have caused new desirable modifications and then advise agriculturists how to continue that special environment with its unknown causes. Foreign wheats planted in Hungary assume the peculiarities of Hungarian wheats—a clear case of the action of the environment upon the developing organism.

Eimer and the many other zoologists who have produced new modifications artificially or have found them produced by nature, and who have asserted that these changes are hereditary, have not shown that the causes ceased to act in the subsequent generations. Literature is full of cases of these new forms, but we are no more correct in asserting that they are permanent after the cause is removed, than we would be to assert that the weakened condition of attenuated bacteria is permanent because a few generations are still weakened after they are restored to a proper environment. It takes time to reach the normal, and the attenuated condition remains for many generations of bacteria, so that the virulence is not restored at once and an infected animal does not die for a long period compared to the time should it be infected with the normal variety. The same may be said to occur in other plants. It is the "habit of growth" which Adami uses to explain atypic cell growths.

De Vries and others show that reversion to mediocrity is the rule, and that even species are said to revert now and then, though of course more rarely. Surely this all indicates that temporary causes have been at work. Permanent species would then seem to be the results of permanent causes as a rule.

Darwin suspected that there was a periodicity about the appearance of variations and de Vries asserts that periodicity is a rule—that is, there is a tendency for a while to breed true to type and then suddenly in a generation there are marked variations or mutations which if fitted for survival, or at least are not harmful, are naturally selected and a new species arises by a jump instead of by slow degrees. It is reasonable to suggest that these sudden jumps are really due to suddenly acting causes, which we know can occur in man as well as in plants. Quetelet's law of variations shows that they follow mathematic probabilities, that is, the further they are removed from the average the less numerous they are, so that their number and degree can be calculated with fair accuracy.

The whole theory that mutations are not due to environmental causes must be held *sub judice* until we prove that the cause once acting on one generation can affect all subsequent generations. We are more likely to find out that in such new permanent types there has been a repetition of the special causes in each generation, and that return to the parent type will occur sooner or later after the special causes are removed.

It is but a step to apply these ideas to all variations and modifications. A variation is merely a repeated modification due to some permanent change in the environment of the developing protoplasm or the germ plasm before conception.

[1] New York Medical Journal, March 25, 1905.
[2] La Semaine Médicale, December 17, 1902.

A modification is then a variation in the soma which is due to a temporary change in the environment. The two are identical. Neither is hereditary unless the causes are repeated, and paradoxically each is hereditary, that is, each appears generation after generation as long as the cause exists. If the germ plasm has been modified, then we can expect the anomaly to appear in one or a few generations after the cause is removed, or just long enough for the proper environment to move the organism back to its groove.

The far-reaching results of this conception should need no comment. The great problem of heredity, upon which there is a library of literature, resolves itself into the simple result of causes acting in each generation. An organism repeats the life history of its parent only so long as it has the same environment as the parent had. With unchanging environment the protoplasm is the same, and organisms breed true forever, because the living protoplasm reacts to the same causes in the same way every generation. If a new force appears, that is, if the environment changes the organism changes, or reacts to a new combination, and is modified into a form different from the parent form. The natural selection of a new form, if better fitted than other forms, follows as a matter of course. Thus, evolution of species depends upon changes in the environment which produce modified forms of existing species for natural selection to work upon. It is not haphazard, but all are the definite results of new forces in the environment. The problem for biologists is now to determine definitely the cause of the variations which are being produced under our observation and experiment, such as differences in food, air, water, light, heat, exercise, strains, etc.

The great objection to the theory of selection seems to be that it does not explain why variations occur, but this is no objection at all. Natural selection has nothing to do with originating the differences from which it selects. If it is generally acknowledged that these differences are duly caused by some new element in the environment, and without the slightest necessary relation to their utility, the whole matter is logical. If not harmful, they may survive, and this clears up that serious enigma—that many characters are apparently useless. They exist on sufferance.

There is a remarkable tendency of the more recent students of heredity to look upon the protoplasm of a developing germ cell as a definite chemic substance which is a mere inert machine reacting to the forces of the environment.

The molecule of protoplasm is complex and is unstable, like nitrogen compounds in general, being sensitive to forces acting upon it. If the environment is unchanged it behaves as ancestors behaved, and we have, therefore, always spoken of the wonderful power of heredity in the sense of great stability. Weismann even speaks of an "organic inertia" which keeps organism in the ancestral groove, producing parts, for instance, hundreds of generations after they have become useless. Then we have paradoxically spoken of the germ plasm as so exceedingly unstable as to be easily modified by slight changes in the environment. We should introduce a new term, and speak of the protoplasm as reliable, that is, it can be relied upon to react to the forces the same way in every generation.

The enormous size of a molecule of protoplasm also explains the ease with which it can be modified. Professor Lodge speaks of molecules of hundreds of thousands of atoms, existing in groups, the aggregate possessing attributes not found in any one group. A cluster of a million millions of atoms is just visible under the microscope, so that it is possible for enormous molecules to exist and still be beyond our ability to see them; yet it is not at all unlikely that there are other larger groupings which act as one substance and may be actually seen. These surely are very unstable, and must give rise to modifications as a rule and not as an exception.

If a cause acts for several generations, then we have a real *transient heredity*, which is the term best describing those degenerate lines which return to the normal when the proper environment is restored. They have their analogy in the modified bacteria of the laboratory, organisms whose natural environment cannot be duplicated in the culture media and incubator, and which gradually change in obedience to these new forces, even to the extent of losing all pathogenic power. This condition is transient, for full virulence can be restored by passing them through a susceptible animal. As far as we now are able to determine we have never produced in the laboratory a new species of bacteria, except in this sense. There is a yeast, to be sure, which is said to be a new form thus produced, but we are not at all sure that it is not a mutation form like those of de Vries', due to a constantly acting cause, and sure to revert upon withdrawal of the cause.

I have been informed that there is also Roux's sporeless modification of the anthrax bacillus, which was produced by adding to the media minute amounts of such disinfectants as carbolic acid, and which continued sporeless after it was returned to the ordinary media. Whether or not it will return to the normal eventually, when its normal environment is restored is another matter. It may be now adjusted to the laboratory media and remain modified permanently just as our garden vegetables and fruits will occasionally produce a variety which will continue. Such persistences do not negative the law that new varieties tend to revert to the old form when the causes which produced them are not repeated.

There is a possibility also, as suggested by Adami of Montreal, that the protoplasm itself may be modified by a new cause into a chemic form, which is able to maintain itself in the original environment after the new cause has been removed. It will then be a permanent variety and, indeed, in this way a great deal of organic evolution can be explained. But the ordinary modifications, such as in the domesticated plants, are not necessarily accompanied by such chemic changes, and reversion is the rule.

It has recently been said that organisms seek or even make their own environments.[1] For instance, the white ants construct tunnels for shelter from light. Man also needs shelter and clothing, as he is otherwise unprotected. Likewise protoplasm after being changed by causes in the environment may remain permanently changed and survive by seeking a new environment or new set of forces to which it can properly react—that is, its modifications can be permanent, though the constant tendency is to return to the former state when its environment is restored. With this reservation "heredity is the sum of all past experiences" (Luther Burbank).

When a bacterium divides into two, it is practicalty the same organism in two pieces instead of one—bicellular. Each part can scarcely be said to inherit from the mother cell, for it is the mother cell, and possesses all of the qualities of the ancestors. It inherits in the same way that a piece of ice inherits the qualities of the block of ice from which it is broken. Hence variations in unicellular organisms are impossible—each can be modified, and when it divides into two, its modifications persist, of course. In the laboratory, each generation is modified, and in the course of some scores or hundreds of generations, the sum total of all the tiny modifications of each generation is the modified or attenuated organism.

It is proper to apply the same reasoning to a multicellular organism—man for instance. When the germ cell is split off, it is part of the parent, possessing all the attributes of the part from which it has split. If the parent has been so modified as to change this part, it will react to old forces in a new way or be further modified, so that degeneration or any other change is a modification. If tuberculosis has poisoned every cell, somatic or generative, then the germ cell which is split off to enter the uterus carries with it this modification. In this sense, inherent variations are impossible.

There is a gradual movement of scientific opinion to the view that life itself is nothing but an ability to maintain one's chemic composition, analogous at least to a crystal's ability to maintain itself and grow by absorbing materials. Living protoplasm is a chemic molecule capable of absorbing other molecules and converting them into itself and maintaining its own composition. When it is so changed chemically that it cannot do this, it is dead. Cell death is then a chemic change—a fatal modification due to the environment. We are tending to abandon the old idea that dead and living protoplasms are chemically identical and that a vital principle has departed at death. Pathologists know that there is a decided difference between a living cell and a necrosed one.

[1] Prof. Wm. Wheeler, Science, April 7, 1905.

Somatic death is another matter, it is merely a loss of cooperation—inability to continue team work—and may occur, indeed does occur, when the vast majority of the cells are still alive, and some of these cells continue to be alive for hours, or even days, after somatic death, and in the lower forms of life each may give rise to a new organism after the death of the old.

Among multicellular organisms somatic death is really nothing but the discarding of a part which was used for a while in preserving the germ plasm and nourishing it, but which is no longer of use after the offspring are well started. It is uneconomical for the body to live longer. Its death, then, is necessarily a result of evolution and is beneficent and desirable. It is unnatural in the immortal unicellular organism and is always a tragedy, a result of starvation or other adversity. Life of a multicellular organism lasts just as long as it is necessary to provide for the continuance of the species. Longevity is then solely a matter of selection in certain species, to secure ultimate survival of the species.

[*To be concluded.*]

MISCELLANY

A CASE OF LEAD-POISONING, CAUSED BY THE USE OF LEAD ACETATE IN THERAPEUTIC DOSES.

BY

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The following case is unique and interesting from several standpoints. The patient showed a peculiar idiosyncrasy to lead acetate, inasmuch as a typic case of lead colic resulted from the administration of this drug in small doses over a comparatively short period. Because of the light recently thrown upon the gastric condition in these cases by Sailer,[1] it is a fact of peculiar interest and importance that this patient had a gastric analysis eight months previous and also a short time before the development of symptoms of lead-poisoning; also during the height of the attack and soon after the cessation of the symptoms.

The patient, aged 20, is an Austrian by birth, and a coal miner by occupation. During childhood he had smallpox and rheumatism. The rheumatism left as a sequel, mitral insufficiency, which is well compensated. During the summer of 1904, while working in the mines of Pennsylvania, he developed a dysentery, which, because of neglect, became chronic. In November, 1904, he was referred to me for treatment.

The stools were examined for the eggs of *Uncinaria duodenalis*, but were negative. At this time he had eight to ten movements, while on his feet during the daytime, and four to five at night. They were watery and contained some blood and mucus. He complained of loss of appetite and great weakness. There was a continuous pain in the region of the stomach. Analysis of the stomach contents (Ewald-Boas test-meal of two slices of white bread and a glass and a half of water), withdrawn in 1¼ hours, revealed the following findings: Somewhat over 100 cc. of bile-stained contents, containing much black coal dust mucus, were withdrawn. The analysis showed: Free HCl, 30; total acidity, 46.5; pepsin, Mett method, 12 mm. in 30 hours.

The patient was immediately put at rest in bed, November 16, 1904, and given a diet of broth and albumen water every two hours; the stomach and colon were thoroughly irrigated once daily; the stomach with plain water and the bowel with normal salt solution. The bowel movements immediately dropped to two or three daily, and became mushy and then formed; no mucus or blood could be seen on November 22; the stomach and bowel irrigations were stopped, and the patient was given every three hours a powder containing bismuth subnitrate 1.3 gm. (20 gr.) sodium bicarbonate .65 gm. (10 gr.), and pancreatin .3 gm. (5 gr.).

The diet now consisted of boiled milk, soft boiled eggs, milk toast, gelatin and custards. On November 24, he had one soft movement; on November 25, no movement; on November 27, one movement with enema. The diet was increased by the addition of 2 oz. of lightly broiled scraped beef, and the powders were given every four hours during the day. On November 30, the patient was sent home. On December 15, he was well and began work in the coal mines. On May 11, 1905, the patient returned to me, stating that he had kept well only a few months. He had been compelled to quit work because his bowels had again become loose. The relapse was most likely due to gross indiscretions in diet.

An Ewald-Boas test-meal was given. The analysis showed free HCl, 26.6; total acidity, 60. There was some retained food.

His family physician now told me that he had tried various astringents without results, and had finally resorted to small doses of lead acetate and opium, with excellent effect. The patient was referred back to the family physician, with the suggestion that he continue the regulation of the diet and the administration of the lead acetate. A few days later, on May 20, the patient returned to my office. The expression of his face evinced the most acute agony. His bowels had not moved for four days, in spite of the use of enemas and vigorous cathartics. His temperature was 99.5° F. He had been vomiting, and complained of very severe general abdominal pain of a colicky nature, and of abdominal tenderness. The patient was a good deal of a stoic, and never complained unless he had good reason for so doing. However, during the next week, his suffering was intense and pitiful to witness. He simply writhed in agony. The pain was of the nature of an abdominal colic, located especially in the stomach region. There were short periods when it would mitigate. There was tenderness in many parts of the abdomen. It could be elicited in the appendix, sigmoid and epigastric regions. However, the patient could bear pressure well. He could not vomit. Food administered by the mouth, remained in the stomach undigested, like a dead weight. Stomach washing always relieved the colic for a short time; consequently, the patient was continually calling for the stomach-tube. Morphin and codein had to be given occasionally. The abdomen was decidedly scaphoid. Examination of the gums showed a most typic and very striking blue line. This, of course, clinched the diagnosis, in spite of the fact that it seemed almost impossible that he could have developed lead-poisoning from taking small doses of lead acetate.

The evidence was indubitable, and necessitated further inquiry into the history of the prescription for this drug. His physician wrote me that he had given him only one prescription, namely:

Lead acetate	2 gm. (½ dr.)
Powdered opium	3 gm. (5 gr.)
Pancreatin	5 gm. (1¼ dr.)

Make 24 capsules, take one three times a day.

I urged that this was too small an amount of lead to produce lead-poisoning. The doctor now learned that the patient had had the prescription refilled four or five times without his knowledge, consequently in all, from 8 gm. to 9 gm. (2 dr. to 2½ dr.) of lead acetate was taken in the course of five to six weeks.

[1] Journal American Medical Association, May 13, 1905.

During the height of the attack of the colic an Ewald-Boas test-meal was given, with the following results: Free HCl, absent; total acidity, 20; lactic acid (Kelling), good test.

Microscope showed yeast and a few long bacilli. There was not enough filtrate for pepsin test. The patient was given potassium iodid, .3 gm. (5 gr.) every three hours; this was soon changed to .65 gm. (10 gr.) of potassium iodid in peptonized milk three times daily. He was also given magnesium sulfate or Abilena water occasionally.

He was also given hydrochloric acid and pepsin by the mouth after each feeding, because of the stomach findings.

He began feeling better May 30, and by June 2 his pain had disappeared and he began to have some desire for food, and instead of feeling that he must die he began to be decidedly hopeful.

During the week of colic he looked seriously ill; foul breath, coated tongue, most obstinate constipation, disgust at the sight of food and great suffering after taking it, scaphoid abdomen, and the terrible colic, were all in evidence.

By June 5 he was feeling fine and eating a liberal diet, with no pain. June 14 the patient was eating everything. The bowels were constipated until fruit and vegetables were added to his diet, but now move daily. He complains of slight headache. The blue line on the gums has practically disappeared. The patient has been using a toothbrush vigorously for a few days, and the nurses have given excellent attention to his mouth. The patient is now taking strychnin, hydrochloric acid, and pepsin.

These were stopped, and an Ewald-Boas test-meal given, which showed that the stomach's secreting power had returned to about normal. My recollection of the figures (the memorandum was mislaid) is: Free HCl, 19; total acidity, 30.

In a few days the patient returned home in excellent condition.

On May 28 the blood-pressure (Janeway) was 110, and hemoglobin (Dare) 95. A blood spread was stained and carefully examined, but showed no Grawitz granules of degeneration.

The pulse was not wiry or of high tension.

At my request, Dr. Wolfer, of Louisville, Colo., kindly examined the gums of a great many coal miners, and in every instance failed to find a blue line. Osler mentions the fact that coal miners sometimes show a dark line on the gums. This fact must be kept in mind in diagnosing lead-poison.

This case is of interest in connection with Sailer's recent work upon the gastric findings in 10 cases of chronic lead-poisoning. These cases all showed a condition of achylia gastrica or subacidity, with reduction of the pepsin. The total acidity varied from 6 to 17; the average was 11.

Free hydrochloric acid was absent in every analysis, Lactic acid was present in every case.

The peptic digestion was absent in three cases. It was 50% of normal in the first test-meal of the first case, and 20% of normal in the second test-meal of this case.

In another case it was 23% of normal, and in the remaining cases it varied between 6% and 10% of normal.

The Oppler-Boas bacillus was not found.

A memorial tablet was erected by the London County Council on August 9, on No. 14 Hertford street, Park Lane, where Edward Jenner, the originator of vaccination, resided in 1803. The table is of encaustic ware and green in color.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 7, 1905. [VOL. XLV, NO. 15.]

The Responsibilities of Surgery.—Maurice H. Richardson. See *American Medicine*, Vol. X, No. 6, p. 220.

Penetrating Wounds of the Abdomen.—Randolph Winslow. See *American Medicine*, Vol. X, No. 8, p. 303.

The Dentistry of Tomorrow.—H. P. Carlton. See *American Medicine*, Vol. X, No. 11, p. 432.

What Will Probably be the Dental Educational Standard for the Coming Decade?—Charles C. Chittenden. See *American Medicine*, Vol. X, No. 11, p. 432.

Recent Progress in Matters of Water-supply and Sewage Disposal.—George W. Fuller. See *American Medicine*, Vol. X, No. 7, p. 262.

Maternal Syphilis.—George S. Whiteside. See *American Medicine*, Vol. X, No. 13, p. 513.

Pulmonary Tuberculosis as an Obstetrical Complication.—Charles Summer Bacon. See *American Medicine*, Vol. X, No. 13, p. 513.

Ataxia of Central Origin Appearing in Childhood.—Arthur Willard Fairbanks. See *American Medicine*, Vol. X, No. 8, p. 304.

Collodion as a Dressing after Intranasal Operations a Preventive of Postoperative Hemorrhages.—Kaspar Pischel. See *American Medicine*, Vol. X, No. 5, p. 181.

Test Types According to the Geometric Progression of Dr. John Green.—Charles H. Williams. See *American Medicine*, Vol. X, No. 14, p. 556.

Systemic Blastomycosis.—D. S. Eisendrath and O. S. Ormsby report a case in which the symptoms apparently first appeared in the lungs, simulating tuberculosis, but no tubercle bacilli could be found, and the tuberculin test was negative. While the lungs remained markedly involved, other organs, the kidneys, skin and subcutaneous tissues also became attacked and the organism of blastomycosis was abundantly demonstrated in the cutaneous lesions, subcutaneous unruptured abscesses (in pure culture), and in the sputum. With these organisms thus derived the local lesions of blastomycosis were experimentally produced. The patient improved decidedly under treatment with potash iodid, but passing from under observation for a few weeks, suffered a relapse.

Lactic Acid in Gonorrhea.—S. Chandler has used lactic acid for the treatment of gonorrhea of the cervix in 34 cases, which are tabulated. His method is as follows: Cleanse the vagina and cervix thoroughly with warm water and cotton soaked in a water solution, 4 oz. to 6 oz., of pyroligneous acid. Expose the cervix by drawing it downward and into view by an ordinary long tenaculum; then take an ordinary hypodermic syringe, loaded with pure lactic acid, and inject just beneath the membrane a few drops of the acid. Continue this until the whole of the cervix is exposed as the superior and inferior lip is injected. It may be done in one sitting, or in a nervous case, if desired, in two or three sittings.

Cephalic Tetanus.—In Lloyd's case, the facial paralysis was bilateral. As in all other recorded cases of this kind, except one, the original inoculation wound was on the bridge of the nose. His patient came within the "chronic" group, the symptoms only appearing on the fourteenth day after the injury, and she made a good recovery. The peculiarities of the case, it being the seventh or eighth thus far reported with diplegia, render it of interest.

Boston Medical and Surgical Journal.

October 5, 1905. [Vol. CLIII, No. 14.]

Papilloma of the Larynx in Children.—J. P. Clark states that in children this is a very serious condition, the cause of which is unknown. The best method of treatment in all cases is tracheotomy whenever complete permanent aphonia is present, and noninterference with the growth. If, under this treatment, the papilloma still persists after an age when the child can be treated as an adult, it has probably lost its activity of reproduction, and attempts at its removal may be made. This age varies with each case, but it is safe to say the operation should not be attempted before the patient is 10.

Muscle Transference.—E. H. Bradford emphasizes the following points: 1. It is necessary that the muscle which is to be cut should not be left in a relaxed condition. 2. If a strong muscle is inserted into a weak muscle, it is essential not only that the insertion should be strong, but that the tendon into which the insertion is made should not be so disorganized by paralysis as to become stretched when subjected to use. 3. That the transferred muscle should be attached in such a way that its contraction can be functionally effective, and that it should be inserted into such a point as will render its contractions efficient. It is the disregard of these points which has led to much discouragement on the part of operators. He reports five successful cases, including two of transplantation of the trapezius into the deltoid. [H.M.]

Vertigo of Aural Causation.—C. J. Blake thinks: 1. That in view of the existing knowledge of normal conditions in the semicircular canals, vertigo of aural causation may be regarded as primarily a pressure symptom. 2. That pressure may be exerted on the labyrinth by forces operating from without, as the result of changes in the middle-ear transmitting apparatus. 3. That it may be produced from within by invasion of the intracapsular space as in the case of hemorrhage into the labyrinth. 4. That the effect upon the semicircular canals of intralabyrinthine pressure thus produced will depend as to its intensity and duration upon the locality and extent of the hemorrhagic invasion. 5. That the recurrent vertigos are the result either of an excessive intralabyrinthine vessel dilation from suspense of vasomotor inhibition of reflex origin, either alone or coupled with a persistent intralabyrinthine pressure of either extrinsic or intrinsic origin. [H.M.]

The Ménière Symptom-complex.—W. A. Lecompte reminds us that the triad of symptoms described by Ménière, namely, a sudden onset of vertigo, subjective noises, and deafness, is now known to be caused by a variety of diseases of the external, middle, and internal ear, such as impacted cerumen, polyp formation, retention of pus, and adhesive processes in the middle-ear, or spongification of the labyrinth capsule with stapes fixation; and in the internal ear the hemorrhages of leukemia, pernicious anemia, and syphilis, and, perhaps the most frequent, inflammation of the labyrinth most usually arising from extension of purulent processes in the middle-ear. Inasmuch as these symptoms result from so many diverse conditions, it seems proper that we should discard the term "Ménière's disease," and consider them merely as Ménière's symptom-complex. In cases of internal ear disease with this symptom-complex, the vertigo and subjective noises as a rule disappear, but the deafness persists. [H.M.]

Ununited Fracture of the Humerus.—H. W. Jones reports a case of ununited fracture, in which he believes the bolt treatment failed because of the tightness of the mortise joint. "Tension and pressure are surgical sins." The patient weighed 270 pounds and with such size, absolute immobilization of the humerus is difficult or impossible, since even the movements of respiration are transmitted. It is better therefore to allow a slight amount of motion between the fragments, thereby eliminating tension which must inevitably follow the cell of a tight mortise with either a bolt or silver wire. [H.M.]

Medical Record.

October 7, 1905. [Vol. 68, No. 15.]

Atony and Associated Pathologic Conditions of the Rectum and Colon.—Fenton B. Turck advises the use of massage and stimulation of the atonic intestine by the use of small rubber bags inserted in the rectum and sigmoid flexure, and inflated with air. The inflation can be used steadily for the desired amount of time, or the bag may be alternately relaxed and inflated again, thus producing a kind of massage of the intestine. Atony of the intestine is the result of fatigue toxins generated by the intestine, and antitoxins may be also generated, which will restore the intestine to its normal condition. The toxins of fatigue are not dialyzable and remain where they are formed. Massage hastens the union of antitoxins with toxins. The abdominal circulation is also an important factor in atony of the intestine, and massage by inflation stimulates the circulation. Drugs, surgery, general gymnastics, and the various mechanical methods of treatment have all failed in curing atony. The injection of air confined in the rubber bag places the amount of distention to be used under the operator's control. It may be made intermittent. Hemorrhoids, ulcers, proctitis, all are benefited, as well as prolapse of the bowel, and various associated uterine conditions. The restoration of function in the intestine is permanent.

Combined Extrauterine and Intrauterine Pregnancy.—H. T. Miller's patient was a woman of 40, who had had two children, 6 and 14 years previously. In the fall of 1904 symptoms developed which indicated an extrauterine pregnancy, and when she came under the author's care in May, 1905, this diagnosis was made. On opening the abdomen a cystlike tumor having a pedicle containing the right fallopian tube was removed. The cavity of the sac was distended with dark-colored blood and contained the remnants of a placenta and degenerated fetus. The size of the uterus gave rise to the suspicion of an intrauterine pregnancy, which was verified on the second day after the operation by the spontaneous expulsion of a perfectly formed four months' fetus.

The Choice of Method in Operating upon the Hypertrophied Prostate.—Willy Meyer advocates the use of the three methods in general use in operating on the enlarged prostate, according as each method fits the case to be treated. It is not wise to practise one to the exclusion of the others. Each of the methods, perineal, and suprapubic prostatectomy, and galvanocaustic prostatotomy, has its own decided merits, and holds a distinct place in surgery. Operation for enlarged prostate must be urgently recommended to most patients with enlarged prostate as soon as it becomes necessary for them to use the catheter habitually. The deathrate following operations is 5% or less; the mortality due to pyelonephritis, resulting from self-catheterization, is much greater. It is possible to cut the grooves with the galvanocautery both deep and wide; a median lobe is a contraindication to the Bottini operation, if it is possible to do an enucleation; the cystoscope is of value in explaining the conditions at the neck; Bottini's operation, even when done twice, does not prevent a prostatectomy, should that become necessary. But, being a purely intravesical operation, it has many failures, and sometimes entails tedious after-treatment. If radical operation is refused, it should be done. When prostatectomy is done, full power over the urine is obtained. A small portion of the urethral mucous membrane may have to be removed with the gland, but it is no disadvantage. There is little choice between the perineal and suprapubic routes. In the perineal operation, there is a rapid return to normal control of the urine, and

leakage over the abdomen is not present. The suprapubic operation can be done in less time. Cystoscopy should always be performed before Bottini's operation, as the hypertrophy may be entirely intravesical. In advanced carcinoma, Bottini's operation is preferred, since all the cancerous metastases cannot be removed. A gland palpable by rectum, and rising not far from the sphincter muscle, can best be attacked from below; when higher up and projecting into the bladder, it should be operated on from above. When soft and composed of small lobes, operate from below. When complicated by a large calculus, work from above. The preservation of sexual power is important, and the suprapubic method retains it in the largest number of cases.

Asthenopia Due to Latent Hyperphoria.—C. DeWayne Hallett describes a case of severe and agonizing neuralgic headache, which had occurred frequently during a period of 15 years. The headache would incapacitate the patient for work and confine him to a dark room for several days at each occurrence. He had been treated by two competent oculists without relief. There was a combination of astigmatism and lack of muscular balance in the eyes, the muscular error in the two eyes being exactly opposite. After correction by prisms of the hyperphoria revealed by examination, it was found that there was a larger amount of latent than of manifest hyperphoria, and an increased correction was made on two occasions, with the result of permanent relief of the headaches.

Importance of Differentiation in the Use of Electric Modalities.—A. D. Rockwell says that if there is any one thing more than another that has retarded, still retards, and will continue to retard the all-round and scientific development of electricity in medicine, it is the increasing tendency to neglect the subject of differentiation in the selection of the various electric modalities. He speaks of the deepseated nutritional effect of the high-frequency current of lower tension and frequency but with greater magnitude, and mentions the improvement obtained in two cases of pseudohypertrophic muscular paralysis treated with high-frequency currents of magnitude, by the administration of the spark itself by the direct bipolar method. He concludes by pointing out the superiority of the continuous current of magnitude (galvanic current) over all other manifestations of electricity for the relief of inflammatory exudates, and emphasizes the necessity for care in making use of the method of combined electrization with direct and to and fro currents.

New York Medical Journal.

September 30, 1905. [Vol. lxxxii, No. 14.]

Tabes Dorsalis.—L. H. Mettler discusses this subject and reports four cases, each exhibiting a slightly different picture of the disease. Two cases are regarded as true tabes, another presents two conditions, true tabes and syphilitic pseudotabes or spinal syphilis, while the fourth case he regards as a case of pseudotabes of polyneuritic origin. In tabes and in polyneuritic pseudotabes there are ataxia, pains, loss of the reflexes, and even a similarity between some of the trophic manifestations. A differentiation may be greatly facilitated if the following points are carefully noted. A history of syphilis and a gradual onset of the symptoms years after the acquisition of the chancre favor the diagnosis of locomotor ataxia; a history of infection or intoxication and an abrupt onset of symptoms, with rapid advance of the disease, point toward a polyneuritis. The existence of a syphilitic polyneuritis as a clinical entity is open to grave doubt. In ordinary polyneuritis the ataxia is not so distinctly sensory as it is in tabes, there is a loss of motility associated with it; it is somewhat of a paralytic as well as a sensory phenomenon. An Argyll-Robertson pupil is not a symptom of multiple neuritis, though a modified iridoplegia may occasionally, in polyneuritis, closely simulate an Argyll-Robertson pupil. The bladder troubles of tabes are usually early, and their like are rarely complained of in multiple neuritis. In the latter disease local tenderness, muscular atrophy, and the electric reaction of degeneration are all but pathognomonic. In polyneuritis the typic gastric crises, the trunkal anesthesia, are wanting. If one has an opportunity to observe the case for a time, he should contrast the incurability and progressive character of locomotor ataxia with the curability and tendency to get well of the polyneuritic pseudoataxia. [C.A.O.]

Rheumatic Poison.—F. LeRoy Satterlee says that his experience shows that it is only necessary to cut out of the diet red meats, such as beef and mutton, and alcoholic stimulants, and reduce to a minimum all articles containing sugar. All other foods may be taken, and the best results come from a free use of white meats, soups, eggs, fish, cereals, vegetables, fresh fruits, milk, and coffee. As soon as acute symptoms have subsided, exercise by walking and massage is very necessary for good circulation and normal cell action. He is in favor of the cold sponge bath every morning, and, in some cases, a quick hot bath before retiring at night. Chronic cases also do well with a Turkish bath once or twice a week. Baths of mineral water have no remedial effect in rheumatism. He does not believe that external applications, such as ointments, oils, and liniments have any permanent value. In cases in which the muscles around joints are inflamed, sedative ointments and liniments give temporary relief while we are waiting for the full action of the internal medicine. He protests against the use of colchicum, salicylic acid, salicin, and the salicylates in this condition. From the beginning of the treatment he uses an alkaline mixture to stimulate the action of the liver and bowels, which contains in each dose 20 gr. to 40 gr. of sodium hyposulfite, 20 drops to 40 drops of glycerin, and 100 drops to 200 drops of cinnamon water. This makes a dose of 2 dr. to 4 dr., to be taken every morning before any food, and at night if required. In severe cases a larger dose may be given. If an analgesic is required one should be given that does not depress the heart. When the acute symptoms are past, tonics, such as iron, quinin, strychnin, and arsenic should be given in gradually increasing quantities until full doses are administered, while special symptoms are cared for as in any chronic disease. [C.A.O.]

Sodium Glycocholate in Diseases of the Liver.—H. Richardson says that sodium glycocholate is indicated in all diseases in which toxemia is a factor and, with few exceptions, in which hepatic insufficiency exists. In many cases of malnutrition from want of proper absorption of fats, it will materially aid in building up a patient. Above all, it is indicated in hepatic colic and gallstones; in the former it is almost a specific and in chronic constipation, combined with the purgative habit, it is of great value. The dose is about 5 gr. three times daily, though as much as 15 gr. may be given without producing nausea. The patient should take about 4 dr. a month, regularly, as a prophylactic. In all forms of hepatic insufficiency, sodium glycocholate is indicated as a hepatic stimulant in conjunction with other treatment. In arterial sclerosis, in conjunction with the administration of the inorganic salts of the plasma in their proper percentage, it dissolves the cholesterin in the atheromatous deposits, while the salts mentioned tend to dissolve and to prevent the deposit of the calcium salts. In diabetes, when increased absorption of fats is necessary to replace the loss of carbohydrate, and in tuberculosis, when fat hunger is a pronounced symptom, Rousel, alleging the fat hunger is an etiologic factor, sodium glycocholate is indicated. [C.A.O.]

Pleurisy and Tuberculosis.—Silvio von Ruck says that the pleural cavities are readily accessible to bacterial

invasion and that the great majority of pleurisies with effusion which occur in otherwise healthy individuals are due to infection with tubercle bacillus. This is proved by autopsy findings, by methods of exact diagnosis, and by the subsequent clinical histories of the majority of persons who have been the subjects of such attacks. There is ample evidence to indicate that the socalled idiopathic, dry pleurisies are likewise usually tuberculous. The subjective symptoms of inflammation of the pleural apices often simulate those of myalgia or rheumatism. In every case of pleurisy, or of persistent pain in the chest or shoulder, which cannot be satisfactorily ascribed to other causes, tuberculosis should be suspected and a careful physical examination should be instituted to determine, if possible, the existence of a tuberculous process in the lungs or elsewhere. Even if physical examination in such cases proves negative, the patient should be regarded as tuberculous until the contrary is proved, and should at least be kept under prolonged observation and reexamined from time to time. The tuberculin test may be relied upon to confirm or exclude the tuberculous nature of pleurisy in case of doubt. The application of these principles will always lead to an earlier recognition of tuberculous disease of the lungs, especially, and to the institution of treatment at a period which will in many cases secure to the patient most important advantages in his prospects of recovery. [C.A.O.]

Medical News.

October 7, 1905. [Vol. 87, No. 15.]

The Consideration of Late Hereditary Syphilis.—R. R. Campbell. See *American Medicine*, Vol. VII, No. 26, p. 1012.

Spirochæta of Syphilis.—A. Fanoni refers to the rarity of the organism and the difficulty in staining it. He describes Giemsa's method, the method of Oppenheim and Sachs, which stains in a few minutes and is probably the best for clinical purposes; and De Marino's method, which is more rapid than Giemsa's, but not so distinct as Oppenheim and Sachs'. While *Spirochæta pallida* is more or less constantly present in the lesions, yet it requires patient and protracted search to find it, and then it is usually in isolated form. [H.M.]

Sanatorium Provision with Industrial Opportunities for the Indigent Tuberculous.—H. M. King and H. B. Neagle believe that a sanatorium should be upon a sound financial basis independent of its earning capacity before entering industrial fields as industrial features are as apt to increase as to decrease the expense of administration. If these features are introduced as wide a range of occupations as possible should be at command and suitable provision should be made for permitting very light work and short hours to start with in all cases. No patient should be permitted to work until sufficient time has elapsed after his admission to establish his physical ability. [H.M.]

Ultimate Results after Bloodless Reposition.—F. Müller calls attention to the anatomic variations in the two parts which form the hip-joint, such as a shallow socket from the presence of fibrous tissue, an undeveloped rim, a flattened head, a shortened neck, a change in the angle between the neck and the shaft, an hour glass or other shaped contraction of the capsule. These different types must necessarily be treated by different measures with reference to fixation and to the after-treatment. Favorable anatomic conditions are present in scarcely more than 10% of dislocations. Stretching the anterior wall of the capsule brings good results if the socket is underdeveloped and shallow (50% of all cases may be summed up under this class), but must be executed with great care. After this procedure the head is in front of the socket leaning toward the horizontal branch of the pubic bone or even on it. Lorenz emphasized it that the head must in these cases be depressed by flexion, adduction, and inward rotation (secondary reposition). This gives, as a rule, excellent anatomic results, with full motion of the joint. Statistics show that Lorenz's promise of 50% anatomic cures is not too optimistic. We are justified, too, in calling the subspinal position a good result. Careful after-treatment and massage prevents this from changing into a posterior superior redislocation, and when we get good stability the shortening does not amount to very much. In the 33 cases left by Lorenz under the writer's care, anatomic results were secured in 21, and a subspinal position in 12. [H.M.]

Spinal Hemorrhage.—W. Browning divides the causes into traumatic, secondary, and spontaneous. The anatomic forms are epidural, submeningeal, and myelic. The first is especially common in the newborn. Aside from infantile and tetanic cases he has gathered 10 others. In these there was less pain than in the other forms, and less sensory impairment than in myelic cases. The blood generally collecting in the posterior part of the vertebral canal, there is an opportunity for surgical relief. Meningeal forms resemble very closely myelic cases. In the cord itself a far smaller effusion than in the brain suffices to produce pressure effects and even a transverse destruction, with muscular atrophy and paresis with the syringomelic type of sensory impairment in the tubular form. Pain always attends some stage of the myelic form. The prognosis of each case must be determined on its own manifestations. [H.M.]

Vesical Fistula.—H. H. Purinton advises using mild boric or carbolic douches till the fistula heals spontaneously or an operation is performed. The best time for operating is six or eight weeks after labor. If cicatricial bands have formed, which prevent the sides of the fistula from being brought together, they should be incised. The vaginal wall may be put on the stretch by introducing a Hanks' uterine dilator through the urethra and elevating the outer end while a funnel-shaped denudation of the edges is being made, exposing a large surface for healing. To prevent sepsis, the sutures should be thickly dusted with iodoform and sealed with collodion, another coat being put on when the stitches are removed. A soft catheter should be passed every three hours for eight or ten days, the bowels kept quiet for five or six days, and then be kept in such condition as to avoid all straining at stool. [H.M.]

CLINICAL MEDICINE

David Riesman A. O. J. Kelly
Norman B. Gwyn Bernard Kohn
Helen Murphy

REVIEW OF LITERATURE

Syphilitic Disease of the Circulatory Organs.—Duering[1] discusses syphilitic arteritis, with especial reference to syphilitic aortitis and its importance in the production of aneurysm. There are two varieties of syphilitic arteritis: Heubner's arteritis obliterans, leading to a partial or total obliteration of the vessels, and Doehle's mesarteritis, in which the resistance of the vessel walls is diminished through syphilitic scars, with resultant dilation and aneurysm. Concerning the former, he says it is due to a primary proliferation of the intima, and the new elastic membrane is formed from the proliferated intimal tissue. That the obliterating tissue is distinctly syphilitic, is proved by the presence of giant cells in it, they occurring only in tuberculosis and syphilis, and by our lack of knowledge of any other infection producing such an arteritis. The latter variety, which he speaks of as Doehle-Heller's aortitis, he considers the most frequent cause of aneurysm. Its seat is almost wholly the thoracic aorta; he

[1] Deutsche medicinische Wochenschrift, 1905, xxx, 1873.

describes the histology of such an aorta, and points out the difference between it and endarteritis chronica deformans, which is an absolutely distinct affection, although in the cases of older patients the two may coexist. In the fully-developed disease, the artery consists only of thickened intima, covered by endothelium, and of adventitia; the entire media is destroyed, therefore it does not offer the normal amount of resistance even to ordinary blood-pressure. Its changes are so characteristic that its presence is equivalent to a diagnosis of lues. Aneurysm in persons less than 50 (and very few aneurysms form after that), are nearly always due to syphilitic aortitis, syphilis having been found in the history of from 56% to 85% of such patients. Chronic deforming endarteritis is not an important cause of aneurysm, although it may produce rupture, hematoma and dissecting aneurysm. Concerning the heart, Duering says that primary syphilitic disease and gummas are rare, and give rise to ill-defined symptoms, because of their variable position, and are therefore rarely diagnosed; the possibility of their existence in luetic individuals with vague cardiac disturbances, should be kept in mind. Interstitial syphilitic myocarditis is commoner; it is secondary to syphilitic aortitis and occlusion (obliteration) of the coronaries. Coronary disease, with dilation of the aorta, resulting insufficiency of the aortic valves and the sequence of cardiac hypertrophy and loss of compensation, angina pectoris and sudden death, are very often to be laid at the door of syphilitic aortitis. In many cases, proper diagnosis and treatment will prevent some of these sequences. Another proof for the syphilitic nature of these vascular lesions, is the favorable result derived from iodids in these diseases; many cases of aneurysm, angina pectoris, etc., are reported as having been benefited. [E.L.]

Perforating Thoracic Aneurysm.—H. C. Gordinier[1] reports a case to refute the commonly accepted opinion that the rupture of an aortic aneurysm is always fatal, immediately or within a brief period of time. The patient was a male of 50, with symptoms of three years' duration. An expansile mass finally occupied the upper half of the sternal region and extended laterally into the infraclavicular regions. Rupture occurred externally, the patient becoming unconscious and pulseless. The hemorrhage was stopped by sutures and hypodermoclysis was followed by marked improvement. A week later hemorrhage again occurred, and lasted until death of the patient. Autopsy showed an aneurysm of the ascending arch of the aorta. [A.G.E.]

Experiments on the Transmission of Mediterranean Fever.—E. H. Ross and G. M. Levick[2] describe the experiments and give a table showing the number of nonimmunes employed in experimenting as to transmission by direct contact, fomites, infected dust, water, and milk, *Stegomyia fasciata*, *Culex pipiens*, *Culex fatigans*, fleas, and bedbugs. They are strongly of the opinion that the fever is insect borne, although experiments with the above were negative, and list a number of cases following accidental bites. They have yet to try the *Acartomyia zammitii*. They have succeeded in making them bite only for eight days after their emergence from the pupa, and believe 12 or more should elapse after infection before they can reinfect. These are found where Malta fever is supposed to be endemic. Should it be ascertained that it is this mosquito which transmits Malta fever, its extermination should prove a comparatively easy matter in Malta and Gibraltar, owing to its peculiar breeding propensities; but the systematic cooperation of the naval, military, and municipal authorities would be required. [H.M.]

Frequency of Gastric Ulcer in the Caucasian and the Negro.—J. A. Storck,[3] from exceptional opportunities to study this question in colored people, reaches the conclusion that gastric ulcer is not so frequent in the negro as in the Caucasian, or even in the mixed white and black race. His personal observations comprise 11,700 cases, 6,800 whites and 4,900 negroes. Among the former were 58 cases of gastric ulcer, among the latter only 2. From the New Orleans health reports he finds that the total mortality from 1893 to 1903 was, whites 48,550, with 60 due to ulcer of the stomach; blacks, 30,012, with 13 due to ulcer. Correspondence with numerous other physicians confirms these findings. Storck suggests a possible explanation in the fact that blacks less often suffer from varicosities of the vessels than do whites. As many pathologists consider varicosities one of the most frequent causes of gastric ulcer, the relation of the two is obvious. [A.G.E.]

[1] Albany Medical Annals, September, 1905.
[2] Journal of the Royal Army Medical Corps, August, 1905.
[3] New Orleans Medical and Surgical Journal, September, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Liquid Air in Surgery and Skin Diseases.—T. G. Beckett[1] gives a history of the scientific experiments for the production of liquid air. CO_2 at this temperature is solid, so is filtered out, and nitrogen evaporates first, consequently the liquid is at last mainly oxygen. Its therapeutic effects, however, are due simply to the intense cold produced by its evaporation. It causes local anesthesia, under which minor operations can be performed. If applied too long a frost-bite or blister results, similar to that of a burn. The writer has used it for a short time on lupus, rodent ulcers, and small epitheliomas. It seems to hasten röntgen-ray treatment when combined with it. Probably all skin diseases of parasitic and germ origin would do well, not from any germicidal action, but those cells whose vitality is lowered by the invasion would be the first to perish. Its effect is only superficial. All the apparatus required is a glass rod and a small piece of cotton wool. [H.M.]

Röntgen-ray Diagnosis of Renal Calculus.—The röntgen ray diagnosis of renal calculi has not always proved satisfactory, especially in adults. M. Smart[2] says that the most important factors in determining this point are the size of the stone, its composition, the size of the subject under examination, and the condition of the kidney. Regarding the composition, pure uric acid stones are the most difficult to detect, as are pure phosphatic calculi. A combination of uric acid with phosphate or oxalate of calcium can be better detected, while pure oxalate stones are the most opaque to the rays. In some cases an induration of the kidney or a purulent collection may obscure the shadow. The nearer the kidney is to the plate the greater will be the contrast of the shadows. Before being photographed the subject should have the intestines emptied by purgatives and enemas. All clothing should be removed from the part of the body to be represented on the negative. The movement of the kidney during respiration often interferes with the sharpness of the picture, and every precaution should be taken to restrict breathing during the exposure. In children this may be done by an abdominal binder. Adults may be placed face downward on a canvas-topped table, the weight of the body being sufficient to keep the respiratory movements within bounds. In this case the tube is placed beneath the table, and the plate on the patient's back. Both kidney regions and both ureters should be included in the negative. If the first photograph shows a stone, it is well to repeat the exposure a few days later, under as nearly similar conditions as possible. The author recommends stereoscopic photography in connection with radiography. [B.K.]

Prevention of Cancer.—C. B. Keetley[3] states that to prevent cancer, we should look to: 1. The sterilization of food, including clean cookery and clean service. 2. The destruction of discharges from ulcerations, especially if cancerous. 3. The prompt excision of cancerous tumors or ulcers, thus giving a prospect of complete cure and removing a focus for infecting others. 4. The avoidance of physical familiarity, except with those who are nearest and dearest to us. 5. Abstinence from alcohol and tobacco and from foods which leave waste products, of which the kidneys, bowels and skin cannot easily and thoroughly get rid, and which thereby provoke and sustain the chronic inflammations and ulcerations which so often pave the way for cancer. [H.M.]

[1] Australasian Medical Gazette, July, 1905.
[2] British Medical Journal, September 16, 1905.
[3] Medical Press and Circular, July 5, 1905.

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen Frank C. Hammond

REVIEW OF LITERATURE

Variations of the Menstrual Function in Anemia.—W. E. Fothergill[1] notes that while relative amenorrhea is the rule, in some cases the periods are increased in duration, in quantity, and sometimes in frequency, the menorrhagia being the result, not the cause, of the anemia. Menorrhagia of moderate degree is not, as a rule, followed by anemia. In the female, anabolism predominates over katabolism and the surplus product manifests itself as the menstrual discharge. The experiments of Fränkel and others indicate that the onset of menstruation is determined by the formation of a healthy corpus luteum after ovulation has occurred; it is supposed that this body produces the internal secretion of the ovary. Amenorrhea may be due to either the absence of the surplus or absence of the corpus luteum. The amenorrhea of anemia is clearly of the former variety. The menorrhagia of anemia must be regarded as the result of muscular inadequacy, an inadequacy which is sometimes present in puberty from retarded development, causing profuse bleeding when menstruation begins, and again at the menopause from atrophy, causing the menorrhagia of that period. The menorrhagia after difficult labors and infective fevers is also due to influence of these on the uterine muscle. The uterine muscle, as the heart muscle, is affected more in some cases of anemia than in others. Ergot fails to control it. The condition does not call for local treatment in the early stages. The hemorrhage should be minimized by keeping the patient in bed throughout the period and beyond this, nothing should be done apart from treating the anemia. [H.M.]

The Treatment of Eclampsia.—John W. Byers[2] advises that every case shall be treated *per se*, but, generally speaking, the convulsions should be treated with morphin subcutaneously. The patient should be kept on the side and freely purged. Saline infusion should be administered and no liquids permitted. The elimination should be facilitated by means of purgation, hot packs, and saline infusion. If labor has not commenced the convulsions should be treated and premature delivery should not be induced; but, on the other hand, if labor has begun and the patient is in the second stage and the os dilated, chloroform should be administered and the patient delivered by forceps if possible, or turning. In some cases it is proper to dilate the cervix and deliver. When the convulsions follow a delivery, morphin purgatives and saline infusion should be employed. The prophylaxis of eclampsia consists in employing rest, milk diet, warm baths, and purgatives. [J.H.W.R.]

Irruption of an Ovarian Carcinoma into a Fibroid of the Uterus.—A. Bauereisen's[3] patient had been suffering from glycosuria for three years; ever since she had been complaining of abdominal symptoms she was in relatively poor health and in addition to an umbilical hernia had a tumor which filled up the entire abdomen. A diagnosis of polycystic tumor of the ovary with probable carcinomatous degeneration was made and an exploratory opening made. This revealed a large irregular carcinoma of the left ovary, it having probably developed from a pseudomucinous cyst and having formed attachment with the ovary of the opposite side degenerating it also. It had pressed against a fibromyoma of the uterus so long that at last it had broken through its capsule and had grown into it. The mass was removed, also the uterus. The patient recovered and at last note felt very well, no recurrence having been noted as yet. The glycosuria cleared up promptly, showing it to have been due to pressure of the mass on the pancreas, thus preventing this organ from supplying the blood with glycolytic ferment. [E.L.]

Intestinal Obstruction after Pelvic Operations.—E. M. Corner[1] says that while pelvic operations, more frequently than other abdominal procedures, are followed by intestinal obstruction, the operation standing preeminent among all in causing this complicatiom, is supravaginal hysterectomy. Notes of two cases of obstruction, due to adhesion of the ileum to the stump, are given. The reasons for these adhesions are to be found in the operation as too often performed, the principal point being the short flaps forming the stump. The difficulty is caused by the retraction of the muscles in the flaps and also by the contraction of the cervix. The flaps are thus broadened and everted. When flaps are made to meet by inserting tight sutures, gaping will almost surely follow, and adhesions are thus invited. The remedy is to make longer flaps and endeavor to secure muscle in each; a long posterior flap is especially desirable. The sutures are to be tied sufficiently tight to sink the thread in a groove in the stump; in a very few hours this groove is filled with lymph, and the sutures are prevented aiding in the production of adhesions. The suture must not be tight, in order to bring inadequate flaps together; the evil result of this has been mentioned. [A.G.E.]

Total Absence of the Vagina and Its Surgical Treatment.—Vautrin[2] discusses especially cases in which total absence is accompanied by no menstrual retention. When no menstrual molimen is observed in a woman of 20 or 25, it is a question whether there is any use in operating. If the malformation is first discovered after marriage, it is justifiable for the surgeon to intervene. When the molimen exists, operation is more clearly indicated. Hematometra, hematosalpinx, and even hematocele are frequent complications. Ovariotomy or hysterectomy are legitimate if the woman has determined not to marry or if the uterus is rudimentary. The writer recalls the principal methods of creating an artificial vagina, and describes one of his own, consisting in incision followed by blunt separation of tissues and autoplasty by three juxtapposed flaps. Although in many cases in separating the tissues the operator comes on the cervix uteri without opening the peritoneum, yet it would be more prudent to reserve for subsequent operation the joining of the cervix to the extremity of the vagina when the latter is well cicatrized, and this may best be done through an abdominal incision. Pregnancy by its preparatory modifications can overcome the cicatricial resistance of vaginas thus formed by autoplasty. The author's conclusion is that total absence of the vagina is a curable malformation which need not be an absolute obstacle to marriage. [H.M.]

A Method of Guarding the Perineum in Labor.—W. J. Caie[3] shows in what points the usual methods fail, and describes a modified method of his own. When the head is moderately distending the perineum, all parts are thoroughly dried with a hot, sterile towel. When the tension on the perineum is approaching its maximum, the left hand of the obstetrician is pressed slightly upon the vertex, to prevent premature expulsion. The right hand grasps the perineum by the concavity between the thumb and forefinger, with an interposed hot, sterile towel. The towel is folded to fit in the apex of the concavity, and the edge of the perineum, the edge of the towel, and the concavity of the hand should all be in line with each other. Firm pressure is exerted with every pain, the folded towel thus reinforcing the hand at the most important point. A much firmer grip is obtained by the drying of the parts. After the head is born, the anterior shoulder should be delivered first, by exerting gentle traction backward. If the

[1] Medical Chronicle, July, 1905.
[2] The Lancet, September, 1905, p. 747.
[3] Münchener medicinische Wochenschrift, 1905, lii, 595.

[1] The Practitioner, August, 1905.
[2] Annals of Gynecology and Pediatry, July, 1905.
[3] British Medical Journal, September 16, 1905.

outlet is narrow, the anterior arm can then be extracted, thus substituting a much smaller diameter of the child, when the posterior shoulder is born. [B.K.]

An Improved Method of Ventrosuspension of the Uterus.—C. B. Maunsell[1] opens the abdominal wall by either a vertical or transverse incision, and incises the peritoneum either vertically or transversely, according to whether complications are expected or not. The fundus of the uterus is grasped by a vulsellum and drawn forward and downward. If the peritoneum has been incised vertically, it is closed with a fine silk suture as far as the protruding uterus, so that the uterus protrudes through a transverse slit, as in the alternative method of opening the peritoneum. The edges of the peritoneal opening are united to the uterine wall by a continuous suture of fine silk. On the posterior surface of the uterus the line of suture should lie about ¾ in. and on the anterior surface about ½ in. from the fundus. The vulsellum is removed and the uterus falls back toward the pelvis, drawing the peritoneum into a narrow funnel-shaped depression, the sides of which can be readily approximated by a few sutures passed from side to side through the fascia and subperitoneal tissue, thus obliterating any dead space and preventing immediate contact of the uterus and abdominal muscles. The advantages are: (1) Firm support without interfering with mobility; (2) no interference with distention of the bladder; (3) should pregnancy ensue, the peritoneum will accommodate itself to the rising uterus and will contract again after delivery, not remaining as an elongated band, as the fibrous adhesions do in ordinary ventrosuspension. [H.M.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Tuberculosis Treated with Marmorek's Serum.—H. F. Bassano[2] gives his experiences with Marmorek's serum in the treatment of five cases of tuberculosis over 16 months, during which time he injected about 2,000 cc. He concludes that the beneficial effects of the serum are most marked in the surgical forms of the disease, but are very encouraging in all forms. No objectionable features attended the injections beyond an occasional local tenderness or urticarial rash and slight general malaise. Pyrexia is diminished, although the fall of temperature is sometimes preceded by an initial rise of 1° F. Pain in the surgical forms of tuberculosis is almost invariably alleviated. The amount of sputum in pulmonary tuberculosis is rapidly diminished after an initial increase. The general health rapidly improves and the patient gains in weight. The dosage recommended by Marmorek is 5 cc. every other day for three weeks, followed by a three weeks' interval, and then a resumption of the injections. The cases reported by the author include tuberculous peritonitis, tuberculosis of the testes, joint tuberculosis, suppurating sinus of tuberculous origin, and pulmonary tuberculosis. [B.K.]

Citarin.—Neumann[3] has employed citarin (sodium anhydromethylene citrate) in 31 cases of gout, and produced very good results in all the cases, where large doses were given; the dose varied from 4 gm. to 8 gm. (1 dr. to 2 dr.) daily and was always taken with warm lithia water. The good results of the drug were already noticeable 48 hours after the beginning of the treatment, and usually within three days the patients could walk around, the urine was tested in a considerable number of the patients and in no instance could irritation of the kidneys be discovered, and when given to individuals suffering from nephritis, instead of increasing the albumin, it diminished it. [E.L.]

The Treatment of Rheumatoid Arthritis.—A. P. Luff[4] states that if this disease is not treated it tends to spread from joint to joint and finally to cause progressive destruction of the tissues of the joint. In order to cure this disease it is important to begin the treatment in the early stages, and to persist over a long period of time, generally a year or two, during which time measures should be employed to maintain the general strength as much as possible. He states that this disease is curable if recognized in the early acute stages. It is a mistake to treat rheumatoid arthritis as gout. The diet should include animal foods freely, as well as vegetables. There is no objection to wine taken at meals. Woolen clothing should be worn next the skin, and exercise should be taken regularly. A warm, dry climate, with dry gravel soil, is best suited to patients suffering from this disease. The two drugs which are of greatest value are guaiacol, preferably given as a carbonate, and iodid of potassium. The guaiacol carbonate should be given in 5 gr. to 10 gr. doses, gradually increasing until 15 gr. to 20 gr. are taken at a dose. This should be continued for a year at least. Hot baths, electric light baths, douche, massage, and massage with passive movements are indicated. Blisters are usually effective in relieving the neuralgic pains, and should be applied to the surface of the cervical, dorsal, and lumbar regions. In the winter time a dry, warm atmosphere should be sought. [J.H.W.R.]

Raw Meat Treatment of Tuberculosis.—G. Petit[1] states that phosphoric acid is the element most lacking in the food and that all other elements are assimilated in proportion to the quantity of this body present. Before any other treatment we must make sure of obtaining a certain acidity and a certain degree of phosphatization. In the absence of this principle no medication can do good. The use of raw meat diminishes acidity and thereby hinders assimilation and by exaggerating the elimination of urea, weakens the resistance of the organism and promotes toxemia. In tuberculous subjects raw meats should be strictly prohibited, more particularly in the pretuberculous and in tuberculous children, such prohibition admitting of no exception. [H.M.]

Effect of Suprarenal Extract in Addison's Disease.—A. G. Gullan[2] reports two cases of Addison's disease. The first was a man of 18, who complained of epigastric pains, vomiting, extreme weakness, and loss of flesh. The characteristic pigmentation appeared in the exposed parts of the body, with a deepening of the normal pigmentation. There was tenderness posteriorly over the suprarenal glands. In spite of continuous administration of suprarenal extract, which produced indeed a temporary improvement, he finally died. At autopsy there was found tuberculosis and cheesy degeneration of the suprarenal glands, with extension to the celiac plexus and its associated nerves and ganglions. In the second case there were similar symptoms, although less severe and more chronic in their course. Here the administration of suprarenal extract produced a complete cure, although there was a tendency to relapse, when treatment was interrupted. The author believes that this form of treatment will produce improvement, where the suprarenals alone are affected, but is likely to fail if there is an additional lesion, as in the first case. [B.K.]

Balsam of Peru.—Unschuld[3] reports having treated and cured 12 diabetic patients suffering from "mal perforant" by means of the application of the balsam of Peru; he employed it in the form of an ointment, and considers this the best form of application for the diabetic. He speaks of it as the best tonic and stimulating measure in his possession. [E.L.]

FORMULAS, ORIGINAL AND SELECTED.

Injection for Pott's Disease.—Lannelongue[4] suggests the following:

℞

Olive oil	90 gm.
Ether	40 gm.
Iodoform	10 gm.
Creosote	2 gm.

Use about 30 gm. of this mixture; one injection will suffice to heal the infected sac. [T.H.E.]

[1] Medical Press and Circular, August 2, 1905.
[2] The Lancet, September 9, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, No. 13, 607
[4] The Practitioner, July, 1905, p. 16.

[1] Medical Press and Circular, August 2, 1905.
[2] The Lancet, August 19, 1905.
[3] Münchener medicinische Wochenschrift, 1905, No. 13, lii, 609.
[4] Il Policlinico (Rome) September 10, 1905.

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The recent annual report of the Surgeon-General of the army contains much information of value to the profession, and many suggestions, which, if carried out, are bound to improve the efficiency of the army. The sick record of the Philippines shows a decided reduction over the previous year, probably from the absence of any great epidemic, such as cholera. Indeed, the rate of admissions to sick report for disease is not much more than in the United States, and the deathrate is actually less. Such statistics have been used by General Wood in his annual report to prove that a tropic climate is not bad after all, but it is pertinently remarked that such comparisons prove nothing, as many of the sick at home posts had their diseases originate in the Philippines. It is also reported that 467 soldiers were invalided home as incurable in the tropics, and they increased the sick and deathrates of the home troops. Though many of these recovered, it is known that they would have died had they remained in the Philippines, thereby greatly increasing the tropic death and sick rates.

The influence of seasons in the tropics seems to be marked, the greatest sickness occurring in May—the middle of the hot dry season, when the heat and light are almost unbearable. The deaths naturally are greatest after this season is over—in December—or when the diseases acquired in the worst months have had their effect. As 400 cases of undetermined fevers are reported, it is quite evident that there is still much to learn of tropic conditions, and it proves the wisdom of the recommendation for the establishment of laboratories for original research, presided over by men of special attainments. Attention is directed to the grand results of a similar policy long ago adopted by the British military authorities, and we need only mention the mosquito work in malaria, and our knowledge of trypanosomiasis and Malta fever as examples of what we also might do. The utmost necessity for careful work in water sterilization is shown by a report that over half of the soldiers of an organization recently returned from the tropics proved to be infected with intestinal parasites. The water question receives considerable attention, and it is shown to be a most difficult and complicated matter for troops in the field.

Sanitation in the army naturally occupies much space in this report as in previous years, but there is a marked departure, in that for the first time it is officially reported that something must be done to make sanitary advice more binding upon those who are now officially responsible for the health of the troops. This appears to be a very important part of the report. It is pointed out that the medical department is now required to advise upon the location of camps and posts and the adoption of water and sewer systems, yet it is said that this is only a step in advance and that no proposition containing a sanitary question should ever be settled without first obtaining the opinion of medical officers as to its advisability. We can only suggest that as army surgeons now seem to be specializing, the world over, this special duty should devolve upon those who have shown special aptitude in this direction and not upon those who have devoted themselves to some specialty of medical or surgical practice.

Army affairs in the tropics must now be settled far from home, there is no chance to refer sanitary affairs to higher authority in the War Department, and thus the time has now arrived in which it is essential that the position of the medical officers be more clearly defined, to the end that their advice shall be more binding upon the authorities. This is a vital question involving some change in the whole military system, consequently no definite proposition is made. If we can judge from the tone of press comments, we can assert that the public is vitally interested in this matter and will insist upon reform. Delay is already causing a very

ugly feeling. A correspondent has called attention to the fact that it was reported to the War Department in 1898 that no good can come from the present system in which the officer with authority has not the knowledge, and the officer with the knowledge has no authority. It is an illogical system which we understand the Japanese have abandoned, as we have previously remarked. We hope that in his next report the Surgeon-General will have some definite proposition to end an intolerable situation, whose continued existence is only engendering foolish opposition to the War Department itself. It is said that in some posts married soldiers are permitted to live in unsanitary shacks, to the jeopardy of their own health and that of the other soldiers. This is a remarkable state of affairs in this twentieth century, and as it is contrary to the advice of the medical department, we are quite of the opinion that the dreadful conditions would end if the War Department would make the sanitary recommendations binding, as this report suggests.

The bill to increase the efficiency of the medical department of the army will again be presented to Congress. A copy has been circulated, and the pamphlet contains the arguments of the Secretary of War and the President, which explain why this important bit of legislation should no longer be delayed. The matter is discussed by the Surgeon-General in his report, and the additional arguments only confirm our opinion previously published, that this bill is vital to the interests of the army and thoroughly in accord with public sentiment. The American public is very human, after all, and takes delight in saying sharp things about members of its own family, but loves them, nevertheless, and to such an extent, indeed, as to become very belligerent if anyone else criticises. Americans love the army and its deeds, even if they must have a fling at it every now and then. As far as we can determine, they bitterly resent the opposition which has so far blocked the progress of this great improvement. A very mistaken policy in 1901 reduced the proportion of medical officers, and so greatly reduced the proportionate numbers in the higher grades as to check promotion and make it difficult to obtain the high grade of men the public insists upon having in these positions. The War Department has repented of its sins, and it is hoped that Congress will be converted this year. Congress will be, if convinced that the public desires such regeneration, and the medical profession and lay press can thus inform their representatives, and should do it at once. It seems, also, more evident than ever that the vast importance of the medical officers demands that many of them be placed on the general staff, to which is referred for final decision so many matters having a bearing upon the health of troops. The Japanese war has opened the eyes of lay journalists to this whole matter, and they are now calling attention to the defects which the army medical department has vainly been trying to rectify these many years. We hope they will keep harping on the topic until Congress is ashamed to delay longer.

The demand for cheaper life insurance has been the inevitable result of the dreadful revelations of the present investigation. Mr. Allan H. Willett, of the Department of Economics of Brown University, after an exhaustive inquiry, boldly states[1] that "with no improvement in the methods and practices of insurance companies, a reduction of 20% or 25% in premium rates is possible for a company managed with average care and efficiency, and is in every way desirable." This conclusion is said to be in accord with that of English critics also. It will go far toward confirming the growing impression of policy holders that they have been paying out too much. Not only have expenses of soliciting new business been considered too high, but the immense sums, which, as salaries and commissions, have been diverted into the pockets of a favored few, have caused an intense feeling of indignation. Instead of reducing the income, the surplus has been allowed to pile up until it has become a temptation beyond the average man's limit of honesty. When one family in a few years secures close on to six million dollars, it is quite evident that the insured have paid too much. Unfortunately, public resentment is so great that there is danger of drastic legislation which will be injurious, and conservative life insurance men who know the present evils and desire to correct them, dread the consequences. It is, nevertheless, a public necessity to have the matter under greater government control than is possible by present laws, though haste is to be frowned upon. It is desirable that in the future discussions of the matter, particularly in regard to reducing salaries, commissions, and other expenses, to the end of reducing the cost, it will never be forgotten that in one item of expense, that of medical examinations, it is generally believed that the expenses due to deaths of insured diseased men have been, in part, due to the fact that fees have been too small. Would it not be proper for the medical men to be more largely represented in all life insurance matters anyhow? It is a suggestion worthy of thoughtful consideration.

The argument for the treatment of tuberculosis in private sanatoriums is admirably summarized by Dr. Kime in the *Bulletin of Iowa State Institutions*. He

[1] Political Science Quarterly, September.

says that there are now some 8,000 cases of the disease in the State, and that their average duration of life is two years. "One year ago, practically all were curable, one year hence nearly all will be dead." The mortality is mainly charged to two causes: 1. The lack of familiarity of the medical profession, and of modern methods of treatment. 2. The inacquaintance of the public with the value of the present methods of treatment. Tuberculosis being a house disease, the open-air treatment is the only effective one. A recent writer has said that "God invented the tubercle bacillus in order to teach people the value of sunshine and fresh air." The case against the physicians of Iowa is made pretty strong by citation of the figures gathered by the board. Forty percent of physicians had not seen a case of tuberculosis in the past year, and of those reporting the average was three. Another significant fact is given: Of 3,542 physicians in the State addressed by the board, 1,596 replied, while 1946 did not have sufficient interest in the subject to even reply to the inquiries; yet of something like 70, from all parts of the world, who give special attention to the treatment of tuberculosis, in spite of the fact that they are all very busy men, some 60 reported. "Can there be any doubt in whose hands these patients would be the better cared for?" Dr. Kime adds: "I have little patience with the physician who either ignorantly or wilfully maintains that any other method of treatment in any way compares with the sanatorium treatment of this disease."

The Home Treatment of Tuberculosis.—In the same number of the *Bulletin* (that for January, 1905), Dr. Hornebrook relies on the facts that about 75% of the population has been infected at some time; that this infection is a frequent prelude to tuberculous consumption; and that not one hundredth of one percent can have treatment in sanatoriums. In those, therefore, who do not die of the disease, it must have been arrested, either by home treatment or the natural healing powers of nature. It seems therefore certain that the sanatoriums, and their maintenance, cannot be secured for the thoroughgoing institutional care of all the infected patients of a State. Is it, indeed, wise or best that such treatment should be ordered, even if possible? All things considered, it must be answered in the negative. Indeed, if in the case of tuberculosis, it must be so in all other diseases. No line can be drawn. Thus rank socialism comes into view, and although this is not the chief reason against it, it is evident that there's an end of the medical profession, except that a few members may persist as State officers. We are certainly far enough on that road already. Moreover, the logic of the argument is to educate and enthuse the negligent medical men to undertake the education and enthusiasm of the public as to the efficacy of the home treatment. And every day shows that this is both true and possible. There is a place and a proper function for the sanatorium, and even for the State-supported one. But do not let us forget that the ideal is to make each house in the State a sanatorium. That assuredly must be done before tuberculosis will be eradicated.

An old antivaccination argument has been recently repeated in a lay journal. It is said that if vaccination is a protection, why are not its advocates content to let the unprotected run what risks they please? Should an epidemic occur the protected have nothing to fear and need not become excited over the matter at all. Similar arguments no doubt had great influence in the repeal of the English compulsory vaccination laws some years ago. It is to be confessed that the nation has not suffered in the least by this action, and it is quite likely that compulsory vaccination will never be possible again. Before Jenner's time, when smallpox was endemic and when a large part of the people were pock marked, the disease was practically one of childhood or youth, just as it is now a disease of infancy in certain tropic countries. The surviving adults were mostly immunes, and from lack of material the disease was quickly taking the usual course of becoming a mild one. Vaccination has checked this elimination and is preserving the susceptible, so that the operation is now necessary for survival, and those who cannot recognize its necessity are the ones being eliminated. It might be well then to take these men at their word. Being mentally warped in this one matter, they are quite apt to be so warped in others that their elimination would be a benefit to society. Indeed, through the death by smallpox of some prominent antivaccinationists a few years ago, the delusion is not nearly so violently advocated as formerly, and bids fair to die out completely in this way. Some of these men are foreign born and are thoroughly vaccinated, having come from countries requiring the operation. Such mental myopia is apt to be inherited and it is just as well that such families should not survive. Our present desire to save the children may be misplaced altruism. This sounds brutal, but it merely describes a natural selection and is a condition brought on by the antivaccinationists themselves. Fatal, or even harmful ideas and habits always disappear in this fashion. Opposition to the compulsory vaccination of school children is still vigorous, though the judicial decisions sustaining the school boards have checked public expressions of disapproval. We need not

be surprised, therefore, if some day the opposition should succeed, as it did in England, in regard to the general population. It will not be a great disaster after all, for the small abnormal class will be the only victims. It looks as though public opinion will eventually restrict all of our compulsory sanitary measures to those diseases which are likely to be injurious to ourselves.

"A Sure Cure for Syphilis."—A subscriber sends us the following letters, which seem sufficiently self-explanatory to publish without comment. We regret only that the names of the great "men of prominence" in the medical profession had not been mentioned by the enterprising manufacturers and "laboratories":

DEAR DOCTOR:—Fifty-two patients have been treated with our antisyphilitic sure cure in ——; 21 physicians are regular users of it in your city. It has now been so well introduced that we feel justified in occasionally reminding you of its existence and of its qualities. We claim that it absolutely eradicates the syphilitic infection. When a course has been given, the patient will not only be in far better condition than he would be from treatment by the classic methods for the same time, but all medication can be discontinued without the slightest fear of sequelæ, near or distant. There will be no recurrence of symptoms, no tertiary manifestations, and you can confidently assure the patient of that fact. We do not expect you to accept the claims made for the serum on any evidence whatever other than personal experience. They are true, and we have thoroughly proven them to be true. Personal observation, however, is worth more to you than all our evidence. Try one or two cases in your own practice.

To this letter the following reply was made by our subscriber:

DEAR SIR:—Replying to your letter of June 28, I desire to say that I should consent to use an antisyphilitic cure only if it came from a laboratory whose reliability was thoroughly well known to me, and secondly, if it came with the recommendation of medical men well and favorably known to me as syphilographers, like Morrow or Keys in this country, or Fournier in France. But as I do not know anything as to your laboratory, never having heard of it except in this connection, and as I have seen no mention of it in any of the journals which I read, I conclude that I cannot, in justice to my patients and myself, try it, and that, furthermore, it would be a waste of time for me to read your circulars or to have an interview with your representative. Beside, there is an *a priori* reason for the above conclusion from what I regard as your extravagant statements when you say "it absolutely eradicates the syphilitic infection," and that "there will be no recurrence of symptoms." For in my opinion, such statements would be warrantable of no remedy known to medicine as the result of the accumulated learning of the ages. Certainly they could not be made of quinin as a remedy for malaria, or of the antitoxin of diphtheria against that disease, or of thyroid gland as a remedy against myxedema, three of our most certain remedies, those approaching most nearly to "specifics." Furthermore, since I assume your medicament has been only recently devised, your statement that "there will be no recurrence of symptoms" must be wholly unwarranted. Although it seems hardly worth while, I may add that another *a priori* objection presents itself to my mind, in the utter impossibility of making any serum against syphilis at this time when the microorganism of the disease has not yet been isolated.

But if by any possible chance I should be mistaken, and that despite my most positive conviction to the contrary, your laboratories should be producing a remedy against a most prevalent and serious disease, far more certain than that of any remedy against any disease hitherto known to medicine, I know I shall have my attention called to my error in so emphatic a manner that I shall not possibly fail to correct myself. Every medical journal will be filled with reports of cases treated by your cure. The daily press will give much space to the matter. The subject will be a frequent topic among laymen as well as among medical men. A social as well as a medical revolution will occur. Indeed, only one dark blot appears on the picture which presents itself to view, viz., that the certainty and permanence of the "cure" will lead many to illicit sexual indulgence who are now restrained from it by fear of contracting syphilis.

I have thought it worth while to write you at some length because of the importance of the matter, and because it is my intention to publish your letter, together with this reply, in one of the medical journals, so that its readers may comment on our letters if they see fit to do so.

Among other matters referred to in the reply of the "Laboratories," the following are the chief:

Regarding the recommendation of medical men well and favorably known to you as syphilographers, permit us to state that should we send you the names of the men of prominence who are using our serum and would say a good word for it, we should be overstepping the proprieties. There are a number of these men, both in this country and abroad, but our work is of such extreme importance that it is entirely proper for them to expect us to say nothing of the work they are doing until they see fit to publish the work themselves.

You state also that you have seen no mention of our cure in any of the journals that you read. Papers having a bearing upon the scientific research which preceded the practical production of our cure have been published in at least six of the leading medical journals of this country, and the work has been commented upon in many more. Histories of cases treated, and comments regarding these have also been published in other journals. It is no easy matter for a busy practitioner to follow everything that is published, and you have doubtless overlooked the notices. We shall be glad to refer you to such of these as we have record of, and we are confident that a reading of them will thoroughly convince you of the earnestness and high class of the work that has been done in this investigation.

Regarding our "extravagant statements" that the cure "absolutely eradicates the syphilitic infection," and that "there will be no recurrence of symptoms," it must be understood, as in the case of any claims made for any preparation, that we are stating what we earnestly believe, and have reason to believe. Proof of the eradication must necessarily be at our hand to justify us in making such a statement, and this proof we can furnish. That there will be no recurrence of symptoms cannot be proved clinically until a large number of cases treated have been under continuous observation for 40 years, whereas our oldest cases were discharged from treatment a little over three years ago. We believe you will admit you are yourself too sweeping in your statement that no disease known to medicine is curable. The basis of our statement that there will be no recurrence of symptoms necessarily involves many details which we should be glad to outline should your interest continue.

Your objection as to the utter impossibility of making any cure for syphilis without the microorganism is axiomatic. The bacillus of syphilis *has* been isolated, and we are not only prepared at any time to furnish abundant evidence of that fact to any qualified investigator or investigators, but have actually arranged for several such demonstrations, moreover, if you are following medical literature as carefully as you intimate, you have doubtless seen a great deal of the confirmatory evidence of Dr. de Lisle's work now being brought forward. Within the past two weeks we have received two samples from Dr. Schaudin, whose work is unquestionably confirmatory.

We regret to note that in the latter portion of your letter you have fallen into the usual error that a matter of this importance would fill the medical journals with reports of cases at once, and the daily press would feature it. We ask you if it

is not true, when you consider the matter carefully, that most of the medical matters that occupy so much attention in the lay press, and, indeed, sometimes startle the medical press, are of temporary interest only, and lack solid merit. Nothing is easier than to secure such notice; nothing is more nonethical than for a medical scientist to rush into print.

The ethics of our methods, both of production and of sale, have been fully discussed with high authorities of the American Medical Association, and with specialists of the highest standing. We are complying with ethical requirements strictly. Regarding the "dark blot on the picture," we have only to remind you that the very active and somewhat aggressive gonoccoc is not affected by our preparation.

A further reason for the delay in publication of many cases is the practical one that the production of our preparation is a difficult and expensive problem, and has led to repeated losses of the entire producing plant, causing interruptions of four to six months in the supply, and although the preparation has been used, and used continuously for over three years, it is only within the past three weeks that a sufficient stock was secured and the arrangements for future production on a large scale completed on permanent and certain lines to permit us to push the production of serum.

If you will permit our representative to call, we are confident that you will be very promptly convinced that we have not expended years of hard work and nearly $50,000 of capital, no portion whatever of which has gone to advertising, on a "fake."

Although the "aggressive gonoccoc" is not harmed by this marvelous product, we have no doubt that the "daily press will feature it." Look out for reprints from the "physicians of prominence." Governors, senators, and D.D.'s will naturally not give their testimonials!

Buying the names of their patients from physicians has become a systematized business, and the fact suggests the care we should observe in dealings with the quacks. It also demonstrates the constant pressure of Ignorance, Greed & Co. to push the firm's way into professional spheres of influence. There lies before us the letter of a company to a physician, illustrating not only the two tendencies mentioned but the subjection or sale of individual physicians to the nostrum company of their professional and personal characters—so much at least as they may have left. The business men—the president, secretary, treasurer, etc.—have no sign of M.D. after their names, but half a dozen other names with the title are appended. The name of the company suggests that religion pure and undefiled is the motive of the odd combination of money, medicine, and morals. This is the letter:

————, April 12, 1905.

Dear Doctor:

If you have any letters from opium habitues which you have received since 1902, we would be pleased to buy a copy of the names. All we want is to copy the name from the original letter, and we will return the letters to you, and you can sell them to any letter broker, or trade them in any manner you please so far as we are concerned. Through long experience we have learned that literature from one concern might appeal to the prospective patient, while he would pay no attention to the literature of another institution; hence, we are willing to take a chance and buy these names. We have paid as high as $75 per thousand for a copy of 1904 and 1903 names within the last 60 days. This will give you an approximate idea of the price we pay for letters received prior to this.

We are willing to pay a fair price for old letters, and if at any time you see fit to make us a proposition, we will be glad to consider the same, and we will return old letters within 48 hours after having received them for copying.

Let us hear from you anyway, and probably we can make some kind of a trade.

Yours very truly,

———— ———— ————

BOOK REVIEWS

Acute Contagious Diseases.—By WILLIAM M. WELCH, M.D., and JAY F. SCHAMBERG, A.B., M.D. Lea Brothers & Co., Philadelphia and New York, 1905.

The diseases discussed in this volume are vaccinia, smallpox, chickenpox, scarlet fever, measles, rubella, typhus fever, and diphtheria—a small group, but a most important one since most of the members of it are frequently fatal, and all of them are readily transmissible from the sick to the well. Almost the entire volume is devoted to the consideration of vaccinia and smallpox, a not undue proportion of space, when we consider the very great importance of these subjects. As was to have been expected from their very large practical experience, the authors have implicit confidence in the prophylactic powers of vaccination. Concerning the relationship of vaccination to diseases of the skin, the authors are of the opinion that the former may at times give rise to the latter; as for example, an eczema may be induced by vaccination in subjects already predisposed to this affection; and they likewise believe that certain more or less extensive bullous eruptions, numerous examples of which have been reported in recent years, may follow this operation. The characteristic features of vaccinia and variola are described minutely and at length, and the eruptive lesions of these affections are portrayed in numerous reproductions of almost faultless photographs which are quite as instructive as, if not more so than the text; indeed, too much praise cannot be given this feature. The red light treatment of smallpox, which has received a new impulse through the recent work of Finsen, was tried in two cases, but without favorable result, and the authors conclude that the method is useless. The numerous remedies which have been proposed for the preventing of pitting are not regarded with much favor, although tincture of iodin is thought to exert some slight influence. We are glad to see special attention called to the erroneousness of the statement that varicella is extremely rare in adults, the authors even deeming it of sufficient importance to devote a special section to the disease as it is seen after childhood. This erroneous statement, which is repeated in most textbooks, has given rise to many blunders in diagnosis, and it is time it was given its quietus. The authors devote 135 pages to the consideration of scarlet fever, its complications and sequels, almost as much space being given to the two latter as the malady itself. Attention is called to a feature of the eruption which is commonly overlooked, viz., the presence of numerous small vesicles, which, according to the authors' experience, are present in 20% of all cases, and in 50% of all well-pronounced eruptions. Contrary to the long and generally accepted belief, the authors are inclined to agree with those who deny that the period of desquamation is the time of most active contagion. The treatment advised in this frequently grave malady is largely symptomatic and expectant since there is no known method of shortening its course. In the treatment of diphtheria, local applications are believed to be of great use, but chiefly as cleansing agents; these have little value as antiseptics or solvents of the diphtheric membrane, and for this reason quite as much may be accomplished by warm normal salt solution as by the many antiseptic and solvent solutions which have been recommended. As to the most important matter of the serum treatment of this dangerous malady, which, according to the statistics of many hospitals, has produced a reduction of about 50% in the mor-

tality, our authors "confess to a feeling of disappointment in the results obtained from the use of antitoxin in the Municipal Hospital." They have been able to obtain a reduction of at most but 7% in the deathrate, a result which they naturally find difficult to explain. The authors of this treatise are to be congratulated upon having made a valuable addition to the literature of a most important class of diseases. They have produced a treatise which should not only be in the possession of, but should be carefully read by every practising physician.

Nothnagel's Practice of Medicine: Diseases of the Blood.—By PROF. DR. P. EHRLICH, PROF. DR. K. VON NOORDEN, DR. A. LAZARUS, and DR. F. PINKUS. Edited with additions by Dr. A. Stengel. Authorized translation from the German under the general editorial supervision of Dr. A. Stengel. Philadelphia and London: W. B. Saunders & Co. 1905.

This, the ninth volume of "Nothnagel's Practice," issued in the English language, comprises a discussion of anemia, chlorosis, leukemia, chloroma, and pseudoleukemia. The name of Ehrlich is sufficient to lend to the book special authority, and while his views regarding certain debatable questions have been somewhat combated of late, the Father of Modern Hematology may well be proud of his work. The divers opinions of contending observers are given with that just discrimination and reserve that befits an editor, and while reference is made to the important work done since Ehrlich wrote his contribution, proper deference is paid to the opinion of him who taught us all. There is less editorial annotation to von Noorden's article on chlorosis, probably because there has been less contention and less cause for contention. While some questions still await elucidation, many matters relating to chlorosis seem firmly established, and all are discussed in commendable detail and with inimitable clearness. The editor of this series of "Nothnagel's Practice" was most happy in his selection of the editor for this one volume, which, in its English dress, derives a not inconsiderable amount of its value from the discriminating editorial touches of Dr. Stengel, whose special fitness for the task that he undertook is a matter of universal recognition.

Transactions of the American Röntgen Ray Society.—Fifth Annual Meeting, St. Louis, Mo., September 9 to 13, 1904. A. H. Sickler Company, Philadelphia, 1905.

This very creditable set of transactions merits perusal from every point of view. The effect of the röntgen ray in tuberculosis is fully discussed by Dr. James B. Bullitt, the former president of the society, and by Dr. J. D. Gibson, Dr. E. H. Grubbe, Dr. J. Rudis-Jicinsky, and Dr. May Rice. Dr. George C. Johnston contributes an excellent clinical paper on the treatment of epithelioma. Dr. Joseph F. Smith contributes a chapter on the treatment of sarcoma, and Dr. J. N. Scott takes up the subject of carcinoma. Dr. C. L. Leonard gives an interesting study on the röntgen-ray treatment of malignant disease of the breast. Russell H. Boggs emphasizes the importance of an exact technic. Many other excellent articles appear in this book, which is a veritable storehouse of modern röntgen ray knowledge.

The Surgical Assistant.—By WALTER M. BRICKNER, B.S., M.D. Published in International Journal of Surgery Co. New York, 1905.

This is a most excellent manual on the subject. The author has developed a happy combination of the technical with the practical. Every young physician beginning his interneship in the hospital, as well as nurses, would be greatly benefited by the careful reading of the first chapter dealing with "The conduct of the assistant and his relations with the surgeon and the patient," and also the second chapter, entitled "The hospital interne." Chapter vi, entitled "The anesthetist," from a technical standpoint, is the equal of those treating of anesthesia in the usual textbooks of surgery, but as a guide, and from a practical standpoint, is far superior to the usual treatises on the subject appearing in English print. In the chapter devoted to "The preparation of surgical materials and formulary," the author has grouped together, in brief table form, the large number of different methods and their modifications that have been advanced for the preparation of suture material. The treatment of the subject in this way adds greatly to the value and usefulness of the book. Taking it in all, the author is to be congratulated in his presentation of this somewhat original subject.

A Treatise on the Plague.—By W. J. SIMPSON, Lecturer on Tropical Hygiene, London School of Tropical Medicine. New York: The Macmillan Company. 1905.

This treatise, written at the request of the syndics of the Cambridge University Press, deals with the historic, epidemiologic, clinical, therapeutic, and preventive aspects of plague. The importance of the disease, especially to England in the matter of controlling it, is seen from the startling statement that in India the deaths from plague during 1903 were 853,000, and in 1904 reached the enormous total of 1,040,429. The book is undoubtedly the best monograph on the subject extant. The experience of the author as health officer of Calcutta, as medical adviser to the government of Cape Colony during the outbreak of plague in 1901, and as commissioner to inquire into the plague in Hongkong, peculiarly fits him authoritatively to write regarding the disease. He discusses at some length the present pandemic, which originated in the province of Yunnan in China. Of most practical value is the consideration of methods of prevention. An appendix gives in full the provisions which are to be adopted on the appearance of plague or cholera as determined by the International Sanitary Convention held in Paris in 1903. Every one of the 413 pages of text is charmingly written and bears marginal titles of the subjects discussed. The paper, printing, and binding are satisfactory. We can speak in commendation only of this book.

A Nurse's Guide to the Operating-room.—By NICHOLAS SENN. Second edition, revised and enlarged. Chicago: W. T. Keener & Co. 1905.

Dr. Senn has revised and enlarged his book for nurses until it is nearly twice as large as in the first edition. More than half is devoted to general information regarding work which the nurse is called upon to do or to assist others in doing, and the remainder to the lists of instruments necessary for various operations. The book is now a very valuable aid for the nurses of any institution, and the favorable reception of the first edition will doubtless be more than repeated.

Beasley's Book of Prescriptions, with an Index of Diseases and Remedies.—Rewritten by E. W. LUCAS, F. I.C., F.S.C., with an introduction by ARTHUR LATHAM, M.A., M.D., F.R.C.P. Eighth edition. P. Blakiston's Son & Co., Philadelphia, 1905.

This useful little book having reached an eighth edition, has proved its right to existence. It is arranged to correspond with the "British Pharmacopeia," and cannot, therefore, be used by the American student without making due allowance for such differences in nomenclature and strength of preparations as may exist between the standards of the two countries. Its value, of course, in any event, is more largely illustrative than didactic.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Anatomy in Abstract.—By STEWART L. MCCURDY, A.M., M.D., Professor of Orthopedic and Clinical Surgery, West Pennsylvania Medical College, etc., Pittsburg, Pa. Flexible leather vest pocket abstract of Gray's Anatomy. Price, $1.00. Medical Abstract Publishing Company, Pittsburg, Pa.

The Microtomist's Vade Mecum.—By ARTHUR BOLLES LEE. Sixth edition. P. Blakiston's Son & Co., Philadelphia, 1905. Price, $4.00 net.

Compend of Histology.—By HENRY ERDMANN RADASCH, M.S., M.D., Associate in Histology and Embryology in the Jefferson Medical College; formerly Fellow in Chemistry in the University of Iowa, etc. With 98 illustrations. P. Blakiston's Son & Co., 1905. Price, $1.00 net.

Handbook of Physiology.—By AUSTIN FLINT, M.D., LL.D., Professor of Physiology in the Cornell University Medical College; Consulting Physician to Bellevue Hospital, etc. With 247 illustrations in the text, including 4 in colors, and an atlas of 16 color plates, including 48 original figures taken from actual stained microscopic preparations. Macmillan Company, New York, 1905. Price, $5.00 net.

Cleft Palate and Hare-lip.—By W. ARBUTHNOT LANE, M.S., F.R.C.S., Surgeon to Guy's Hospital, and Senior Surgeon to the Hospital for Sick Children, Great Ormond Street. Medical Publishing Company, Limited, 1905.

Medical Diseases of Egypt.—By F. M. SANDWITH, M.D., F.R.C.P., Consulting Physician to H. H. the Khedive and to Kasr-el-Ainy Hospital, Egypt, etc. Part I. Henry Kimpton, London, 1905.

Methods of Morbid Histology and Clinical Pathology.—By I. WALKER HALL, M.D., Lecturer and Demonstrator in Pathology, Victoria University of Manchester, etc., and G. HERXHEIMER, M.D., Prosector to the Städtisches Krankenhaus Wiesbaden. J. B. Lippincott Company, 1905.

Hyperemia as a Therapeutic Agent.—By Professor AUGUST BIER, of the University of Bonn. Authorized translation by Dr. Gustavus M. Blech, consulting surgeon, People's Hospital Chicago. With 11 illustrations. A. Robertson & Co., Chicago, 1905.

Manual of Diseases of Nose and Throat.—By CORNELIUS GODFREY COAKLEY, A.M., M.D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York City, etc. Third edition, revised and enlarged. Illustrated with 118 engravings and 5 colored plates. Lea Brothers & Co., New York and Philadelphia, 1905.

Transactions of the Western Surgical and Gynecological Association. Fourteenth annual meeting, held at Milwaukee, Wis, December 28 and 29, 1904.

National Standard Dispensatory. Containing the Natural History, Chemistry, Pharmacy, Actions, and Uses of Medicines, including those recognized in the Pharmacopeias of the United States, Great Britain, and Germany, with numerous references to other Foreign Pharmacopeias. In accordance with the United States Pharmacopeia, eighth decennial revision of 1905 by authorization of the Convention.—By HOBART AMORY HARE, B.Sc., M.D., Professor of Therapeutics in the Jefferson Medical College, Philadelphia; Member of the Committee of Revision of the United States Pharmacopeia; CHARLES CASPARI, JR., Ph.G. Phar.D., Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore; Member of the Committee of Revision of the United States Pharmacopeia, and HENRY H. RUSBY, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York; Member of the Committee of Revision of the United States Pharmacopeia. Imperial octavo, 1,858 pages, 478 engravings. Cloth, $7.25, net; leather, $8, net. Thumb Index, 50 cents extra. Lea Brothers & Co., Philadelphia and New York, 1905.

Progressive Medicine, Vol. vii, No. 3. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, of Philadelphia. Octavo, 298 pages, with 22 engravings. Per annum, in four cloth-bound volumes, $9.00; in paper binding, $6.00. Lea Brothers & Co., Philadelphia and New York.

Materia Medica and Pharmacy.—By REYNOLD WEBB WILCOX, M.A., M.D., LL.D., Professor of Medicine at the New York Post-Graduate Medical School, and Attending Physician to the Hospital, etc. Sixth edition based on the fifth edition of White's and Wilcox's Materia Medica and Therapeutics. P. Blakiston's Son & Co., 1905. Price, cloth, $2.50.

Guide to Anesthetics.—By THOMAS D. LUKE, M.B., F.R.C.S. (Ed.), Instructor in Anesthetics, University Surgical Classes, Royal Infirmary, etc. J. B. Lippincott Company, Philadelphia, 1905.

Clinical Diagnosis.—By RUDOLF V. JAKSCH, M.D., Professor of Special Pathology and Therapeutics, Director of the Medical Clinic in the German University of Prague, etc. Fifth English edition, based upon the fifth German edition, but containing additional matter and illustrations. Edited by Archibald E. Garrod, M.A., M.D., F.R.C.P., Assistant Physician to and Lecturer on Chemical Pathology at St. Bartholomew's Hospital, etc. Philadelphia, J. B. Lippincott Company, 1905.

Radium and Radioactivity.—CHARLES BASKERVILLE, Ph.D., Professor of Chemistry and Director of the Laboratory, College of the City of New York, formerly of the University of North Carolina. Profusely illustrated, cloth bound. Williams, Brown & Earle, Philadelphia. Price $1,00, by mail $1.10.

Saunders' Medical Hand-Atlases: Atlas and Epitome of Diseases of the Skin.—By PROFESSOR DR. FRANZ MRACEK, of Vienna. Edited, with additions, by HENRY W. STELWAGON. M.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Second edition, revised, enlarged, and entirely reset. With 77 colored lithographic plates, 50 halftone illustrations, and 272 pages of text. Philadelphia and London, W. B. Saunders & Co., 1905. Cloth, $4.00 net.

Lectures upon the Principles of Surgery. With an Appendix Containing a Review of the Principal Views held Concerning Inflammation.—By CHARLES B. NANCREDE, M.D., LL.D., Professor of Surgery and of Clinical Surgery, University of Michigan, Ann Arbor. Second edition, thoroughly revised. Octavo of 407 pages, illustrated. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $2.50 net.

AMERICAN NEWS AND NOTES

GENERAL.

Opposed to Quarantine.—A discussion last week at the International Sanitary Convention of the American Republics, in Washington, developed the fact that many of the delegates did not believe in the system of quarantine now prevailing. In many cases it was stated it goes too far, and not only does a great damage to the commercial interests of different countries, but also does not have the result wished for by preventing the spread of the disease.

Marine Hospitals Costly.—It has been decided by Secretary of the Treasury Shaw to discontinue for the present the work on the building of a $125,000 marine hospital at Pittsburg. This action is in line with the recommendation Secretary Shaw will make to Congress at its coming session for the abolishment of all the marine hospitals in the United States. It was pointed out that there would be, on an average, only about six patients to be cared for each day in that institution. These patients, it was shown, could be cared for in the local hospitals in Pittsburg at the small expense of 94 cents a day.

International Sanitary Convention Accepts Paris Articles.—A great step toward the prevention of contagious diseases was taken when the members of the International Sanitary Convention accepted the 49 articles of the Paris convention of December 3, 1903, with only a few modifications required by the conditions in tropic countries. When signed by the delegates and ratified by the different governments, there will be on the American continent a system of quarantine and preventive measures. This is calculated to put an end to the evil of good work being undone by the negligent methods in a neighboring State.

EASTERN STATES.

Cigaret Smoking among Schoolboys.—As a result of an investigation of nine grammar schools in Providence, R. I., Dr. W. A. Shaw, of Indianapolis, brought out the fact that 90% of the boys are confirmed cigaret smokers. According to Dr. Shaw, who has been making a special study of the subject throughout the country, the number who smoke in Providence is not greater than in many other cities he has visited.

Peace Envoys' Charity Fund.—Governor John McLane has decided to make a permanent trust of the $20,000 given to the charities of the State of New Hampshire by the Japanese and Russian peace envoys, in equal amounts of $10,000. He will ask the next Legislature to recognize and accept the plan by the passage of a suitable act. According to the plan, the income will be divided among suitable charities on the fifth of September of every year, in recognition of the date of the signing of the treaty of Portsmouth.

NEW YORK AND VICINITY.

Too Much Love in Hospital.—At a meeting of the Board of Governors of the North Hudson Hospital, four women, representing the Ladies' Guild Auxiliary, declared that the doctors and nurses, instead of attending to their patients, passed a great part of their time in flirting and making love. The board decided to make an investigation if it should be found necessary.

Health of New York Good.—The deathrate for last week was 15.53, as compared with 16.54 for the same week last year, figuring on the 1900 census. The rate is exceedingly low, and if figured on the present actual population of Greater New York, it would be about a point and a half lower, which would make it the lowest deathrate on record in the Board of Health. There are

very few contagious diseases in the city, and only one death from scarlet fever, was reported last week.

Peruna and the New York Liquor Law.—Excise Commissioner Cullinan, of New York, is quoted as saying that the New York Excise Department holds that peruna is a liquor as defined by section two, liquor tax law. The department has begun action against H. D. Dwight & Co., Syracuse, for selling peruna without proper liquor tax certificate. The nostrum can only be sold hereafter by dealers holding a liquor license.

New Tuberculosis Hospital.—Permission has been granted by the Trustees of Brookhaven for the establishment of an open-air sanatorium for tuberculosis, between Patchogue and Medford, L. I. Since the plan was broached some time ago its advocates have been fighting for a site. Islip refused to have the sanatorium. The hospital's regulations are to be subject to revision by the Brookhaven Board of Health. It will be exclusively for Long Island sufferers from tuberculosis.

To Care for the Babies.—Several philanthropic women are organizing a society to be known as the Infants' League of New York, and controlled entirely by women. The object of the league will to be to look after the welfare and comfort of the thousands of helpless infants born yearly in this city whose mothers are too poor to do so themselves. Women leaving the Maternity and other hospitals will be furnished free with a sanitary crib, linens, bed clothing, nursing bottles, and a supply of milk for their infants' use.

Reciprocity between New York and New Jersey.—For years it was the custom in New Jersey to indorse the certificates of practice obtained by physicians in States other than New Jersey. Ten years ago New York refused to do this for New Jersey doctors unless they were examined by New York State Medical Examiners. At a meeting of the New Jersey State Medical Board in Camden a short time ago it was resolved that after October 16 no certificates of New York doctors would be passed without examination in New Jersey. At a conference in Trenton this week it was announced that each State had agreed to recognize the licenses issued by the other. The new rule will go into effect on January 1 next.

PHILADELPHIA, PENNSYLVANIA, ETC.

Want a City Bacteriologist.—The Physicians' Association of Chester, Pa., has adopted a resolution requesting City Councils and the Board of Health to employ a bacteriologist to make examinations in all cases of infectious and contagious diseases in the city, with a view to preventing the spread of such diseases.

Philadelphia Deathrate Goes Down.—The number of deaths in Philadelphia during the week which ended October 14, was 368, being a decrease of 36 from those recorded last week, and a decrease of 46 from those of the corresponding week of the previous year. There has not been a case of smallpox in the city within the past eight months.

Broken Backs in Pennsylvania.—There are three men in as many Pennsylvania hospitals suffering with broken backs and, though they may live for years, expecting to die at any moment. Thomas Sullivan, a Danville stove molder, who is in the Mary M. Packer Hospital at Sunbury, was injured over a month ago. He is paralyzed from the hips down, but his general health is good and his mind is clear. Lofia Victorin, a miner, whose back was broken by a fall of slate last week, is in the Kittanning Hospital, and Max Geisel, a young German, who fell from a tree near Hanover, Saturday, is trussed up in the York Hospital, where they hope that his fractured spine will mend.

Vaccination Law Must be Enforced.—There is a dispute between the teachers and school directors of South Middleton township, Cumberland county. It was reported to State Health Commissioner Dixon, that the directors have threatened to discharge teachers who enforce the State vaccination law. Dr. Dixon sent a letter to the secretary of the school board saying that the law will be enforced. To a representative of the teachers he said that teachers who disobey the law will be prosecuted, and that if the school directors resist carrying out the department's instructions they will be arrested on view.

Disease in the Philadelphia Schools.—According to a report made by the Bureau of Health, the medical inspectors of the bureau have just completed their examinations of 15,729 pupils in the public schools, and some interesting details are given of the different ailments of the children. There were 281 with defective eyesight, but only 2 had defective speech, 14 defective hearing and 30 defective teeth. The children were entirely free of fever and smallpox. Unvaccinated pupils to the number of 382 were excluded, as were 28 for acute conjunctivitis and 79 for pediculosis; 72 suffering slightly from the latter disease, were cleansed and allowed to remain at school; 3,747 visits were made, 13,590 pupils were sent to the inspectors by the principals, 828 were treated, 675 pupils in all were excluded, 925 were vaccinated, and 2,139 individual examinations were made.

SOUTHERN STATES.

One Failure during Yellow Fever Quarantine.—How successfully New Orleans has emerged from the visitation of fever is disclosed by the fact that there has been but one failure of importance. Railroad men are hopeful that they will soon be able to resume the schedules.

Delaware State Medical Society.—At the one hundred and sixteenth annual meeting at Wilmington, Del., this week, James J. Black, of New Castle, urged that the State erect a hospital for the care of persons ill of tuberculosis. These officers were elected: President, John Palmer, Wilmington; vice-presidents, E. F. Jones, Sussex county, and E. F. Virdin, Kent county; secretary, G. W. K. Forrest, Wilmington; treasurer, W. C. Pierce, Wilmington; delegate to the American Medical Association, Congressman Hiram R. Burton.

The Status of Yellow Fever.—The remarkable showing of only eight new cases in 24 hours is regarded as confirming Dr. White's prediction that the fever is dying out. The total number of cases to October 17 is 3,320; deaths, 433. Wholesale reductions of the health service working forces continue. Inspectors to the number of 215 were dropped from the rolls. There will then be 280 men at work, as compared with 1,276 a short time ago. The report of the Citizen's Committee is expected to show a large amount left over from the fund that was raised to fight the fever.

To Regulate Embalming.—An ordinance prohibiting the embalming of a body which is properly the subject of a coroner's inquest is offered for adoption in Baltimore. The coroners objected to the practice of embalming a body before it had been viewed by a coroner. They thought that in cases of suspected foul play the embalming process might defeat the ends of justice by destroying evidence of the cause of death. The ordinance provides that no person shall embalm or in any way change the physical condition of the body of any person found dead when the manner and cause of death

shall not be already known as accidental or in the course of nature, without the written permission of the coroner within whose district the body has been found.

Pulmonary Tuberculosis in the Trades.—At a joint meeting of committees from the Federation of Labor and the Maryland Association for the Prevention and Relief of Tuberculosis last week in Baltimore, Md., a plan of campaign for the winter was proposed. Dr. John S. Fulton was chosen chairman. It was decided to make a study of tuberculosis as it affects the occupations. In this connection the committee will arrange to visit the factories of a number of trades. Men in different occupations will be induced, if possible, to collect information with which only persons connected with a trade are familiar.

Yellow Fever Fight Nearly Over.—The announcement by the Marine-Hospital Service that the work of fighting mosquitos, in which the forces of the government have been engaged since August 8, as well as the fumigation of squares in which a case of fever appears, will be permanently discontinued, is accepted as a declaration that the fight against yellow fever is about over. The cases now appearing are so few and so mild that little difficulty is experienced in handling them. The State Board of Health has written to Governor Blanchard, requesting him to issue a proclamation withdrawing the proclamation of quarantine against ports to the south of New Orleans, which went into effect on May 1, except as to Colon and points on the Isthmus of Panama. Vessels from Colon will be fumigated at the mouth of the river, but not detained. The governor's proclamation will be made on November 1, and will remove all restrictions against maritime traffic.

University of Virginia.—Dr. George Ben Johnston, of the Medical College of Virginia, has been elected professor of surgery at the University of Virginia to succeed Dr. A. H. Buckmaster, resigned, and becomes chief of staff of the hospital. He will begin his active service next September. The university board of visitors recently received a committee from the Medical College of Virginia, which proposed to unite the two schools. The plan is that the first two years of the course be spent at the university and the last two at the Medical College in Richmond. Theoretic work would be given at Charlottesville, and the students would have the advantages of the large clinic in Richmond during the last two years of the course. A committee was appointed by the board to confer with the committee from Richmond. The board of visitors has recommended the immediate construction of an additional wing to the hospital, to cost from $60,000 to $100,000. This extra room is badly needed.

WESTERN STATES.

Chicago Free to Inspect Meat.—There is to be no further opposition on the part of the stockyards packing plants and the government meat inspectors to the city meat inspectors. This assurance was given Mayor Dunne and Health Commissioner Whalen following the letter threatening prosecution if the interference with the city's inspectors continued.

Mortality of Michigan during September, 1905.—The total number of deaths returned to the Secretary of State for September was 3,050, an increase of 253 over the number returned for the preceding month. The deathrate was 14.6 per 1,000, as compared with 12.9 for August. There were over 400 more deaths in Michigan during September, 1905, than during September, 1904. By ages there were 804 deaths of infants under 1 year, 257 deaths of children aged 1 to 4, and 789 deaths of persons over 65. Important causes of death were: Tuberculosis of lungs, 175; other forms of tuberculosis, 38; typhoid fever, 68; diphtheria and croup, 22; scarlet fever, 4; measles, 3; whoopingcough, 11; pneumonia, 65; diarrhea and enteritis of infants under 2 years, 527; cancer, 146; accidents and violence, 230. There was a slight increase in the mortality from typhoid fever, and a very considerable increase in that from diarrhea of infants. There was only 1 death from smallpox, and 1 death from tetanus.

FOREIGN NEWS AND NOTES

GENERAL.

Two Cholera Cases in West Prussia.—Two new cases of cholera have been reported in West Prussian villages; eight persons have been infected and one death has occurred.

Doctors Out on Strike.—Doctors in the hospital at Bordeaux, France, to the number of 100, struck recently owing to the refusal of the directors to satisfy their claims. The authorities are calling on private practitioners to undertake the care of the patients.

Antituberculosis League.—An international antituberculosis league on the model of the postal union is proposed by the Buenos Aires press. The object is to purchase and generalize the inventions whose efficacy are definitely proved. All countries should contribute funds to send physicians to study and clean the institutes of vaccination against tuberculosis. It is also suggested to invite President Roosevelt to take the matter in hand, as was done in putting an end to the war between Russia and Japan.

OBITUARIES.

Eugene P. Bernardy, aged 59, October 11, from kidney disease, at his home in Philadelphia. He was graduated from the medical department of the University of Pennsylvania in 1866. After his graduation he acted as assistant in the surgical department; for five years assistant demonstrator of anatomy; also assistant in the medical and surgical dispensaries of the university, later he was physician to the Philadelphia Dispensary and obstetrician to the Philadelphia Hospital. In 1899 he received the decoration of the palms of the French Academy as a testimony of his researches and many acts of philanthropy.

Carl Seiler, October 10, from a complication of diseases, at his home in Reading, Pa. He was graduated from the University of Pennsylvania in 1871. He devoted his attention to diseases of the nose and throat, and became an authority on that subject. For 20 years he held the professorship on diseases of the nose and throat in the University of Pennsylvania.

Edwin D. Steel aged 43, September 21, from uremia, at his home in Mankato, Minn. He was graduated from the College of Medicine and Surgery of the University of Minnesota, Minneapolis, in 1889. For many years he was secretary of the Minnesota Valley Medical Society, and a member of the American Medical Association.

George G. Carroll, aged 62, September 25, at his home in Rochester, N. Y. He was graduated from the University of Buffalo, medical department, in 1870. He was a member of the New York State Medical Association, Rochester Pathological Society, Monroe County Medical Society, and the Hospital Medical Society.

Norman Bruce Scott, aged 86, September 21, from senile debility, at his home in Hagerstown, Md. He

was graduated from the New York University, N. Y., in 1844. He was a member of the Medical and Chirurgical Faculty of Maryland, and the first president of the Washington County Medical Society.

Joseph B. Jones, aged 77, October 9, at his home in Brooklyn, N. Y. He was graduated from the College of Physicians and Surgeons, New York City, in 1855. He served as coroner for Brooklyn for several terms; was once health commissioner, and for a long time a member of the board of education.

Julius J. Vaughan, aged 72, September 17, from hepatic abscess, at his home in Springville, Mich. He was graduated from the College of Physicians and Surgeons, New York City, in 1860. He had practised continually for 45 years in Springville.

W. L. Godbold, aged 72, October 10, at his home in Knoxville, Miss. He was graduated from the Tulane University, medical department, New Orleans, La., in 1867. He served as surgeon in the Confederate army during the Civil war.

L. C. Osmun, aged 73, of Alexandria, Va., September 15, from senile debility, at the home of his daughter, in Washington, D. C. He was graduated from the medical department of Columbia College, Washington, D. C., in 1860.

Elizabeth Irwin, October 14, at her home in New York City. She was graduated from the Eclectic Medical College, New York City, in 1894. Dr. Irwin was noted for her work among the poor of New York.

Abisha S. Hudson, aged 86, choked to death while eating a fig, October 9, at his home in Mount Vernon, Ohio. Dr. Hudson founded the Keokuk Medical College, and contributed much to medical science.

Vernon G. Culpepper, aged 52, October 15, from paralysis, at his home in Portsmouth, Va. He was graduated from the University of Virginia, medical department, Charlottesville, Va., in 1876.

Maurice Wiener, aged 94, October 12, at his home in Baltimore, Md. He was graduated from the University of Berlin, in 1839.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended October 14, 1905:

McCAW, Major WALTER D., surgeon, is detailed to represent the medical department of the army at the Second General International Sanitary Convention of the American Republics, to be held in Washington, D. C., on October 9.

CARTER, Major EDWARD C., surgeon, extension of leave granted August 11, is further extended ten days.

KELLY, JOHN P., contract surgeon, now at San Francisco, Cal., on leave, is relieved from further duty at Fort Riley, and will proceed to the Presidio of Monterey for duty.

REILLY, First Lieutenant JOHN J., assistant surgeon, is granted leave for six months on surgeon's certificate.

WILSON, First Lieutenant COMPTON, assistant surgeon, leave granted August 9 is extended fourteen days.

CRABTREE, First Lieutenant GEORGE H., assistant surgeon, is relieved from his present duties, and will repair to Washington, D. C., and report to the chairman of the Isthmian Canal Commission for duty with the commission on the Isthmus of Panama.

SENECAL, HENRY C., sergeant first class, now at Fort Sheridan, will report to the commanding officer of that post for duty.

BISPHAM, First Lieutenant WILLIAM N., assistant surgeon, is granted leave for three months, from about November 1.

KOYLE, FRED T., contract surgeon, upon return from leave to his station, Fort Bliss, will proceed to Fort Ringgold for temporary duty.

SHELLENBERGER, JAMES E., contract surgeon, upon return from leave to his station, Fort Sam Houston, will proceed to Fort Brown for temporary duty during the absence on leave of Captain Benjamin J. Edgar, Jr., assistant surgeon. Upon completion of this duty Contract Surgeon Shellenberger will return to his station.

MUNSON, Captain EDWARD L., assistant surgeon, will report to Major William H. Arthur, surgeon, president of the examining board of the Army Medical Museum Building, Washington, D. C., for examination for promotion.

COWPER, First Lieutenant HAROLD W., assistant surgeon, now a patient at the Army General Hospital, Presidio of San Francisco, leave for month, upon surgeon's certificate, is granted, to take effect upon his discharge from that hospital.

HARRIS, First Lieutenant JESSE R., assistant surgeon, will report to the commanding officer, 13th infantry, Fort McDowell, for duty with that regiment en route to Manila, P. I., on the transport sailing October 5, reporting in Manila to the commanding general, Philippines Division, for assignment to duty.

HATHAWAY, First Lieutenant LEVY M., assistant surgeon, will proceed to Fort Thomas for duty.

WHITE, J. SAMUEL, contract surgeon, granted leave for two months, to take effect when in the opinion of the commanding general, department of Dakota, his services can be spared, and he is authorized to apply for an extension of one month.

DUVAL, Captain D. F., assistant surgeon, granted leave for 20 days, from about October 25.

The following-named surgeons are relieved from duty in the Philippines Division, to take effect at such time as will enable them to comply with this order, and will proceed on the transport to sail from Manila, P. I., about February 15, 1906, to San Francisco, Cal., and report by telegraph to the military secretary of the Army for further orders: Majors Frank R. Keefer and William D. Crosby.

The following named surgeons are relieved from duty at the stations designated, to take effect at such time as will enable them to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about January 5, 1906, for Manila, P. I., where they will report to the commanding general, Philippines Division, for assignment to duty: Majors Rudolph G. Ebert, Vancouver Barracks and Thomas U. Raymond, Fort Assinniboine.

Changes in the Medical Corps of the U. S. Navy for the week ended October 14, 1905:

SHAW, H., assistant surgeon, detached from the naval recruiting rendezvous, Boston, Mass., and ordered to the Naval Hospital, Chelsea, Mass.—October 6.

DUNBAR, A. W., surgeon, ordered to the Naval Hospital, Mare Island, Cal.—October 10.

BRISTER, J. M., passed assistant surgeon, ordered to the Philadelphia and to additional duty at the Navy Yard, Puget Sound, Wash.—October 11.

PARKER, E. G., passed assistant surgeon, detached from the naval station, Tutuila, Samoa, and additional duty on the Adams, and ordered to the Pensacola, and to additional duty at the naval training station, San Francisco, Cal.—October 11.

FAUNTLEROY, A. M., passed assistant surgeon, detached from the Philadelphia, and from additional duty at the Navy Yard, Puget Sound, Wash., and ordered to the naval station, Tutuila, Samoa, and to additional duty on the Adams, sailing from San Francisco, Cal., November 2—October 11.

SOCIETY REPORTS

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, Held at Scranton, September 26, 27, and 28, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 642.*]

Deductions from Experimentations Tending to Determine the Parasitic Cause of Cancer.—GAYLORD (Buffalo, N. Y.) firmly believes that there is an analogy between the agent which produces cancer and that agent responsible for smallpox. He has seen many cases which by their methods of inception clearly establish in his mind that the infectivity of cancer can no longer be doubted. During the course of his experimental work he has observed that cancer frequently attacks the breasts of female mice. He quoted Orth who holds that the propagation of carcinoma is not transmitted from the cancer cell to the healthy epithelium. The successful transplantation in his opinion throws no light upon the cause of the spontaneously developing primary cancer, but it affords data with which the investigators are able to begin a series of deductions or to begin to reason. The successful transplantation of the tumors has repeatedly shown that the virulence of the growth is increased and that the power of the cancer cell to proliferate is unlimited. He referred to a case of adenocarcinoma which changed into a spindle-cell sarcoma; this, in his opinion, was brought about by the agent which heretofore stimulated the epithelium to produce cancer now spending its force on the connective tissue of the growth. Transplantation has shown the lungs to be frequently affected with adenocarcinoma; these organs are rarely involved except by transplantation. Transplantation has also shown that the offspring of some mice suffering with cancer cannot be infected with the same growth, even after repeated attempts at inoculation. Such facts seem to indicate that there exists an immunity in some animals which protects them from the disease. Of the mice inoculated, 21% died of the effects of the tumors. Gaylor is firmly convinced that spontaneous retrogression of cancer exists and that this cure may be due to an acquired immunity. Experimentation has shown that if mice be treated with the serum of the blood of animals suffering with cancer it is very much more difficult to infect these mice with cancer; then, too, it has been found that if mice suffering with such neoplasms be treated with an immune serum the tumors will stop growing and will diminish in size; if, however, hemorrhage be induced in animals in which the tumors are undergoing retrogression as a result of the treatment of the röntgen ray or of radium the neoplasms at once begin to grow. The histologic picture of a cancer undergoing retrogressive changes and the histologic picture of a tumor successfully treated with röntgen ray or radium are identical. He is strongly inclined to the belief that the instigator of cancer is a living body.

Three Cases of Meningocele that Recovered.—G. W. GUTHRIE (Wilkesbarre). Of the three cases which Guthrie saw, in two the meningoceles were in the spine and the other was in the occipital region. The first case healed spontaneously; he first saw it when the child was but three weeks old and again when it was three months old. At that time the tumor was tense, translucent, and fluctuating. He advised operation in the course of a very short time, but the patient was not brought back until two years old, when the tumor was firm but neither translucent nor fluctuating. The second case was seen when the child was four months old, at which time the tumor was tense, transparent, fluctuating, and sessile. Two years later the patient was again brought to him, when he found that the growth had increased in size, was tense, still transparent, fluctuating, and sessile. He operated upon this case and found the contents were composed of clear, straw-colored fluid and a few fibers, which were thought to be nerves, but histologic examination proved that they were connective tissue. The sac communicated with the spinal canal by means of a small opening. The patient made a good recovery. His third case was first seen at the age of five months. The tumor was in the occipital region; it was large, fluctuating, translucent, and sessile. A month later the growth had increased considerably in size. At operation, he found merely clear fluid in the sac. After the operation the head became more round, and the patient made a good recovery. The operation was performed when the child was six months old.

Discussion.—W. L. ESTES (South Bethlehem) called attention to the fact that when these growths occur in the lumbar region the operations are less successful; the failure is largely dependent upon the increased pressure.

The Conservative Treatment of Hypertrophy of the Prostate.—H. M. CHRISTIAN (Philadelphia). During the course of his paper he took exception to the statement of an eminent physician that operation on the prostate should be classed with minor surgery. Many of the deductions he makes are based upon the statistics given by Whitesides, which author he quoted frequently. He spoke principally of two classes of cases: 1. Those patients whose health is good and in whom the urine is either sterile or but slightly infected, and the amount of residual urine is small. 2. Those in whom the health is fair and who have considerable residual urine and occasionally retention. In the first group of cases, he states the catheter life should be tried, as prostatectomy is no simple matter. When the retention is complete and when the catheter cannot be used easily then he advocates prostatectomy. In order to use the catheter successfully, the patient must receive the proper instrument and should be taught how to use it correctly. Christian prefers the soft rubber catheter, either with a single or a double elbow. A metal catheter should never be given to the patient to use. To sterilize the instrument he advises washing with soap and water and forcing the water through the catheter, then he boils it for 10 minutes. The hands of the patient and the glans penis must be washed with bichlorid of mercury before the instrument is introduced.

Discussion.—GAYLOR (Buffalo) took the ground that with the use of the catheter it is impossible to prevent infection of the bladder. The high mortality rate is due to the infection of the kidneys. Then, too, since the laceration of the perineum is becoming less and less, the mortality is diminishing correspondingly. Although the suprapubic method gives better access to the third lobe, and although the injuries to the urethra are less with this method, he still prefers the perineal route. He inclines to the view that if the patients are seen earlier, the statistics will change. GIBBONS (New York) declared that prostatectomy is now the rule rather than the exception, and holds that it is a comparatively simple operation because the organ can be drawn down to the skin surface, regardless of the size of the organ, and can be held there by pressure of the hand over the symphysis pubis while it is enucleated. Some operations can be done under cocain. RODMAN (Philadelphia) maintains that there are cases that can be treated with the conservative method. The operative procedures should be instituted early. He is of the opinion that prostatectomy can endure perfecting. Rodman is a strong advocate of the Hunter McGuire operation for the relief of the conditions incident to hypertrophy of the prostate; the mortality with this operation is but 2%. He has lost but one case with this operation, and that was due to a hypodermic of morphin after the operation. His modification of the McGuire operation consists of introducing into the urethra a trocar and canula, and allowing them to remain in position until a fistula forms. He notes that enlarged prostates which are allowed to remain may undergo carcinomatous change. J. S. NILES (Carbondale) stated that of the two dangers under consideration, namely, possibility of infecting the bladder and operation, he preferred the latter.

Address in Obstetrics.—ELLA B. EVERITT (Philadelphia). In her preliminary remarks she announced that according to her belief, cancer penetrates the body of the uterus very much slower than it passes through the cervix. In discussing carcinomas of the uterus she divided them into three groups. In the first group the results of operation are good; in the second group the results are fair; in the third group the cases are inoperable. The carcinoma in the first group has not invaded the vagina nor the broad ligament. There is no cachexia, and

the health is good, To the second group belong those cases in which the broad ligaments and the periuterine structures are thickened; in this group the dangers of recurrence become manifest. In the third group the glands and the periuterine structures are involved. For these cases a palliative operation to relieve the disagreeable features of the disease is perfectly justifiable.

Address in Hygiene and State Sanitation.—GEORGE W. WAGONER (Johnstown). The first part of his paper consisted of a detailed description of the work done by the recently annihilated State Board of Health in the center and western part of the State. He spoke of the creation of the new Department of Health, its composition and its duties. The Advisory Board, a part of the Department of Health, is, in his opinion, a mere figurehead, and that everything is really controlled and manned by the Commissioner of Health, the head of the department. He pointed out the power of the last named officer. He spoke of the inconsistency of two articles of the rules and regulations of the Department of Health; this inconsistency is really a conviction of the powers of the advisory board and the commissioner, but even here there is a loop-hole giving to the commissioner the better end of the matter. In closing his address he suggested the establishment of the school at Harrisburg where physicians shall be taught the methods of disinfection. He laid considerable stress upon the criminal abortionists in his closing remarks; here he took the ground that it is the duty of the commissioner of health to make and to continue war upon these people.

Protective Inoculation against Typhoid Fever.—D. H. BERGEY (Philadelphia) first reviewed the work that has been done in this direction and then concluded that the best method to employ is that of Pfeiffer and Colley. By this method the bacteria are inoculated on agar and then they are suspended in salt solution after which the salt solution is heated so that the bacteria are killed. These dead bacteria are injected first in small doses and then the dose is gradually increased. The protective inoculation brings about a condition seen in patients who have just passed through a course of enteric fever. The local reaction, he says, should appear within 24 hours. With the systemic disturbances there is a rise in the temperature to from 0.5° F. to 3° F., headache, malaise, vomiting and herpes, occasionally albuminuria is present. The second injection is followed by a milder reaction. He mentioned the method described by Wright, but this he believes is inferior to the one just mentioned.

Uterine Curetage; Its Indications and Contraindications; Its Technic and the Complication Which May Attend and Follow the Procedure.—E. E. MONTGOMERY (Philadelphia). Many of the results obtained by the use of the curet depend upon the man using the instrument. Indications for its use are: Chronic endometritis, profuse discharge, protruding submucous polyps, to obtain scrapings from carcinomatous tissue for microscopic study, dysmenorrhea, and retention of embryonal parts. The curet is contraindicated in acute endometritis, intrauterine myoma, in malignant disease except for the reason given and then it should be followed by the application of the cautery. In some cases he prefers the use of his finger to the curet. If the cervical canal is not opened freely, the dilators should be applied; to dilate the canal, in his opinion, the graduated bougies are better than the bar dilators, because bad results are so often obtained with the latter. While admitting that the uterus may be perforated with the graduated bougies, the danger, in his mind, is minimized if the instruments are handled with great care. Montgomery is inclined to use the sharp curet because the laceration of the organ is less than with the blunt instrument and it will remove more easily the parts desired. Perforation of a nonseptic uterus causes him little apprehension.

The Technic Employed in the Last 100 Laparotomies, with the View of Restricting the Employment of Drainage.—L. J. HAMMOND (Philadelphia). He gave in detail the description of the technic employed in performing these operations. In cases of localized areas of suppuration, he applied bichlorid of mercury, 1 to 500, by means of a piece of gauze on an applicator. He stated emphatically that in no event should drainage be employed.

Discussion.—In opening the discussion of this paper, J. G. CLARK (Philadelphia) maintained that drainage should be avoided if possible. J. M. BALDY took exception to Hammond's use of bichlorid in the peritoneal cavity. He insists that no chemical whatever should be employed in the abdominal cavity. ERNEST LAPLACE (Philadelphia) holds that in regard to drainage, hard and fast rules cannot be laid down for each and every case. Each patient must be considered separately; sometimes it is absolutely necessary to drain, at other times it would be the height of folly to institute this procedure.

Chronic Rheumatism.—CHARLES F. PAINTER (Boston). He holds that if the patients who suffer with a group of diseases known as chronic rheumatism, rheumatoid arthritis, osteoarthritis, rheumatic gout, and arthritis deformans were brought under the care of the physicians earlier the deformities and the helpless condition of these individuals would be less. If any one name were capable of covering this group of diseases he would much prefer arthritis deformans. These diseases can, in his opinion, be divided into three groups, namely: (1) Infectious; (2) atrophic; (3) hypertrophic. In the first group bacteria can be demonstrated in the joint, if not at the time the observation is made, it is probable that they were present. In this group are included gonorrhea, acute rheumatic fever, and perhaps tuberculosis. In many instances the disease is polyarticular; the principal diagnostic features are pain, swelling, and heat. Glandular involvement and cardiac complication are frequent; the thickening of the component parts of the joint is symmetrical and in the severer forms the bones and the cartilages are also involved. The röntgen ray affords a valuable means of studying this malady, especially when thickening and softening are present. In the atrophic form the disease appears to be constitutional in origin; it is polyarticular and is usually seen in adults. Severe strains must be regarded as a cause; organisms have not yet been found. The onset of the disease is usually insidious and begins in the fingers as a rule, involves the wrists early and then the knees; the hips and spine are not commonly affected. In contrast to the marked anemia of the infectious type, the red blood cells in this group are either normal or increased. Cardiac complications are infrequent; there is no fever and no glandular involvement. The deformities, however, are a conspicuous lesion; the synovial membranes are villous in character, but there is no fluid nor inspissated fibrin present. Fatty metaplasia of the structures of the joint are frequent. Calcium salts are excreted in excess. The hypertrophic form is seen late in adult life and more frequently in men than in women, owing to the cold and wet the former are subjected to. In some cases there is a history of traumatism. The spine, the hips, and also the smaller joints are involved.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston, Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 641.*]

The Larynx in Typhoid Fever.—CHEVALIER JACKSON (Pittsburg, Pa.) gave a brief review of his observations of the larynx in 360 cases of typhoid fever. Three separate types of laryngeal involvement were noted, namely, acute catarrhal laryngitis, ulcerative laryngitis, and perichondritis. Among the 360 cases examined, ulcerative laryngitis was observed in 68, of which 8 required tracheotomy; there was perichondritis, with necrosis, in 6, and without necrosis in 11; there was ulcerative tracheitis in 9. Eleven were associated with acute purulent otitis media. Four died. The most important factor in the etiology of the condition was the typhoid toxemia. As regarded treatment, intubation was useless and dangerous, but tracheotomy, if done early, was a life saving measure. Ulceration in even the worst cases healed in 10 days after tracheotomy

and treatment through the tracheal wound. Tracheotomy should be done under local (Schleich solution) anesthesia.

Acute Purulent Otitis Media Complicating Typhoid Fever: Report of a Case, with Autopsy.—Ewing W. Day (Pittsburg, Pa.) reported this case, in which the autopsy findings indicated that the otitis media was due to embolism or thrombosis of the tympanic and mastoid bloodvessels.

Discussion.—Edgar M. Holmes (Boston) said that 11 years ago he had examined the ears and throats of 237 patients ill with typhoid fever at the Boston City Hospital, and in 14 of those he found ulcerations of the larynx, including under that term the epiglottis, as well as the deeper structures of the larynx. The comparatively few cases in which laryngeal symptoms were discovered might perhaps have been due to the apathetic mental condition of the patients. In one case, the entire arytenoid space was involved, with marked swelling of the epiglottis, and in that instance the voice did not disclose the fact that there was anything wrong with the larynx. That patient, although alive today, had been hoarse since his attack of typhoid fever. At the time there was a question as to whether the lesion was tuberculous, but repeated cultures failed to show the tubercle bacilli. James F. McCaw (Watertown, N. Y.) said that during an epidemic of typhoid fever which occurred in his city about a year ago he was able to report on 579 cases, and among that number, to his knowledge, there was only one case in which the larynx was involved. In that instance there was complete sloughing of the posterior and lateral walls of the pharynx, the tissues melting down almost like wax. Laryngeal edema developed, from which the patient subsequently died. This was one of those purpuric cases, overwhelmed with toxemia. McCaw said he fully agreed with Jackson, that these laryngeal complications might exist in typhoid fever and escape attention, from the fact that the larynx of these patients was rarely examined; therefore, only the severer complications were brought to our notice. The speaker said that of the 579 cases of typhoid fever reported on, 29 were complicated by acute purulent otitis media. Of these, 4 were of the fulminating type of the disease, as described by Day. Two of these cases died and no autopsy was obtained, death apparently being due to intracranial involvement or toxemia. In the other 2 the mastoid was operated on. In 1, where the operation was done on the third day after the first ear pain, the entire mastoid was involved in a destructive process. Day's findings in his case certainly threw some light on the rapidity of this infective process in the middle-ear. In addition to the thrombotic interference with the nutrition of the parts, the low vitality of the patients was a factor in these cases, these two factors readily accounting for the rapid destruction of tissue in the fulminating type of the disease. Chevalier Jackson, in closing, referred to the remarks of Holmes, and said that one peculiarity that had been noted in connection with various epidemics of typhoid fever was that they presented a great difference in the number and severity of complications of the nose, throat, and ear. The same was true of epidemics of influenza and the exanthems. Ear complications were common in some epidemics; rare in others. When influenza first became epidemic, ear complications were very common, while more recently they were rarely observed. The speaker said he could not explain this, but the fact had been very apparent in various epidemics they had had in Pittsburg. More recently, throat complications had been comparatively common in that city in connection with typhoid fever, where that disease, like the poor, was always with them. An unhygienic environment prior to admission increased the severity of the general toxemia, and doubtless had much influence on the occurrence of these various complications, as also had the foul oral sepsis.

Report of Seven Intracranial Operations within a Year.—George F. Cott (Buffalo, N. Y.). The first was a case of pachymeningitis, with extradural abscess; the second was one of septic thrombosis, with epidural abscess; the third case was one in which the dura was attached to the roof of the external canal by a fibrous band; in the fourth case there was a probable pachymeningitis following chronic middle-ear suppuration and the mastoid operation; the fifth case was one of sinus thrombosis in the temporal lobe following a radical operation for chronic ear discharge; the sixth case was one of brain abscess occurring seven months after the radical operation; the seventh case was one of sinus thrombosis.

The Serum Treatment of Hay-fever.—Hanau W. Loeb (St. Louis, Mo.) read this paper, which embraced a brief review of Professor Dunbar's theory of the serum treatment of hay-fever. Loeb said that in typic cases of rose fever, or German hay-fever, he derived more benefit from the serum treatment than in any other variety of cases. In every case there was relief after a few days from the symptoms of itching of the eyes, nose, and palate, the sneezing, and the nasal obstruction. Typic cases of American hay-fever, with obstruction manifested only during the paroxysms, also showed improvement, the itching and sneezing being relieved in every case where the remedy was used under Loeb's direction. In some of the cases the remedy had failed to give relief until it was properly administered. There were other cases in which the condition of the nose interfered with the action of the serum, at times a considerable deformity or ridge or spur preventing the insufflation of the powder. There were other cases in which the ordinary pollantin was of no avail, but in which the serum produced by immunization with goldenrod and ragweed toxin was effective. Loeb said his experience went to show that Dunbar's serum was effective against the distressing symptoms of hay-fever; that the serum made of the toxins of the pollen of ragweed and goldenrod would be more effective in our American hay-fever seemed likely both from analogy and from the cases reported; that there were more problems to be solved in connection with the influence of pollen in the production of hay-fever; and, finally, that an important step forward had been made by Dunbar in this work.

Discussion.—Theodore W. Corwin (Newark, N. J.) said he had analyzed about 21 cases of hay-fever, in which the serum, either in the fluid or powdered form, had been employed, and in 55% of these it seemed to have some effect. In the remaining cases it was either totally ineffective, or the patients refused to persist in the treatment. In those cases where the serum treatment had a beneficial effect, the improvement would be noticeable within two or three days; otherwise it was useless to persist in the treatment. In those cases where the remedy was efficient, it was very acceptable to the patients. This was mainly true of the cases seen during July and August, but after the first of September, several (four) patients suffered from exacerbations of their trouble, and discontinued the use of the serum. Clement F. Theisen (Albany, N. Y.) said the society was much indebted to Loeb for his interesting paper. In considering the serum treatment of hay-fever, there were some who were inclined to poke fun at it, and regard it in a spirit of levity, but the fact should not be lost sight of that Professor Dunbar was an authority, and that he had pursued his investigations in a most scientific way. Theisen said that his results with the serum treatment had not been as favorable as those reported by Loeb. Early in the summer of 1903, in response to a request, Dunbar had sent him several tubes of the serum, which at that time was made from the true grasses, not from golden-rod or rag-weed. His results with that preparation were not very good. The class of cases selected, perhaps, was not suitable for that remedy. Last summer, with the preparation that was obtainable in this country, his results were better. During the summer of 1903, he had treated seven cases, and last summer about 12 or 14 cases with pollantin, and in only a single instance was there a very marked result. That was a case where the hay-fever was accompanied by severe asthma, and a single application of the powder relieved the paroxysms of asthma and the eye symptoms, and the relief persisted for days. In one other case the relief was also quite decided. In other cases where the powder exerted a beneficial effect, it had to be given in repeated small doses, and the immunity did not last for a longer period than from 6 to 12 hours. In cases where asthma complicated the hay-fever, it was important to follow the directions laid down by Professor Dunbar, and instruct the patient not to undertake a railroad journey, and to sleep in a room with closed windows. In the interesting experiments recently made by John N. Mackenzie, of the Johns Hopkins Hospital, it was found that in predis-

posed subjects who had suffered for some time from hay-fever, indifferent substances dropped into the eyes produced the same train of symptoms as the pollen toxin, which seemed to indicate that there was an element of suggestion in it. Theisen said that while in his cases the symptoms had been distinctly lessened by the use of the serum, still he did not think the relief was very much greater than he had obtained from some other methods of treatment, excepting in a few cases. In addition to the serum, he had also used other local measures, such as had commonly been resorted to prior to the discovery of the serum. The serum seemed particularly effective in relieving the sneezing and the eye symptoms. He said he did not see how any local treatment of hay-fever could be entirely efficacious. In this disease, we were dealing with a neurotic class of subjects, and local treatment alone could not be altogether successful. Perhaps, if we could get a serum for each particular variety of hay-fever, or a combination of the different serums, the results might be better. JAMES E. LOGAN (Kansas City, Mo.) said the subject under discussion was a very interesting one, and he congratulated Loeb on the very careful investigation he had made. It was certainly very thorough, and he said he was satisfied that the subject deserved more consideration than was usually given to it. While the work done by Professor Dunbar, in connection with the serum treatment of hay-fever, had been very scientific, Logan said he feared it would not bring him very satisfactory results, and the cause of the failure would be found as much in the patient as in anything else. Hay-fever patients were the most difficult subjects on earth to treat. They were highly nervous, and very few of them really had any faith that physicians could do them much good. They were governed more or less by psychic influences, and many of them, apparently, did not care to get well. They looked forward to their little vacation in some immune locality, where they enjoyed the company of their fellow sufferers, and discussed their discomforts to their heart's content. They formed themselves into social clubs, as they had done at Marquette, Mich., and they even contemplated a national organization of hay-fever sufferers. All these factors rendered the treatment of hay-fever patients more difficult. Logan said that in the cases he had treated with Professor Dunbar's serum, the results had not been very satisfactory. Out of 10 treated in that way in 1903, he knew of only one case in which the method gave relief. The speaker said that a member of his own household had long suffered from hay-fever, so that he was in a position to speak feelingly on the subject. HERBERT E. SMYTH (Bridgeport, Conn.) thought it impossible for any one serum to suit all cases of hay-fever, because of its varied causation. He knew people who could not remain in the vicinity of a horse without getting an attack of the disease, and any benefit derived in such a case must, in his opinion, be due to suggestion. FREDERIC C. COBB (Boston) said that two years ago, while in Hamburg, he met Professor Dunbar and went over the institute with him, and saw the method of preparing the serum. At that time Cobb said, he introduced a small quantity of the toxin into his own eye as an experiment. He had never suffered from hay-fever, and the toxin produced no effect. In the case of Dunbar's assistant, however, who was subject to hay-fever, the toxin immediately caused the eye to become inflamed, but at once cleared up again upon the introduction of the antitoxin. Cobb said that his own experience with the serum had been very similar to that of the previous speakers. It occasionally proved beneficial, but often failed to have any effect; but in those cases in which it did succeed, the success was so brilliant that he could not but believe that there was a great deal in Dunbar's theory. We should not forget that hay-fever was due to a variety of causes; that some cases were due to various pollens, or to the inhalation of dust, to horses, etc., and we should not expect one kind of serum to cure them all. The theory of the serum treatment had not yet been carried as far as it eventually would be. The goldenrod and ragweed from which Dunbar's more recent serum was made was collected for him in this country by commercial firms, and the plants probably became more or less stale before they reached the laboratory. In cases where the serum was effective, it certainly appeared to have a marvelous influence. Before concluding, Cobb asked Loeb what he meant by an excessive dose of the serum, whether he simply meant more than Dunbar had advised, also, what were the evidences of an excessive dose, and whether the directions given by Dunbar in regard to the treatment in foreign countries also applied to this country? H. W. LOEB, in closing, said the reports of the serum treatment made by the various speakers were very similar to those obtained by the majority of men who had been working along this line. They had obtained no result in perhaps the larger number of cases, and startlingly good results in comparatively few instances. Loeb said that, personally, he had become very enthusiastic in regard to this method of treating hay-fever. Last summer he spent about three weeks with Dunbar, and had become imbued with his earnestness and serious study of the subject. He did not hesitate to tell his patients that the serum would help their hay-fever, and he believed that the very psychic elements of which Logan had spoken had to be combated. There was something else beside the paroxysm; namely, the psychic condition of the patient. This enthusiasm was a necessary part of the treatment, and any man who was opposed to the remedy, or regarded it doubtfully, could not be expected to make very satisfactory clinical observations regarding it. Some of the speakers had referred to horse hay-fever. Dunbar had pointed out that these horses carried the pollen with them all the time, and in driving it was freely blown back and inhaled by the susceptible individual. Pollen was also found in the dust of the streets, and was continually kept stirred by the horses' feet. Dunbar had also proved absolutely that in experimental hay-fever the roughness of the pollen grains had nothing to do with the production of the paroxysms. They were not due to irritation, but to a toxalbumin, which was found in connection with the starch bodies. In a certain individual, one particular antitoxin might be of no value, because the disease was produced by the toxin of another albumin. So far as dosage was concerned, Loeb said he could not specify it. He began with a very minute dose, and did not increase it if he could get along without doing so. Large doses apparently aggravated the symptoms. It was necessary to determine the dose in each individual case. Loeb said he did not observe the directions given by Dunbar regarding the patient's sleeping apartments. He simply let the patient understand that if he exposed himself to a large amount of pollen toxin, the antitoxin would proportionately fail to relieve the symptoms. The patient was made to understand that he should not expose himself unnecessarily.

Symposium—Syphilitic Manifestations in the Upper Air Passages.

Syphilis of the Nose and Accessory Sinuses.—JAMES E. LOGAN (Kansas City, Mo.) read this paper. He stated that primary nasal syphilis was of rare occurrence. Bulkley, from an analysis of 9,058 cases of extragenital syphilis, found 95 primary lesions in the nose. The favorite site of the nasal chancre was upon the cartilaginous septum; some had been found on the under surface of the alas, and a few higher up in the vestibule. The finger-nail seems to have been the most frequent means of conveying the infection, while infected instruments had been regarded as the offending agents in some instances. The secondary stage of nasal syphilis was hard to recognize, owing to the fact that the symptoms were few and indefinite during that period of the disease. The tertiary period was the particularly interesting stage of nasal syphilis. The lesions of that stage were extensive and ofttimes very destructive. The submucosa, which served as the periosteum of the bone, was primarily affected, followed by diffuse inflammatory processes developing in the bony framework. Logan believed that the bony structures were affected before changes in the mucous membrane were noticeable. Any part of the bony framework might be attacked by this disease, but the vomer and perpendicular plate of the ethmoid were especially predisposed to incipient necrosis. The next in point of frequency were the turbinates, usually first the inferior. Primary syphilitic infection of the sinuses adjacent to the nose was scarcely likely to occur. Secondary manifestations in those regions were also rare, but tertiary bone necrosis was very common.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

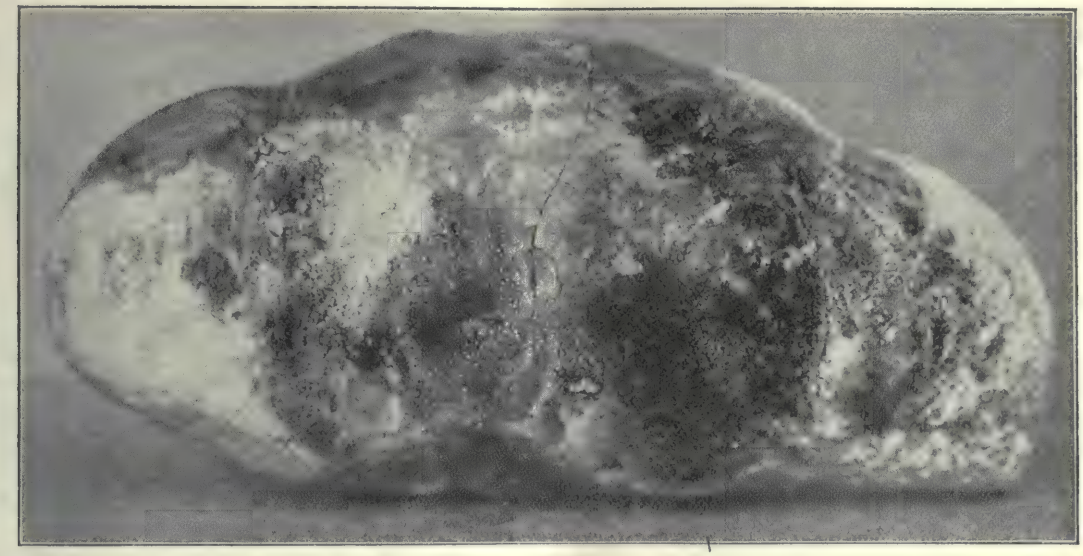
URETHRAL CALCULUS OF UNUSUAL SIZE.

BY

C. D. FISHER, M.D.,
of Grand Junction, Colo.

To the Editor of American Medicine:—You will doubtless be interested in the accompanying illustration of a urethral calculus (actual size), which is deserving of a place in Gould and Pyle's "Anomalies and Curiosities of Medicine," as a supplement to Ashburn's specimen, then considered the largest calculus ever removed.

The patient in this case was a cattleman, of 49, who all his life had ridden the range. At the age of 10 his urethra was obstructed by a "growth," and several physicians made ineffectual efforts to pass a metal sound. A urinary fistula formed behind the growth, practically the only way the patient has had in all these years of emptying his bladder. It is needless to state that the pain of riding constantly in the saddle has been almost unbearable.



At the Denver Homeopathic Hospital, Dr. J. W. Harris made a longitudinal incision, and this stone was found in the greatly distended urethra, completely obstructing it from the glans to the bulbous portion in the perineum. After the removal of the stone the urethra was dissected out and cut down to its normal size. A catheter was passed into the bladder, perineal drainage was established, the wound was closed, and a moist dressing was applied. After a week the perineal drain was removed and a catheter was passed the full length of the urethra. The patient has since been discharged, completely cured.

The diameters of the calculus were 2⅝ in. and 5¼ in. The circumferences were 7¾ in. and 13 in. The weight was 19½ oz.

THE INGRATITUDE OF MR. DUNN.

BY

EDMUND JENNER,
of Digby, N. S.

Dr. Priapus O'Regan.

Dear Sir:—I have read your book "Perfected Manhood," and I wish to state my case to you. I am 18, single, and weigh 137 pounds. I am 5 ft. 7 in. tall, my chest measurement is 32 in. When I was a boy I practised the bad habits your book describes, for two years I have broken them off. I dream a great deal at night, and it weakens me. I cough some in the mornings, and have no appetite. I see you advertise a free cure, and I am sending you a bottle of urine, by mail. Also, 50 cents to pay postage. Please let me hear from you as soon as you can.

Yours truly,
John Dunn,
Care of Mendax & White,
100 Bean street, Boston.

9 Rahab Avenue, Chicago.

Dear Mr. Dunn:—I beg to acknowledge the receipt of your letter, and the sample. I am expressing you today a course of treatment, free of charge, which will last you for a week. I regret to say that I consider your case a most serious one. Your urine is full of spermatozoa, and contains a large amount of uric, picric, and tannic acids. In addition to this, it is full of leukocytes, and thyrocytes, which should never exist in the urine of a man of your age. I feel convinced that my treatment will benefit you eventually, but your case demands more than seven days' treatment. You are a young man, just starting in life. I feel an interest in you, and I wish to cure you. Send me $5, and I will send you a three weeks' treatment, expressage paid. (My usual charge for which is $10.) I would advise you to lose no time. You have the world before you. Next to your reason, your health is the most precious thing you possess. Speaking to you as a friend, I assure you that I can cure you, and I also assure you that unless you take my treatment you will soon be worse than you are now.

Yours very sincerely,
Priapus O'Regan, M.D.

Priapus O'Regan, M.D.

Dear Sir:—Enclosed pelase find $5 for your course of treatment. I am only getting six dollars a week, and I hope it will cure me. I feel some better, but I still cough in the mornings, and the specks still float before my eyes. I eat very little, and what I eat seems to bloat me.

Yours truly,
John Dunn.

9 Rahab Avenue, Chicago.

My Dear Mr. Dunn:—You have indeed done wisely in following my advice. I am sending you the medicine by express. For the bloating you complain of, you should take half a teaspoonful of fluid extract of formix tormidiosa every night.

Your druggist may not have it in stock, if this is the case, I will send you a bottle, expressage paid, for $1. Please send me another sample of urine, voided in the morning, after you have been taking the medicine I am now sending you for a week. Avoid highly seasoned food. If you use any wine at all, let it be claret or marsala, and smoke as little as possible.

Yours very sincerely.
Priapus O'Regan, M.D.

9 Rahab Avenue, Chicago.

Dear Mr. Dunn:—I have examined the sample of urine you sent in answer to my last letter, and I find that it shows con-

siderable improvement. The number of spermatozoa is much diminished, and the other impurities I mentioned in my first letter, are also far fewer in number. It will require at least five more bottles of my specific to effect a cure, also one of my electric suspensories. I am sending these articles to you by express, C. O. D. Please send me another sample of urine in four weeks' time. By that time I hope you will be completely recovered. Yours very truly,

PRIAPUS O'REGAN, M.D.

9 Rahab Avenue, Chicago.

Dear Mr. Dunn:—The express agent notifies me that you decline to receive the parcel of medicine and the electric suspensory I sent you by express. I am also in receipt of your letter, stating that you have not got thirty-five dollars to pay me with. As I take a great interest in your case, I will make a special reduction of five dollars if you take the parcel from the express office at once. I have written the agent to that effect. This offer is without prejudice, and is a *special favor* to you. I am actually losing money on the transaction, but the prospect of curing an interesting case (such as yours is) is inducement enough to me to make a small loss.

Yours very truly,

PRIAPUS O'REGAN, M.D.

9 Rahab Avenue, Chicago.

Dear Sir:—I am in receipt of your letter, notifying me that the parcel sent to Mr. John Dunn, 100 Bean street, has been left on your hands. You can let him have it for $30.00 if he calls within five days. Yours truly,

PRIAPUS O'REGAN, M.D.

9 Rahab Avenue, Chicago.

Sir:—The express agent informs me that you have not yet called for the medicine I sent you three weeks ago. Unless you do so within three days from receipt of this, I shall proceed to collect the bill. Yours, etc.,

PRIAPUS O'REGAN, M.D.

9 Rahab Avenue, Chicago.

Dear Sir:—In reference to the parcel of medicine, addressed to Mr. John Dunn, I have written him today. You, or one of your clerks might call on him personally, and "throw a scare" into him. If you can, collect the whole thirty-five dollars, if not, take thirty. In remitting to me you can deduct a special commission of ten percent for your trouble. A threat to take the parcel and its contents to his employers might be of some assistance to you in collecting this bill. If the threat does not work, do not go to them; write me, and I will see what I can do. Yours truly,

PRIAPUS O'REGAN, M.D.

9 Rahab Avenue, Chicago.

Sir:—I am informed that you have refused to pay for the medicine I sent you. I am glad to say that such cases of ingratitude are very rare. Among my many thousand patients you are the third one who has treated me badly. Unless I receive word within a week from today, that you have paid the express agent the full amount of $35 due me, I shall furnish your employers with a copy of the correspondence which has passed between us. A man of your disposition should be exposed, before he can injure others by his meanness, and dishonesty. Trusting that you will see fit to pay your bill, Yours, etc.,

PRIAPUS O'REGAN, M.D.

From MESSRS. MENDAX & WHITE,
100 Bean St., Boston, Mass.
Thersites Mendax, M.D., Ph.G., Etc.
J. E. WHITE,
Barrister, Counsellor-at-Law and Notary Public.
Legitimate medical and pharmaceutical work is our specialty.

BOSTON, March 31, 1905.

PRIAPUS O'REGAN, M.D.,

Dear Sir:—Mr. John Dunn, who is in our employ has handed us your letter of ——, in which you threaten to submit his correspondence to us unless he pays you the sum of $35. We would respectfully request you not to do so, as we have a copy of every letter written by, and received by him in this case on file already. We deeply regret that we have such a depraved young man in our employ. His ingratitude is simply beyond words. In addition to the above-mentioned correspondence, Mr. Dunn has donated us a $5 bottle of your "specific," and a $1 bottle of fluid extract of "Formix Tormidiosa." We have placed these two products of your laboratory in the "F & F"—Fake and Fraud—department of our museum, we should have liked to add one of your electric suspensories to our collection, but Mr. Dunn's finances were not equal to the task.

Your urinalysis is quite a revelation to us. Mr. Dunn is somewhat of a practical humorist, and he informs us that the urine you discovered spermatozoa in, was voided by a yearling heifer in a biologic laboratory to which he has access. The superintendent of the laboratory corroborates Mr. Dunn's statement that the urine was obtained from that source. Perhaps the "heifer" is a hermaphrodite, with external female genitals, and internal testicles in place of ovaries. Your high reputation as a physician and specialist precludes any error on your part, so we have to choose between two alternatives—either the "heifer" is a hermaphrodite, or else she possesses the unusual function of voiding spermatozoa.

Mr. Dunn is still in our employ, and should you think of taking legal steps to recover the debt he has incurred, you are likely to find him with

Your obedient servants,

MENDAX & WHITE,
(Per Thersites Mendax.)

Sanitary Necessities at Culebra, Porto Rico.—Naval surgeons are discussing the sanitary necessities at Culebra, where the United States proposes to have a naval base. The *Army and Navy Register* says: There is general agreement upon the proposition that the contract should be turned over in its entirety to the Navy, and its whole government to be directed by the commandant on carefully drawn regulations established by the Navy Department. This is with the idea that there should be no chance of outside or civilian interference. Such authorities as Medical Inspector Howard E. Ames, United States Navy, believe that so long as Culebra remains under the law of Porto Rico its future helpfulness will be a matter of grave doubt. It is urged that before definite steps are taken involving the expenditure of money at Culebra, this question of control of the situation there should be settled, and that there should be no risk left for divided authority likely to lead to difficulties regarding the care which a military base demands. The medical officers who have visited Culebra have a plan of improvement which could be adopted, and which would meet all the requirements in the direction of the preservation of the health of officers and men who are likely to be assigned to the station. As might be expected, the greatest condition to combat is that produced by the climate upon the physical and vital functions of men from a temperate zone.

Duration of Vitality of the Colon Bacillus in Various Waters and in Sewage.—J. G. McNaught found that duration of life in unsterilized water varied greatly in waters from different sources. The purer the water the longer *B. coli* survived. In sterilized water, *B. coli* survived in every case for months, and there was no striking difference in the duration of its existence in the various samples. The addition of urine appeared to favor duration of life. In unsterilized sewage it survived only three weeks, while in the same, sterilized, it lived eight months. The addition of potassium nitrate to unsterilized water had an adverse effect, while added to sterilized water it did not favor the growth, but had not the marked inhibiting effect shown in unsterilized water. After six months' growth in sterilized water and eight months' growth in sterilized sewage, *B. coli* retained all its original characters, except that possibly its power of indol production was weakened. The results obtained in making plate cultures from some samples after *B. coli* had ceased to be yielded by them, indicated that by the time *B. coli* had died out most of the water bacteria present originally had also died out.—*Journal of the Royal Army Medical Corps.*

ORIGINAL ARTICLES

SOME GENERAL CONSIDERATIONS ON THE PATHOLOGY OF SMALLPOX.

BY

W. T. COUNCILMAN, M.D.,

of Boston, Mass.

I shall endeavor to give in this paper the results of an investigation of smallpox, which was undertaken by members of the Pathological Department of the Harvard Medical School. The work on the disease in man was carried out in this city during the epidemic of 1901 and 1902. The experimental work was carried out in the Philippine Islands. Funds for this purpose were provided by the liberality of three gentlemen in Boston and by the Rockefeller Institute in New York. The results of the investigation are incomplete. There are many questions still to be solved and the solution can only come from further clinical and experimental study of the disease. There are great difficulties in the way of the investigation of smallpox The disease only comes at intervals. The patients are not treated in well-organized hospitals, where there are facilities for and the habit of the study of disease. The hospitals in which the disease is treated are, as a rule, used only at intervals and are unprovided with laboratories. The great stimulus to research, clinical teaching, has no place in them. The energies of the physicians in charge are entirely taken up in controlling the exigencies of an unusual situation. The very atmosphere of a smallpox hospital is unfavorable for the careful determination of the questions to be solved and for quiet investigation. The isolation of the disease is unfavorable, in that the valuable aid given by constant comparison with other diseases is lost. There is frequently an attempt to keep the presence of the disease below the surface and to have nothing done which may in any way call attention to it. In the epidemic of 1901 and 1902 the health authorities of the city gave us every facility for investigation which was possible. Autopsies were held in 52 cases, embracing all forms of the disease, and provision was made that members of the department could live in the hospital.

Difficulties also attend the experimental study of the disease. Such study cannot be carried out in a laboratory, where there would be the possibility of the infection extending from the laboratory. The laboratory animals, as the rabbits and guineapigs, are immune to the disease. The only animal, so far as known at present, which is susceptible to smallpox, is the monkey. These are expensive, difficult to acquire, and in this climate very susceptible to disease. The majority of monkeys obtained from animal dealers are infected with tuberculosis. It was on this account that the expedition was sent to the Philippine Islands, where animals for experimentation could be easily obtained, and where smallpox virus was available from the occasional cases of the disease among the natives. The study of the disease in Boston was carried out mainly by Drs. Magrath, Brinckerhoff, and Tyzzer, assistants in the Department of Pathology; by Professor G. N. Calkins, of Columbia University, and myself. The study of the disease in the Philippines was carried out by Drs. Brinckerhoff and Tyzzer. A number of articles on the disease have already appeared in the *Journal of Medical Research*, in 1903 and 1904, and articles embracing the work of the Philippine expedition will shortly appear.

From the middle of the last century up to the present there have been three periods in which the disease has been studied, and in which important contributions to knowledge have been made. In 1873, by the work of Weigert and other German observers; in 1902, by the work of Guanieri and other Italian observers; and in 1903, in this country, by the work of Howard, in Cleveland, of Ewing and Park, in New York, and by the work in Boston.

If material taken from a smallpox lesion on man be inoculated on an epithelial surface of a calf, after a definite period of incubation, a lesion which anatomically closely resembles the parent lesion, the pock, is produced, and marked constitutional disturbances, the most prominent of which is fever, take place. The material from the place of inoculation transferred to an epithelial surface on another calf develops in the same way, and after a series of transfers from calf to calf may be returned to man, and it develops not the original disease, smallpox, but the incomparably milder disease, vaccinia. This is no longer in doubt. Many of the strains of vaccine virus now used have been originally derived from smallpox. Just how many transfers from smallpox are necessary before the original virus loses its power of producing the parent disease is not known. One of our experiments in this regard is interesting. The contents of a smallpox vesicle from a monkey was used to inoculate the cornea of a rabbit. After five successful transfers from animal to animal, a monkey was inoculated and not vaccinia, but smallpox was produced. This disease, vaccinia, confers immunity not only against vaccinia, but against smallpox. The immunity, though not absolute, is stronger than is developed in the course of most of infectious disease. It persists a variable time, the variability being due to the individual. All the evidence which we have regarding the immunity shows that it is due to a germicidal power which the blood-serum has acquired by the disease enabling the serum to destroy the virus of both vaccinia and smallpox when brought in contact with it. The disease, vaccinia, differs from smallpox in three striking ways: 1. The period of incubation is shorter, being in man five days and in the calf three days. The incubation period of variola is 12 days. It is possible to give a partial explanation of this difference by the fact that a very much greater amount of virus is introduced in vaccinia and the means for absorption of the virus or its products are facilitated by the trauma of vaccination. We have no means of knowing the amount of smallpox virus necessary to produce the disease nor the facilities which the primary focus affords for systemic infection. 2. In vaccinia the general exanthem is absent. There may be a few vesicles around the point of inoculation, which may be explained by the supposition that at the time of inoculation a small amount of the virus entered the superficial lymphatics and was distributed around a

[1] Read before the American Public Health Association, September 25, 1905.

small area. Such satellite vesicles are exceptional. They are not due to the distribution of virus after its development at the point of vaccination, for they develop simultaneously. 3. For the development of vaccinia it is necessary that the virus be placed in contact with a susceptible epithelial surface. Vaccinia may be transferred from individual to individual by accidental contact or by means of intermediate objects, but I know of no cases in which the infection has been carried by the air.

If material from a smallpox lesion be placed in contact with a susceptible epithelium of man, not previously immunized, or of the monkey there develops at the site of inoculation a lesion larger but having the general characteristics of the pock, with constitutional disturbances, and an exanthem less abundant but having all the other characteristics of the exanthem of variola vera. All that we know of variola inoculata in man has come down to us from the old literature. Inoculation of smallpox to confer immunity from the disease is now obsolete in civilized lands. Plehn mentions that it is still carried out among the natives in Central Africa. All that we know from the old literature is to the effect that the disease was incomparably milder than smallpox and was attended by a remarkably low mortality when skilfully carried out. One of the general rules for successful inoculation was that the virus should be introduced superficially never directly into the skin or subcutaneous tissue. Among the Chinese it was the habit to inoculate by placing smallpox crusts in the nostrils. So far as can be ascertained the period of incubation is eight days. There is no doubt that the practice of inoculating smallpox to confer immunity would have been extensively used and probably still used were it not for the fact that the individual with the mild disease, variola inoculata, is capable of transmitting to others the true disease. There is not the fundamental difference which is found in vaccinia. There is not a qualitative difference in the virus of variola inoculata as compared with variola. It is capable of air transmission, and in this way produces variola. It was formerly the custom for the individval before inoculation to undergo a certain regime of food and medicine which was supposed to have an influence in resisting the virus enabling the milder disease to be produced. There is no reason to believe that this was the case. With our present vastly increased knowledge of disease and nutrition, it can hardly be held that any regime would make an individual more resistant to a particular disease. Smallpox epidemics have not shown that the robustness of an individual diminishes the chance of infection or the virulence of the disease. Variola inoculata only differs from variola vera in its milder course and shorter period of incubation. A disease in all respects comparable to variola inoculata in man save that the period of incubation is shorter, is produced in monkeys by inoculating them with smallpox virus.

When smallpox prevails epidemically, individuals not immune acquire the disease. The susceptibility of man to the disease is almost absolute. Before vaccination, when smallpox prevailed endemically, with occasional epidemic extensions every 12 or 15 years, it had become almost a disease of childhood. Adults had acquired immunity, by having passed through the disease in childhood. There is great difference in the severity of the disease in different cases and in different epidemics. The virulence of the disease bears a definite relation to the intensity of the exanthem, which has made possible the classification into variola without exanthem, discrete variola and confluent variola. A tendency to hemorrhage in the lesions is indicative of severity, the acme of virulence being seen in the type purpura variolosa, which differs so much from ordinary forms that its nature has been in dispute. To what these different degrees of severity are due, we do not know. In an epidemic, the most severe cases can apparently take their origin from the mildest cases. In the recent epidemic of the disease in this country, the general type was mild, and in certain parts of the country the mildness of the type was phenomenal. I have had the opportunity of studying the eruption in certain of these very mild cases, and have found the same histologic changes with the same types of organisms as in the severe cases, but the organisms were much less numerous. The period of incubation in smallpox is 12 days, this being the main point of separation between variola vera and variola inoculata. Vaccinia, variola inoculata, and variola vera have three points in common: The production of a local lesion, which in all three has the same general type, swelling of the lymph-nodes adjacent to the lesion, and the production of immunity. Variola vera and variola inoculata differ from vaccinia, in that a virus capable of air transmission is produced in the two latter, and the local lesion is followed by an exanthem. Variola inoculata differs from variola vera in the milder course of the disease and in the shorter period of incubation.

The study of smallpox in the last epidemic has thrown some light on these various conditions. The histology of the vaccine process is best studied by inoculations made on the cornea, a method which was introduced by the Italian investigator, Guanieri. The tissue of the cornea is extremely simple; there are no bloodvessels to complicate the picture, the epithelial cells are large, few in number, and all changes taking place in them are readily studied. The lesion differs from vaccination of the skin in the absence of vesicle formation, easily explained by the anatomic structure of the cornea which does not permit of it. Owing to the absence of vessels, the vascular reaction takes place around the cornea only, and fluid exudation passes through the thin conjunctiva and through the periphery of the cornea before reaching the lesion. The vaccination is made by passing a lancet-shaped needle obliquely into the tissue, making a slight trauma, of which there is no macroscopic evidence in the absence of the specific infection. In a successful vaccination, a small elevated, slightly opaque spot appears in 24 hours. Microscopic study of the cornea after 16 hours, shows the presence of small bodies, round or irregular in shape, within the epithelial cells. They are extremely small and of fairly constant size, the round ones varying about one micron in diameter.

By the examination of numerous corneas at varying intervals of time, it has been made out that these bodies

increase in size, and with this growth a differentiation of structure takes place in the previously homogeneous body. Small points staining differently appear, they become more numerous, and finally the body breaks up in a number of small forms which are similar to the smallest bodies first observed. The small forms again enter the adjacent cells, and the development is repeated. After 50 hours the small, the developing, and the segmenting forms are found in the same section. Similar bodies having the same course of development have been found in the vaccine lesion of the skin, cornea, and mucous membrane of the calf, in the skin and mucous membrane of the monkey, and in the skin of man. Their appearance constitutes the sole anatomic criterion for determining the specific nature of the process. They are found in no other condition. They can be differentiated from other accidental inclusions in cells. They have a definite relation to the nucleus lying in a space in the cell adjacent to this. They grow, showing differentiation of structure with growth, and finally segment, this resulting in the production of bodies similar to the small forms first found. Similar bodies having the same development are found when variola virus instead of vaccine is used for inoculating the rabbit's cornea. We have elsewhere given the reasons which have led us to regard these bodies as living organisms, and as forming the specific contagium of vaccine. It has not been possible to find, or at least to recognize such bodies in the vaccine lymph, but this is probably due to technical difficulties in the examination.

We have seen that the virus of smallpox differs from the virus of vaccinia, (1) in producing in man and in monkey, not vaccinia, but smallpox; (2) in being capable of air transmission; that when smallpox virus is used for inoculating the calf or rabbit, a process in all respects resembling vaccinia is produced. When used for inoculating a monkey, a process identical with the pock is produced. We are concerned not with the anatomic structure of the pock, but with the specific bodies which are found there. With the development of the pock there first appear, included within the cells adjacent to the nucleus, bodies of the same size, structure, and undergoing the same course of development as in vaccinia.

Their study is attended with more difficulty in the skin than in the cornea, owing to the greater complexity of the tissue. In addition to the bodies already described in vaccinia and following them, other bodies begin to appear, which undergo their development not in the protoplasm, but in the nuclei of the epithelial cells. The development of the nuclear body finally results in the formation of a structure comparable to a sporoblast, in which spore-like bodies from $\frac{1}{3}$ micron to 1 micron in size are formed. These differ in size and structure from the products of segmentation of the vaccine organism. In the earliest lesions in smallpox only the bodies in the cytoplasm of the cells are found. In the later lesions both are present, the intranuclear forms then occupying the center and oldest part of the pock. We believe as the result of our studies that the organism which constitutes the virus of vaccinia and smallpox is the same; that in vaccinia it undergoes a definite cycle of development, resulting in a structure, the gemmule, arising from simple growth and segmentation; that in smallpox a further and more complicated cycle of development, in which probably sexual forms occur, is added to the vaccine cycle. It is only in man and in the monkey that the conditions are favorable to the development of the cycle which constitutes smallpox. The intranuclear parasites are just as characteristic for smallpox as are the cytoplasmic forms for vaccinia. They are found in both variola inoculata and in variola vera. They are not found in any other process. There is no doubt that in various pathologic conditions certain changes may take place, both in the nucleus and cytoplasm of a cell, which may have a certain resemblance to some forms of the parasites. Every one who has had any experience in the study of unicellular organisms in tissues knows that it is often impossible to say whether a single object belongs to the host cells or is a parasite. Not only must form and size and structure of the single individuals be studied, but their relation to their surroundings and their stages of development must be borne in mind. We believe that the spores which arise from the multiplication of the intranuclear bodies constitute the contagion of smallpox, which is capable of air transmission. This introduced into a susceptible animal, develops the typic disease, smallpox, both cycles of the organism taking place in the lesions. In the nonsusceptible animal, such as the calf or rabbit, only the single, and probably asexual cycle is developed, constituting vaccine. Even though the organism only undergoes this simple development, the potentiality for a complete development may be retained for a time, as is shown by the experiment of Dr. Tyzzer, in which a smallpox virus from a case of variola inoculata of the monkey, after passing through five generations in the cornea of rabbits, was still capable of producing variola inoculata with an exanthem in the monkey.

The experimental study of smallpox in the monkey was undertaken with the view of the investigation of the relationship between vaccinia, variola inoculata, and variola, the ascertaining of the mode of infection in man, the mode of production of the exanthem and the possible relationship between the exanthem and immunity.

Monkeys are susceptible to variola inoculata. It has not been found possible to give them the human disease, the true variola. This, so far as we know, only appears in man and is produced by a mode of infection which we do not know, but there are strong grounds for the hypothesis that the place of primary infection is in the respiratory mucous membrane. Attempts were made to give monkeys variola by means which would have certainly proved successful in man. They were exposed to smallpox patients in the wards of the hospital, material which had been in contact with the patients was placed in their cages and noninfected monkeys kept in the same cages with infected, but no effect was produced. The common monkey of the Philippines is the Macacus cynomologus which had been proved to be susceptible to both vaccinia and variola inoculata. Thinking that the higher anthropoid apes would be more susceptible to the disease and might develop variola vera, the same experiments were car-

ried out with orang-utans procured from Java, and these proved no more susceptible than the common monkeys. There is some evidence from the literature that monkeys can acquire variola. Andrew Anderson, in his book on "Fevers," gives an excerpt from a letter which he received from a friend who was traveling in Central America. He says:

In the year 1841 I was in the Province of Veragua in New Grenada to the north of the Isthmus of Panama and left the town St. Jago on the western coast for David in Chiriqui a town in the interior about 60 or 70 miles to the northeast and leeward of St. Jago. The smallpox was raging with great violence in St. Jago, but there was no appearance of it in David. A few days after my arrival there, taking my accustomed morning ride in the forest which teems with animal life I was struck by observing one or two sick and apparently dying monkeys on the ground under the trees. The next morning I was struck by the same singular appearance and by thinking that I perceived several on the trees moping and moving about in a sickly manner. I consequently dismounted and carefully examined two which were on the ground—one dead and the other apparently dying; and after careful examination no doubt remained in my mind that they were suffering and had died from smallpox. They presented every evidence of the disease, the pustules were perfectly formed, and in one instance, that of the dying one, the animal was quite blind from the effects. A few days afterward (I think about four or five days) the first case of smallpox appeared among the inhabitants of David and in the course of a fortnight half the population was stricken.

In 1858 Dr. Furlong, taking part in a discussion upon diseases in animals, stated that he had received a letter from the wife of a prominent physician of the Island of Trinidad who mentioned that during epidemics of smallpox in that island the wild monkeys suffered from the disease. Both of the statements, it will be observed, concern the monkeys of America, and it is not impossible that they may be more susceptible to the disease, but at the same time it must be acknowledged that the evidence is very imperfect. In explanation of the nonsusceptibility of the monkey to variola, we would have to assume either that there is a qualitative difference between the virus of variola inoculata and smallpox, or that the monkey has a relatively greater immunity which prevents an infection from the very small amount of virus which the air may convey to a susceptible surface or that there are anatomic or physiologic differences which may prevent the virus reaching such a surface. The only evidence for a qualitative difference in the virus is that the monkey is susceptible to one only, and that the disease produced differs in the monkey and in man from variola vera in its milder type and shorter period of incubation. Variola inoculata is the same in the monkey as in man, save that period of incubation is shorter. The constitutional reaction takes place in man on the eighth day, and in the monkey on the sixth or eighth. In the monkey a wellmarked pock develops at the site of inoculation and reaches its acme on the eight day. The exanthem begins on the eighth or ninth day. The extent of the exanthem varied greatly. In some animals only one typic lesion was present, while in others over a hundred were found. In the monkey, as in man, the distribution of the exanthem showed a partiality for certain regions. The face was most often the site of an eruption. Elsewhere in the order of frequency it was present upon the wrists, the scrotum of the male, the region about the anus and base of the tail, on the palms of the hands and the soles of the feet, on the inner aspect of the arms and thighs. The eruption seemed to avoid the trunk and the outer hairy surface of the limbs.

It seems possible that the shorter period of incubation of variola inoculata may be explained by the greater amount of virus which is used for inoculation, compared with the probably small amount in ordinary infection, the greater primary amount enabling the increase which is necessary to produce the constitutional disturbance and the exanthem to take place more quickly. But it must also be evident that if the period of incubation depended on the amount of virus primarily used, it would vary in duration with the amount of virus used. It is also possible, as Brinckerhoff and Tyzzer suggest, that the period of incubation may be short in variola inoculata in consequence of the virus being introduced into the circulation at the time of infection.

Attempts were also made to produce variola vera in the monkey by varying the place of inoculation. It is generally believed that in man a primary infection takes place on some mucous surface from which systemic infection follows. There is no anatomic evidence for this assumption. No one has ever found such a protopustule. In our 52 autopsies, careful search was made for such a lesion, but in vain. In variola vera there are no symptoms of such a lesion, but it is possible that a simple pock situated in the lungs, for instance, could pass through its development without giving rise to symptoms. We all know how extensive a tuberculous process can exist in the lungs without the production of symptoms. This set of experiments yielded interesting results and which are capable of explanation. Variola inoculata with exanthem and immunity follows primary inoculation of the skin. Immunity is not produced, or very rarely produced, by inoculation of the cornea, the mucous membrane of the nose, mouth, or palate. It is produced by inoculation of the trachea or by blowing the virus into the lungs without the production of a lesion. The study of the character of the primary lesion in these places gives the explanation. The exanthem and the immunity are due to the absorption of products from the primary focus. In the case of the skin such products are retained by the impermeable horny layer, and absorption is facilitated. In the mucous membrane and in the cornea the absence of the horny layer causes an ulcer and not a vesicle or pustule to be produced, and the products escape on the surface. In the trachea and in the lungs, the thin layer of epithelium renders the absorption of the products easy, both from the lesion and from the mucous surface. But by none of these experiments was variola vera produced. It seems also probable that if a protopustule be developed in variola vera it must be in the lungs or in the larynx or trachea, because only in these places can the necessary absorption take place. The absence of symptoms would probably exclude the larynx and trachea.

Comparative study of the vaccine and variola virus was undertaken in the course of the Manila work. While the series of experiments was not sufficiently extensive to permit final conclusions as to the comparative resistance of the two viruses, they have shown that there

is a difference, the vaccine virus being more resistant than the variola.

Variola virus dried on glass rods at room temperature was found inactive after two weeks, while the vaccine virus under such conditions was unchanged. The variola virus seemed to undergo an attenuation both after prolonged exposure to glycerin and after passing through a series of monkeys. The attenuated virus finally lost the power of producing an exanthem, though a typic local lesion was produced. It was not ascertained whether by the attenuated virus only, the vaccine cycle of the parasite was produced. Only one filtration experiment was made, and this showed that the virus of variola did not pass through the Berkefeld filter.

The study of immunity which was produced by the two viruses also gave interesting though at present inexplicable results. From the experiments it has been shown that the immunity produced by vaccine virus against both vaccinia and variola inoculata is stronger than the immunity produced by variola inoculata. Locus of the primary lesion had influence on the subsequent immunity. The most effective immunity was produced by variolations, or vaccination of the skin where the conditions best favor absorption. Vaccinia was also shown to have greater power for infection than variola. It was found possible to produce immunity for variola inoculata and not for vaccinia. There was a certain interesting local immunity produced. Even vaccination of the skin did not always produce perfect immunity toward the corneal infection. This tends to show that the immunity is due to the action of the serum on the parasites, and that when the conditions are unfavorable for the serum to exert its action on the virus there may be infection in an animal otherwise immune.

The study of the histology of variola inoculata in the monkey, has also given interesting differences as regards variola. In variola in man, one of the most striking anatomic facts is the small part which leukocytes play in the lesions. In the early process in the skin, and before the lesions become infected, there may be no leukocytes present. The blood count shows a marked diminution in the neutrophile leukocytes. Examination of the blood-forming organs shows the same diminution in these leukocytes and an increase in the cells belonging to the lymphoid series. In our earlier work, it seemed probable that the diminution in the neutrophile leukocytes was due to the imperfect differentiation of young forms. In variola inoculata, this striking leukocyte reaction was absent. Numbers of leukocytes were present in the local lesions and an active leukocyte formation in the blood-forming organs.

We feel that in our work on smallpox, which is nearing its temporary conclusion, the fundamental questions relating to the disease have not been answered. These questions are: 1. The parasite and its complete life cycle. We feel confident of the hypothesis of the vaccinia and variola cycle which we have brought forward, but it remains for the present a hypothesis. 2. The relationship between vaccinia, variola inoculata and variola vera. Our work has served to accentuate the differences between these conditions. We cannot advance even a tenable hypothesis with regard to the internal relationship of variola inoculata and variola vera. The difference in the period of incubation in the two diseases, the nonsusceptibility of the monkey to variola vera and the absence of the leukocyte reaction in variola inoculata, is striking. 3. The mode of infection in variola vera. Our work suggests a primary infection by air-borne virus and in the lungs. The only evidence is that the lungs are susceptible to a primary infection by means of insufflated virus. But this in the monkeys produced variola inoculata and not variola vera. 4. The mode of production of the exanthem. The specific lesions of smallpox are only developed on epithelial surfaces. The Manila work has shown that the specific lesions in the testicle are associated with the presence of the organism. It is assumed, and there is good ground for believing, that after an increase of contagium at a primary focus the organisms enter the blood and are carried as emboli to the skin, where they produce the eruption. But this is again a hypothesis. We have found that the organisms in variola inoculata pass from the primary lesion into the endothelial cells of the bloodvessels and enter the blood. We have not proved at what stage of the disease the blood is infectious nor how long. 5. The immunity, its mode of production, and the relationship between the natural and acquired immunity.

The answers to these questions involve long and arduous work by skilled investigators on both the human and the experimental diseases in monkeys. For the work a constant supply of variola virus and experimental animals is necessary. We believe that the work can only be carried out in places where both these conditions can be fulfilled. It is probably true that we shall always have smallpox with us. Notwithstanding the fact that we have in vaccination a mode of defense which leaves little to be desired, there will always be opposition, more or less effective, from people who are utterly incapable of appreciating the value of evidence. These people furnish the material for small epidemics which give opportunities for investigation. Investigation in smallpox is costly. It demands the entire time of well-trained investigators, who are to be found associated with universities, and the compensation for such men should equal that of a competent clerk. The investigations carried out by the Harvard Medical School have been brought to a temporary close by the lack of further funds and by the necessity of rounding up present work. Smallpox is a disease which has been of the most influence on the human race, it is the only one of the exanthems which is open to animal experimentation, and with the full solution of the questions which it brings up, it is not too much to hope that light may be shed on the allied diseases.

Opposes Mailing Drugs.—The National Wholesale Druggists' Association chose Washington, D. C. for the next annual convention, and elected Lucian B. Hall, of Cleveland, president. The statement that the health of thousands of young women in rural districts is annually impaired for life by drugs which they receive by mail, was made to the convention by John C. Gallagher, of Jersey City. He appealed to the wholesalers to refuse to sell their drugs to those firms in the mail order business who sold vicious and dangerous drugs through the medium of attractive advertising.

AMPUTATION AT THE HIP-JOINT, WITH REPORT OF FOUR CASES BY WYETH'S METHOD.[1]

BY

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Amputation at the hip-joint has always been considered an operation of the first magnitude, and, in fact, it was not until comparatively recent times that it met the general approval of surgeons. Ashhurst's International Encyclopedia of Surgery called it "the most formidable of justifiable surgical procedures." In spite of this, the first successful amputation of the hip-joint was done more than 100 years ago, when Perault, in 1772, amputated a leg in which gangrene had set in. The injury had almost separated the leg from the body, so he merely severed the few remaining tissues and the patient recovered in 18 months. Mr. Henry Thompson, surgeon to the London Hospital, was the first to do a deliberately planned amputation at the hip-joint through living tissue. Four years later, Mr. Kerr also did this operation. Both of these operations were for hip-joint disease and both patients died. In 1793 Baron Larrey did the first amputation of the hip-joint in military practice. Of seven such operations by this surgeon, one patient is supposed to have recovered. Dr. Brashear, in 1806, was the first American surgeon to do an amputation at the hip-joint, which was performed successfully at Bardstown, Ky., on a negro of 17.

The three dangers from this operation are, in the order of their importance, hemorrhage, shock, and sepsis. Poppert said that 70% of all deaths from hip-joint amputation were from hemorrhage. The shock is also great and is accountable for the majority of deaths in the remaining 30%. This being the case, methods of controlling hemorrhage necessarily occupy the most important position in the technic of this operation, and may be divided into five classes, as follows:

1. The femoral artery may be ligated or secured before division. This is done by a separate incision or while making the flaps. There are many objections to this method, although it has the stamp of antiquity, having been used by Larrey, Brashear and Sir Astley Cooper. The main objection to this procedure is that only a portion of the hemorrhage is controlled after securing the femoral artery, as bleeding from the branches of the internal iliac, which is always profuse, is not affected.

2. Aortic and abdominal tourniquets, variously shaped. These are uncertain and inaccurate.

3. Compression of the common iliac artery through the rectum by means of a lever. This procedure is uncertain and very likely to injure the rectum; beside, the apparatus is in the operator's way.

4. The elastic tourniquet is probably the best method in use. The chief objection to it in amputation at the hip-joint, has been the difficulty of keeping it in place.

5. The common iliac may be compressed digitally through an abdominal incision.

[1] Read by invitation at the meeting of the S. A. L. R. R. Surgical Association, July 12, 1905.

There have been a number of suggestions made by prominent surgeons, such as Trendelenburg, of skewers with movable points, by which a portion of the hip can be transfixed and rendered bloodless, but none proved practicable until Dr. John A. Wyeth, of New York City, gave to the profession his simple and effective technic for absolutely controlling hemorrhage at the hip-joint. His method is as follows:

"While the member is elevated, or before the Esmarch bandage is removed, the rubber tubing construction is applied. The object of this construction, and it is the chief point in the method, is the absolute occlusion of every vessel at the level of the hip-joint safely above the field of operation." He uses two large skewers or mattress needles about $\frac{3}{16}$ in. in diameter and 10 in. long. One is introduced an inch below and slightly to the inner side of the anterior superior spine of the ilium, "and emerges on a level with and about three inches from the point of entrance" on the outer side of the hip. The second needle is inserted an inch below the level of the crotch, internal to the saphenous opening, and emerges an inch below the tuber ischii. The points of the needles are then shielded with bits of cork to avoid injuring the operator, which Trendelenburg accomplished by a complicated arrangement of a movable point.

As a result of this technic and the consequent diminution in the loss of blood, the mortality in hip-joint amputations has been reduced from 64% to less than 20% in a large series of cases.

The second most dangerous feature of hip-joint amputation is shock. To go into the treatment of shock both as to the prevention and cure would not be within the province of this paper, but I will say that after any amputation of the hip-joint for injury, shock is always great. In fact, under this condition, it is probably equal in danger to hemorrhage. In operations for neoplasm or for hip-joint disease, while the shock is not so great, it is always a cause for anxiety. There has probably not been a more valuable contribution to the treatment of shock than that by Dr. G. W. Crile, of Cleveland. By a long series of exact experiments and observations he has demonstrated that shock is due to exhaustion of the vasoconstrictor center, and that the common treatment by ordinary stimulants, and particularly by strychnin, is wrong. In two series of dogs he has produced the identical conditions in one series by using successive traumas until blood-pressure would refuse to rise to any material extent, as he has in the other series in which he used large doses of strychnin.

The proper treatment of shock, then, is not to stimulate the already exhausted center, but to attempt to relieve it by substituting other influences that will carry on the work originally intended for this center until the exhaustion has been recovered from. Adrenalin seems to have the power of producing contraction of the blood-vessels by its local action, and a small quantity of this animal extract placed in salt solution and given by intravenous infusion is the most efficient and most reliable method of treatment. This produces a contraction of the vessels from the local influence of the drug circulating in the blood, and so causes the same conditions as if the

vasconstrictor center were acting normally, until such a time as this center has recovered and is able to take up its work.

In performing amputation at the hip-joint it is frequently necessary to use adrenalin infusion before beginning the operation, if the operation is undertaken on account of injury. When the amputation is done for neoplasm or hip-joint disease, the prevention of shock by the ordinary measures of reducing the body heat and the period of anesthetization to the minimum should always be borne in mind. In addition to this, cutting down on the sciatic and anterior crural nerves and injecting them with a 2% solution of cocain, is a most valuable procedure. We know that shock impulses go through the sensory nerves and that these nerves can be completely blocked by an injection of cocain into their substance. This is a most important measure in the prevention of shock and its efficacy is borne out by two of the cases following.

As for the third cause of death, sepsis, I will not discuss it, for its prevention consists in carrying out the antiseptic and aseptic details that are the common knowledge of every surgeon. It is sufficient to say that all ordinary measures to prevent inflammation should be gone into vigorously.

Of the following four cases, the first two have already been reported, but the last two have not:

Case I.—B. F., aged 36, a negro, had suffered for some months from sarcoma of the lower part of the thigh, which originated in the fascia. On October 17, 1894, I did an amputation at the hip-joint by the Wyeth method. After elevating the leg, the mattress needles were applied and the tourniquet placed according to the foregoing directions. A circular incision of the skin and fascia was made and this crossed by a vertical incision externally. After dissecting up this flap, a second circular incision in the muscles was made to the bone about opposite the trochanter minor. The attachments of the muscles and the capsular ligament were then divided and the bone disarticulated. The vessels were secured and the tourniquet loosened. No more blood was lost than in an amputation at the thigh. Oozing was very extensive for 24 hours, but the patient recovered satisfactorily, the wound healing by first intention, except at the outer angle, where the drainage-tube was inserted. About a year later the patient died from recurrence of the sarcoma in his lungs.[1]

Case II.—J. C., colored, aged 14; referred by Dr. J. Wood Jordan, of Ashland, Va. Family history is somewhat vague, but the patient gave an indefinite family history of tuberculosis. He has always been well, except for the trouble with his right leg. When he was 10 he fell and hurt his hip. Soon afterward the hip began to suppurate, an abscess having formed; and the patient was operated upon about three years ago by another surgeon, who performed resection of the hip-joint. The wound never healed and had been suppurating ever since. The right leg was very small and the thigh was slightly flexed, the leg being also flexed on the thigh. There was complete ankylosis of the hip-joint and there were three sinuses discharging pus, one opening anteriorly, another internally near the perineum, and the third posteriorly just below the buttocks. The patient was poorly nourished and his chest was long and thin, though no organic disease of his lung could be made out. Urine was normal. Temperature was running from 99° to 101°, and pulse from 94 to 135. Amputation at the hip-joint was performed on March 7, 1904. The operation was done according to Wyeth's method. Before applying the needles or the tourniquet, the great sciatic nerve was exposed and injected with several minims of a 4% solution of cocain. A similar procedure was attempted with the anterior crural nerve, but owing to the distorted anatomic relations from the sinus in this region it was somewhat difficult to find this nerve, so its vicinity was infiltrated with a 2% solution of cocain, which must have included part of the nerve at least. Wyeth's pins were then applied and the operation was proceeded with as recommended by Dr. Wyeth. The blood-pressure, taken at intervals during the operation, did not fall more than 12 mm. at any time and was 120 when the operation was completed; this pressure was about normal for the patient. The blood-pressure was taken by means of Cooke's sphygmomanometer. The patient recovered uneventfully, showing very slight signs of shock.[1]

Case III.—L. H., white, aged 14, was referred to me in November, 1904, by Dr. E. W. Gee, of Richmond, Va. The patient had suffered for some years with hip-joint disease. His condition was desperate, as emaciation had proceeded to such an extent as to leave him almost literally skin and bones. The outlines of the femur in both legs could be easily followed out. Hoping that a resection might be possible, this operation was undertaken on November 8, at a clinic in the Memorial Hospital. After making an incision, however, I found that the femur and pelvic bones had been so extensively involved by the long period of tuberculous and suppurative infection that this operation was out of the question, so as much of the diseased bone as could be readily reached was curetted away, and drainage instituted by tubes and packing of iodoform gauze. The patient was taken from the table with a very weak and rapid pulse, but gradually recovered to such an extent as to render amputation at the hip-joint advisable. This was done at my clinic on December 6. The great sciatic nerve was dissected out and injected with a 2% solution of cocain. The region of the anterior crural being involved by a sinus, was infiltrated with a weak cocain solution. The operation was carried out as mentioned in Case II. Unfortunately the sphygmomanometer was out of order, and its record during this operation was not reliable, though judging from pulse-rate and tension, no marked lowering of blood-pressure occurred. The patient made an uneventful recovery from the operation, but on account of the extensive disease of the pelvic bones, and the perforation of the acetabulum by the tuberculous process, a sinus formed and still persists, though the discharge has very greatly decreased. The patient has improved a great deal, and has gained considerably in flesh.

Case IV.—Mrs. F. S., aged 25, of Louisa county, Va., was referred to me by Dr. W. K. McCoy. Her previous health had been good, except that for some months before I saw her she had complained of an indefinite soreness in the left thigh, and limped sometimes in walking. This condition had gradually grown worse, and when her physician was called in he discovered a small lump, connected with the bone, a short distance below the great trochanter. He had written to me about the case, intending to have the patient submit to an operation, although the mass was not larger than an egg. A few days after writing to me, Dr. McCoy was hastily sent for and found the femur had fractured while the patient was turning in bed. She lived some distance from the railroad, but was brought to the Memorial Hospital as rapidly as possible. I saw her on April 24, 1905, about 36 hours after the fracture occurred. She was suffering intense pain and had marked evidences of shock. An attempt was made to put the fragments of the femur in apposition, but this was impossible on account of the softened condition of the bone in the neighborhood of the fracture. The next day, finding her condition not improved, and knowing the great danger of metastasis, where freshly injured tissue is exposed to sarcomatous cells, I decided to operate. After injecting the nerves, as in the two preceding cases, the operation was carried out by the usual technic and the patient was taken from the operating-room as speedily as possible. The only difficulty experienced was in disarticulating the femur, as the short fragment did not permit of the leverage power that the intact femur would have permitted. The patient's pulse at the beginning of the operation was 135; when she was taken to the ward it was 170. This condition continued with but slight variation and death occurred 12 hours after the operation. This

[1] Medical Record, June 8, 1895.

[1] New York Medical Journal, December 24, 1904.

death can be attributed to the fact that the intense shock produced by the fracture and the accompanying pain had so exhausted the patient that recovery from the operation was impossible, though every precaution was taken to prevent the amputation from adding to the shock from which she was already suffering.

SCHEME FOR THE SANITARY CONTROL OF THE MUNICIPAL MILK SUPPLY.[1]

BY

GEORGE W. GOLER, M.D.,
of Rochester, N. Y.

Health Officer of Rochester, N. Y.

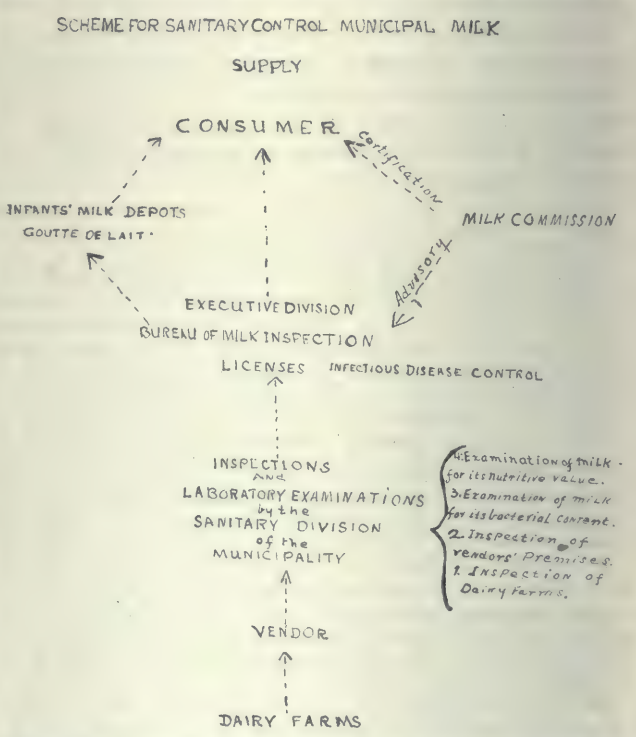
The city of Rochester, N. Y., sends greeting to the First International Congress of Gouttes de Lait, and to all those in many lands who have helped to demonstrate that thousands of infants may be saved from suffering, disease and death, raised to a higher standard of welfare, and preserved to become citizens of the State through the work of the Gouttes de Lait.[2]

For the demonstration of the principle that clean milk and hygienic treatment are together necessary to the health and life of the infant, we are mainly indebted to two men of France, and it is therefore eminently fitting that this First International Congress should be held in Paris, under the presidency of Doctors Dufour and Variot, in whose work men and women first found inspiration for this labor in behalf of the infant.

It is now little more than 15 years since the establishment of the first Gouttes de Lait in France. These years of work have shown marvelous results. From France similar institutions have spread throughout the world, until now nearly all civilized countries have either established institutions along similar lines or have felt the influence of what has been accomplished by their neighbors.

The results of the work of the Gouttes de Lait for the infant have been shown through the reduction of infant mortality. This is both desirable and praiseworthy. But really this is only a public way of estimating its benefits. The great value of this work lies in its teaching. From its teachers, mothers have learned how to care for their infants; how best to realize the benefits of air, water, food, and the other necessities of civilized life. Further they have learned that the greatest of all lessons in maternity is the duty of the mother to suckle her child, and when from absolute physical necessity she fails in this, the Gouttes de Lait will furnish her with cows' milk, so prepared that it may nourish and not poison her infant. This appears to be the great work of the Gouttes de Lait. If this work is to be estimated through the saving of infant life, well and good; for the number of infants saved since the establishment of these beneficent institutions has amounted to thousands upon thousands. Had a similar result come through the use of a nostrum, the discovery of a new element, or even had it been accomplished through a discovery in physiology, what honor would have been showered upon him fortunate enough first to have shown it to the world! But the work of the Gouttes de Lait has been done along more simple, though no less important lines. Its founders, those who have assisted in its development, and those who have swelled the ranks of its organizers and workers, have learned through all the 15 years of striving, that it is only necessary to develop better ways for bringing knowledge to the mother, and good milk to the infant, that infant suffering may be relieved, the physical welfare of the child improved and thousands of lives saved that would otherwise be lost.

In the work, up to this date, the aid of private philanthropy has been sought, for the State at first does not always see the necessity for doing its whole duty to the citizen. The beginnings of philanthropic work have ever been through private effort; when successful, the State has rendered assistance. So in the work of the



Gouttes de Lait, private philanthropy having begun the work, it now remains for the State to aid those institutions now started and to establish other similar institutions, and in this work the State must be neither backward nor niggardly.

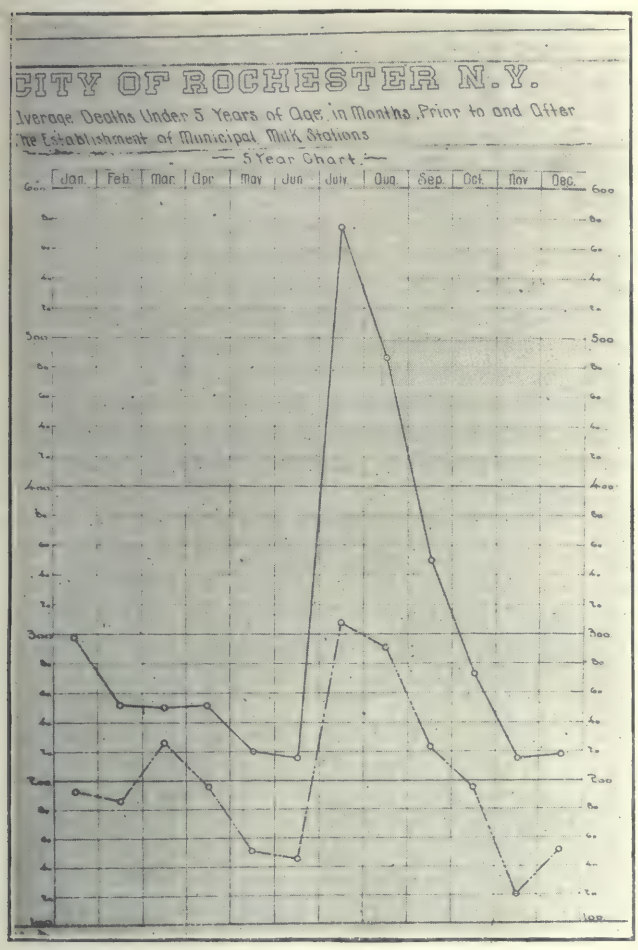
If this work is to be carried forward by the State—and it can find no better work than that of insuring the health and life of its children—it must have a plan, and it is an honor and a privilege to present for your consideration a scheme for the municipal control, not only of the Gouttes de Lait, but of the milk supply of the whole municipality, so that the infant and the invalid, as well as the strong and robust, may secure good, clean milk at moderate cost.

In most countries the Gouttes de Lait have thus far been organized as separate establishments, or in connection with hospitals or dispensaries, and no doubt in the beginning it was eminently proper that they should

[1] Read at the Congrès International des Gouttes de Lait, Paris, October 20 and 21, 1905.

[2] Gouttes de Lait, the term by which infants' milk depots are known on the Continent of Europe.

have been so organized. But has not the time arrived when an attempt may be made to bring the supervision of the whole milk supply under one head, of which the Gouttes de Lait are important parts, and in which they may be united with the milk work of the municipality,



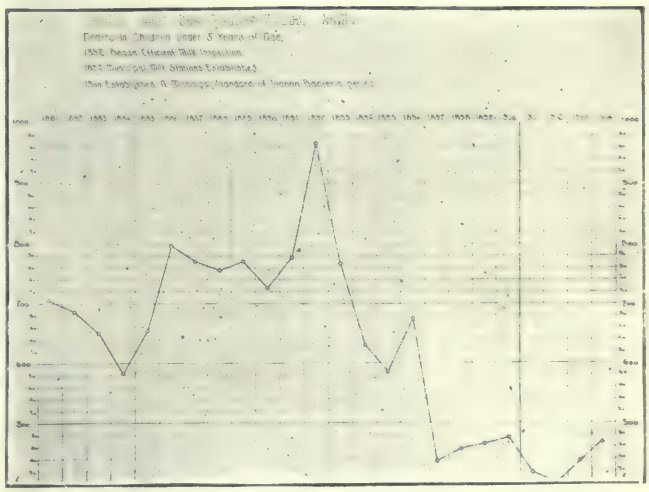
while still retaining an independence which would leave them free to develop, if they desire, along more independent lines? As at present organized, their work can but insure the character of a small part of the milk coming into a municipality; with the scheme here presented, or some modification of it to suit the different laws in various countries, the parts of the organized milk work of the municipality, if administered under one head, could be made mutually helpful instead of pursuing independent courses. In the plan which I have the honor to present, private philanthropy must, to some extent, yield to public responsibility, and therefore the head of the organization must be a public officer, for the State must assume a greater measure of responsibility for the welfare of its citizens, now that the philanthropist has pointed out the way. But, while in this plan a public officer assumes the head of the organization (because in his office lies the authority to license), his relation to the work of the Gouttes de Lait becomes really subservient to the institution which he in one sense controls, for the organization of the Gouttes de Lait under this plan contemplates a corps of advisers for the chief sanitary officer, while at the same time the laboratory of the sanitary bureau, with its veterinary officer, if such an officer is attached, will render efficient service through sanitary inspection and laboratory examination for the work of the Gouttes de Lait.

The plan of organization may be represented under the following head, and in the appended diagram:

a. In the sanitary division of the city a bureau of milk inspection, of which the chief sanitary officer is the head, and through whom licenses are issued for the vending of milk in the city.

b. Gouttes de Lait.—A board of physicians, scientists and philanthropists, of which the chief sanitary officer is a member ex-officio, who organize and control the Gouttes de Lait, and who are, as a whole, or whose executive body becomes advisers to the sanitary division of the city.

c. Milk Commission.—A board of physicians and scientists appointed by a medical society or societies, of which the chief sanitary officer is a member ex-officio, who shall compile rules for the production and distribution of milk of higher nutritive value and lower bacterial content than ordinarily good city milk, and who directly or through the inspectors of the bureau of milk inspection, or through inspectors appointed by the commission itself shall insure[1]: 1. Character of stable and feed of cattle, health of milkers and care of utensils. 2. A negative tuberculin test. 3. A bacterial standard, not greater than 10,000 bacteria per cubic centimeter. 4.



A nutritive value of 12½% solids, of which 4% must be fats.

To those producers only who agree to comply with the rules of the Commission, permitting frequent inspection of the stables and examinations of milk, the Commission shall issue a certificate which shall be continued only so long as the premises and milk are up to the standard required by the Commission. If the condition either of the premises or of the milk falls below the required standard, the milk certificate shall be revoked. Under this certification, dealers have the right to label their product, "certified milk by the Milk Commission of the Medical Society of ————." Such labels are

[1] *b* and *c*. The Milk Commission and the Gouttes de Lait might be organized under one head, as has been done by us through the valuable work of my associate, Dr. Joseph Roby.

usually sold by the Commission at about cost, not more than a week's supply being sold at one time to one dealer. The Milk Commission also acts as an advisory board to the Bureau of Milk Inspection.

d. Bureau of Milk Inspection and Municipal Laboratory.—A municipal bureau of inspection and laboratory examination in the division of sanitation, under which all dairy farms and vendors' premises are inspected and where milk is examined for its bacterial content and nutritive value.

In connection with this bureau is a corps of inspectors who make inspections and collect samples of milk for the determination both of its nutritive value and of its bacterial content.

In this general scheme for the control of the municipal milk supply, all of the milk is examined. No milk can reach the consumer until the vendor has had his premises inspected, and the producer his premises and cattle inspected, nor until these provisions have been complied with, can the vendor receive a license to vend milk.

Milk going to the consumer through the Gouttes de Lait or through the Milk Commission would be subjected to a more rigid inspection than that going directly to the ordinary consumer from the vendor. Through the operation of such a scheme, adaptable alike to small and large cities, advantages would accrue to the infant, the adolescent, the adult, to the sick, and to the well.

This plan has, in part, with slight modifications, been in operation in Rochester, N. Y. It was begun nine years ago. Of slow development, it did not mature until the last year. Of the beginning and later work resulting from a combination of these plans and this method of procedure, permit me to present the results attained through the milk work we have been enabled to do in our city.

The inspections of dairy farms and vendors' premises are undertaken at least twice yearly, and more often if required. To our city of 170,000 population, 60,000 quarts of milk come daily from within a radius of 60 miles. To insure the inspection of the premises of the producer and of the vendor, there is a chief inspector at $1,050 per year, and an assistant at $840 per year. These inspectors collect 5,000 samples yearly for the determination of nutritive value, 500 samples for the determination of bacterial content. If upon the inspection of a producer's premises the conditions are found insanitary, the producer receives a letter warning him that unless the premises are made sanitary, his milk will be denied sale in the city. Samples for the determination of nutritive value are taken daily, except Sundays. If any one of these samples falls below the standard required by law, of 12% solids, of which 3% must be fats, the matter is immediately referred to the city's legal adviser, suit is begun, and in almost every instance a penalty is recovered. The samples collected for the determination of the number of bacteria are taken in sterile tubes through sterile pipets.

For several years we have endeavored to insist upon a municipal standard of 100,000 bacteria per cubic centimeter.[1] No ordinance provides for this standard, nor do we attempt, save through notifications, to punish the vendor who submits a sample containing a greater number of bacteria per cubic centimeter. If a sample contains over 500,000 bacteria, we send the man a notice, warning him that his license will be revoked if he again has such a large count. If such a number is found on a subsequent examination, the license is revoked as a still further warning, though he is permitted to renew it if he promises to pursue more cleanly methods. The examinations of the samples of milk collected are undertaken by a chemist and bacteriologist, at $1,200 per year, in the laboratory of the bureau of milk inspection. The reports sent out to the milkmen are based upon the examinations made by the chemist and bacteriologist.

Every vendor of milk must have a license and a sign upon his wagon. The vendor, not the producer, is held responsible for the quality of the milk he vends. When a vendor applies for a license to sell milk, the clerk of the bureau refers his application to the chief milk inspector, who inspects the condition of the cattle, utensils, and stables, and returns a written report thereon. If the report is favorable, a license is issued for a fee of one dollar, an additional fee of one dollar being charged for a license sign for each vehicle used in the business. If the report is not favorable, the license is withheld until the condition of the premises is such as to warrant the return of a favorable report.

AVERAGE NUMBER OF BACTERIA PER CC. FOUND IN MILK AT ROCHESTER, N. Y.

Month.	1900.				1901.				1902.				1903.				1904.			
	Average per cc.	Tot'l No. cultures.	Over 5,000,000.	Under 100,000.	Average per cc.	Tot'l No. cultures.	Over 5,000,000.	Under 100,000	Average per cc.	Tot'l No. cultures.	Over 5 000,000.	Under 100,000.	Average per cc.	Tot'l No. cultures.	Over 5,000,000.	Under 100,000.	Average per cc.	Tot'l No. cultures.	Over 5,000,000.	Under 100,000.
January	755,971	25	5		296,100	24		9	191,989	48	1	17	190,272	46		26	164.081	44		21
February	137,361	29			293,889	25	2	3	155,948	44	2	24	96.105	40	1	26	106,462	48		32
March	189,424		12		176,200	24		10	41,975	47	3	27	220,812	42	2	10	256,363	46	1	21
April	No examination.				402,735	24	7	4	345,609	45	2	7	163,166	45	2	23	226,958	43	1	21
May	820,281	35	2	12	415,504	24	8	2	409,651	48	3	14	189.825	47		8	303.186	45	2	13
June	666,628	33	2	9	468,066	23	4	3	258 136	47	5	18	280,628	43	3	2	3 5,827	44	3	18
July	426,209	33	5	8	326,285	24	4	5	232,614	46	2	5	174,151	29	3	9	328,231	45	3	13
August	1,571,481	33	4		325,325	24		3	243,558	47	4	9	362 357	28	2	5	577,204	45	1	9
September	950,213	22	5	2	161,029	24		11	298 996	23	2	1	209,655	29		4	259,845	31		15
October	891,431	34	6	6	139,461	23		13	147.955	46	2	21	359.372	47	1	10	213,287	48		33
November	548,961	24	4	1	104,959	24	2	10	100.814	42	2	24	116.223	47	1	23	181,397	47		30
December	1,403,191	24			195,422	24	1	9	163,789	48		18	95,047	49		41	111,888	48		27
			10%	15%			9%	28%			6%	34%			3%	38%			2%	47%
Average	796.468	319	33	55	2 5,327	287	28	82	215,917	531	26	185	204 801	492	15	187	253,727	534	11	253

[1] For a description of our technic, see proceedings American Public Health Association, Vol. xxix, p. 388.

The Rochester Milk Commission consists of three members of the Rochester Academy of Medicine, and the chief sanitary officer, member ex-officio. Up to the present time it has certified one vendor-producer, who sells milk at nine cents per quart, with one other applicant likely to pass for its certification. The condition of the premises may best be told in brief by the record of 105 consecutive bacterial counts of this certified milk, which yielded an average of less than 4,000 bacteria per cubic centimeter.

The Gouttes de Lait, or milk depots, as they are conducted in Rochester, I have dealt with elsewhere.[1] [2]

We have just closed our ninth year, during five of which we distributed clean milk, unchanged by heat, through the operation of a central portable laboratory on a farm in charge of a trained nurse. To a certain extent, the results of this work must be shown in the deaths of children in the appended tables and charts. But as a worker in this field, I believe that the educative force that provides instruction for mothers in the care of children is the greatest work of the Gouttes de Lait. If with this work of the Gouttes de Lait the organization of all of the milk work of the municipality can be unified, we then may be able to extend the field of usefulness of milk education, and thus make of our infants more robust and better citizens.

The results obtained for a period of years are shown in the charts—Deaths in Children under Five Years of Age, for Twenty Years; and the Deaths under Five Years of Age, by Months for Ten Years.

All of the deaths from any cause whatsoever are shown in these charts.

Through the plan here recommended, municipal laboratory supervision begins at the most important point, at the farm. There, in his contact with the farmer, the milk inspector should become the demonstrator of a few simple rules; of cleanliness, such as may be made by any sanitary authority, for the control of the premises, the cows, the milkers and their utensils. The rules should be "briefed," printed on muslin and hung in every dairy farm where cows provide milk to the people of the municipality. After each visit of the sanitary inspector the farmer should receive a letter from the sanitary bureau either commending his efforts, or he should be directed to institute such reforms in the conduct of his dairy farm as would enable him to maintain the standard of cleanly methods set by it. During the intervals between the routine inspection of the premises, the bacteriologic count of samples of milk should be made the subject of reports to both the farmer and vendor, and upon these reports should the inspector determine the necessity for more frequent visits to the premises of both vendor and producer.

Supplementary to the printed rules every milk producer and every milk vendor should be given notice that failure to report a case of infectious disease in his family or in the family of one of his employes, particularly diphtheria, scarlet fever, typhoid fever, or pulmonary tuberculosis, would result in revocation of license without leave to renew it. The producers, the vendors and the public should know that in the sanitary bureau in connection with its infectious disease register, the name of the vendor who vends milk to any family wherein a case of contagious disease occurs is entered opposite the name and other data relating to the patient. If by examination of the register a vendor is found to have more than three cases of any one of the diseases named, occur on his route in rapid succession, the milk inspector must immediately inspect the suspicious milk, following it from the dairy farm through the vendor to the consumer.

Our city established such a scheme of inspection more than 12 years ago. Up to the present time, it has discovered and thus cut short no less than eight outbreaks of scarlet fever, typhoid fever and diphtheria, limiting the cases to from 4 to 18 in each outbreak. In each one of the outbreaks, one or more cases of the infectious diseases responsible for the outbreak was found upon the farm of the milk producer.

The necessity for the organization of the milk work for a municipality under one executive head having the license power ought to be evident, for by this means only may the producer and the vendor be under sanitary control. When such laws are enacted for any municipality as will make it an offense punishable by fine or imprisonment to bring milk into the city that has not had the seal of sanitary approval set upon it, and everything with which it comes in contact, our children and ourselves will not be exposed to the dangers that arise from dirty, disease-bearing milk. And when all milk is closely followed through its various steps from producer to consumer by the inspectors and laboratory investigations of the sanitary bureau, and only enters the city through the gate of sanitary authority and the license power, and when the sanitary authority, the physician and the milk commission join with the Gouttes de Lait for the betterment of the milk of the cities, then may we realize our fondest hopes for the safety of our infants and ourselves.

[1] The Influence of the Municipal Milk Supply on the Deaths of Young Children, *American Medicine*, Vol. vi, No. 25, p. 989, 1904.

[2] But a Thousand a Year; The Cost and the Results of Feeding Clean Milk to the Hand Fed Baby; Charities, August 8, 1905.

A REVIEW OF A YEAR'S WORK IN APPENDICITIS.

BY

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There are times when it is to one's advantage to stop and look back over his work and study his successes and his failures. This is especially true of the surgeon. By studying the successful cases and noting the treatment carried out, it will aid him in making similar cases terminate successfully. By studying the failures, he may observe some mistake in diagnosis or treatment, and in the future can guard against similar mistakes. With this object in view, it may be to our mutual advantage to review the cases of appendicitis in which I operated during the year 1904.

As I study the subject of appendicitis, I become more

and more aware of the varied conditions encountered. It hardly seems possible that such a small organ as the appendix could give so many different problems to solve. How to solve these problems is a question that has not yet been decided to the satisfaction of all surgeons. Perhaps the best way to arrive at definite conclusions is to classify the cases, study the groups, and observe the treatment that has been most successful in these various groups.

There are many classifications into which appendicitis cases might be divided. But to make it as simple as possible I have divided them into four groups: (1) Chronic cases, or those operated on between attacks; (2) acute cases; (3) perforated or gangrenous cases; (4) cases complicated with general peritonitis.

Chronic Cases, or those Operated on Between Attacks.—In chronic cases the operation is generally easy and free from danger, if it can be performed between attacks. The cases which may give us trouble are those that are complicated by adhesions or pelvic disease. The inflammation can readily extend from appendix to ovary, or vice versa. In some cases, it is difficult or impossible to determine, even at operation, which was the primary seat of the trouble. This class of cases demands operation because an appendix that has undergone an attack of inflammation can never again return to its normal condition, and it is not safe to leave it in the abdominal cavity. Operation is also especially recommended as it has an exceedingly low mortality.

Acute Cases.—In this class there is a difference of opinion as to the best treatment to be carried out. Many practitioners give a small amount of liquid diet, and mild physic, as calomel, apply an icebag and watch the patient carefully. If he gets well, the patient's friends congratulate the family doctor and use the case as an example of the way a patient can get well without an operation. Should the patient suddenly grow worse after the foregoing treatment is carried out, then the surgeon is called, as it is evident to all that the patient is surely going to die unless something else is done.

Now the golden time for an operation is passed, but still the chances of the patient's living if an operation is performed, are fairly good, especially if the physician has watched his patient carefully, and noticed the change for the worse as soon as it occurred. This change generally means a perforated or gangrenous appendix. Now if the patient stands the operation the surgeon is congratulated, but if the patient dies the surgeon is blamed for operating, as the people say it would have been just as well to let him die without hastening his death by an operation.

There is also another side to this question. There are a few cases that seem very mild and the physician is not sure that the patient really has appendicitis, yet suddenly there is a change for the worse and at operation he finds a gangrenous appendix with beginning peritonitis. In this class the surgeon should be very careful to give the friends to understand that the family physician is not in the least to blame for not calling the surgeon earlier, for had he done so the surgeon probably would not have advised an operation. Fortunately these deceptive cases are rare.

If an operation is performed early enough, the mortality of acute cases is very low. It may be said that a great many of these patients recover without operation, but the mortality is greater, and if the patient recovers the appendix is left in a diseased condition to give trouble in the future. It seems to me that the question of operation in acute appendicitis is about the same as that of antitoxin in diphtheria. Many patients with diphtheria get well without antitoxin but a greater proportion get well if it is used. A large proportion of patients with acute appendicitis get well without an operation but a greater proportion get well if an operation is performed early. It is better to say that the patient might have recovered without an operation than to say that the patient might have recovered had an operation been performed.

Perforated or Gangrenous Cases.—In my opinion these cases demand operation as soon as the surgeon can perform it. For several hours after perforation the inflammation remains localized to the right side, in most cases due to the position of the appendix and the way in which the omentum wraps itself about the inflamed area. The more quiet the patient's bowels are kept by the withholding of physic and foods of all kinds by the stomach, the better is nature able to keep the inflammation localized. If an abscess has formed, the greatest care should be taken not to break up the adhesions and thus start a general peritonitis. If much trouble is encountered in the form of firm adhesions, I think it better simply to drain the abscess and remove the appendix later, when there is no danger of infection. It is not a bright prospect for the patient to have to undergo a second operation, but it is much better than to remove the appendix at the first operation with fatal result. In this class of cases we should never use general peritoneal irrigation, but should be sure to introduce sufficiently free drainage.

Cases Complicated by General Peritonitis.—Surgeons are at variance as to the best kind of treatment to be carried out in these cases. Ochsner advises washing out the stomach, giving small nutrient enemas but absolutely nothing by stomach, and watching the patient till the inflammation becomes localized; then the operation is to be performed. His statistics surely give a very low mortality, but unfortunately other surgeons do not seem to achieve as good success in this manner of treatment.

Many surgeons advise immediate operation, even in cases in which there is apparently a general peritonitis present. We all, fortunately, encounter many cases in which, at operation, we find there is really no general peritonitis present, although the symptoms indicated that the peritonitis was general. These cases in which a mistaken diagnosis has been made nearly always terminate in recovery. Were we always absolutely correct in making a diagnosis of general peritonitis, I think we should try the Ochsner treatment, for the mortality following operation is very large in cases of appendicitis complicated with true general peritonitis. But until we are able to arrive at more positive diagnosis, I believe most surgeons will have a lower rate of mortality by operating, even in cases in which apparently general peritonitis is present, than they will have if

they wait and watch their cases till at autopsy a general peritonitis is found present.

By looking over the accompanying table of cases in which operation was done by me during the past year,

Condition of Appendix.

Name.	Sex.	Age.	No. attacks.	Day of disease.	Chronic or interval.	Acute non-perforated.	Acute perforated.	Abscess.	Complications.	Deaths.
M. P.	M	11	1	4	.....	1	.....	...	.....	.....
J. W.	M.	46	1	2	.....	.....	1	...	Hernia, femoral.	.....
P. M.	M.	10	1	2	.....	.....	1	...	.....	.....
C. F.	M.	35	1	3	.....	.....	1	...	.....	.....
E. W.	M	29	2	3	.....	.....	1	...	.....	.....
H. F.	M.	13	4	.....	1	.....	.....	...	.....	.....
J. S.	M	25	2	.....	1	...	.....	...	.....	.....
C. K.	F.	25	2	5	.....	1	.....	...	.....	.....
T. E	M.	24	2	.....	1	.....	.....	...	.....	.....
H. S.	M.	23	2	2	.....	1	.....	...	.....	.....
J. S.	M.	14	1	3	.....	.....	1	...	General peritonitis.	.....
M. P.	F.	22	4	.....	1	.....	.....	...	Pulmonary tuberculosis.	.....
M. T.	F.	26	1	5	.....	.....	1	...	Pyosalpinx.	.....
J. C.	F.	20	1	.....	1	.....	.....	...	Pott's disease.	.....
W. M.	M	12	1	4	.....	.....	1	...	.....	1
R. C.	M.	24	1	2	.....	.....	1	...	.....	.....
C. H.	F.	25	4	.....	1	.....	.....	...	.....	.....
E. H.	M.	28	3	.....	1	.....	.....	...	.....	.....
J. M.	F.	19	1	2	.....	1	.....	...	.....	.....
C. O	M.	32	1	3	.....	1	.....	...	.....	.....
A. E.	F.	19	1	2	.....	1	.....	...	.....	.....
A. W.	M.	8	2	3	.....	1	.....	...	.....	.....
E. S.	M.	11	1	4	.....	.....	1	...	.....	.....

it will be observed that the only case that terminated fatally was Case 15, the history of which is as follows:

W. M., aged 12, gave a history of pain in the right iliac region for three days, but it was so slight that a physician was not called till the third day. He found the patient complaining of pain in the right iliac region and slight rigidity was present. Temperature 101°, pulse 90. The boy's general appearance was good and he had no vomiting. Operation was advised, but as the patient lived some distance from Albany, I could not get a train till the next morning. When we arrived to operate, we found the temperature 102°, pulse 120, abdomen distended and rigidity very marked. General appearance was rather bad. At operation we found a gangrenous appendix and peritonitis beginning. The pus was sponged out and iodoform gauze and a glass tube were introduced for drainage. There was improvement for 24 hours, then distention became more marked, vomiting began and the patient died.

I wish to speak of this case especially because of its slow development, and even when operation was decided upon the patient seemed but slightly sick. Yet at operation the next morning we found his condition very bad. There is little doubt that if the patient had been operated upon the previous night he would have lived, yet the case was so mild that it is a question if even a surgeon would have felt it necessary to operate that night. It is this class of apparently mild cases that give practically no mortality in early operation, yet may suddenly take a change for the worse and a very serious condition develop.

Allow me to give briefly the histories of a few interesting cases:

Case II.—J. W., male, aged 46, bookkeeper. Two years ago he was operated upon for right inguinal hernia. Now he enters the hospital with right femoral hernia, for which operation was performed. Patient stood the operation nicely and had no fever. On the sixth day following the operation for hernia, he developed severe pain in the right iliac region, accompanied by vomiting. Temperature 102°, pulse 96. At first it was thought an infection of the wound was developing, but in the course of 24 hours we decided the patient had appendicitis; so an operation was performed and a gangrenous appendix removed. It was a rather peculiar coincidence that this patient should develop an acute attack of appendicitis while in bed, recovering from an operation for hernia.

Case XIII.—M. T., aged 26, female, married. Never had any previous illness. She has one child, aged 5. She has had no menstrual trouble of any kind. Eleven days previous to entering the hospital, while menstruating, she sat down on the damp ground. She was seized with a severe pain in the right ovarian region, which radiated down the right leg. She went to bed and the pain continued. Temperature was 100° to 101°, pulse 80 to 95. I saw the patient in consultation, July 21, 1904. Temperature was 103°, pulse 120, and weak. She had frequent attacks of fecal vomiting. The abdomen was markedly distended and very sensitive, especially in the right iliac region. Immediate operation was performed. A gangrenous appendix was removed, and on examination of the pelvic organs, a right pyosalpinx was discovered. This was operated upon and 6 oz. of pus was removed.

From the history of this case, I believe that the appendicitis was secondary to the pyosalpinx. Owing to the fact that the appendix and ovary are situated so close together, it is very easy for inflammation to spread from one to the other.

Case XVIII.—E. H., aged 28, married; electrical engineer. Was strong and healthy till four years ago, when he had a slight attack of appendicitis. Since then he has been troubled with constipation and dyspepsia, and frequent dull pains in the right iliac region. He had a second acute attack of appendicitis one year ago, and a third attack two months ago. Since then his appetite has been poor, and he has been greatly troubled with pain in the abdomen, especially on the right side. He is also troubled with tympanites and constipation, and is gradually losing strength. At operation a firmly adherent, chronic catarrhal appendix was found, which was removed with a great deal of care in order not to lacerate the intestine. Patient made a rapid recovery, and since operation has had no intestinal trouble, and has rapidly gained in strength.

This case illustrates a marked case of chronic appendicitis; although the patient recovered from his acute attacks, yet he was practically an invalid, and finally had to have an operation after months of suffering.

If the time ever comes when the public will realize that an operation is the proper treatment for all cases of appendicitis, except possibly the very mild, without waiting to see if the patient is going to die without operation, then the mortality following operation will be so low that no one need fear the operation.

SOME DISORDERS OF SLEEP.

BY

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Section III.

Disorders of sleep are here regarded as irregular conditions which arise during or on the eve of sleep or upon awaking. Dr. S. Weir Mitchell[1] observes that "in general, functional day numbness (which may be local, transient, a slight numb feeling or serious defects of touch and pain sense) whether neurotic, gouty, diabetic, atonic, or asthmatic, is apt enough to repeat itself at night in sleep. But there are people who never have any day numbness and who are nevertheless liable to awaken with this interesting neurosis." Pains in the legs, or shocks, or involuntary jerkings, may be experienced during sleep or just on falling asleep, and some may awaken with choreic jerks. According to Baillarger,[2] the prodromes of insanity are usually voices or visions which

arise between waking and sleeping and fade away when the eyes are opened.

Epileptics sometimes have homicidal tendencies just before falling asleep, and fear or terror without any hallucinations, may arise under the same conditions, as prodromes of insanity. In some cases somnambulism may develop, especially in epileptics, at any time during sleep and extraordinary and amazing performances may be displayed by its subjects.

Professor Suckling,[3] in speaking of disorders of sleep, refers to a peculiar aura which is sometimes experienced and which runs from the feet to the head, ending with a sensation of sound or light which creates fright in the subject. He also refers to the occurrence of violent convulsions of one or both legs or of the whole body on dropping to sleep. He regards these as signs of neurasthenic irritability of the motor cells of the cord.

Children frequently have nightmare, in which they have attacks of screaming. This usually occurs in ill-nourished children or those with some intestinal or stomach disturbance. Thread worms may be present and coagulated milk in the feces. Sleep is the favorite time for false and true croup, as it is also for asthma.

As illustrating the effects of subconscious action in the production of automatisms during sleep, I may refer to a case related by Dr. Cheney[4] of a gentleman who was in the habit, during his sleep, of taking snuff from a box which he kept under his pillow. If this box was removed, he sought for it as usual, and, failing to find it, he manifested dissatisfaction and invariably awoke.

PSYCHOPATHIC CASES.

Drs. Sante De Sanctis and U. Neyros,[5] of the University of Rome, made a study of sleep in a number of psychopathic cases.

The following case is representative of its class:

T. R., a male, aged 33, was early given to self-abuse. At 8, he began to have attacks of vertigo; at 15 he experienced a great fright and two years later he began to have convulsions, which at first were very frequent and closely connected with atmospheric changes, but which gradually became rarer. For several years they have appeared every 20, 30, or 40 days. But attacks of vertigo and petit mal are also not infrequent. They occur almost without exception at night and are sometimes accompanied by a tightening of the throat. These attacks, which consist of tonic and clonic convulsions, last from five to eight minutes, followed by coma and deep sleep. A few minutes after an epileptic fit in bed, the depth of sleep became lowered, but later on it became very profound. If epileptic attacks occur during the day, the subject sleeps more soundly at night than when he has had no attacks.

This case shows that epilepsy is not only a disturbing but an exhausting experience. They found that socalled degenerates (hysteroepileptics and the morally insane, etc.), as a rule sleep soundly. Their sleep may become sound within two hours and then become lighter, only to become sounder for a prolonged period, which corresponds with my own observations. They found also that sleep was much deeper in neuropathic than in normal cases (page 277) and that increase of age and length of standing of the disorder seemed to intensify sleep. The same observers noted that depth of sleep oscillated each hour and the variations could only be accounted for by personal factors. They also found that depth of sleep falls in the first half of the second hour in all the normal and psychopathic cases. Dreams occur at all periods, and even during the greatest depth of sleep. In the psychopathic cases, however, dreams appear more frequent in the second half of sleep, while the recollection of them is less on the nights in which the epileptic attacks occur.

Forms of Insomnia.—Insomnia in some degree or other appears to be the most prevalent of all modern afflictions, especially in the United States, where business and social conditions are the least orderly or settled of any country in proportion to its condition of civilization. It very frequently exists where it is neither mentioned nor conspicuously evident, a fact which is often due to the popular notion that it is an evidence of a disturbed conscience. Yet it is a wellknown highway to the insane asylum and the almshouse, and not infrequently to suicide and murder. Some idea of its increase may be derived from the statistics collected by Colonel G. P. Upton,[6] of Chicago, in reference to the increase of suicides in the United States. In 1895 the number was 5,759, and in 1903 it was 8,597. Prison officials tell us that habitual criminals are good sleepers during their imprisonment. In this respect they much resemble well-recognized psychopaths.

Insomnia may be defined as the inability to obtain full and natural sleep in a regular manner, without special assistance. Such a condition may exist long before the mind breaks down or before a business or social condition has reached a consciously disturbing or frenzied crisis; while it quite often insidiously creeps upon the well-regulated youth of changed and sedentary habits. But most frequently it fastens itself upon the ambitious individual of high intellectual activity who exercises his nervous energies beyond his daily power of recuperation.

Insomnia is very often but a temporary symptom of some evident physical disorder, while it frequently exists without any appreciable cause except such as careful investigation may suggest through the personal history or heredity of the individual. Dr. S. Weir Mitchell[7] has stated that the long continuance of eye troubles may be the unsuspected source of insomnia, and Dr. Geo. M. Gould believes that in the upper classes insomnia is almost always an evidence of eyestrain. In his "Biographic Clinics" (1903–1904–1905), he analyzes the ailments of De Quincey, Carlyle, Darwin, Huxley, Browning, Wagner, Parkman, Whittier, Herbert Spencer, Margaret Fuller, Mrs. Carlyle, and others, all of whom suffered from insomnia which he thinks was probably due to eyestrain. He thinks their nervousness, dyspepsias, headaches, etc., can all be accounted for by the same cause. Dr. Ambrose L. Ranney[8] also strongly believes that eyestrain is a common cause of insomnia. He says: "Clinical evidence goes to show that a large proportion of subjects affected with insomnia of long standing, suffer from some congenital defect of the eyes or from an improper adjustment of the muscles that move the eyes." He gives numerous illustrations.

However, as a malady, per se, it appears to be especially frequent among the upper classes. Many eminent persons in all lines, including theologians, have suffered

from insomnia. The Marquis of Salisbury was an insomniac, and so was Gladstone at times, his tree-felling habit being, as Sir William Moore states, "probably advised to ward off his insomnia, for which his physician had to send him to the sunny South a few years ago."

Professor Suckling observes that insomnia is one of the diseases of civilized life, and is very common among brain workers and the highly intellectual. Sleep, he says, may be deficient in (1) quality—disturbed or restless sleep; (2) in quantity—wakefulness or insomnia. He states that disturbed sleep is very commonly met as a result of indigestible food, mental excitement, or worry, or the febrile state. He further states that a sudden mental shock will often cause the immediate onset of acute insomnia, which, unless treated promptly may pass on to acute mania. He believes that the excessive use of tobacco or alcohol leads to the vasomotor nerves losing their contractile power over the small arteries of the brain, thus causing a congestion of the brain, which is incompatible with sleep.

Coblenz[9] declares that the stress of modern life has greatly contributed to the increase of insomnia, and that among its common causes are mental overwork and worries and anxieties incident to the struggle for existence, late and irregular hours of sleep, and the prevalence of affections of the nervous system, such as hysteria, neurasthenia, and other neuroses.

Sir James Sawyer,[10] referring to intrinsic insomnia, says that it occurs mostly in persons of high mental endowment in the upper and upper-middle classes. It is an insomnia, per se, there being no objective or obvious physical causes. He divides insomnia into three groups, namely: (1) Psychic; (2) toxic; (3) senile. He argues that mental disturbances produce relative cerebral hyperemia, and thus wakefulness.

Psychic insomnia is chiefly found in those of a nervous temperament. He defines temperament as an individual peculiarity of physical organization, by which the manner of acting, feeling, and thinking, of every person is permanently affected.

In the toxic variety he considers the cause to act primarily upon the bloodvessels of the brain, producing hyperemia.

"In senile insomnia the smaller cerebral arteries are physically unable, by reason of a degenerative diminution of their resiliency, to adapt themselves completely to that condition of relative arterial anemia which is of the essence of healthy sleep."

Sir Wm. Broadbent's view is that much brain work, sedentary occupations, grief, and worry, all cause insomnia by way of a deranged digestion. Nor need we be conscious of gastrointestinal pain or of the distention of the alimentary tract by flatulence, for dyspepsia to be the true disturbing cause. He believes indigestion to be by far the most common cause of insomnia.

Oppenheim and many others before him, attributed the psychogenic form of insomnia to excessive mental activity, delusional or emotional disturbances and also hysteric and neurasthenic conditions. He regards as being closely related to this variety, that form associated with hyperesthesia of the special senses, especially of hearing.

Germain Sée classes the causes of insomnia as follows: (1) Dolorous; (2) digestive; (3) cardiac and dyspneal; (4) cerebrospinal and neurotic (including general paralysis, acute and chronic mania, and hysterohypochondriasis); (5) psychic; (6) physical fatigue; (7) genitourinary; (8) febrile and antitoxic; (9) toxic.

Folsom[11] ascribes insomnia to: (1) Perverse habits; (2) external causes through the senses; (3) excessive intellectual or emotional activity; (4) reflex causes, as indigestion, or pelvic or genitourinary disturbances; (5) traumatic, physical and psychic causes, all of which occur in railroad accidents, disturbing the cerebral cells; (6) autotoxic causes, as in gout, lithemia, leukemia, rheumatism, tuberculosis, syphilis, malaria, arteriosclerosis, chronic lead and arsenic poisoning, and the excessive use of tea, coffee and tobacco; (7) exhaustion from wasting diseases and enfeebling conditions, as tuberculosis, starvation and anemia, profuse and repeated hemorrhages, sexual excesses, and impaired nutrition of the brain; (8) vascular causes from hepatic diseases, producing nervous stasis, or from cardiac or renal diseases, with increased nervous tension; (9) vasomotor disturbances in the pons and medulla; (10) neurasthenic conditions exalting the direct and reflex excitability of the nervous system; (11) the neuropathic temperament acquired or inherited. He also believes that eye defects which in health, may be unnoticed, are liable, in states of debility, to produce headache, dizziness, spasmodic muscular action and wakefulness.

Dr. Bradbury divides insomnia as follows: (1) Irritative; (2) toxic; (3) psychic. This classification, I think the best for practical purposes.

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[*To be continued.*]

THE LIMITATION OF THE PRINCIPLE OF PRIVILEGED COMMUNICATIONS.

BY

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The secrecy of communications made in the necessary professional confidences to priests, physicians, and attorneys has received more or less recognition for many centuries and is, indeed, commonly regarded as an established principle in ethics and law. However, it does not appear that the legal status of this principle is well established. At least, many courts have refused to regard it as a point in common law and many States have enacted statutes defining the degree to which such communications should be regarded as privileged.

It is obvious that the relation of layman to confessor, of client to lawyer, of patient to physician, is not quite the same. It is equally obvious that it is frequently difficult to determine when the professional relation ceases and ordinary social or business relations begin. Again, especially as regards medical practice, it is often,

perhaps usually the case that a refusal to answer a well-meant inquiry as to the welfare of one making a theoretically privileged communication may, by natural inference, injure the confidant more than even the fullest statement of facts. Again, the secrecy of medical confidences and observations by the physician is frequently interdicted by necessary sanitary ordinances. For instance, the communication of the information that a patient has scarlet fever, or *a fortiori*, smallpox—even when this information is given only to a Board of Health—causes embarrassment and expense to the patient's family quite equal to that which arises from the publication of the violation of certain ordinances, as game laws and the regulation of speed of vehicles.

In regard to the clergy, it is apparent that the confession of a Roman Catholic to his priest, in accordance with the commands of his church and enforced by heavy spiritual penalties, which he, at least, regards as actual, is a very different matter from the purely voluntary confession of a noncatholic to a minister of a church which is admittedly of human origin. Still, to hold the communication privileged in the former case and not in the other would be to discriminate between religions and to attack the pastoral relation of the clergy, which is regarded as an important function by almost every denomination.

The confidence of client to attorney is, perhaps, on a surer legal footing than that of patient to physician or layman to clergyman. This is because courts of law naturally establish more definitely such principles as apply directly to the law.

In studying the actual practice of courts with regard to supposedly privileged communications, we find that many apparent, and even genuine inconsistencies exist. In one instance, a trial court held that the relations of veterinary to patient—a valuable horse—were privileged, although it does not appear that the nature of the confidences made by the horse were sought in evidence or that the character of the horse was under suspicion. The appellate court reversed this decision. Generally speaking, the principle of privilege of communication has been asserted in a liberal spirit in the interests of the confidant. Thus, matters not bearing very directly and necessarily on the medical treatment of a patient, but mentioned confidentially at a professional interview, have usually been refused admission as evidence. On the other hand, physicians who have refused to answer questions which they held to apply to professional secrets have, at times, been compelled to divulge such secrets or have been punished for contempt of court.

Enough has been said to show that the idea commonly held of the sacredness of professional relations, is not supported in its entirety by courts of law.

Partly in view of this important fact, but more particularly from a purely ethical consideration of the subject of privileged communications, I wish to bring into question the explicit or implied dictum that the wishes or interests of the confidant are to be regarded as the absolute and sole factor in a professional communication. To simplify the discussion which is, at best, complicated and confusing, I shall consider only the relation of patient and physician.

With the underlying principle of privileged communications, I have no disposition to disagree. It is that the physician, called to minister to suffering and, therefore, weak humanity, should be solely a ministrant of health and comfort, and neither a spy, a gossip, nor an officer of the law. The adoption as a rule of ethics, of the principle that all professional communications should be absolutely privileged, goes further than the underlying principle of protection of weak and erring humanity, and may extend so far as to involve the physician as *particeps criminis*, in a social if not a legal sense. Before discussing the matter in general terms, it may be wise to cite certain illustrative cases, some actually occurring, others imaginary, and yet undoubtedly duplicated in the actual experience of many physicians.

1. A signalman on a railroad consults a physician, who finds the patient suffering from cardiac and renal disease rendering him liable to sudden death or unconsciousness when hundreds of lives would be endangered. The patient, after being warned of his condition, refuses to resign or to inform his employers of the risk involved, on the ground that it will be difficult for him to obtain other employment, and that he needs the pay. (Actual case, reported to *The Lancet*.)

2. A man with chronic gonorrhea, with gonococci found in discharge, declines to postpone his wedding or to agree to take precautions to prevent contact of discharge with the prospective victim.

3. A woman, engaged to be married, and erroneously supposed to be a virgin, employs a general practitioner to decrease the lumen of the ostium vaginæ and to prepare a soluble capsule which shall liberate a harmless red liquid so as to simulate hemorrhage, all with a view to deceiving the prospective groom. (Case reported to me by a friend.)

4. A woman who had borne a child to her sister's husband, is engaged to a personal friend of the physician who examined her during the pregnancy. On being approached by this physician after the engagement is announced, she refuses to confess the facts to her fiance. Confession is finally forced, whether from the woman or her brother-in-law while drunk, reports differ. (Society scandal. Details in lay press.)

5. Woman cured of genital syphilis by specialist, engaged to be married. Successful concealment of condition reported with pride by the attendant in medical press.

6. Physician discovers, in professional consultation, that his wife's intimate friend is a woman of bad character. He warns his wife against continuing intimacy. (Celebrated English medicolegal case.)

7. Physician similarly warns members of his household against persons afflicted with syphilis, tuberculosis, or other infectious disease.

8. Physician similarly gives warning to family and personal friends of danger of contaminated premises, with regard to possible communication of tuberculosis from fomites, of typhoid from water-supply, etc.

9. Physician attending case of typhoid or scarlatina, etc., in milkman's family, discontinues taking milk from this source and warns friends.

10. Physician, to whom applicant for position has referred as a friend, has professional knowledge of infectious disease, epilepsy, cardiac lesion or other physical condition, or of mental or moral conditions, rendering the applicant undesirable or dangerous, if employed. Shall he endorse applicant or not?

11. Sexual pervert, so known through professional attendance, seeks responsible position as teacher, governess, foreman or forewoman, superintendent or matron, or in some other way in which his or her influence over young persons would be great, or is engaged to be married. What is the duty of the physician knowing the facts, especially if directly appealed to for advice or personally responsible to the persons endangered?

12. Assassination of prominent young man. Man and wife

of weak intelligence but not previously known as criminal, convicted on purely circumstantial evidence of murder, with intention to rob. Real assailant known or suspected by physician, from professional consultation with daughter or sister, wronged by murdered man. (One of the popular theories with regard to a mysterious case.)

13. Bank embezzler sentenced to prison. Released as dying, through influence of family. Fake funeral held, real prisoner escapes. Family physician aware of facts. (See foregoing observation.)

14. Government physician called in emergency, discovers evidence of plot against government. Impossible to divulge without implicating patient.

15. Physician, through ministrations, discovers evidence of inflicted or impending damage to self, family, friends, club, fraternity, or insurance company, steamboat line, etc., to which he is under prior obligation of loyalty.

Many other illustrations might be given of cases in which the principle of privileged communications, if carried out in practice, renders the physician a party to a deceit, to a criminal act, to the wrecking of a life, to treason against his country, disloyalty to an organization, to which he may be bound by the most solemn vows and violation of various personal trusts.

I have no hesitation in saying that if I found through professional consultation that a social acquaintance was tuberculous or syphilitic, I would take care that my wife and children should be guarded as carefully as I should strive to protect my own less precious tissues from disease. I would not divulge the details, but I would not be so quixotic as to run a risk for loved ones, through the fear that they might surmise that something was wrong with an acquaintance. I say with equal lack of hesitation, that if I were an army or navy officer, owing a double duty to my country, I would place the interests of the country higher than those of a villain who happened to be injured or sick, and higher than a theoretic professional honor. How far I would go in the other assumed dilemmas, I cannot say—there is no use in crossing bridges till one comes to them.

It occurs to me, however, that the underlying consideration on which professional secrecy is based, is not that the physician belongs body and soul to every sick or injured man who appeals to him for assistance, but that the physician should be a negative quantity, so far as the social or legal punishment of sin or discredit is concerned. In a sense, the punishment of crime is a social duty, but, in a practical human sense, there is a great difference between failing to punish for a crime already committed and failing to prevent a future crime. The difference is precisely the same as between forgiving a past sin and selling an indulgence for one about to be committed.

In regard to professional practice, generally, the law lays great stress on what the practitioner holds himself out to do. The practitioner of medicine, by his sign and his mode of life, holds himself out as a corrector of physical disease, not as a corrector of morals or an adjunct of the criminal law, or as a censor of society. On the other hand, it is absurd that holding oneself out as a practitioner of medicine should be construed as an offer of abetment in crime or fraud against society. Moreover, it seems to me equally absurd to suppose that the duty of physician to patient cancels all prior claims of family, friends, country or society.

So far as the past is concerned, it is clearly the duty of the physician to protect his patient against legal or social punishment by maintaining as a sacred confidence any admitted breach of the law or violation of the rules of decent living. Neither should the physician expose the past of his patient simply on account of general conceptions of ideal social and sanitary life. If he learns that his patient is a burglar, he should not violate his confidence simply to protect society against possible future activity in this calling. Neither should he expose a roué simply because the latter may subsequently do damage to society by wrecking homes and spreading venereal disease. Nor should a choice of political aspirants, by a party or by an electoral body, be influenced by medical knowledge of future incapacity or death. But when the patient, warned and expostulated with, deliberately decides to transmit disease, to defraud a victim, to endanger lives, I hold that professional secrecy should no more be required of the physician than in concealing a case of quarantinable disease for the sake of the selfish interests of the patient.

For certain conditions, the analogy to sanitary regulations is very close. It is absurd to hold that a physician should consider the existence of smallpox a matter of professional secrecy. Is it any more his duty to allow a case of the other kind of pox to go at large deliberately spreading disease? The spread of smallpox by a patient is innocent and, so far as the patient is concerned, unpreventable; that of the other form is vicious and preventable, even without seriously interfering with the patient's comfort. The physician is not only allowed, but morally required, to prevent the spread of scarlet fever from one member of a family to another, even if the patient wishes the presence of susceptible relatives. Why should not the same rule apply to the physician of a young man who is so criminally selfish as to be willing to kill his prospective bride with gonorrheic peritonitis or to blind his offspring with gonorrheic ophthalmia?

If a physician finds that one of his patients has dumped a load of stones on a railroad track, and fails to give notice of it, he is morally responsible for a wreck. If he has a patient who, for any reason, is liable to sudden incapacity and that patient is in charge of railroad signals, or the movement of trains, it seems to me that he is equally responsible to society at large if he allows that patient to remain in charge of hundreds of human lives.

Professional secrecy does not apply to safeguarding the man who believes that he is commissioned from on high to sacrifice his wife or child or to endanger or humiliate society by the delusions of a maniac. Why, then, should it apply to the interests of the man who, though capable of reasoning, is morally imbecile to such a degree that he will jeopardize the life and health of the community, in cold blood?

Hawaii Fighting Mosquitos.—About 500 top minnows brought to Honolulu from near Galveston, Tex., have been distributed in local ponds, where they are thriving. They were brought in the expectation that they will feed on mosquito larvas, and thus reduce the mosquito pest.

SPECIAL ARTICLES

THE IDENTITY OF VARIATIONS AND MODIFICATIONS.

BY

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[*Concluded from page 665.*]

The recent discussions of the various states of dead matter throw considerable light on the behavior of living matter. Guillaume,[1] in an article on "The Physics of Solid Bodies According to Modern Ideas," shows that there are only two states of matter, crystal and amorphous, and that the latter is usually described as solid, liquid or gaseous, though there is no distinction between these states whatever. He states that "solids are in perpetual motion toward a state of equilibrium, which they sometimes reach and from which they never recede unless the surrounding conditions are changed. This adaptation of solid matter is a profound and suggestive phenomenon; it is the rudimentary image of the adaptation of living beings; it constitutes a kind of inferior life that has been unsuspected hitherto, but that can no longer be neglected by the attentive observer." These physical discoveries add one more fact to the accumulating mass, showing that there is no difference between the quick and the dead, except a chemic one, for both act in obedience to impinging forces.

The laws of inertia of dead matter have been shown to apply to live cells also, that is, they are inert unless acted on by forces, and after started to activity, they possess a real momentum or inertia of motion, continuing the activity after the stimulus is removed. If the cell is so placed that it cannot function, its energies are spent in the direction of cell division; that is, the habit of growth takes the place of the habit of work. The cell inherits this acquired character or modification. Adami,[2] of Montreal, uses these facts in explaining tumor growth, although he believes that vegetative cell activities, such as cell divisions, are of intrinsic origin and automatic.

If this modern view of protoplasm is correct, then variations cannot be inherent in the sense of being independent of environmental causes, for every chemic substance is inert and cannot behave differently at one time than it did at another to the same forces, nor can it act without forces, nor act the same if the forces are changed. If we restrict the word inherent to some change in the protoplasm itself as a result of the environment, so that it now behaves differently to the same forces which acted on parental protoplasm in prior generations, then we conceive of a new chemic substance, a modified form of some prior existing substance. It did not come into existence by its own inherent power, but was produced by the environment, in like manner to the production of new substances in the laboratory. In other words, protoplasm is an inert chemic substance, and, though it can be modified into a new form, yet it has no inherent power to vary without a cause. Its alleged inherent variations are modifications impressed upon it.

The most profound result of a recognition of the identity of variations and modifications will be the cessation, through compromise, of the warfare between the two great bodies of biologists, the Lamarckians and Darwinians—a warfare which has been kept up for over a generation and which has engaged the energies of some of the ablest and most brilliant men of the past half century. If one of these schools is correct, the other is wrong, and it is not probable that a body of such able men can be wholly wrong. The history of other scientific controversies which have been compromised shows that each side is partly correct and partly wrong and that they each had facts to work upon, but that there were unknown conditions which prevented each side from understanding the significance of its own facts. Each side interpreted its facts wrongly and built up an untenable theory.

[1] La Nature, Paris, 1905.
[2] British Medical Journal, March 16, 1901.

For instance, botanists were divided into two hostile camps, one of which claimed that no plants could utilize the free nitrogen of the air, but required the combined nitrogen of compounds in the soil, while the other asserted that free nitrogen was a food for plants. Each side had facts, which apparently proved its theory. Then came the discovery that certain bacteria in the roots were the means of absorbing free nitrogen from the air and delivering the compounds to the plants, so that paradoxically the plant did and did not get its nitrogen from the air. The controversy had resulted because of incomplete knowledge.

Likewise, there were two opposing schools of biologists—one followed Liebig, who taught that fermentation was due to certain dead nitrogenous bodies; while the other followed Pasteur, who apparently proved that fermentation was due to the life activities of minute organisms. Here also it was incomplete knowledge, and there was complete harmony established by the discovery that fermentation was due to a dead nitrogenous ferment excreted by the living organism. Both sides were right and both were wrong.

Similarly, both Lamarckians and Darwinians can be right and both wrong, for there are as yet some unknown facts which prevent a compromise. Each side of the argument is still unproved, and each set of advocates seems unable to supply the missing links which will end the controversy. Perhaps the present assertion of the identity of variations and modifications may be a help in ending an unseemly discussion which has markedly checked the advance of pathology and particularly checked the science of anthropology; and most of all, what we might call pathologic anthropology.

Every biologist who attacks the problem gets nearer to the central truth, no matter from what side he approaches it, so that the trend of all these new ideas is toward this central fact of the identity of variations and modifications. Indeed, many scientists have just fallen short of grasping the central idea. They have advanced a long way from the outer trenches captured by Darwin, who, from that place of restrictive view, thought at one time that "the variability of a species is independent of environment."

Dr. Henry C. Cowles,[1] in a paper read before Section G, American Association for the Advancement of Science, 1903, comes very near to the point when he says of the Darwinian, Lamarckian and mutation theories, "it seems as if all three theories of evolution, and perhaps others, yet unborn, are quite tenable, and that the problem of adaptation is not necessarily to be associated with any particular theory of evolution."

The new theory of organic selection or orthoplasy, independently thought out by Baldwin, Osborn and Morgan, is a partial compromise. They have all discovered the old fact that organisms which have been modified so that they are better fitted for the environment, are selected for survival. But they think that this keeps the species alive while waiting for identical variations due to other causes, or causeless. The theory is really useless, for if modifications can keep a species in existence once, they can do it forever, and the appearance of variations is unnecessary. This whole theory would be discarded if it is recognized that these modifications due to one cause differ in no respects from the variations due to other causes—that is, both are results of environmental causes.

There is really no insuperable difficulty in accounting for all organic evolution upon the basis of the reappearance of modifications in each generation, but growing more and more marked and elaborate with a continuance of the causes, just as in the case of the attenuation of bacteria. Herbert Spencer worked along this line, in his explanation of the evolution of horns, from a primitive exostosis and hypertrophy of skin epithelium from friction and injuries due to fighting with their heads. He did not find it necessary to call in variations as in orthoplasy, but he marred his explanation by the unproved assumption that these early modifications became hereditary at once without other causes. So he was drifting toward the right solution and though he did not quite reach it, he was on the opposite side from the authors of orthoplasy. What we are after now are the causes of the reappearance of this primitive

[1] Science, June 10, 1904.

epithelial hypertrophy without the original cause, as though it were hereditary. Orthoplasy merely says it simply happens to come as a variation, and of course this is unthinkable, for it must have causes. Undoubtedly such a modification is due to a combination of many causes, not one only. Many things must combine, proper food supply, proper blood supply, proper enlargement of bloodvessels, local irritation in early life, indeed a whole host of causes, and it is very evident that the selected animals for a long, long time, hundreds of generations, will be only those in which all these causes converge, together with all the other causes of other physical changes of neck and body and skull which have accompanied the primitive horns. The action of all these causes without the friction and injury and local irritation, may sometime cause the hypertrophy. If this is a variation—call it such—then orthoplasy is the process which has taken place. Nevertheless, the variation is due to causes acting on germ and soma, differently than in the earliest hornless generations, and is in fact a modification after all.

Weismann, in his attempts to account for variations independent of environment has evolved the very complete theory of amphimixis, based upon the new form of protoplasm which must result from the union of the two sexes. He asserts that sexual reproduction was evolved to produce variations, yet the best explanation of the origin of sex is through a senility or exhaustion of the protoplasm after a certain number of hundreds or thousands or millions of divisions as the case may be, and the survival of only those which by a mutual cannibalism or autophagy were rejuvenated thereby. The exhaustion seems to be due to lack of nutrition or its sameness, indeed, in many organisms which reproduce asexually or by budding, it is possible to cause sexual reproduction by a reduction of the food. Unicellular organisms may be made to coalesce from the same cause. We can well conclude, then, that it is a chemic change like a step toward death, which is complete inability to react to forces.

Though autophagy is a theory having many objectionable features, its persistence shows that the tendency of biology is not to court a prior design in nature to create variations, but that they came as a result of new causes.

This whole theory of amphimixis is not acceptable, Professor Jaekel even having announced that the tendency of sexual union is to obliterate extreme variations—it is a leveler and not a maker of variations. Explanations of Mendel's law are tending to the view that an organism may be descended from only one of its parents, the other having had no influence whatever except in "rejuvenating" the germ plasm, so that amphimixis is being gradually dropped as an explanation of variations.

It is probably this inability to account for variations which kept Virchow so long opposed to evolution. He asserted that all anomalies were pathologic modifications. According to this view were it not for such adversities of the environment all the individuals of the species would be identical.

The orthogenesis of Eimer is at basis nothing but repeated modifications as in our attenuated bacteria. The epitasis, of Jaekel, is a reversion to modified embryonic form—or arrest of development from some cause, and metakinesis (cenogenetic modification of the embryologists) is a profound modification of fetal tissues not possible in the adult tissue. Indeed in all theories of heredity including those of Haeckel, we see the constant tendency to look to the environment for the causes of the anomalies, and we retrace our steps to the original conclusion of the Lamarckians that the causes of heredity are mechanical, physical and chemical.

The latest and best opinion as to the cause of human anomalies is found in Dr. J. W. Ballantyne's monumental works on "Antenatal Pathology." He finds the only reasonable explanations in purely material causes, such as poisons, and perhaps traumatisms. He utterly rejects any such explanation as an inherent tendency of the ovums to produce monsters. The modern and sane way of looking at these unhappy results will lead in time to the discovery of the causes and then their removal will benefit the race, but nothing will be done if we consider them to be causeless variations.

Modern explanations of inheritance are tending to the view that the environment causes all the differences between individuals; indeed, an article on this topic by Adami[1] contains much in the line of the present argument and which can be interpreted as proofs of the identity of variations and modifications.

These newer ideas are also breaking down the old distinction between heredity and variation, which have heretofore always been considered to be very strong opposing forces, one a powerful momentum tending to keep the organism in the ancestral groove, and the other a side force, tending to push it out. There are really no such forces at all. Heredity is a convenient term, like "cold," which does not express any entity at all. It merely means that when the environment acting on the ovum has been practically the same as that acting upon the parent in its development, the results are identical. Variation is a convenient expression for what always happens; that is, the environment which is composed of so many thousands of factors, each changing daily, hourly, or from second to second, never can be exactly like the ancestral environment. As before explained, we might substitute the words, chemic reliability, for heredity and variation.

It will, no doubt, be difficult to disabuse our minds of the idea that heredity is a force in itself, and different from the chemic affinities of the protoplasm, but if it is distinctly understood that the word merely stands for the power to react, as the parent reacted to identical forces, there is no objection to the use of the term. Organisms, then, inherit qualities or powers of reaction, just as a piece of ice inherits the chemic qualities of the block from which it is broken. We might say that heredity is the power to do as the parents did, and, naturally, the results attained are not necessarily alike in each generation.

There will be considerable objection to this view of heredity as a convenient term, but it will disappear if we will recognize that it merely means that the new ovum is a piece of the old one, and has the same chemic composition. If the old ovum has been modified, then the new one receives or inherits this modification.

It was once thought that variations occurred in an infinite number of directions, and that there was a wealth of choice for natural selection. Eimer and others show that this is not true but that variations appear in only a few definite directions, as we would presume from the definite character of the chemic composition of the protoplasm. Quetelet proved that they occur, in degree and number, according to the law of probability, just exactly as the probabilities of the occurrence of the forces of the ever-changing environment.

Though botanists may have plants under careful control, yet the factors causing a new variation are so numerous that it is practically impossible to determine what has caused it. Hence, after a new variety has originated under cultivation and is then isolated and established, it not infrequently happens that if an accident destroys all the plants, it is found impossible to recreate the variety. This is not proof that the variety was causeless, but proof that we are far from knowing what the causes were.

On account of the enormous number of factors of the environment acting upon an ovum, it is not to be expected that any two can develop alike, and Professor Dwight,[2] of Harvard, says that "the student of variations is oppressed by their multiplicity."

Professor L. H. Bailey, in a paper read before the American Philosophical Society, May 1, 1896 (See Proceedings, or Smithsonian Reports, 1897), fully explains the universal law of unlikeness. That is, all the differences between organisms are due to external stimuli. "Variations are as definite as the changes in the environment, which determine and control their existence." He quotes H. S. Williams (Geological Biology) that "mutability is the normal law of organic action." "The differences arise as a result of every impinging force—soil, weather, climate, food, training, conflict with fellows, the strain and stress of wind and wave, and insect visitors—as a complex resultant of many antecedent external forces, the effects of crossing, and also as the result of the accumulated force of mere growth. . . ." Surely likeness can hardly be possible. When conditions are widely various, as in cultivated plants, variations are very numerous and marked.

[1] British Medical Journal, June 1, 1901.
[2] Science, April 7, 1905.

In other words, likeness to parent is practically impossible. Like does not produce like, unless the conditions are identical. Bailey quotes Darwin, who clearly stated that variations were due to even extremely slight changes of any kind in the conditions of life, excess of nutriment being a most efficient cause. Plants, such as potatoes, are brought to a high state of cultivation and produce large tubers, but the moment we omit the causative factors there is reversion, and the high bred types disappear. Instead of the phrase "survival of the fittest," Bailey uses the one "survival of the unlike," to emphasize the unlikeness of individuals and the fact that it is due to this that some are better adjusted to the environment than the previous generation.

De Vries, then, has discovered nothing new in his theory that a species may arise by a leap and bound, his assumption is that all species originate in this way. The variations selected by nature may be of any grade from the almost imperceptible to the very marked or sport-like. The true position is best stated by Duggar[1]: "It may even be assumed that there is a complete series between continuous (minute) variations and discontinuous (marked) variations." That is, according as the new causes are weak or powerful will the unlikeness of the offspring to parent be an almost imperceptible variation or a mutation or sport. As marked causes are rare, so are marked results, according to Quetelet's law, hence mutations do not often appear. When enormous numbers are taken, as in Burbank's work, there are more of the mutations, though their proportion is the same.

It may happen in plants that different individuals will be subjected to identical or nearly identical new causes at different places or times, and that there may thus be, according to de Vries, a dual or multiple origin of species by mutation. Dr. Charles A. White, of the Smithsonian Institute, reports the same phenomenon in his experiments with tomatoes, and moreover that these species may revert to a more feral type in one year by removal to a tropic climate—or whenever the factors which forced them into existence are no longer operative.[2]

Similarity of environment may also evolve similarity of types of man in widely separated places, for instance, the river tribe of Leccos, or Leggos, in the upper Amazon, very markedly resembles the equally aquatic Malays.[3] They are branches of the same stem, but have wandered into similar tropical environments. Indeed, it is an axiom of archaeology that similar environments produce similar civilizations—man always reacts to the same forces in the same way.

The great contention as to the heredity of sports will disappear. One side claims great prepotency for them, while others claim that such human anomalies as might be considered sports are not hereditary at all, being mere modifications of an unstable or degenerated organism which is easily modified by a cause harmless to the normal. Great mental power for instance is very apt to be a possession of but one generation, though it generally arises in good or prominent families. Sports or exceptional characters are due to exceptional causes.

The labored explanations of Mendel's law are also apt to be cleared up by an application of this idea of the reflex action of the protoplasmic molecule to the forces acting upon it. Even the contradictory speculations as to the origin of life can be harmonized. The molecule of protoplasm has undoubtedly undergone vast changes in the way of increasing size and complexity, and if we trace it back in imagination we come to a time when it was a very simple chemic substance reacting to an environment vastly different from the present. At this point all scientific philosophers, even Haeckel, drop the idea of a gradual evolution, and insist that in the primitive earth this chemical then suddenly became alive. Such abandonment of the idea of a gradual evolution and the substitution of a cataclysm is inconsistent. Evolution was going on before this time as a result of modifying forces and the ancestor of the living protoplasm was just as much alive. It is impossible to come to any other conclusion, then, than that there never has been a creation of life. The primitive chemic substances in the primitive earth were alive in the exact sense that modern protoplasm is alive, and, like protoplasm, they were being constantly modified by new forces of an ever-changing environment until they became what we might call modern protoplasm. Anything in the nature of an inherent variation of this early substance, independent of the environment is scarcely thinkable.

Physicists are now talking of the evolution of matter, its birth, life and death. They point to the nebulas consisting of hydrogen only and to other older nebulas in which other elements progressively appear as though evolved from the same "corpuscles" or "electrons" which formed the hydrogen atom. Then as age progresses, more and more complex substances form. So that protoplasm is but a final stage of evolution from a primitive "protyle" of which all matter is formed through external forces. A very complete synopsis of the newer ideas of matter is found in a paper by Gustav le Bon (the 1903 Smithsonian report). Prof. A. Dastre, of the Sorbonne, in an article "The Life of Matter" (1902, Smithsonian report) even goes to the length of asserting that all the essential vital attributes which distinguish living from dead, are really possessed by all kinds of matter.

It is thus seen that while one set of philosophers has proved that all matter, whether mineral, vegetable, or animal, is dead, another set has proved that it is all alive. It is merely an unwise use of unsuitable terms, for they all mean the same thing. Multicellular organisms "do not have in themselves, by a mysterious spontaneity without example in the rest of nature, the capricious principle which sets them in motion. Vital spontaneity, so readily admitted by persons ignorant of biology, is disproved by all the history of the science. Every vital manifestation is a response to a stimulation, a provoked phenomenon. It is not necessary to say that it is the same with inanimate bodies, since that is precisely in what consists the great principle of the inertia of matter. It is plain that it is also as applicable to living as to inanimate matter" (Dastre). How is it possible, then, to conceive of a variation as anything else than a modification due to the environment, and always due to some cause which may not have acted in the prior generation, or may have acted in all prior ones.

These quotations show how easy it is to account for the strange actions of certain culture media under the influence of radium—collections of matter which Prof. J. B. Burke, of Cambridge, their discoverer, has unwisely called "radiobes" as though they were alive. They are mere results of the forces of the radium corpuscles, acting on dead matter, but they are interesting as they closely imitate the actions of microbes. We can reflexly presume that identical phenomena in living bacteria are likewise due to external forces. The growth of crystals has actually been called a living phenomenon, and the growth of bacteria a dead one—how modern philosophers are confounding the quick and the dead! Prof. George H. Darwin, son of the great Darwin, professor of Geologic Sciences, and president of the British Association for the Advancement of Science, in his recent South African address, has even applied the law of selection or survival of the fittest to the whole inorganic world. Biologists are appropriating the laws of physics and physicists those of biology.

It is curious how the idea of the gradual evolution of life and the related idea that what we now call life is merely the present form of an evolution which has been going on since the whole solar system was a nebula, are constantly cropping up in modern scientific works. The latest is the book, "The New Knowledge," by Robert K. Duncan, professor of chemistry in Washington and Jefferson University. On p. 213 he discusses this same point after proving that all forms of mattter at present existing, are merely different groupings of corpuscles or electrons resulting from changes of cosmic temperature, and says: "The great law of continuity forbids us to assume that life suddenly made its appearance out of nothing, and tells us that we must look for the element of life in the very elements of matter, for the potentiality of life should exist in every atom." That is, every molecule of every kind of matter, every atom in the molecule, and every corpuscle of the atom is as much alive as the huge molecule of protoplasm. Life never originated, but has always existed in more or less complex forms. It is evident then that the creation of life is merely the creation of a molecule of protoplasm and might be done in the

[1] Science, June 23, 1905
[2] Popular Science Monthly, June, 1905.
[3] See C. J. Post, Harper's, May, 1905.

laboratory if we knew how—a very big if, by the way. This leads to the final conception that, "The universe is God in one phase of Him and it possesses His attributes of eternal duration."

It was once thought that protoplasm was identical in all cells, ancient as well as modern, but there is much in favor of the view that only cells of identical function and form have identical protoplasm. All other cells are different, and this almost infinite diversity is perfectly possible, for such a molecule of an enormous number of atoms is capable of arrangements of these atoms in an almost infinite variety.

Dr. Victor C. Vaughan,[1] of Ann Arbor, Mich., thinks that every cell is a distinct chemic compound, its molecule as distinct as any other chemic molecule, and that cell activity is impaired or changed by any alteration of the molecule, rearrangement of the groups of atoms in the cell or the introduction of abnormal groups.

So that no two cells can be expected to react to equal forces alike. Likewise, in tracing protoplasm back, it existed in simpler and simpler forms, until we find it a mere nitrogen gaseous compound, in the primitive hot atmosphere, reacting to the environment like its modern descendant, and just as much alive, though having no inherent power to change itself.

Regeneration of lost parts, is explained by Chas. S. Minot as due to a formative power present in all cells, a force which grows less with senescence and differentiation. It is greatest in the undifferentiated or embryonic cell having a large nucleus, but little cell plasm, a condition which is also called rejuvenation. In some organisms, the somatic cells have lost so little of this power that the whole organism can be grown from a group of cells taken from any part—say, leaf, branch, stem or root. But all this can just as well be explained on the assumption that there are actual chemic changes in the senile or differentiated cell, which prevent it reacting to forces, as the embryonic cell does. Indeed, Professor Wm. A. Setchell, of the University of California, is reported to have proved that the regeneration of certain marine plants is wholly due to the action of external forces.

In regard to human differences from a hypothetic mean in any type, there can be no doubt that they are all modifications, due to newly-acting causes in the environment. Those differences, which are occupying the attention of criminologists, alienists and pathologists, and which are due to an unstable or degenerate organism, are all modifications and examples of transient heredity, repeated every generation in which the causes are repeated. Even those alleged variations from which new types arise by selection during migration to new climates or during changes of climate, are likewise modifications repeated as long as the causes act, just as in attenuating bacteria.

The improvement of the race cannot possibly be carried on by the selection of types for breeding, as in the case of domestic animals. We cannot treat ourselves as domestic animals, for the selected are the selectors. In addition, we are not concerned with perpetuating variations, but with remedying modifications, due to the environment. Hence, all future efforts of this kind must take the direction of removing deleterious causes, improving the housing and surroundings of the poor, and placing slum children in proper homes. Experience shows that these means are effective in causing the organism to grow properly, even though it should have been somewhat damaged as early as at conception, and during the nine months of uterine life while it was subjected to maternal poisons. Of course some of these cases are already so damaged by the time of birth that nothing can be done for them.

Truancy in school children has been declared by Dr. Cronin, of the New York Health Department, to be due to physical defects and that such cases naturally drift into crime in later years. He thinks that this degradation can be lessened by improving the physical condition of the children. It is a fine recognition of the physical basis of abnormal acts in childhood, before habits or training in evil can have done much damage.[2] We also know that only a few criminals—less than half—are born so. The greater number are made criminals in boyhood. Similarly the insane, in the majority of cases, are people who were born somewhat unstable perhaps, but whose brains would have remained healthy were it not for undue adversities, strains or poisons. Drunkenness, feeble mentality, and all the other anomalies have their causes, too, and are not necessarily inheritances at all.

Return to the normal is then almost a universal rule in all organisms, if the environment is restored. It applies to man as well as to potatoes. The law fully explains why it is that there may be perfectly normal offspring from parents who are quite degenerate. The environment of this particular ovum may not have contained injurious forces. This is one of the best deductions to be made from this modern study of variations. We must drop the old Calvinistic belief in the preordained degeneration of the offspring of degenerates. Degeneration is a modification which is not necessarily transmitted. The outlook for the uplifting of the lower classes is therefore not so bad after all. We can well afford to be optimists.

The data upon which these conclusions are based, are in a mass of notes entirely too voluminous to even epitomize here, but the general conclusions may benefit those who are attacking from some other direction this annoying subject of heredity. The student of human variations or modifications will find himself in a maze of contradictions if he attempts to explain them by any present theory of heredity, and he will be compelled to come to the conclusion that variations and modifications are really the same, each due to causes, neither inherent, and each hereditary only in the sense that it reappers when the causes are repeated.

The present attitude of biologists is well expressed by O. F. Cook.[1] "No amount of argument can rehabilitate Darwin's first theory of the developmental process, that the environment causes variations and then selects the desirable changes. This view was abandoned by Darwin himself, and is now held in its original logical integrity by very few working biologists, the noninheritance of acquired characters having rendered it untenable." It is quite likely nevertheless that the biologists will be compelled to come around to Darwin's original conception when they accept the proof that variations and modifications are identical.

Cook also quotes the two different ways in which we look upon heredity as an inherent force or a resultant of the environmental forces. " . . . The law of heredity, would, if nothing interfered, keep the descendants perfectly true to the physical characters of their ancestors; they would breed true and be exactly alike" (Cowes). "Were it possible for growth to take place under absolutely constant external influences, variations would not occur" (Weismann). But if we will only consider the protoplasm to be a complex inert machine, both quotations are perfectly clear, they are the expression of the fact that the law of heredity is really a law of chemic reliability to react always the same to the same forces, and to behave differently to different forces.

It is high time that the medical profession should cut loose from the biologic Capulets and Montagues whose quarrel has been so harmful to the development of pathology. It is time for us to cry "a plague o' both your houses," and leave them to their unseemly contentions. We can rest assured that the present partisans will remain partisans until death claims them, and that the quarrel will go on for another generation, so that we must in self-defense disown them both. Anyhow, the physician who studies heredity in man is far more apt to come to safe conclusions than the biologist who studies potatoes or primroses, and if we wish to progress we must leave them alone, taking only the facts they find. Adami pertinently says that there are pathologic states needing explanation which the biologist never sees, but which physicians see every day.

The nearest approach to the true solution of the relative value of variations and modifications is found in a popular article by Dr. P. Chalmers Mitchell[2]: "The eggs or germinal masses, take from their parents, of which they were part, the power to respond in similar ways to similar external forces, and children resemble their parents, insofar as the external forces operating on their initial material resemble those which went to the making of their parents. It is necessary to realize

[1] Medical Record, May 27, 1905.
[2] *American Medicine*, June 17, 1905.

[1] Science, July 15, 1904.
[2] N. A. Review, October, 1904.

that the effect of these forces is ephemeral, and that it has to be reproduced in each generation; . . ." This whole article, indeed ("The Making of Modern Races") is a proof of the identity of variations and modifications, and should be taken to heart by every man who is working to check or stop the production of our degenerate classes. The medical profession, being daily and hourly occupied with the study of modifications of this one species of animal, is in a position of authority with power to stop the old biologic quarrel, and must do it in the interests of the etiology of diseases and deformities and the uplifting of the race. The anomalies are neither due to inherent wickedness of the germ plasm, nor are they inscrutable acts of God, but they are due to definite physical causes. The offspring of normal people are not foreordained to be normal—nor are the children of degenerates necessarily damned. Pessimism has no place in this matter.

MISCELLANY

THE DUTIES OF THE GENERAL PRACTITIONER AND THE SPECIALIST TOWARD EACH OTHER.[1]

BY

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of Philadelphia.

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This subject is often discussed in the abstract, but seldom in the concrete. I would feel a certain amount of diffidence in offering this mental pabulum from my position as a specialist were it not that I am well aware of the highmindedness of my colleagues, men who, broad in their views, exercise in approaching this, as in all other subjects, a sophrosyne which is as admirable as it is praiseworthy. One might say: "There is no need of reciprocity between the specialist and the general practitioner; to be successful is the thing, no matter how, or who it hurts, be successful." But this is not the highest aim; ambition is far from being the only shrine at which to worship.

The general practitioner is a human being, like all of us, with like hopes and joys and griefs, although to some specialists, according to their ranting jeremiads, he seems to have blundered into a diploma, a formless mass of protoplasm who is like St. Paul, "all things to all men," and therefore an object of derision and contempt, a man who is fit only to be cast into the outer darkness, which is tenanted by the old-time leech, the barber-surgeon, "dogs, sorcerers, and whoremongers." But he has not only his good points and his saving graces, but also opinions of his own about the specialist, which need not be detailed. Why does not the general practitioner more often send his cases to the specialist or, in fact, make it his fixed rule?

The great reason why the general practitioner does not refer his cases to the ophthalmologist is to save his patient a fee which is generally understood to be exorbitant upon the part of the ophthalmologist. Then, he may not trust the ophthalmologist to return the patient to him and to refuse to give general treatment—and it is a sad commentary upon the standards of the profession, that often his fears are justified. Occasionally we find that the general practitioner knows practically nothing about eye diseases, and he therefore refuses to refer his patients through fear of showing his ignorance. This man usually sends his ophthalmologic cases (other than inflammatory ones) to an optician, persuading the patient that the optician can do all that is necessary in correcting refractive errors, and incidentally gaining the patient's cooperation by calling his attention to the fact that he will have no fee to pay the optician, but that the only expense is for the glasses.

Trouble also comes from the general practitioner failing to recognize the earliest symptoms of oncoming ocular trouble or, recognizing them, he considers unimportant what may easily prove to be surface indications of deeper, underlying conditions likely to affect the sight as well as the general welfare of the patient. When he does recognize these symptoms, and still refuses to send the patient to the ophthalmologist, he is likely to mistreat or neglect these conditions for fear of attracting the attention of the patient to the fact that he is being treated by a general practitioner for conditions which the public now know, in their present state of education, require special skill and experience.

But all this does not mean that the ophthalmologist has no duties of his own toward the general practitioner, for he has one great obligation and responsibility to appreciate (and by his attitude to show his appreciation) the implied compliment to his skill paid him by the general practitioner in referring the case, and next, absolutely to deny himself any right to treat the general conditions interrelated to the ocular abnormity, resisting the temptation often presented by the patient who wishes to save one of two fees, and get a "job lot" of treatments at bargain rates. The duty of the ophthalmologist toward the public is, for his own as well as for the general good, to try, by his unassuming demeanor and modest charges, to dispel the widespread and somewhat fixed idea in the public mind that to put oneself into the hands of an ophthalmologist necessitates first placing a blanket mortgage on everything he owns, including the house cat, so that the specialist, who never issues trading stamps, may find the game worth his while.

Most people, it is true, consider without due reflection, that the ophthalmologist's is a narrow field, easily compassed and quickly as well as richly harvested, but the time may well come when we may find that ophthalmology will be divided into subspecialties, such as the specialist for cataracts, he of the muscle work, the handler of inflammatory conditions, and the refractionist, to say nothing of the specialist in ocular hygiene, or the public ophthalmologist. The oculist should never force himself to believe that practically all conditions of malady are due to abnormal ocular states, for if he believes too firmly in this procrustean bed, he is likely to find, suddenly that he is forcing his patient into a modern folding bed, which, closing up, fails to indicate the head from the foot, and thus the prime end of true medical science—the prevention and cure of diseases and defects of the human body, is defeated. The ophthalmologist who aims to correct the sterility of a woman with spherocylindric lenses merely because she is looking for trouble, is only to be compared to the general practitioner who gives his patient "cough medicine" in the endeavor to "shut his eye up." Breadth of views and moderation in his opinions will save the ophthalmologist from the humiliating opinion of many patients that he knows nothing of general medicine. Will the science of medicine become so complicated that at some time in the future our students will be taught thoroughly, from lack of time, only the specialty they select, and acquire by the way only the outlines of the other specialties and general medicine? As the Spanish say: "Who knows, it is in the hands of God."

Lastly, there is one common ground on which the specialist and the general practitioner unite, one solid platform on which they meet and with uplifted eyes and heartfelt voices, chant:

"From battle, murder, sudden death, and the man who specializes in everything, good Lord, deliver us!"

[1] Read before the Associated Physicians and Surgeons of Charity Hospital of Philadelphia, February 4, 1905.

Traumatic Gangrene of the Lung.—Th. Kulenkampf reports the case of a coachman, who fell from the seat of his coach on a hot day during an attack of vertigo. Prior to the accident he was perfectly well, but from this day on constantly complained of pain in the chest and cough. He worked for several weeks after the mishap, but in the end had to go to bed because of weakness, emaciation, fever, etc.; the sputum had a gangrenous odor, but no localizing symptoms could be discovered until about 10 weeks later, when the left lower lobe was found to be inflamed. The autopsy revealed a large gangrenous cavity in the left upper and a recent pneumonia in the left lower lobe. The gangrene evidently was in etiologic relation with the accident.—*Deutsche medicinische Wochenschrift*

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 14, 1905. [Vol. xlv, No. 16.]

1. Arabian Ophthalmology.—J. Hirschberg. See *American Medicine*, Vol. X, No. 11, p. 431.

2. Important Subjects Which Have Occupied the Attention of Gynecologists and Obstetricians during the Past Year.—C. L. Bonifield. See *American Medicine*, Vol. X, No. 4, p. 135.

3. Tuberculosis of the Kidney.—J. G. Sherrill. See *American Medicine*, Vol. X, No. 10, p. 388.

4. Brain Injuries.—D. C. Peyton holds that surgery is called for when there is evidence of hemorrhage or symptoms of compression, either from hemorrhage, depressed bone, or the presence of a foreign body; in cases with symptoms of serious brain injury the danger to the patient of an exploratory opening with the observance of the highest degree of aseptic technic, is infinitely less than the unreasonable delay that is frequently permitted while waiting for definite diagnostic symptoms. The surgeon should watch the symptoms very closely from the beginning until he can assure himself that no injury has occurred within the cranial walls. Two cases are reported, one of gunshot wound with extensive comminution of bone in which the fragments were removed and the wound cleansed by irrigation with normal salt solution, followed by recovery, and the second, of fracture of the base, terminating fatally.

5. Further Remarks on the Mode of Infection in Uncinariasis.—Claude A. Smith. See *American Medicine*, Vol. X, No. 10, p. 388.

6. Iritis Tuberculosa as Diagnosed and Treated by Koch's Tuberculin.—William E. Gamble and E. V. L. Brown. See *American Medicine*, Vol. X, No. 13, p. 514.

7. Pneumonia in the Young.—Edward F. Wells. See *American Medicine*, Vol. X, No. 9, p. 346.

8. Disturbed Dentition of the Third Molar.—The surgical aspects of abnormal eruption of the third molar are discussed by M. L. Rhein, who shows the effects of lack of space at the angle of the jaw, as productive of grave disturbances, and calls attention to the possibility of its producing infection of the inferior dental canal as well as symptoms of irritation of the dental nerve. In some mouths the jaws come so close together that trauma of the gums over the affected place is constantly being produced. The crowding of the third molar against the already erupted second may also produce serious inflammatory reaction and infection. The symptoms may be neuralgic pains radiating to the ear and even to the neck, shoulders and arms, difficulty in opening the mouth and marked febrile phenomena. Prompt excision of the entire hood of gum tissue is called for, and extraction of the tooth in case there is evidently too little space for its proper eruption. In the most serious cases, the disturbances do not abate after partial eruption of the tooth, it being prevented from complete eruption, and every effort should be made to assist its proper development. If this is clearly impossible, extraction should be done at the earliest moment, even if it requires cutting away a portion of the mandible. Delay increases the danger of neuralgic complications and infection of the inferior dental canal.

9. Cholera and Infected Waters.—Charles E. Woodruff. See *American Medicine*, Vol. X, No. 9, p. 347.

Boston Medical and Surgical Journal.

October 12, 1905. [Vol. cliii, No. 15.]

2. Surgical Treatment of Diseases of the Stomach.—J. T. Bottomley believes that a surgeon should see a case (1) as soon as there is a suspicion of cancer, as cure is in proportion to the stage of development; (2) a supposed acute gastric ulcer which resists treatment more than five to eight weeks; (3) any gastric case as soon as there is doubt; (4) all chronic gastric ulcers, and (5) all complications and sequels of acute and chronic ulcers. He gives a brief review of the vessels and lymphatics of the stomach, as a help in understanding the principle of radical operation. In localized growths he advises excision and suture; when the cardia is involved, gastrostomy. If the disease is very extensive, either gastroenterostomy or jejunostomy can be done for relief from pain and starvation. Marked glandular involvement may not contraindicate operation; adhesions add greatly to its danger. He repeats Mayo's recapitulation of the steps of radical operation. At the present time gastroenterostomy is the operation most used for ulcer and its complications, and the writer gives the technic of the methods he has found most satisfactory. Shortening of the gastrohepatic ligament for prolapsed stomach has proved unsatisfactory. Finney's operation has not resulted as well as gastrojejunostomy. Rodman's gastrectomy for multiple chronic ulcers deserves much consideration. [H.M.]

3. Resection of the Nasal Septum.—L. E. White reviews the development of the operation and its various methods. From this study and his own experience he advocates the following: The anterior vertical incision which can, if necessary, be extended backward at either top or bottom, is the one to be chosen whenever possible. The operator should aim to keep intact the convex flap, and as this is much easier with a single cut, one should endeavor to remove the deflections through this anterior incision. One should save as much of the mucosa as possible. When the deflection is far back, horizontal incision, in addition, has frequently been advantageous. Sutures are more or less optional. In case the vertical incision has to be extended backward, or when a triangular flap is necessary, they should usually be used. Cocain solutions of ½% for submucous injections, and of 1% for local application have proved more satisfactory than stronger solutions. The time needed varies with the accessibility of the deflection. When the convex mucosa is preserved, the septum may heal in a week; otherwise it may not occur for from four to eight weeks. It is not advisable to operate under 14 or in the aged or infirm. Tuberculosis and primary or secondary syphilis are contraindications. [H.M.]

Medical Record.

October 14, 1905. [Vol. 68, No. 16.]

1. The Office Treatment of Diseases of the Rectum.—Charles B. Kelsey says that while radical operations under general anesthesia usually save the patient time and suffering, yet conditions are such that it is necessary to treat very many cases under local anesthesia in the office. For securing local anesthesia he prefers eucain to cocain, and he also believes that this agent is much preferable to the injection of simple water, for the same object, on account of the large amount of fluid required in the latter case. Local anesthesia is open to the serious objection, however, that by it the sphincters cannot be stretched without pain, on which account a very large proportion of rectal surgery is left dependent on general anesthesia. In speaking of fissure, the author says that, while not the method of choice, still almost as many cures can be effected by incising the sphincter under local anesthesia as by stretching it under gas or ether. The application of the actual cautery for pruritus is, if anything, more satisfactory if done in several sessions under local anesthesia than if but one treatment is given under general anesthesia. Fistula can sometimes be satisfactorily treated in the office, but much judgment is necessary in selecting the cases. He describes a new office treatment for hemorrhoids, which he has practised for some time with good results. It consists in punctate

cauterization of the tumors with a needle heated by electricity, the parts being first rendered insensitive by injecting a few drops of eucain solution. Only one or two applications are made at a time, and the treatment should not be repeated oftener than twice a week at first. The patient is not expected to be confined to the house or kept from his ordinary business. The time consumed by the treatment in an ordinary case is usually about three months, though it can be done in much less.

2. The Vapor Method of Anesthesia.—James Taylor Gwathmey describes a modification of the Braun and Harcourt inhalers, which he says combines all their good features in such a way as to present an improvement on the instruments now in use. The apparatus is intended to be used with ether and chloroform, administered with or without the admixture of oxygen, but ethyl chlorid or nitrous oxid may also be used in inducing anesthesia. The author expresses himself strongly in favor of the combination of oxygen and chloroform given by the vapor method, and states that it has been proved to be safer than ether and air. Anesthesia with his inhaler is better than that induced by the drop method, as the concentration of the anesthetic mixture is accurately controllable instead of being dependent on the patient's manner of breathing, and, while the gas-ether sequence is the quickest and safest routine method of anesthetizing, it is unphysiologic, and will probably be superseded by the vapor method, or some other, in the near future.

3. The Etiology and Elimination of Diabetes.—G. Lenox Curtis says that diabetes is caused by faulty metabolism, which interrupts the oxidation of the carbohydrates, but that it is not known to which organ or function this faulty metabolism is due, whether to the kidneys, liver, or nervous system. Recent researches lead us to refer it to the pancreas, and the disturbance of the secretion of the islands of Langerhans. Yet, we do not know the cause of this wrong secretion. The author believes that he has discovered this cause in the prevalence of syphilis. This belief is founded on the careful observation of years. The patients he has treated for diabetes have always had a specific taint, either congenital or acquired. Of 20 cases of diabetes treated in the last seven years, all have had syphilitic taint, and all have been cured in three or more months by the author's combination of antisyphilitic medication with electro-ozonation. The diagnosis of syphilis is not made from the history, but from blood-examination, and from the eschar of Curtis, which will be found on some one of the mucous membranes. Syphilitic spores will be found in the blood of these patients when freshly drawn. The ozone is derived from an ozone generator fed by a high-tension coil, with brushes attached, from which ozone is given off, and a Geissler tube through which ozone can be forced into and through the body. This alone can eliminate syphilis, but the author uses mercury and the iodids with it. In late cases the degeneration has gone on so far that there is needed a stimulation of the circulation such as ozone gives. Under this system of treatment the diet need not be limited.

4. The Cost of Modern Hospitals.—S. S. Goldwater analyzes at length the conditions which cause the cost of the modern hospital building to be so much in excess of what was the case a generation ago. He estimates that a hospital of 1870, of 450 beds with a space allowance of 6,000 cubic feet per patient could be built today at a cost of $1,200 a bed. A modern hospital with the same space allowance would cost double, or $2,400 a bed, while actually in a hospital recently built, 11,000 cubic feet were allowed per patient, and the cost was approximately $4,400 per bed. Aside from economic causes which are beyond our reach, the high prevailing cost of construction is apparently due to new methods of disease classification and treatment, to more intense nursing, to the discovery of scientific methods of diagnosis, to an application of the principle of hygiene to wards, work-rooms, and living-rooms, to the desire to release from the wards during part of the day, convalescents to whom the atmosphere of the sick room is detrimental, and finally, to the evolution of the fireproof, and to a certain degree germproof building. He proposes the plan of having the hospital maintain in the country a less expensive branch building for the reception of the convalescent patients, and shows that in this way a much larger number of patients can be provided for at the same expense. For example, the sum of $1,000,000 will provide a city hospital for 250 patients, but invested in a city hospital with country annex, it will furnish accommodations for 300 patients. The conditions of operating will also be such as to render this division of the plant the most economic system of managing the hospital, and he urges universal adoption of the plan.

New York Medical Journal.

October 7, 1905. [Vol. lxxxii, No. 15.]

2. Midtarsal Valgus.—The deformity in this condition, according to E. H. Bradford, is not at the ankle-joint proper, but is at the mediotarsal articulation—that is, between the astragalus and scaphoid and the os calcis and cuboid. Characteristic of midtarsal valgus, is the projection of the internal malleolus; as in knock-knee, the prominence of the internal condyle is noticeable. The foot is somewhat distorted in shape. In the normal foot, the midline can be drawn from a point at the middle of the os calcis to the middle point of the line of the base of the toes, and passes through the midpoint of the midtarsus; but in a valgus foot, such a line is not straight, but forms an angle at the midtarsus, with its apex pointing to the inner side. In severe cases, the os calcis loses its firm connection with the astragalus, and an excursion under the latter takes place when weight falls on the foot and an astragalocalcaneoid valgus is developed. This may or may not be associated with the midtarsal valgus, though the association is frequent. A valgus foot is frequently associated also with a valgus deformity at the metatarsocuneiform or scaphocuneiform articulation, characterized by an undue prominence of the end of the cuneiform. Hallux valgus is often seen in midtarsal valgus. In normal feet, with faulty gait and attitude, attention is to be paid to the correct use of the foot in standing and walking, and especially to proper footwear, which necessarily influences gait. In weak feet, muscular development is necessary for a cure, in addition to proper shoes and proper habits in walking. In a distorted foot, with structural changes and impaired flexibility, the attempt should be made to restore the normal midtarsal flexibility. [C.A.O.]

4. Functional Nervous Disease.—W. H. Thomson defines clearly the fundamental contrasts between organic and functional nervous diseases, and shows that they are entirely distinct both in their etiology and pathology. The treatment of these two classes of diseases is, therefore, correspondingly different. Functional nervous diseases, such as migraine, hysteria, epilepsy, and melancholia, are caused by toxemia, the poison being in the blood, and in the treatment of these conditions the nervous system should be let alone and every effort directed toward the elimination of the poison. [C.A.O.]

5. Shock and Hemorrhage.—C. C. Barrows takes up these conditions as causes of death following abdominal operations. In no form of surgical procedure, excepting possibly brain surgery, do shock and hemorrhage prove so potent a factor in producing a possible fatal result as in surgical operations within the peritoneal cavity. In hemorrhage, as a rule, the patient regains consciousness promptly from the anesthetic, is extremely restless, with a panting respiration from oxygen starvation; great thirst and fear of impending danger. On the other hand, in shock, the patient gradually, sometimes rapidly, lapses into a semicomatose condition, or into coma with-

out restlessness or expressions of much bodily discomfort; the respirations are as a rule, shallow and not so rapid as in hemorrhage. In cases in which the symptoms are of such gravity as to give us serious anxiety, we should at once resort to the use of the hemoglobinometer, which by demonstrating the decided impairment of the ratio of the red coloring matter will lead us clearly to a diagnosis of hemorrhage. The treatment of shock is divided into prophylactic and immediate treatment. Dexterous and skilful work rapidly and safely done, limiting the time of the operation and thus cutting down the period of anesthesia are valuable adjuncts in reducing the possibilities of shock. Normal salt solution by intravenous injections, by hypodermoclysis and by rectum and strychnin hypodermically are the forms of stimulation to rely upon. The writer has seen very beneficial results from the intravenous injection of a 1 to 25,000 solution of adrenalin chlorid in quantities of 500 cc. repeated in an hour. If there is hemorrhage the abdomen ahould be reopened and the bleeding points controlled. [C.A.O.]

6. Scopolamin Hydrobromid.—John V. Shoemaker says that scopolamin is superior as a mydriatic to atropin, as there is less danger of glaucoma from its use. The solution should be 1 to 1,000 or less. In combination with adrenalin, hydrochlorid scopolamin is useful in conjunctivitis. It is usually combined with a small quantity of morphin hydrochlorid in surgery and injected near the field of operation or along a nerve trunk. In some cases, as in young and healthy adults, scopolamin-morphin injections, given at intervals of an hour, have been entirely successful in keeping the patient unconscious during a surgical operation and without ill results. In protracted operations it is a valuable adjunct to ether or chloroform anesthesia. This drug is of uncertain composition, on account of the variable quantity of atroscin present; and that it is a depressant to the cerebral and spinal centers and the heart, and a paralyzer of voluntary muscles, especially those of the larynx and pharynx, therefore great care should be exercised in its use. [C.A.O.]

7. Guaiac Test for Blood.—I. S. Wile has modified Van Deen's guaiac test for blood, as follows: To equal parts of chloroform and turpentine, tincture of guaiac (U. S. P.) is added, a drop at a time, until slight milkiness appears. To 1 cc. or 2 cc. of this reagent the suspected solution is added, and the mixture is thoroughly shaken. In the presence of blood, the chloroform-turpentine-guaiac solution becomes blue. The color takes a few seconds to manifest itself, but gradually deepens until all the hemoglobin has entered into the reaction. The color then gradually becomes lighter and slowly disappears. He believes this chloroform modification to be more delicate than that of the solution formerly used. [C.A.O.]

Medical News.

October 14, 1905. [Vol. 87, No. 16.]

2. Symptomatic Treatment of Tuberculosis.—J. R. L. Daly thinks it a mistake to depend entirely on diet and hygiene for the relief of certain symptoms in tuberculosis, instead of relieving the patient's discomfort as far as possible with drugs, thus aiding his combat with the disease. He advocates sedatives, rather than stimulating expectorants, for the irritative cough. For pleuritic pain, he straps the chest during expiration, and gives opiates when it is acute, or paints the chest lightly with ol. tiglii, fl. dr. 1½; tr. aconite, fl. dr. 1½; tr. iodi co. q.s.ad fl. oz. 1. As a hypnotic, he uses sometimes chloral when the heart is normal, bromids for nervous insomnia, and of late, veronal, which leaves no distressing after-affects. If there is pain, he combines opium with the hypnotic. If the patient is about, instead of drugs he advises first a bath at 98° F. to 100° F. before retiring, hot bottles to the extremities, and a bandage about the abdomen. In tuberculous laryngitis, he sprays the throat with cocain, or if this fails, with ethyl chlorid. The effect of the latter lasts from 20 to 40 minutes. It should not be used in the edematous stage, but in the ulceration stage. If sweating fails to respond to the ordinary anhidrotics, bromids should be combined with them. He prefers eumydrin to atropin, as it acts more quickly and does not dry the throat. Its action as a respiratory stimulant is also more lasting. [H.M.]

3. Cerebral Meningitis, Probably Due to the Pneumococcus.—R. N. Willson reports four cases. At least three, it is highly probable, though not proved, were due to pneumococcus infection. These show that pneumococcus cerebrospinal meningitis, while usually of serious and often fatal significance, may run a mild course and terminate favorably, and that thorough cerebrospinal drainage not only exerts a favorable influence on the symptoms, but may render mild an otherwise grave condition. It would appear possible from the study of these cases that laboratory findings (character of the fluid, blood picture, etc.) may be fundamentally affected by the early and complete relief of intracerebrospinal drainage. [H.M.]

4. The Gynecologic Bladder.—A. E. Gallant reports a number of cases representing a few of the factors which modify the functions of the bladder, and lead to the following conclusions: (1) That frequent and painful micturition is met with in about a third of females who apply for gynecologic advice; (2) that in 25% this is due to gonorrheal urethritis, often associated with vaginitis; (3) that but few cases of gonorrheic infection are met with after 32 years; (4) that vesical prolapse and intrapelvic or abdominal tumors are the most common factors after 30 years; (5) that uterine displacement and inflammation of the adnexa must be relieved before the bladder symptoms can be cured; (6) that as changes in the urine do not occur in more than 5% after medical treatment has failed, the pelvis and anal region should be explored, unless urinalysis points to disease in the ureter or kidney. [H.M.]

CLINICAL MEDICINE

David Riesman A. O. J. Kelly
Norman B. Gwyn Bernard Kohn
Helen Murphy

EDITORIAL COMMENT

Another "New Theory" of Pulmonary Consumption.—Dr. A. W. Martin, medical officer of health for Gorton (England), who, not long ago gave his views on the medicinal value of chrysanthemum leaves in smoking, has recently communicated his original discovery of the intimate nature of pulmonary tuberculosis to a representative of the *Manchester Guardian*. He regards consumption as really consisting of two distinct diseases: The first is a special constitution produced by a particular diet, and which prepares the soil for the invasion of the second; which latter is due to the entrance of the germs, and represents the effects of their presence. If the first disease is prevented, the second never has the chance of a start. He goes on:

> As far back as 1887 I took up the subject of phthisis for investigation as to its causes, and began the search to find, if it were possible, something, or a combination of things, which was common to every case. . . . I discovered what appeared to be a point of agreement in all the cases in one particular only, and that was in the proportions which the food elements bore to each other. The error in diet consists of excess of starchy foods (such as bread, potatoes, pastry, etc.), and a deficiency of fat—both being necessary for a healthy constitu-

tion, fat to the extent of three to four ounces per day. For each ounce of fat withheld from the body four ounces of starchy food has to be taken extra, and this continued for years together builds up a constitution which at last forms the suitable soil for the consumption germs to develop in the body. And this is the most important point—that a constitution built up by a liberal supply of fat in the daily diet is prohibitive to the consumptive germ.

The inherited phthisical constitution also confirms the food origin of the disease, the special type of build of the parents, molded by whatever mode of living, tending to be transmitted to the offspring. That which is of still greater importance, however, is that the dislike to fatty foods in the parents produces the same dislike in the children, through this particular class of food being withheld from them by their parents on the principle that what they dislike is not good for their children, and so the phthisical constitution is begun in infancy in the families of phthisical parents.

Whenever the insecure pathologist is at sea, he proceeds at once to questions of food and digestion. But usually it is a leap into the dark. One may agree with Dr. Martin in regard to the great importance of a proportion of fat in building up a constitution capable of resisting germ invasion, and as regards the great significance of dislike to fatty foods in this connection. But, while conscious of the fact that twentieth century pathology tends to deny the direct inheritance of the phthisical constitution, it remains true that the dislike to fatty food, so characteristic of the "strumous diathesis" of the older pathology, was always accompanied by, and indicative of, a functional incapability of the digestive glands, and not due to the education or selection by parents. The digestion and absorption of fat, test the powers of the alimentary apparatus more severely than do those of other constituents of ordinary human diet. It is true that if fat could be introduced into the circulation, in assimilable form, it would prove the most important dietetic bulwark against the attacks of that wicked germ. When the "strumous dyspepsia" is present, would not *inunction* be more desirable than *predigestion?*

REVIEW OF LITERATURE

Burghart's Symptom of Tuberculous Pulmonitis.—Kuhn[1] accepts Burghart's thesis in entirety. He describes the peculiar fine rales heard at the anterior inferior margin of the lung, and which deserve to be taken as a precocious sign of infection by the bacillus of Koch. These rales are likely to be moist, and differ therefore from the rales which Strümpell connects with the early stage of exudative pleuritis. In cases in which this crepitation inclines to the type of a tuberculous rale, it will be found true that there has been a tuberculous process antedating and causative of the inflammation of the pleural sac. Janowski begs the question in explaining apparently moist rales, at the noted point, as due to a liquid medium across which the observer must hear the sign, but this can confuse only the inept. Military medicine is indebted to this sign, for the avoidance of frequent error. Kuhn has thought it necessary to warn of the nearness of the gastrointestinal canal, and the possible transmission from it of sounds of fluids. [T.H.E.]

Hematologic Investigations in Several Cases of Leukopenic Splenomegaly.—L. d'Amato[2] found a diminution of the white corpuscles in two cases of Banti's disease, two cases of chronic malaria, and a case of hepatosplenic syphilis. In only one case was the leukocytic formula almost normal, while in the other four there was a diminution of the multinuclear neutrophiles. In all there was a slight diminution of the lymphocytes. In two cases there was a small number of myelocytes. The author found that the hematologic formula can change in the same patient, for reasons that are not known. The special cause of the splenomegaly has some influence on the leukocytic formula. Digestion was found to produce a slight increase of leukocytes in four patients and a diminution in one, with changes in the leukocytic formula. Blistering and suppuration caused a moderate increase, especially of the multinuclears, as did also hemorrhages. Faradization of the spleen caused an increase of the lymphocytes, probably from contraction of the organ forcing them into the circulation. The blood-serum of these patients had a slight agglutinating power, but no hemolytic or leukolytic properties. The author's investigations led him to the conclusion that the cause of splenomegalic leukopenia lies in the condition of the leukopoietic organs, especially the bone marrow and spleen. It is certain that the bone marrow undergoes myeloid transformation in a large number of cases, of which there is at times an evidence in the blood of leukopenics. But it is not known why a diminution of leukocytes should occur, or why the organism should react torpidly to those irritants which usually incite a leukocytosis. [B.K.]

[1] Il Policlinico (Rome), August 27, 1905.
[2] Zeitschrift für klinische Medicin, Bd. lvii, p. 233.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Pathogenesis of Primary Typhlitis.—By far the greatest number of inflammations in the ileocecal region are due to inflammation of the vermiform appendix; a small number are due to catarrhal inflammation of the cecum, to tuberculous, typhoidal, actinomycotic, or dysenteric ulcers of the cecum going on to perforation, to ulceration, the result of a stenosis of the large intestine, to stercoral ulceration, and, lastly, a typhlitic perforation may be due to constant pulling by an abnormally fixed appendix. Three such cases have been observed by E. A. Polya,[1] and are reported here in detail. In the first case the appendix grew fast to the neck of a hernial sac, producing a spontaneous cure of an inguinal hernia; the adherent appendix pulled constantly on the cecum, causing first constipation and later cecal perforation immediately above the point from which the appendix grew. The appendix itself was perfectly normal. In the second case the tip of the appendix was fastened to the omentum and the parietal peritoneum; in the third, to the ileum; in both instances the symptoms of a chronic recurrent appendicitis existed, and were traced to perforations of the cecum above the appendix and are believed by the author to have been caused by the pull exerted by the adherent appendix on the cecum. The appendices beyond the abnormal adhesion and position were perfectly healthy. [E.L.]

Wound of the Abdomen, with Prolapse of the Large Intestine: Recovery.—O. W. Andrews and F. Cock[2] record a case of this character in a man of 59, who was found in a moribund condition with a wound of the abdomen, from which protruded a mass of intestines. The clothes in contact with the bowels were far from clean. He was first placed in an outhouse, which was used by chickens and other animals, and where Dr. Cock washed and returned the intestine, which was four feet in length and uninjured. The external wound was united with blanket-stitch sutures, passing through the whole thickness of the abdominal wall, as no needle holders or forceps were available. The operation was completed within an hour of the accident. The patient recovered completely, the wound healed entirely, and no sign of ventral hernia was observed. [J.H.W.R.]

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, No. 22, 862.
[2] British Medical Journal, September 16, 1905, p. 627.

American Medicine

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Medical climatology has never had a sufficiently solid basis of fact to be considered scientific, and has been naturally sadly neglected. The average medical student is scarcely made aware that it is a science and the physician is compelled to learn by experience of the good which can be accomplished in some diseases by an appropriate climate. Enormous labor has been spent upon the mere collection of meteorologic data, yet astonishingly little in the way of safe therapeutic generalization has been evolved. Geographic and climatologic societies have worked hard for generations and have mapped out the world in such detail that there is scarcely a place of which we are not informed as to all the conditions which go to make up a climate. All these data have been tabulated in every conceivable form, and twisted into statistics curious but of little practical use to the therapeutist. Even those who are able to use what therapeutic knowledge we possess, derive no advantage from the minute details collected and tabulated, and they depend upon very wide and crude generalizations. Happily, there now is a tendency to study the effect upon the organism, in health and disease, of each climatologic factor. The therapeutic importance of the matter is extreme if it should subsequently be proved that in certain affections an appropriate change will be curative. The matter will no doubt soon be placed on a sound foundation, though empiricism still guides in many cases.

Climates modify every living organism, and the modifications if better suited are selected so that a migration is sooner or later followed by change of type. It is evident then that each climate is suitable for those organisms which are adjusted to it, but harmful or fatal to all others. For these reasons we find that when man has occupied any locality for a long time the surviving type is markedly different from the type in neighboring lands. In each place the unsuited have been killed off. Meteorologic conditions are, therefore, most powerful agents for the destruction of men who have wandered too far from the places to which they are adjusted. Eskimos die of pneumonia in the temperate zone, and negroes perish in time if they go too far North. The United States has been peopled by many types of men, all of whom are now out of their natural habitat, and as the conditions are more or less harmful to all of them, we find that some of these types are suffering a dreadful degeneration and mortality, which bids fair to eliminate them completely.

The present problem in climatology is to find out what the fatal factors really are—a work demanding the joint labors of climatologists, anthropologists, and pathologists, for no man is learned in all three of these sciences. It is an enormous task to be sure, but until it is completed it is evidently useless to suggest means of preventing the destruction of life now in progress. Until we find out the reason for each of man's characteristics in one locality, such as tallness or color, it is not possible to say why that characteristic is harmful somewhere else. Since every American, except the Indian, is far from his natural home, it is evident why we should have an almost universal tendency to search out a more suitable climate than the one in which we were born. Europeans do not have this habit, and consequently nowhere else, except in America, is a mere "change of climate" looked upon as a panacea for almost every known ill. With us a change to any other place is likely to take us from the conditions which have harmed us, and this is possibly the benefit. No wonder then that the nearest to scientific accuracy of much of our advice is the mere statement "you need a change of climate."

Relaxing equable climates are generally considered to be unsuited for the sick, on account of the rains, clouds, lack of sunshine, and all the depressing conditions of the sea level. Nevertheless Europeans who have lived in such places for millenniums are perfectly

healthy; survivors, no doubt, of a long selection as in every other place. When these types migrate to the bracing dry elevated countries, they break down quite soon. Our tendency to send all men, sick or well, to stimulating climates is therefore not scientificly justified. Dr. Leonard Williams[1] has indeed sounded the praises of relaxing climates for certain pathologic states. He shows that emphysema does best at these low levels, probably because the moist air is sedative and because of the irritation of the cold and of the rapid changes at higher levels and the difficulty of obtaining enough oxygen. Chronic heart diseases are notoriously injured by high levels, probably from the extra burdens of a circulation which must be more rapid to carry enough oxygen. Chronic nephritis is also a condition requiring the equable warmth and moisture of low levels—a fact which is not well known by any means. Too often do such patients end their careers by a pleasure trip to an ideal stimulating climate. It is rumored that America recently lost one of its greatest statesmen in this way. The mechanism is not well known by any means, but it has some relation to disturbances of circulation in the kidney from contraction of the superficial arterioles which are a weak kidney's safety-valve. It is truly surprising how long a time a pair of damaged kidneys will suffice in a relaxing climate where the skin is always moist and they have little to do. Williams also calls attention to the increased metabolism in stimulating climates, overloading the tissues with toxic substances if the excretory functions are feeble. Hence relaxing climates are needed not only in these cases, but also whenever it is desired to reduce metabolism in other pathologic states; or when we do not care to have the patient consume much food.

Cloudy climates are now claiming considerable attention on account of the nervous conditions so often found in sunshiny ones. As a rule, light climates are at considerable elevation, and the stimulation has generally been blamed upon the rarefied air or some hypothetic electric conditions, though similar results are found at low levels if the light is too strong. Sunshine must be a powerful agent to have caused the destruction of blond types and the consequent evolution of such a heavy protecting pigment in natives of all light countries. Pigments are not purposeless freaks of nature. Dr. Leonard Williams particularly cautions against sending nervous patients into bracing climates, where only the strong and healthy can stand the stimulation. The nervous need soothing conditions, though elevation, curiously enough, may be beneficial in some neuroses, such as those accompanied by asthma and hay-fever. Dr. F. G. Byles[1] and many others have mentioned the nervous conditions resulting from the exhilaration caused by our Rocky mountain climates, from which the sufferers are compelled to migrate on account of insomnia or some other evidence of neurasthenia. He even advises sending gloomy patients to these elevations, though if the mental depression is due to exhaustion it is likely that the stimulation will act as a whip to cause effort and more exhaustion. There is now some evidence that neurasthenics have been vastly benefited or even cured by a removal to northern places where the cloudy days are numerous and the sunshine is at a minimum of intensity at all times. This is a matter of great therapeutic importance, should it be confirmed. Blonds never have flourished in great numbers except in the cloudy and gloomy northern part of Europe, and we can not expect them to reverse natural laws in America. If it is true that they become abnormally nervous to a greater degree and in greater numbers than the pigmented types, then removal of such patients to a place resembling their native climate is quite rational. Our rainy, cloudy northern places may possess unsuspected therapeutic uses. Sanatoriums in the northeast corner of the United States have been quite successful in treating the nervous, and no one seems to know why. It deserves investigation.

Sunny climates have had a long popularity on account of their stimulation. If a place shows a large percentage of cloudless days, it is regarded as ideal for almost any kind of invalid. Yet this stimulation may be just the thing our patient should avoid. The light bath is known to increase metabolism, and as light climates do the same, it is quite evident that their chief use is in cases of defective chemic metabolism, yet it is also evident that either the baths or climates in time will produce exhaustion. Tropic neurasthenia is now a well-recognized condition. Hence, light climates serve their best therapeutic purpose when they are used intermittently. There is an army of Englishmen who travel on the continent each year, ostensibly for the benefit of certain waters, but it is much more likely to escape the fogs and get the stimulation of the light of southern places to burn up their surplus proteids. It is really surprising how long these gouty men retain their vigor, though living in a way which by all rules should kill them. A short sojourn in Egypt or the tropics is known to be quite beneficial in the gouty and rheumatic states. Sanatoriums or hot springs devoted to these complaints seem to be more effective in light climates than in dark

[1] Edinburgh Medical Journal, March, 1905.

[1] Medical News, November 26, 1904.

ones. It thus seems that while we can send our nervous patients North for prolonged periods, those of sluggish metabolism should go South periodically for short stays. The great stimulation experienced in light countries by visitors from the gloomy North rather deceives them as to the danger of too much, so that climatologic literature contains but little on this subject.

Change of climate for tuberculosis is no longer considered necessary in every case. The disease in appropriate cases is being cured all over the temperate zone by the standard means of hyperalimentation and rest outdoors. Indeed there is a marked reaction against sending some patients away from home, and it is found particularly harmful to send advanced ones to elevated places, where the increased difficulty of breathing and the extra heart-labor might prove fatal. Dr. Paul M. Carrington[1] has noted that in New Mexico, the patients with defective chest expansion develop dyspnea, cyanosis, more cough, and increased area of infiltration. Dr. Dunn[2] does not recommend any change for those in bad financial condition, nor for advanced cases, nor for those unwilling to drop everything else and make a business of being cured. It is now known that all cases are remarkably rapid and fatal in the tropics, but can be saved often by early removal north. The thought naturally arises as to whether it is not harmful to send any blond patients to our southern resorts, where they are in such an unnatural climatic environment. Perhaps the damage done by a climate might occasionally overbalance the good accomplished by the feeding and outdoor life, and thus fully account for the fact that just as fine results are obtained in places not looked on as good for tuberculosis. Some knowledge of anthropology is thus necessary in giving therapeutic advice to Americans. All patients cannot be bunched together simply as men, but they must be sorted out and studied, just as much as their diseases. There are as many kinds of men as there are kinds of climate, and we find nearly all the types of both in America. If climate alone can kill a healthy man who is unadjusted to it, it will surely kill him quicker if he is sick. It should be a rule in tuberculosis, as well as in every disease in which a certain set of meteorologic conditions is necessary for a long treatment, that a climate should be selected which at least will not be markedly different from the patient's ancestral one. Negroes need not be sent to cold places nor Eskimos to hot, nor should we send blond Scandinavians to sunny places, nor brunet Italians to the cloudy climates, except for short periods and for particular reasons.

[1] Journal Association of Military Surgeons, February, 1905.
[2] *American Medicine*, August 26, 1905.

Arctic climates for tuberculosis and catarrhal conditions of the respiratory tract have been suggested by Dr. Sohon,[1] who has mentioned several rapid cures of such patients who went to Greenland. He strongly advocates such a change, particularly in the summer months, with their remarkably stimulating sunshine. He suggests that the absence of septic conditions and pneumonias in the Arctics may be due to the fact that the atmosphere is dustless and that microorganisms are so promptly killed by the cold that they have no chance to reach a new host, even if they are taken up there. Of course, the lack of transportation facilities and of a proper food supply after one gets there, render the suggestion impractical at present, but it is said that the improvement in one summer is so great that it would be profitable to use a hospital-ship for the purpose. The patients could return at the end of the summer sufficiently recovered to complete the cure further south. The expenses would naturally be so great that the plan could not be carried out except as a charity endowed by some wealthy philanthropist. If it is a fact that residence in such an equable cold air is so rapidly curative as stated, the matter is of sufficient importance to be investigated. Wealthy patients might find such a change more practicable than the mountain sanatoriums, but from the general tendency to look less favorably upon mere change of climate as beneficial in tuberculosis, it is not at all unlikely that we might be building up false hopes, even if it were practicable to send patients to the Arctics. We cannot imagine that long residence there can be tolerated by anyone except an Eskimo.

Tropic plateaus as health resorts have received much study in the last few years. The British have long found it necessary in India to send their troops to the hill stations for the hot seasons to escape the dreadful heat of the lowlands. The opinion very naturally followed that it would be best to establish hospitals and sanatoriums in the mountains for the treatment or convalescence of the sick among the European residents. Climatologists have been inclined to believe that every place in the tropics, high or low, is unfit for northern people. Anthropologists point to the fact that the vegetable and animal natives of tropic plateaus have, as a rule, evolved characters so different from those of northern types that there must be factors harmful to Europeans, and are inclined to the view that such places are not fit residences for even healthy northerners. A recent article by Gustave Michaud[2] on the climate of the Central American plateaus perhaps reflects the

[1] *American Medicine*, April 23, 1904, Vol. VII, p. 667.
[2] Popular Science Monthly.

general lay opinion of the excellence of such places, except for the aged and neurasthenic, and is in contrast to the general opinion of the American physicians in the Philippines, that if a change of climate is needed the patient should leave the tropics. The matter is of considerable importance to the civil government, which is spending large sums of money on roads and other improvements to make the cool highlands of Benguet available for the civil officials, who find that continuous residence in Manila is too harmful, and who should escape to the mountains in the hot season. If it is true that the sick are just as well off there as in a northern climate, it will be a great saving to send them there. The plan does not appear, so far, to have received the approval of the local profession, though it would seem desirable to have more definite data on the subject. The troops, of course, cannot be sent to Benguet every hot season, and the plan of sending them home after two years will probably be a permanent necessity. As for using Central American or Mexican plateaus for the recuperation of Panama employes, it would also seem far preferable and cheaper to send them home for this purpose.

The climate of the Philippines has been highly praised by Dr. John R. McDill,[1] of Manila, who declares it to be an earthly Elysium for old people and children, and who also says that by observing a normal and moral life, healthy Americans can live there in good health and about as long as at home, and, moreover, can do as much good and hard work for three quarters of the year. We must confess to considerable bewilderment at such reports, coming, as they do, at the very time the War Department has concluded that three years is too long a tour of duty for its staff officers. Perhaps this is because it is not practicable to send them all to the cool Benguet highlands for a fourth of every year, which McDill seems to imply will solve the problem of continuous residence in the tropics. The large number of Americans who have broken down in health in the Philippines and have been compelled to return will probably resent the insinuation that the reason is to be found in their immorality. The old men who have died as a result of their failure to find in the place an Elysium should turn in their graves. The government is compelled to keep a large hospital in San Francisco for the reception of the continuous stream of invalids sent home, and it is hard to believe that all this illness is avoidable. In view of the overwhelming evidence of the injurious effects of continuous residence in the tropics, it is a curious phenomenon that every now and then there should be a dissenting opinion. The stimulation experienced during the first few months will, no doubt, explain the encomiums of new arrivals, but we are at a loss to explain the occasional rosy reports of older residents. It is likely to be due to the fact that man always minimizes dangers to which he is accustomed. It is also natural to think lightly of dangers through which we have passed and survived, for we forget the majority who have perished. Indeed, the tropic amnesia, of which we hear so much, may prevent any remembrance of them and may particularly obliterate all recollection of the rosy-cheeked, healthy American child, which is said to be so rare in the tropics, unless it be a new arrival. Perhaps the essentials of Elysium are also forgotten. Before coming to a final judgment as to the Philippine climate, we should know something of its ultimate effect upon those who praise it.

[1] Journal of the American Medical Association, August 19, 1905.

Climate and conduct have a very close connection, as Prof. Edwin Dexter of the Illinois University has proved in his interesting book on "Weather Influences." He endeavored to find out the reasons for the remarkable fluctuations in the conduct of school children, and succeeded in proving that there was a decided relation between states of the weather and states of the nervous system. Of course this has been a matter of popular knowledge for millenniums, for primitive man himself must have noticed such changes with the weather, but Dexter has proved that the facts are in many cases the reverse of common beliefs. "Under the weather," as an expression of some malaise, has at last a real scientific basis, as shown by the enormous number of observations from which he has drawn his generalizations. Not only can teachers, through such investigations, counteract the ill influences acting upon the children on bad days, but even manufacturers, who find that the work done in certain kinds of weather deteriorates in quantity or quality, might be able to rectify the evils and prevent these losses. Incidentally, Dexter's work shows that in certain climates there are marked differences in behavior of the same person. The reasons for these differences are not all worked out, but a good beginning has been made—sufficient already to be of great benefit to medical climatology. Perhaps we may yet know why our slow phlegmatic immigrant from Scandinavia should so soon become a bundle of nerves, and why certain parts of our country should have such hysteric outbreaks upon small provocation. Kindred investigations should be continued, for they are bound to result in the discovery of facts which explain much nervous pathology and offer rational methods of cure by changes to appropriate climates. We are quite sure that much harm is now done by haphazard changes to unsuitable places.

Stock diseases in South Africa were interestingly reviewed by Colonel David Bruce,[1] of the British Army Medical Department, in his recent presidential address to the Physiologic Section of the British Association for the Advancement of Science. He confined his remarks to the advances made in the last decade in our knowledge of etiology and prophylaxis, and as he began this decade with his discovery of the etiology of nagana, or tsetse-fly disease, and ended it by an equally revolutionary discovery of the cause of sleeping-sickness in man, his address is of unusual value. In 1892 Malta fever was definitely established as a distinct disease by Bruce, so that his contributions toward the advances of medicine have been particularly important and numerous. He mentions four species of the genus piroplasma transmitted by ticks, and discovered long ago by Kilbourne and Smith in this country as the germ residing in the red corpuscles of cattle sick with Texas fever. They cause, respectively, the east coast fever of cattle, the Redwater or Texas fever, biliary fever of horses, mules, and donkeys, and the malignant jaundice of dogs. Though these diseases have but an academic interest to the busy practitioner, they are of paramount interest to pathologists on account of the possible light they might throw upon the transmission of human protozoal diseases, and also upon the question of immunity. Not only has the life history of the ticks been made out and the stages at which they are infective, but the curious discovery is made of the immunity of native-born animals. Recovery results from a toleration of the parasite, which remains in the blood and for a long time is able to infect newly imported stock. There is also an interesting review of trypanosomiasis. The statement is made that all our knowledge of protozoal diseases is based upon these three discoveries: Plasmodia, by Laveran; piroplasma, by Smith, and trypanosomes, by various investigators.

Stock diseases of unknown cause present the curious paradox of being successfully managed. The germ of rinderpest, for instance, has never been seen, being probably ultra-microscopic as it passes through a Pasteur filter, but animals can be easily immunized and epidemics promptly stopped. As this disease is exceedingly fatal to cattle, these discoveries of the last decade have made it possible to raise stock when it was formerly out of the question. In marked contrast to this are the infections of the piroplasma and trypanosomes, about whose life history most is known and yet nothing therapeutically or in the way of artificial immunization. It is of interest to note that all this advance has been made by governmental servants, and as it has been of great pecuniary advantage, Bruce deprecates the present tendency of the South African Government to restrict further work in this line, and calls it "the maddest sort of economy and the shortest sighted of policies." It is really pitiful that the remote advantages to human pathology should depend upon an appeal to save live stock.

[1] Science, September 8, 1905.

Fraternal tuberculosis sanatoriums will probably become a permanent feature of beneficial organizations. The Associated Fraternities of America have taken the matter up in earnest, have entered into negotiations for securing a large tract of land in the mountains of New Mexico, and propose establishing an enormous institution somewhat on the cottage plan, camps also to be arranged at various altitudes up to 9,000 feet. The membership is so large that it is thought that a per capita assessment of one cent per month will yield sufficient income. The sick are to be the guests of the organizations which contribute to the funds, and it is thought that one patient can be received for each $600 yearly contributed. The railroads to be benefited are also expected to help endow the institution for the preliminary building expenses, and it is also proposed to utilize the fraternity temple built for the St. Louis Exposition. Though this plan is a most excellent one, and sure to be productive of much good, it is only proper to suggest that the reports give the impression that the leaders, being mostly laymen, really expect more benefit to accrue than experience justifies. It is undoubtedly true that a sanatorium does offer certain advantages over home treatment. As explained by Dr. F. M. Pottenger,[1] these are mostly in the way of better professional supervision—the very thing needed in the class of poor people for whom this movement is designed. Yet it is probable that from the manner in which "climate" is being exploited, the patients will believe they are to be cured by that alone, and will not willingly submit to hygienic restrictions. Unless there is a judicious selection of cases also, instead of an indiscriminate shipment of every one entitled to admission, whether curable or not, there is likely to be keen disappointment. The Masonic lodges of New York State are also establishing a tuberculosis sanatorium in the mountains, but on a much more modest plan. These movements are all characteristic of the times—organization for mutual benefits—and should receive the cordial support of the profession, though the limitation of the possible good should be distinctly stated.

Dengue is reported epidemic and spreading at Matanzas. In view of the fact that the form of the disease is benign and that there have been no deaths, no special prophylaxis has been instituted. Dengue is also reported in Limonar, near Matanzas.

[1] *American Medicine*, September 9, 1905.

BOOK REVIEWS

Human Physiology.—By JOSEPH HOWARD RAYMOND, M.D. Third edition, thoroughly revised. Philadelphia and London: W. B. Saunders & Co., 1905.

The third edition of this work maintains the former reputation of being a very concise, plain, and accurate statement of the facts of physiology. The author has incorporated the findings of Chittenden and Atwater regarding the physiology of nutrition and the value of alcohol as a food. Other topics more fully elaborated or introduced are Vegetarianism, Identity of Human and Bovine Tuberculosis, Hemolysis and Bacteriolysis, and Ovarian and Abdominal Pregnancy. The book can be recommended as a thoroughly reliable presentation of the latest teachings of physiology.

A Manual of Clinical Chemistry, Microscopy, and Bacteriology.—By DRS. M. KLOPSTOCK and A. KOWARSKY, of Berlin. Translated by Thew Wright, M.D. London and New York: Rebman Company, 1905.

This manual contains 296 pages of text and 70 illustrations, 15 of which are colored. It is intended to serve as a concise manual for those taking the course of the authors in Berlin, and hence is written for practising physicians more than for students. For this purpose it will answer very well, and will also prove of value to physicians other than those taking the course mentioned, though many parts are so abbreviated as to be little more than reminders to those who have considerable knowledge of technic. The table of contents is quite elaborate, but in no wise answers for an index, which by all means should be supplied.

Anatomy in Abstract.—By STEWART L. MCCURDY, A.M., M.D., of Pittsburg, Pa. Medical Abstract Publishing Company, Pittsburg, Pa., 1905.

This flexible leather vest pocket abstract of Gray's Anatomy contains about 220 pages, in which the author has arranged in a clear and concise manner the most essential points of anatomy. It is not a textbook and will not take the place of the larger works, from which the first lessons must be learned, but to the student attending lectures, or to one who wishes to review, the book will be of value.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

A Textbook of Clinical Diagnosis. By Laboratory Methods.—By L. NAPOLEON BOSTON, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories at the Medico-Chirurgical College, Philadelphia. Second edition, revised and enlarged. Octavo of 563 pages, with 330 illustrations, including 34 plates, many in colors. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $4.00 net; sheep or half morocco, $5.00 net.

A Manual of the Practice of Medicine.—By A. A. STEVENS, A.M., M.D., Professor of Pathology in the Woman's Medical College of Pennsylvania, and Lecturer on Physical Diagnosis at the University of Pennsylvania. Seventh edition, revised; 12 mo of 556 pages, illustrated. Philadelphia and London. W. B. Saunders & Co., 1905. Flexible Leather, $2.50 net.

A Textbook of Diseases of Women.—By BARTON COOKE HIRST, M.D., Professor of Obstetrics, University of Pennsylvania. Second edition, revised and enlarged. Octavo of 741 pages, with 701 original illustrations, many in colors. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $5.00 net; sheep or half morocco, $6.00 net.

Helps and Hints in Nursing.—By J. QUINTIN GRIFFITH, M.D., Ph.D. Handsomely bound in cloth. Price $1.50, net. John C. Winston Co., Philadelphia, Chicago, Toronto.

Lea's Series of Medical Epitomes.—Edited by VICTOR C. PEDERSEN, M.D.

AMERICAN NEWS AND NOTES

GENERAL.

Yellow fever has been reported in the American colony of Central America, several deaths having occurred. Serious havoc in the lowlands on the Atlantic slope has also been reported from this disease, or a malady closely resembling it. At Zacapa and Gualan, on the Guatemala Northern Railroad, the condition is especially bad, and the railroad is operating only mail trains; construction camps are closed nearest the region of epidemic.

Authority of Contract Surgeons.—The Judge Advocate-General of the army is considering the extent of the authority enjoyed by contract surgeons when discharging the duty of chief surgeon. While there is nothing in the statute law or the regulations which prevents a contract surgeon from acting as chief surgeon of a department, there is a feeling that he should not be so detailed if any of the duties appertaining to that place are such as may be carried out only by commissioned officers.

Military Hygiene at West Point.—The authorities of the Military Academy desired to establish a department of military hygiene at that institution and it was believed that this might be accomplished by means of an executive order. This cannot be done under the circumstances on the advice of the Judge Advocate-General of the army who has had the question under consideration. There would be advantages to the student body and ultimately to the commissioned personnel of the army by establishing such a department.

Identification of Criminals.—A special meeting of the board of directors of the National Bureau of Criminal Identification and Association of Police Chiefs will be held in Washington early next month to determine in what manner Congress will be approached for aid in carrying on the work of making a government bureau for criminal identification. The bureau now is sustained only by the subscription of about 100 cities. Major Sylvester, superintendent of the Washington Police Department, and president of the National Association, is drawing up the measure, which will be taken before Congress. Another subject to be taken up is the adoption of the system of identifying criminals by means of thumb impression.

EASTERN STATES.

Charitable Bequest.—After the death of his sister, who is to have the income of his estate during her life, Charles Tidd Baker, an insurance broker of Boston, Mass., devised that $250,000 should be given as charitable bequests. Of these the following are medical bequests: Convalescents' Home for Children's Hospital, $15,000; Boston Home for Incurables, $10,000; Children's Hospital, Boston, $10,000; Boston Floating Hospital, $10,000; Hospital Cottages for Children, Baldwinsville, $5,000; Boston Lying-in Hospital, $5,000; Free Home for Consumptives, Dorchester, $5,000; St. Luke's Convalescent Home, $5,000; Massachusetts Infant Asylum, $5,000; Willard Hospital, Bedford, $5,000.

NEW YORK AND VICINITY.

Union of the New York Medical Profession.—It is hoped that when the Medical Society of the State of New York celebrates its centennial it will he amalgamated with the New York State Medical Association. A recent vote for this union stood 1,517 in favor, with 2 against and 295 not voting. The court will now be petitioned for an order tending to bring about this amalgamation.

Utica's New Hospital Dedicated.—The new building which has been erected and equipped by Frederick

T. Proctor and Mrs. Proctor, as a hospital, and which takes the place of the old St. Luke's Hospital, in Utica, was formally dedicated last week. The cost of the building and its equipment was about $360,000. The hospital will accommodate 175 patients and is fitted with all modern appliances.

PHILADELPHIA, PENNSYLVANIA, ETC.

Dr. Penrose Leaves Board of Health.—Dr. Edward Martin's resignation as Director of the Department of Health and Charities was followed by the resignation of Dr. Charles W. Penrose from the Board of Health. Dr. Penrose's withdrawal was not a surprise, for he was appointed to the board at Dr. Martin's request, and was closely associated with the ex-director in the work of the department. Mayor Weaver has not offered the directorship, vacated by Dr. Martin to any one; has not "even thought of anybody for the post."

Resignation of Dr. Edward Martin.—Dr. Edward Martin, director of the Department of Public Health and Charities, has sent his resignation to Mayor Weaver. The position paid $10,000 a year. He says that politics had nothing to do with his resignation, but that he has resigned for personal reasons. His private practice and university work demanded more of his time than he could give while remaining at the head of the department. Dr. Martin was appointed by Mayor Weaver June 1, 1903, under an act of Assembly creating the Department of Public Health and Charities. He reorganized the Municipal Hospital, and the Philadelphia Hospital, and increased the number of medical inspectors from 13 to 50, in order that the public schools might receive proper attention.

Money for Health Department.—City Councils' Committee on Health and Charities has recommended the estimate of the Department of Health and Charities, which provides for an appropriation of $650,496 for 1906. The amount is $287 less than this year's appropriation. For the Director's office a total of $80,140 is required. Of this amount $24,200 is necessary for salaries, $2,000 for support of feeble-minded children in the Pennsylvania Training-school, $20,000 for maintenance of children in various homes and $1,000 for temporary provision for homeless persons. According to the schedule, $285,200 will be necessary for the conducting of the Bureau of Health, as compared with $290,156 appropriated for the year. This is made up principally in items of salary, the total sum for this purpose being $213,200. The amount required for the maintenance of the Philadelphia Hospital is $285,156. This embraces salaries, $125,000; repairs to buildings, roads and ground, and for labor, $50,000; marketing, $21,000; drugs, medicine, etc., $15,000; surgical instruments and hospital supplies, $7,500.

War on Malpractitioners.—As a means of further limiting the operations of the malpractitioners who have infested Philadelphia, the Board of Health is preparing to inquire into the manner in which all lying-in establishments are conducted and to make a thorough investigation of all suspicious institutions. Following the arrest of "Dr." King on a charge of having performed a criminal operation, it was discovered that he had a so-called sanitarium in Roxborough to which he sent unfortunates who came to him for treatment. Subsequently, when the postal inspectors started a crusade against "doctors" who advertised and sent "unmailable" medicine through the mails, it was learned that "Dr." Nebleaux, of the French Remedy Company, had a so-called sanitarium on Seventeenth street. Another of the alleged illegal practitioners had a similar place, the authorities learned, on north Marshall street. These institutions, the authorities say, are nothing more than lying-in establishments, though they are unlicensed. All these places and a score of others of a similar nature will be investigated, together with the regular licensed places. All those having the semblance of baby farms will be closed. The matter was considered at a meeting of the Board of Health, when a list of advertising "doctors," secured by the postal authorities, was given to the city officials.

SOUTHERN STATES.

Give Service Free.—Twelve physicians of Frankfort, Ky., have agreed to serve as prison physicians for a month, or until the close of the term of office of the late Dr. Hugh L. Tobin, provided the salary is given to his widow.

Institute for Tropic Medicine.—A school for tropic medicine has been proposed in connection with the Tulane University, of Louisiana. Students from Cuba, the South, Mexico, and Central America will probably be attracted.

Delaware State Hospital, Farnhurst, Del., is overcrowded. In his report the superintendent stated that there are now 379 inmates in the building, the greatest number in its history, and he desires that the Legislature be petitioned to increase its facilities.

President Roosevelt and Quarantine.—W. R. Brassell, secretary of the Alabama Board of Health, boarded the special train of President Roosevelt at Brinson, Ga., and upon affidavit of Surgeon-General Rixey, issued a clean bill of health to the Presidential party. Mr. Roosevelt told Secretary Brassell that he wished to conform with all quarantine regulations.

State Medical Examiner.—W. P. St. Clair, head professor of the Latin department of the Male High School, Louisville, Ky., has been appointed State Medical Examiner, this under the law of 1904, which requires that those who entered the medical schools of Kentucky shall possess a preliminary education similar to that furnished by a standard high school.

Johns Hopkins Hospital.—G. R. Holden, resident gynecologist, and A. M. Little, resident obstetrician, of Johns Hopkins Hospital, Baltimore, Md., have resigned. Dr. Holden will practise in Jacksonville, Fla., and Dr. Little has been appointed superintendent of the maternity connected with McGill University, Montreal, Can. Stephen Rushmore will succeed Dr. Holden, and F. C. Goldsborough will succeed Dr. Little.

Yellow Fever Situation.—The health authorities of Mississippi announced on Monday that the State was open to the world, withdrawing quarantines against New Orleans and other places infected with yellow fever. The announcement will cause surprise among the southern health officials. Three new cases at Natchez and three new cases and one death at Vicksburg were reported. The yellow fever report in New Orleans to 6 p.m. Tuesday was: New cases, 2; deaths, none; new disease centers, 1; cases under treatment, 73. Yellow fever cases took another jump at Pensacola, Fla., on Monday and there were reported 12 new cases and 1 death. The new cases are distributed in various sections of the city. Texas lifted its quarantine against all points in Louisiana on Monday except those infected. Persons who enter Texas will be required to take oath as to point of origin, but no health certificates will be required.

WESTERN STATES.

Wyoming State Hospital, situated at Sheridan, and completed only four months ago at a cost of $25,000, is reported overcrowded. Increased quarters will be obtained for the present, however, by shifting the nursing quarters to another building.

Boycott Threatened.—The governor of Wyoming has received a manifesto from the physicians of Sheridan, stating that they will boycott the State hospital and

refuse to aid in its operation, unless he confines the work of the present medical director strictly to the institution itself.

Site for Medical Library in Los Angeles.—At an estimated cost of $25,000, Dr. Walter Jarvis Barlow has given a site for the erection of a medical library building. This will be built opposite the Medical College of the University of Southern California, Los Angeles.

FOREIGN NEWS AND NOTES

GENERAL.

Homeopathic Practitioners.—According to the *Monthly Homœopathic Review* of September 1, there are less than 300 homeopathic practitioners in the United Kingdom. America has some 12,000 disciples of Hahnemann.

Memorial to Dr. Barnardo.—It is proposed to continue "Dr. Barnardo's Homes" as a memorial of their founder. The decision has been formally communicated by Lord Brassey, president; Mr. William Baker, chairman of Council; and Mr. Howard Williams, treasurer. The most fitting recognition of Dr. Barnardo's unique services to the State and to humanity would be the establishment of his life work upon a permanent basis.

$200,000 for Tuberculosis Cure?—The French Parliament will be asked to offer a $200,000 prize for a cure of tuberculosis. The project has the approval of the government, and therefore its adoption is assured. This is the outgrowth of the discussions at the tuberculosis congress. It is expected that the prize will stimulate research in time for the result to be announced at the next tuberculosis congress, which is to be held in Washington.

OBITUARIES.

J. Howard Taylor, aged 80, October 24, from the result of a fall, at his home in Philadelphia. He was graduated from the University of Pennsylvania, medical department, in 1852. For more than half a century he occupied various posts in the Department of Public Health. During the Civil war he served as Surgeon-General, and as a physician of Municipal Hospital, aided in stamping out the smallpox epidemic in this city following the war.

Alonzo M. Buck, aged 79, September 29, at his home in Hyattsville, Md. He was graduated from the University of Georgetown, medical department, Washington, D. C., in 1866. During the Civil war he served as hospital steward, and since that time has been an employe of the War Department, and at the time of his death was chief clerk of the sanitary and disbursing division of the Surgeon-General's office.

Molton E. Hornbeck, aged 63, October 9, from cerebral hemorrhage, at his home in Catasauqua, Pa. He was graduated from the University of Pennsylvania, medical department, in 1865. He was a member of the Lehigh Valley Medical Society and the Medical Society of the State of Pennsylvania; for 40 years he has served as local surgeon for the Lehigh Valley railroad.

Frank Buller, aged 61, October 11, at his home in Montreal, Can. He was graduated from Victoria University, Coburg, Ont., in 1869, and McGill University, Montreal, in 1876. He held the chair of ophthalmic and aural surgery to the Montreal General Hospital, from which he resigned to accept a like position with the Royal Victoria Hospital.

Joseph R. McOscar, aged 41, of Waterville, Ohio, October 6, from acute mania, at St. Elizabeth's Hospital for the Insane, Washington, D. C. He was graduated from the Ohio Medical University, Columbus, in 1896. He was a member of the Northwestern Ohio Medical Association and the American Medical Association.

Lowell Holbrook, aged 87, October 16, at his home in Thompson, Conn. He was graduated from the New York University, medical department, in 1849, and was engaged in the practice of his profession for 63 years. He served as surgeon of the Eighth Connecticut Volunteer Infantry during the Civil war.

R. S. Boles, aged 62, October 3, from neuralgia of the heart, at his home in Mansfield, O. He was graduated from the University of Wooster, medical department, Cleveland, O., in 1869. He served as health officer of Mansfield for a number of years.

Thomas A. Jenkins, aged 33, of Denver, Col., October 11, from pulmonary tuberculosis, at the home of his brother in Brooklyn, N. Y. He was graduated from Bellevue Hospital Medical College, New York City, in 1897.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended October 21, 1905:

CARSWELL, First Lieutenant ROBERT L., assistant surgeon, is relieved from duty at Jolo, Jolo, and will proceed to Fort William McKinley, Rizal, for duty.

SABIN, WALLACE E., contract surgeon, is relieved from further duty at Fort William McKinley, Rizal, and will proceed to Zamboanga, Mindanao, for assignment to duty.

PURNELL, JULIUS M., contract surgeon, is relieved from further duty at Taviran, Samar, and will proceed to Balamban, Cebu, for duty.

SMITH, First Lieutenant LLOYD L., assistant surgeon, having abandoned the hospital at Santa Mesa Garrison, Manila, will proceed to Camp Wallace, Union, for duty.

SNYDER, CALVIN D., contract surgeon, now at Ambulong, Batangas, will proceed to Binan, Laguna, for temporary duty.

TUTTLE, GEORGE B., contract surgeon, now at Binan, Laguna, will proceed to Atimonan, Tayabas, for duty, relieving Contract Surgeon James Pascoe, who will proceed to Binan, Laguna, for duty, relieving Contract Surgeon Snyder, who will proceed to Fort William McKinley, Rizal, for duty.

EWING, Major CHARLES B., surgeon, will proceed to Zamboanga, reporting to the commanding general, Department of Mindanao, for assignment to duty.

LOVING, First Lieutenant ROBERT C., assistant surgeon, is relieved from duty at Camp Keithley, Mindanao, and will proceed to Manila, reporting upon arrival to the commanding officer, Division Hospital, for duty.

CROSBY, Major WILLIAM D., surgeon, is relieved from duty at Camp Stotsenburg, Pampanga, and is assigned to duty in command of the Division Hospital, Manila, P. I., relieving Major W. Fitzhugh Carter, surgeon.

LE WALD, First Lieutenant LEON T., assistant surgeon, will proceed to Borongan, Samar, for duty.

DEVEREUX, First Lieutenant J. R., assistant surgeon, is granted leave for 20 days, from about October 1.

BOWMAN, MADISON H., contract surgeon, having reported from leave, will report to the commanding officer, Thirteenth Infantry, Fort McDowell, for duty with that regiment, enroute to Manila, P. I., on the transport sailing October 5, reporting in Manila for assignment to duty.

RAND, Captain IRVING W., assistant surgeon, leave granted August 4 is extended one month.

WALL, FRANCIS M., contract surgeon, is granted leave for 14 days, to take effect when his services can be spared by his post commander.

GIBSON, Major ROBERT J., surgeon, is relieved from duty at Fort Logan, and will proceed at the expiration of his present leave to Fort Adams for duty, relieving Major Henry A. Shaw, surgeon. Major Shaw will proceed to Fort Slocum for duty.

Orders of September 7, W. D., relating to Major Edward R. Morris, surgeon, are revoked. Major Morris, upon his arrival at San Francisco, Cal., will proceed to Fort Logan for duty.

ROBERTS, First Lieutenant WILLIAM, assistant surgeon, Fort Hamilton, will proceed to Fort Jay for temporary duty.

GLENNAN, Major JAMES D., surgeon, leave for 10 days granted September 23, and extended 10 days, is further extended 10 days.

KREBS, First Lieutenant LLOYD LE R., assistant surgeon, is relieved from further duty in the Philippines Division and from temporary duty at the Presidio of Monterey, to take effect upon his return to that post from Henry Ranch, Cal., and will then proceed to Fort Bayard for duty.

POMEROY, WILLIAM H., contract surgeon, is relieved from further operation of so much of orders of October 1, W. D., as assign him to duty as examiner of recruits at Springfield, Mass.

GRUBBS, First Lieutenant ROBERT B., assistant surgeon, leave for one month and 14 days is granted.

ADAIR, GEORGE F., contract surgeon, leave for 15 days, from about November 5, is granted.

BARNEY, FRED M., contract surgeon, will proceed from Dolgeville, N. Y., to Fishermans Point, Guantanamo Bay, Cuba, and report to the commanding officer of the engineer station at that place for duty.

REAGLES, JAMES, contract surgeon, leave granted September 22 is extended 20 days.

MARION, GEORGE L., contract surgeon, will proceed from Elgin, Ill., to San Francisco, Cal., and take transport to sail from that place about November 6 for Manila, P. I., where he will report for assignment to duty.

STUCKEY, HARRISON W., contract surgeon, will proceed from Columbus, O., to Fort Snelling for duty.

SIEVERS, ROBERT E., contract surgeon, leave for three months is granted.

The following-named assistant surgeons are relieved from duty at the stations designated, to take effect at such time as will enable them to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place on or about December 5 for Manila, P. I., where they will report to the commanding general, Philippines Division, for assignment to duty: Captain Edward R. Schreiner, Washington Barracks; Captain Basil H. Dutcher, Fort Apache.

Changes in the Medical Corps of the U. S. Navy for the week ended October 21, 1905:

DRAKE, N. H., medical inspector, detached from the Navy Yard, Norfolk, Va., and ordered home to wait orders—October 14.

DICKSON, S. H., medical inspector, ordered to the Navy Yard, Norfolk, Va., October 17—October 14.

BELL, W. H., passed assistant surgeon, detached from the Dixie, when placed out of commission, and ordered home to wait orders—October 14.

PORTER, F. E., assistant surgeon, detached from the Dixie, when placed out of commission, and ordered to the Naval Hospital, New York, N.Y.—October 14.

WINN, C. K., acting assistant surgeon, detached from the Cæsar, when placed out of commission, and ordered home to wait orders—October 14.

ELMORE, B., assistant surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, Washington, D. C.—October 13.

GUTHRIE, J. A., surgeon, ordered to the Navy Yard, League Island, Pa.—October 16.

BROWNELL, C. DEW., surgeon, detached from the Iowa, and ordered home to wait orders—October 16.

MORRIS, L., surgeon, detached from the Florida, and ordered to the Iowa—October 16.

ELLIOTT, M. S., surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Florida—October 16.

GATES, M. F., surgeon, detached from the Navy Yard, League Island, Pa., and ordered to the Charleston—October 16.

WINN, C. K., acting assistant surgeon, orders of October 14, modified; ordered to the naval recruiting rendezvous, Omaha, Neb., October 23—October 16.

OMAN, C. M., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from December 18, 1904—October 18.

HOYT, R. E., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from May 8, 1905—October 18.

WOODS, E. L., assistant surgeon, appointed assistant surgeon, with rank of lieutenant (junior grade), from October 14, 1905—October 18.

FOSTER, T. G., assistant surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Medical School, Washington, D. C.—October 18.

ELMORE, B., assistant surgeon, detached from the Naval Hospital, Washington, D. C., and ordered to the Navy Yard, Washington, D. C.—October 19.

HULL, H. F., assistant surgeon, detached from the Naval Academy, and ordered to the Naval Hospital, New York, N. Y.—October 19.

BAKER, M. W., assistant surgeon, ordered to the Naval Hospital, Washington, D. C., October 24—October 19.

WOODS, E. L., assistant surgeon, ordered to the Naval Medical School, Washington, D. C.—October 19.

Changes in the Public Health and Marine-Hospital Service for the week ended October 18, 1905:

SAWTELLE, H.W., surgeon, directed to proceed to Norfolk, Newport News, and Portsmouth, Va., on special epidemic duty—October 16, 1905.

ROSENAU, M. J., passed assistant surgeon, directed to rejoin station in Washington—October 14, 1905.

LUMSDEN, L. L., passed assistant surgeon, granted leave of absence for ten days from October 20, 1905—October 12, 1905.

GLOVER, M. W., assistant surgeon, granted leave of absence for three days from October 18, 1905—October 15, 1905.

HUNT, REID, chief division of pharmacology, hygienic laboratory, leave of absence for six days from October 9, 1905, revoked.

HALLETT, E. B., acting assistant surgeon, granted leave of absence for five days from October 11, 1905—October 13, 1905.

FEILD, EDWARD E., acting assistant surgeon, granted leave of absence for one day, October 14, 1905—October 13, 1905.

SINKS, E. D., acting assistant surgeon, granted leave of absence for five days from October 6, 1905—October 14, 1905.

SIBREE, H. C., acting assistant surgeon, granted leave of absence for five days from October 15, 1905—October 14, 1905.

BROWN, F. L., pharmacist, granted leave of absence for sixteen days from October 14, 1905—October 14, 1905.

SOCIETY REPORTS

PENNSYLVANIA STATE MEDICAL SOCIETY.

Fifty-fifth Annual Meeting, Held at Scranton, September 26, 27, and 28, 1905.

[Specially reported for *American Medicine*.]

[*Concluded from page 684.*]

The Management of Pus Cases in Abdominal Surgery.—REED BURNS (Scranton). He first discussed the various lesions that may give rise to pus in the peritoneal cavity; in the treatment of empyema of the gallbladder he removes the organ, and that when dealing with suppurating salpingitis he advises immediate operation. For pus free in the abdominal cavity he makes a median incision, flushes the cavity with salt solution or with sterile water at 115° F., and then removes the excess of the fluid. Of the 27 cases of general suppurating peritonitis, 24 were consecutive to rupture of the appendix, and 1 to perforation of the stomach; 4 of the 27 died. Where the pus was localized the mortality was 2%.

Observations on Cancer of the Head and Neck, with an Analysis of 110 Operative Cases.—G. W. CRILE (Cleveland, O.). From a search of the literature, he concludes that emboli of cancer cells are infrequent. In the discussion of his work he laid great stress upon the importance of a complete operation. When operating for cancer of the lip or of the tongue, he invariably removes the glands of the neck, *en bloc*. An incomplete operation stimulates the growth of the carcinoma, and thus shortens life. In his operative procedures he avoids handling of carcinomatous tissue and retracts on sound tissue, and never on the diseased structure. In cancer of the larynx or trachea he always does a preliminary tracheotomy. He believes that operation for cancer of the tongue had better be done in two stages. When working about the mouth he introduces two rubber tubes into the nostrils to a point opposite the epiglottis, and then plugs the throat with gauze to absorb the mucus of the pharynx and prevent the blood from the field of operation from running down the larynx. By this method the etherizer is out of the operator's way. Crile prefers to ligate either the external or the common carotid temporarily to prevent hemorrhage; with ligation of the external carotid only pulsating hemorrhages have occurred, due in all probability to a flow from the opposite side. Permanent ligation of the common carotid is prone to give rise to cerebral softening. He holds that a partial upright position of the patient during the operation will assist in controlling the hemorrhage. Collapse is avoided by the prevention of hemorrhage and laceration. When the wound is large he covers the exposed parts with warm compresses. His cases have been divided into two groups: (1) These include the cases in which the lymph-nodes were not removed, and in which the carcinomatous tissue was handled during the operation. In the second series there were four times as many cures as in the first. Three years have now expired since 46 of the second group have undergone operation, and recurrence is not present. In this series the mortality was 10%, but this includes some cases from the first series. Every carcinoma is at one time curable, in his opinion, and every operation on the head and neck for cancer should be radical.

Discussion.—R. H. M. DAWBARN (New York City) stated that when operating about the head and neck he makes his incisions so that they will show as little as possible. The first cut begins over the mastoid, passes down along the border of the hair, then along the clavicle to the sternocleido muscle. The second incision is made along the inferior border of the jawbone. He does not hesitate to cut the sternocleido muscle. The cause of death in these operations is shock and inspiration pneumonia. He cords the lower extremities for 10 minutes and then removes the cords to the upper extremities for 10 minutes and so on during the operation. By this procedure he produces anemia at the field of operation and he is able to control hemorrhage easily; he finds that after complete etherization is once attained, little or no ether is necessary thereafter. After the operation he elevates the foot of the bed and when able to swallow water without coughing the patient is allowed to sit up. Operation on the tongue can be done in two stages, allowing two or three days intervening between each operation. To prevent hemorrhage he also applies boiling water with a gauze sponze; sloughing has never occurred.

A New Intestinal Bobbin.—J. G. CLARK (Philadelphia). The instrument is composed of four pieces of metal, one of them being shaped like a rectangularly grooved pulley and the other three, when put together, form a similar pulley. To apply the instrument each pulley is placed into the lumen of the intestines to be sutured and the bowel tied with catgut over the pulley after which the bobbin is clamped together. The peritoneum is now sutured over the bobbin. When the instrument sloughs out it falls into the lumen of the intestine in three pieces. His experiments on dogs showed that there was no puckering of the gut.

Discussion.—W. L. RODMAN (Philadelphia) holds that intestinal narrowing is very likely to result if mechanical devices are used in doing end-to-end anastomosis. R. H. M. DAWBARN (New York City) declares that the direct and continuous suture of the intestine cannot be replaced by any mechanical appliance. He also declares that although good results are obtained with experimentation on dogs it does not imply that similar results will be obtained on the human intestine since they differ markedly. REED BURNS (Scranton) favors the use of the continued suture, but states occasionally he finds it necessary to use the Murphy button.

Decompressive Operation in Inoperable Brain Tumors.—H. W. CUSHING (Baltimore). In opening his remarks he stated that inaccessibility of a brain tumor did not preclude operation. The pressure on the dura is responsible for the great pain, because it is here where the sensory nerves are situated. The socalled "optic neuritis" is really an atrophy and the cellular infiltration is consecutive to stasis. The distress which patients, suffering with brain tumors, are subjected to can be mitigated by palliative operations. Nature sometimes accomplishes similar results by separation of the sutures and by atrophy of the bone. He has seen three instances of this kind. The objection to waiting for nature is that choked disc and the other symptoms are well advanced before this desired result is accomplished. The fact that the protruding brain hernia in the palliative operation frequently loses its function and paralysis ensues, makes such operations objectionable. He suggests that the hernia be produced under the temporal muscle if the tumor is above the tentorium, if it is below the tentorium he suggests that it be made in the suboccipital region.

Discussion.—R. H. M. DAWBARN spoke of the use of celluloid plates ahd of making osteoplastic flaps, but allowing the bone to remain in such a way that they will give to the constantly increasing pressure.

Wandering Gallstones.—W. L. E. ESTES (South Bethlehem). Among his cases of wandering gallstones, he said two were found in the liver. In another case, the stones were found in the stomach. Not infrequently the calculi ulcerate through the gallbladder into the intestine, where they remain as enteroliths and give rise to obstruction, or they pass out with the feces. As a result of cholelithiasis, adhesions form around the gallbladder, into which the stones may ulcerate, and from here migrate to any part of the abdomen. Most frequently they are found in the iliac region, where they institute symptoms simulating appendicitis or perinephritic abscess. If some of the contents of these abscesses can be obtained and bile salt found, a clue to the nature of the existing condition can be determined. He reported two cases having abscesses in this region, in each of which he found a gallstone, although it required a second operation in one of the cases.

Exhibition of a Clinical Case for Diagnosis.—THOMAS W. KAY (Scranton). This patient was brought before the section at this time to get Cushing's views in regard to the case. The patient, aged 7; the disease was first observed when he was a child of 3. The eyes are extremely prominent, seemed ready to drop out of the orbits. The inferior maxilla is absorbed so that the chin is lost. After the jaw bone disappeared, the right parietal began to waste, and then left parietal and finally the temporal bone. The circumference of the head horizontally is 53 cm. The child at one time passed 27 liters of urine, but now passes 22 liters in the 24 hours.

In discussion of this case, H. W. CUSHING (Baltimore) sug-

gested that the boy may be suffering with a tumor of the pituitary body, although he stated that it would be difficult to give a diagnosis of such a case in an off-hand manner. T. H. WEISENBERG (Philadelphia) suggested that it was a case of internal hydrocephalus, but thought the history was incomplete. In the discussion of Cushing's paper he declared that osteoplastic flap which they have been using may account for the poor results they have been getting in these palliative operations.

The Direct Fixation of Fractures.—J. B. ROBERTS (Philadelphia). In his short communication he merely stated that there are some cases that can be treated very well with the method suggested. He uses either wire nails or staples.

Discussion.—G. W. GUTHRIE (Wilkesbarre) told of how he treated a fracture of the olecranon by driving a nail through the fragment into the bone; the nail was removed at the end of a week. There was no loss of function, the patient had perfect flexion and extension. He holds that with this method less callus is formed. THOMSON (Scranton) related the history of a case in which the fracture had existed for three months, and in which he obtained union by direct fixation by means of a nail. WILLIARD (Philadelphia) believes more cases can be treated by this method than is generally held. He maintains that one form of fracture cannot always be treated by the use of the same material.

The Question of Lowered Gastric Secretion.—C. G. STOCKTON (Buffalo.) The view recently advanced that the gastric secretion can be dispensed with, is not well entertained in Stockton's mind; he states that the presence of the gastric juice in the duodenum stimulates the pancreas, and it regulates the movements of the stomach. He spoke of a condition where the gastric secretion is absent without apparent cause. Depression, neurasthenia and hysteria produce suppression of this secretion; diseases of the brain cord and arteriosclerosis are factors in bringing about a cessation in the secretion of the stomach. The absence of the hydrochloric acid in acute inflammatory condition of the stomach, is a wise provision, as it would cause considerable irritation to the mucosa. Insufficient gastric juice at times produces diarrhea, after which particles of undigested food, especially proteids, are found in the stools. He holds that it is injudicious to give hydrochloric acid in carcinoma of the stomach, as the acid is a source of irritation. Poor gastric digestion, in his opinion, will institute poor intestinal digestion. No two individuals may be able to utilize the same amount of hydrochloric acid, so that there is no standard as to the amount of the acid necessary for the digestion in all people. He holds that the stomach can be educated to do substantial work, therefore a mixed diet should be given, and not to be taken in small quantities at frequent intervals, although in some instances it is necessary to give the meals at frequent intervals. He is inclined to think that a more normal digestion is obtained with pyloroplasty than with gastroenterostomy.

The Surgical Treatment of Cardiospasm.— EDWARD MARTIN (Philadelphia). This condition may be due to traumatism, inflammatory lesions of the mediastinum, tumors of the cardia of the stomach and gastritis. There is an acute and a chronic cardiospasm. With the chronic form, there is nearly always associated dilation of the esophagus. These patients are in the habit of throwing up, without the slightest effort, the food which has recently been taken, the socalled "ruminants." Cardiac cancer and diverticulums can be eliminated with the esophagoscope. Many of the patients must be fed by means of the stomach-tube. His was a very obstinate one, and it was found necessary to open the stomach and dilate the cardiac opening with the fingers; two fingers passed through easily, but the third with difficulty. Since the operation, nine months ago, the patient gained 40 pounds.

The Symptomatology and Diagnosis of Cancer of the Stomach.—J. J. GILBRIDE (Philadelphia). The early symptom of cancer of the stomach, he says, is like gastritis, in some cases the onset is sudden; at the cardia of the stomach the tumor gives rise to symptoms like those produced by a foreign body. The fact that the patient looks well does not in any way exclude carcinoma, in his opinion. He finds it necessary to examine the gastric contents several times, one examination he regards as insufficient. In carcinoma of the stomach the quantity of hydrochloric acid decreases as the growth develops, but it may, in some cases, be present throughout the entire disease. The presence of lactic acid in the stomach, when taken in conjunction with the other data, will serve as an aid in the diagnosis. The washings of the stomach should be examined closely to determine the presence of tissue that might give a clue to the presence of a growth.

Gastroenterostomy, Its Indications and Its Technic.—W. L. RODMAN (Philadelphia). As indication for this operation he gives pyloric spasm, cancer of the pylorus, benign stenosis, and hemorrhage requiring the stomach to be emptied quickly. The objections to the anterior gastroenterostomy are pressure on the colon, vicious vomiting, and the food is not acted upon by the most important part of the intestinal canal. He advocates the posterior gastrojejunostomy; it is necessary in doing this operation to make as short a loop as possible, in order to avoid the vicious vomiting. The technic he gave is based upon the operation devised by Munyon and slightly modified by Peterson.

Discussion.—TYSON gave the history of two cases which came under his observation recently, and upon whom gastrojejunostomy had been performed for gastric ulcer. The first case died of vicious vomiting. The second one got well. ROBERTS maintains that there is good deal of difficulty in making the diagnosis of the condition for which gastrojejunostomy should be done, owing to the fact that one cannot always distinguish between the functional and organic disorders of the stomach.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Eleventh Annual Meeting, Held in Boston, Mass., June 5, 6, and 7, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 686.*]

Syphilitic Manifestations in the Larynx and Trachea.—FRANCIS B. PACKARD (Philadelphia) said that as one would naturally expect, the manifestations of syphilis in the larynx and trachea were almost entirely confined to those of the secondary and tertiary periods of the disease, only a single case of chancre of the larynx being on record. Secondary syphilitic manifestations in the larynx were not uncommon, and might be broadly classified as (1) syphilitic laryngitis, and (2) the mucous patch. By far the most common tertiary manifestation of syphilis in the larynx was the gumma and the ulcerative lesions and cicatricial contractions that followed. Gumma of the larynx was generally of very late development many years after the appearance of the initial sore. Its most usual location was the epiglottis, although frequently found on the vocal cords. It usually appeared with considerable suddenness, giving rise to a good deal of pain and interference with phonation. Probably the most familiar picture presented to laryngologists in syphilis of the larynx was that made up of the adhesions, contractions, and distortions, resulting from the cicatrization of deep syphilitic ulcerations. Syphilis of the trachea must be regarded as a very rare condition; no case in which the initial lesion of syphilis occurred in the trachea had been recorded, although mucous patches had been found in that location.

Discussion.—THOMAS H. FARRELL (Utica, N. Y.) said that in the treatment of late syphilitic lesions he differed with Logan in his method of administering potassium iodid. Instead of beginning with a 10 gr. dose of an aqueous solution, given after meals and increased a drop daily, Farrell said he invariably gave it an hour before meals, well diluted with milk, and increasing each dose by a drop. Given in that way the drug rarely caused gastric irritability and was usually well tolerated. JAMES E. LOGAN, in closing, said the point he wished to emphasize in his paper was that it was very important to gradually increase the dose of potassium iodid in the treatment of tertiary syphilitic lesions. If, for example, the patient was getting 40 gr. or 50 gr. of the drug three times daily, and the stomach became irritable, he would not increase the dose until the gastric symptoms had disappeared, when he again would begin to gradually increase it. In cases of syphilis, when secondary and tertiary symptoms were present

coincidently, the mixed treatment was indicated. There might be secondary symptoms in the digestive tract and tertiary symptoms in the upper respiratory tract. The speaker said he had seen cases where there were mucous patches in the mouth and pharynx, and necrosis of the bones of the nose at the same time. For the tertiary manifestations and gummas and necrotic conditions, when not accompanied by secondary lesions, potassium iodid, in gradually increasing doses, was the treatment par excellence.

Report of a Case of Abscess in the Temporosphenoidal Lobe of the Brain Following an Acute Otitis Media. Operation: Recovery.—THOMAS H. HALSTED (Syracuse, N. Y.) reported this case, which was that of a boy aged 11. There was comparatively slight earache during the first nine days of the otitis media. There was unusual bulging of the drum-head and complete relief of the pain followed its incision. The discharge ceased at the end of four days, and the drum-head healed rapidly. From that time on, there was almost no complaint regarding the ear or head, but there was marked anorexia, listlessness, and change in disposition. There was an absence of definite symptoms pointing to a brain complication until vomiting, dizziness, and a slow pulse occurred ten days after incision of the drum membrane. During this period, headache was conspicuously absent, excepting on one occasion. There were no mastoid symptoms at any time. The blood count, six days before the operation, showed a marked leukocytosis, and on the day of the operation this was very decided. During the first 24 hours after the first exploratory operation, there seemed to be a marked relief of all the symptoms, which was attributed by the parents to the fact that the patient had vomited a long round worm, and by the physicians to the relief afforded, by exposing the dura and allowing the escape of an appreciable quantity of serum. Thirty-six hours from the time of that operation, however, the boy had a sudden convulsion, with marked lowering of pulse, pupillary changes, vomiting and beginning stupor. This indicated that the diseased brain area had escaped detection at the previous operation, and that probably a rupture into one of the ventricles had occurred. This latter supposition was apparently verified during the second operation by the escape of clear cerebrospinal fluid, followed immediately by thick pus from the abscess cavity when this latter was reached. The success of the operation was greatly handicapped by the venous hemorrhage, first from the diploë, and then from the sigmoid sinus, so that the patient almost died from hemorrhage on the table before the abscess was entered, and necessitating a venous saline infusion and saline enemas. The patient's recovery was rapid and without incident. The operation had resulted in an extensive loss of bone, and a large area of the dura was exposed, but granulation and healing were rapid. The abscess, which was in the temporosphenoidal lobe, was about the size of an egg, and held at least two ounces of pus. The infection was due to the streptococcus. The mastoid was entirely free from involvement, the infection having probably reached the brain along the sheaths of the lymphatics or veins, passing through the tegmen tympani.

Discussion.—JAMES E. LOGAN (Kansas City, Mo.) said the case reported by Halsted was a most interesting one. A peculiar feature of the case was the temporary improvement that followed the vomiting, and the expulsion of the worm. The case was an obscure one in many of its phases, as the symptoms that pointed to a brain abscess might also have been the result of gastrointestinal disturbance caused by the presence of the worm. Logan said he could sympathize with Halsted in the difficulty he encountered in controlling the hemorrhage from the diploë and the sigmoid sinus during the second operation. He recalled such a case in his own experience, where the bleeding was so profuse that transfusion was necessary to save the life of the patient.

Orbital and Meningeal Infection from the Ethmoid Cells. Report of a Case: Death.—JAMES F. MCCAW (Watertown, N. Y.) reported this case, which was one of fatal meningitis resulting from nasal suppuration, and exemplified the danger in neglecting cases of this character. The path of the infection in this case seemed to have been an unusual one, the pus finding its way across the orbital cavity to the external angular process, and gaining an exit there, it formed a large subperiosteal collection. Traveling backward, it entered the cranial cavity through the sphenoidal fissure, apparently remaining subperiosteal throughout. McCaw said that although a fatal outcome in these cases was rare, it was nevertheless a possibility in every case of suppurative sinusitis.

The Significance of Edema of the Pharynx.—JACOB E. SCHADLE (St. Paul, Minn.) said the association of edema of the pharynx with acute nephritis was a new observation, and deserved mention on account of its clinical importance. He reported such a case coming under his observation.

Officers Elected.—President, James E. Logan, Kansas City, Mo.; vice-presidents, Thomas H. Halsted, Syracuse, N. Y.; William L. Ballenger, Chicago, Ill.; H. Bert Ellis, Los Angeles, Cal.; and Henry L. Myers, Norfolk, Va.; secretary, Wendell C. Phillips, New York; treasurer, Ewing W. Day, Pittsburg, Pa.; councillors, Frederic C. Cobb, Boston, Mass.; James F. McKernon, New York; and H. W. Loeb, St. Louis, Mo.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

RUPTURE OF THE ESOPHAGUS, DUE TO VOMITING: REPORT OF CASE.

BY

P. L. GUNCKEL, M.D.,

of Dayton, O.

So few cases of rupture of the esophagus, due to vomiting, have appeared in medical literature that the following case, which occurred in my practice in July, 1901, may prove of interest:

L. H. B., aged 33, single; assembler by occupation; well nourished and well built. His past history includes all the exanthematous and infectious diseases of childhood. In addition, he was a constant sufferer from nasopharyngeal catarrh.

In March, 1898, he was in the Miami Valley Hospital, Dayton, O., for about a week with a diagnosis of pleurisy. He was discharged, improved, but was readmitted in May, 1898. For 18 days he was under the care of another physician, with a diagnosis of pleurisy, but this diagnosis was later changed to tuberculous pleurisy with abscess. I cannot obtain any information from the physician who last attended him that would lead me to believe the case was of a tuberculous nature, as the patient was again discharged from the hospital improved, and his subsequent health appeared to be good for the length of time that I had known him, which was about two years.

The present illness began July 16, 1901. At about 11 a. m. I received a hurry call, and found my patient in a state of collapse. From him I obtained the following history:

He had recently been subject to frequent attacks of dysentery, for the relief of which he had been advised by a physician to use rectal injections of a pint of water containing an ounce of laudanum and a few grains of quinin. At 4 a. m. he felt an attack coming on, and to avoid it he took his laudanum enema. Feeling that he was relieved at 7 a. m. he went to his work. After he had worked about an hour he began to feel very drowsy and became much alarmed, thinking he had been poisoned from the absorption of laudanum. He at once sought a physician, who assured him that there was nothing in his condition to occasion alarm, and advised him to go on with his business, or to take a long walk in order to keep awake, and further, to drink some strong black coffee, all of which he did. He drank six or eight cups of coffee, and in addition, a couple of pints of a solution containing potassium permanganate prescribed by the ever-willing drugstore man. At 11 a. m. a violent attack of vomiting occurred, due, no doubt, partly to the overloaded condition of his stomach, and partly from the tendency that opium has to produce nausea. During

this attack he felt a sensation as if something broke loose, but he was unable to describe exactly where it seemed to be. He was suffering intensely, and with a constant desire to vomit, which was promptly alleviated with a few drops of a 4 % solution of cocain. As he did not show any marked symptoms of opium poisoning I administered a hypodermic injection of morphin and atropin, which gave him temporary relief. His countenance was the picture of abject distress. Respirations were about 60 to the minute, difficult, painful, and irregular. Every attempt to prevent or subdue respiration was brought into play. The abdominal and recti muscles were contracted as rigid as a board. The pulse at first was about 60, but as time went on it became rapid and thready. The temperature rose in two hours to 103°, with pulse 140. Two hours later the temperature began to descend, but the pulse continued—faster and weaker. Pain in the left chest, shoulder, and radiating down the left arm was distressing to behold. It was a constant, characteristic symptom, and I may almost say, of diagnostic significance. He was removed early in the afternoon to the Miami Valley Hospital, with a possible view of operating. To this, however, he strenuously demurred.

On admission to the hospital he continued to grow worse and suffered intensely from the symptoms indicated, with pain in the region of the diaphragm, intense thirst, and cyanosis of the extremities, which rapidly grew worse, until death seemed imminent.

Physical examination of the chest revealed all the classic symptoms of fluid in the pleural cavity. The treatment was palliative—morphin for his pain, cracked ice by mouth, ice-bag to heart, etc. His condition steadily grew worse, until death supervened, 22 hours after the accident.

Autopsy revealed a perpendicular rent in the esophagus, ¾ in. in length, ½ in. above the diaphragm, on the left side. The left pleural cavity was filled with water, blood, and the contents of the stomach. Heart and lungs were normal, stomach was greatly dilated. All the other organs were apparently in a normal condition.

MENINGITIS FOLLOWING TRAUMA.[1]

BY

ROBERT B. GRUBBS, M.D.,

of Spokane, Wash.

First Lieutenant and Assistant Surgeon, United States Army.

History of Case No. 707.—Corporal W. M. C. H., Company "L," Nineteenth United States Infantry.

Diagnosis.—Bronchitis, acute, both sides, complicated by a small abscess in the lower portion, upper lobe, left lung; followed by traumatic cerebrospinal meningitis, with hemiplegia of left side (except head), and anesthesia below left elbow and left knee; the ultimate symptoms indicating acute traumatic spondylitis of the sixth and seventh dorsal vertebras.

Family History.—Father died at age of 49, from wound received in Civil war. Mother living and in good health; so are all the brothers. No sisters. No history of any pulmonary or nervous disease in family.

Personal History.—Born March 6, 1868, near Atlanta, Ga.; home, Detroit, Mich.; single; white; previous occupation, has always soldiered; originally enlisted in the United States army in 1897.

Previous Illness.—Had measles at age of 10, and a severe cold at age of 17. Thrown from his horse on January 22, 1900, while in the Philippine Islands, injuring the frontal bone on both sides, and also the right side of his nose. Remembers no trouble with his back at that time, but thinks the surgeon put a celluloid plate under the depressed fracture in the left frontal region. While returning to the United States (July 11 to July 20, 1902) from the Philippines, was troubled by pain which seemed to settle in the left lung above the heart, and a bad cough worried him from the time of his return until he went to Sacramento and Los Angeles, Cal., late in July, 1902, at which time the cough disappeared, and has not troubled him since until about two weeks before coming on sick report, when he got his feet wet, and has been bothered with it since. He returned to San Francisco in November, 1902, and his face became greatly bloated, which he attributed to beer and bad food at some restaurant. Claims that Dr. Greenleaf said he was poisoned. This gradually wore off, until at the end of about two weeks, he felt well again. He had no other sickness between November, 1902, and December 25, 1904. Has been studying hard for the last few months, and has suffered from insomnia for about a month past.

Present illness began on the night of December 25, 1903, while "taking check" in the barracks at Fort Wright, Wash. Attributed to being struck upon the shoulders; in the left frontal region (over the old depressed fracture incurred on January 22, 1900); and in the back, knocking or causing the patient to fall against a radiator or door knob (or possibly both), striking upon the back between the shoulder-blades and upon the occiput. Immediately following this, patient trembled violently and felt nauseated, but does not think he fainted, although memory of what exactly occurred immediately thereafter is impaired. Through the night he suffered from severe lancinating pains in region of fracture of left side of skull, in back of head, and between shoulder-blades. Next morning the muscles of the body and limbs felt very stiff and sore. This muscular soreness wore off in a few days, but the headache and backache continued for about two weeks. Sharp pain was elicited only when pressure was made upon the depressed fracture of the left side of the skull, or along the inner border of the left scapula.

About January 15, 1904, he developed coryza and a feeling of depression in the thorax, with some cough and chilly sensations, which gradually grew worse until the night of January 25, 1904, when he had a chill, felt feverish, and coughed considerably.

Summary of Symptoms and Physical Signs Present upon Date of Admittance to Hospital, and Developing Subsequently; General Appearance.—January 26.—Apparently anemic; poorly nourished; muscles flabby; conjunctivas congested; eyes bright; face and neck flushed; approximate height, 5 feet 6 inches; weight, 120 pounds.

Nervous System.—January 26.—Intelligent. No information is volunteered. It is necessary to draw out all subjective symptoms by questioning for each.

February 10.—Complains of sharp pain in the thorax, about an inch above each nipple, more marked on left side, radiating to the posterior cervical and occipital regions.

February 11, 8.30 a.m.—Complains of intermittent, lancinating, and throbbing pain above left nipple, which radiates to the inferior angle of the left scapula. Also of increased headache, with lancinating pains in the back of head and neck (sometimes sensation of drawing in posterior cervical region). There is tenderness upon pressure from the summit of the cranium to the last dorsal vertebra. Eight p.m.: Patient complains of continued throbbing headache in the basilar region, with "grinding" pain in cervical and dorsal regions.

February 12.—Complains of constant pain between shoulder-blades, which radiates along ribs to epigastric region. Slightest jar or movement increases this pain, and upon vomiting describes sensation as "like something drawing his brains out of his skull." Also complains of a peculiar sensation along anterior border of left sternocleidomastoid, which is slightly swollen.

February 13.—Attacks of lancinating pain (up and down) from occipital to lumbar regions, precurse spasmodic contractions of muscles of the lower limbs. These spasmodic attacks recurred with increasing frequency until February 27, when he also began to complain of a feeling of pressure in the region of old fracture in left frontal region. Only under the most excruciating pain are evidences of suffering shown, and then apologies are made for it.

February 29.—A low, muttering delirium accompanied spasmodic attack.

March 13.—Noises greatly increase patient's irritability.

[1] Read before the Spokane County Medical Society, Spokane, Wash., May 4, 1905; and published by authority of the Surgeon-General, United States Army.

Just before the beginning of an attack the patient's countenance becomes fixed and grinding of the teeth occurs. Between convulsions, patient is for most part delirious, and constantly feels old scar in left frontal region. The convulsions occur on an average of every 10 minutes (or oftener), last about 10 minutes (or less), and the attacks last from 1 to 3 hours, usually coming on about 5 or 6 o'clock p.m. Often 5 or 6 hours are necessary to overcome the tendency to convulsions; then the patient's sleep is fitful and he grunts or moans almost continually. After attacks subside, complains of sense of formication in skin and pain in muscles from right hip to foot (skin feels cold).

March 14.—Hyperesthesia of forehead and left temporal region noticed for the first time. Complains of prickling sensation in left leg and forearm. Pin pricks over left knee and elbow are not felt at points of contact, but about 5 inches above. Has no recollection of having had any convulsions at any time.

March 17.—Complains of a continuous dull ache about two inches above right ear; this becomes sharp when the part is pressed upon; also complains of continuous ache from shoulder-blades to right lateral process of axis, but pressure pain in these regions is referred to a tender spot above the right ear. Knee-jerk, ankle-clonus, and arm-jerk absent.

Cremasteric, Babinski's reflex (flexion of toes upon tickling sole), and Kernig's sign (inability of patient to straighten limb when the thigh has been flexed upon the abdomen and the leg upon the thigh), as well as Romberg's sign are all present, and sensation is lost in the right foot.

Complains of left knee "feeling asleep," while hyperesthesia exists in muscles of the back.

March 18.—Pain in back increased by lying upon right side, eased by turning upon left side.

March 23.—Complains of pain in bladder in region of kidneys, and in the left groin—the latter becomes sharp at the beginning of micturition. Muscles tense in this region. After sitting up 15 minutes at 11 a.m., complained of sharp pain in cervical region.

Digestive System.—January 26.—The tongue is protruded in the median line, but in movements after protrusion tends to point slightly to left side (never to right). The palatal arches of the left side are a little straighter vertically (encroach slightly more upon the isthmus of the fauces) than those of the right side. Bowels open now. The soft palate and tonsils are considerably congested, and the postpharyngeal vessels are markedly engorged. Constipated as a rule.

February 11.—Complains of dryness of throat and some difficulty in swallowing.

February 12.—Soft palate and uvula edematous, especially on the left side. Pharyngeal vessels still markedly congested.

February 15.—Roots of both lateral upper incisors extracted.

March 4.—Thirst variable—some days intense; on others entirely absent. Water does not seem to satiate—only a little being taken, even when thirst seems great.

Circulatory System.—January 26.—Pulse 116. Arterial tension high.

February 10.—Pulse 108, regular but weak.

February 28.—Heart beats strong and regular at inspiration, while sometimes it beats fast at expiration for four or five beats, and at others it will miss two or three beats. During attacks of muscular spasms the heart becomes weak and irregular, and the pulse thready. The head and face become more congested, and the eyes stand out prominently. Extremities cold and clammy just before convulsive attacks.

February 29.—Epistaxis occurred at intervals.

March 4.—Hyperemia of cheeks extended to forehead. Heart rate increased; rhythm regular; pulse small.

Temperature.—Maximum (on date of admittance) 102.5° F.; minimum (February 12) 97.2° F. Extremely irregular, and late in the disease bore no relation whatever to the pulse or respiration.

Respiratory System.—January 26.—Respirations 32 per minute, and shallow. Ratio between expiration and inspiration appears to be normal. At sick call the case seemed almost typical of croupous pneumonia, but examination in ward two hours later showed no pneumonic area, but a severe bronchitis on both sides, with pleural friction rales on left side, in neighborhood of nipple. No effusion.

February 10.—Increasing pain in region of left nipple. Dull area, about size of half dollar, just above left nipple; increased bronchial breathing in region of inferior angles of scapulas. Respirations 34; cough quick and sharp.

February 11.—In morning complained of chilly sensation and throbbing pain about two inches above right nipple, and in the afternoon began retching and vomiting, and later expectorated small clots of blood and flakes of mucopurulent matter. Efforts to clear throat excessively frequent. Strangling cough occurring in paroxysms. Laryngoscopic examination negative. Microscopic examination revealed red blood cells, pus cells, a large number of staphylococci, a few pneumococci, and a few shreds of what appeared to be elastic tissue.

From this date the pulmonary disturbances gradually subsided until March 1, when, except cough, and irregular shallow breathing (from 30 to 48 per minute), on account of pain—they ceased to exist.

March 23.—Cough increasing. Microscopic examination of sputum and scrapings from tonsils, and ulcer in nasal septum reveal only a few staphylococci and streptococci.

Genitourinary System.—February 26.—No history of any venereal disease, and at time of admission, this system was apparently normal.

February 11.—Suppression of urine. Catheterized in 12 hours, 125 cc. Analysis, negative.

February 13.—Able to pass urine in afternoon without catheterization. Amount. 500 cc.

February 17.—2,525 cc. of urine passed in last 24 hours. Analysis: acid; specific gravity, 1,029; albumin, phosphates, and sugar, all negative.

February 22.—Passed 2,850 cc. of urine during day. Analysis, specific gravity, 1,005; otherwise negative.

February 23.—Passed 540 cc. urine after cessation of muscular spasms of lower limbs.

February 28.—Analysis of urine showed specific gravity 1,013; negative.

February 29.—Immediately after attack of spasms of muscles of legs, patient desired to urinate, but could not; 360 cc. of urine were removed by catheterization. After these attacks, considerable pain in abdominal muscles is experienced in attempts at micturition. During remainder of the day, he passed (without assistance) 1,410 cc.

March 23.—Analyses of urine have always shown negative results, except, as a rule, a low specific gravity. Today, this was 1,003.5. The amount passed in the 24 hours is extremely variable—from 780 cc. to 2,850 cc.

March 31.—He has had great difficulty in passing urine since administration of anesthetic, March 30.

April 15.—Improvement of this system was noted from this date.

Muscles, Bones, and Joints.—Upon admittance, January 26, all joints appear normal, except in the upper portion of the dorsal region, which region appears somewhat stiff, and an over-erect position with elevation of the shoulders is assumed as a natural standing posture, a plumb suspended from the external occipital protuberance falling nearly 5 cm. posterior to heels. Spinous processes in middorsal region not prominent, and deep pressure in this region excites uneasiness. As nearly as can be made out, the seventh and eighth spinous processes are deflected somewhat to the left. Practically, no lateral curvature in any part of spinal column. Both trapesii are in a state of tonic contraction. An old depressed fissured fracture, running from about 10 cm. above left external angular process of frontal bone upward and backward for about 1¼ in. toward the vertex of the cranium, is slightly tender upon pressure. A smaller, slightly rough area is approximately correspondingly situated on the right side, but it is neither tender nor painful. All muscles are more or less flabby, and joints (especially knees), stand out prominently.

February 11.—Severe spasmodic contractions of calves of both legs at frequent intervals for about an hour.

February 13.—Clonic spasms of calf muscles, lasting about 30 seconds, and recurring about five minutes apart, continued for about three hours in the afternoon.

February 16.—Spasms of muscles of arms, as well as of legs, occurred. Duration, about 10 minutes.

February 23.—Spasmodic contraction of muscles, becoming general.

These have occurred almost daily since February 13, in attacks of varying severity and duration. Moderate twitching of muscles of the face occurs at intervals, and occasionally precedes spasm of leg muscles.

February 27.—Convulsive seizures, about intervals of 30 minutes, last six hours; especially marked in cervical and dorsal regions.

February 29.—Convulsions occurred at intervals of about five minutes from 9.20 a.m. to 11.30 a.m. Duration from one to two minutes.

Muscles of the back prominently involved. Opisthotonus and unconsciousness present during spasms (and a low muttering delirium between spasms).

March 1 to 3.—At irregular intervals (5 to 30 minutes) the muscles of face become fixed, and this is immediately followed by severe convulsions of the back—the opisthotonus is so great that the patient rests on the vertex of the cranium and the heels, the body arching to almost a semicircle. During the convulsions the muscles of respiration also become fixed. Often the fingers would be interlocked behind the base of the skull before the attacks, and would remain in this position during the seizures.

March 5.—About 20 minutes preceding the attack of convulsions today the muscles of the left side of the head and neck were apparently swollen. This continued until the seizure occurred.

March 4.—Prominent pyriform swelling encircling middle third of left arm. Tender upon pressure (especially prominent in region of biceps).

March 7.—After the convulsions subsided today, partial hemiplegia of whole left side existed. The paresis was most marked in the left hand, less marked in the left leg, scarcely noticeable in the thoracic region, and entirely absent in the head and face, but there was slight swelling of the left sternocleidomastoid and of both temporal muscles (more pronounced on right side), which somewhat restricted movements of inferior maxilla.

March 8.—Another convulsive attack; the paralysis is becoming more marked.

March 9.—Muscular power in hand and foot practically absent.

Integument and Subcutaneous Connective Tissue.—January 26.—Integumentary system: Skin flabby and pale, except on face and neck, which is flushed. No eruption or tache cérébrale. Only a few teeth remain, and both upper lateral incisors are practically decayed "snags." The nails are anemic and "flinty." The hair is abundant, and normal in appearance.

February 12.—Neck and face still hyperemic.

March 8.—Neck and face become rigid just before convulsions begin.

Organs of Special Sense.—1. Eye. January 26.—Slight ptosis of left upper lid. Both lower lids slightly edematous. Vision normal. Pupils slightly dilated and equal. Reflexes normal; react both to distance and to light.

February 29.—After convulsive seizures began to subside, patient was unable to see objects distinctly, or to distinguish persons from each other, and complains of photophobia. At times everything appeared reddish-brown; at others total blindness existed as he was unable to tell whether a lighted lamp two feet from his head was on his right or on his left side.

March 1.—Ophthalmoscopic examination revealed congestion of both retinal vessels and "choked disc" on nasal side of left optic disc. At beginning of convulsive seizure pupils contract, and later dilate widely.

March 4.—Pupils moderately dilated, and equal.

March 29.—Ophthalmoscopic examination reveals retinal vessels considerably congested; papillitis still exists upon nasal side of left optic disc.

2. Ear. January 26.—Complains of tinnitus aurium. Physical examination showed membrane slightly congested. This disappeared in about a week.

February 29.—Extremely sensitive to noises.

3. Nose. January 26.—Externally, normal in appearance. Internally, mucous membrane turgid, but there is the characteristic odor of ozena. At junction of cartilaginous and bony septums a circular opening about .5 cm. in diameter exists. Ulceration is still evident, around the edges of this opening. Breath and expectorated matter are extremely malodorous.

Treatment.—January 26.—Routine treatment for ulcerating rhinitis and acute bronchitis.

February 9.—Convalescing—no pain. Able to wear uniform and go about ward. Wanted to go to duty.

February 11.—Began treatment for abscess of lung (absorptive) and spasms of muscles of lower extremities (chiefly nerve sedatives), and as symptoms of heart failure occurred, stimulants and hot enemas were used, with ice to head, and heat to extremities.

February 29.—During convulsive seizures used morphin and atropin hypodermically (and ether until opiate took effect). For the spinal irritation, small fly blisters were applied laterally to back of neck and spinal column, as low as lumbar region. Between attacks, sedatives (chloral and sodium bromid chiefly).

March 3.—This is the severest attack that has occurred to date. The medicinal treatment was supplemented by traction so disposed as to stretch the spinal column—as follows: His feet were fastened to the foot of the bed, and one assistant at the head of the bed grasped his chin and occiput and drew upon them; at the same time an assistant upon each side placed a shoeless foot of a flexed leg and thigh into the patient's axilla, grasped patient's hands, and steadily extended their flexed limbs. The use of this method in this and subsequent severe attacks seemed to lessen the duration of the convulsions, and when sufficient relays were available to exert constant extension, the intervals between the seizures gradually increased. The employment of gravity for this purpose was unsuccessful, as it increased intracranial pressure and nausea.

March 9.—With the able assistance of Dr. Richard J. O'Shea, of Spokane, Wash., under ether, a horseshoe-shaped incision through scalp exposed the old depressed fracture, and the bone was trephined about 10 cm. superior and posterior to left external angular process of frontal bone, removing the most depressed portion of the old fracture. The dura mater was very tense; upon incision about 50 cc. of clear cerebral fluid (apparently rich in albumin) escaped. The pial vessels were much congested. Adhesions and a celluloid plate (said to have been placed under the fracture by the surgeons at time of operation) were searched for, but neither was found. The dura was not sutured. The button removed by the trephine was crushed and the opening in the bone filled with the fragments, the periosteum (and flap) brought up over the wound and sutured to the scalp by interrupted silkwormgut sutures, except at its lowest portion (posteriorly), in which a small sterile gauze drain was left, and a dry dressing placed externally. Just previous to this operation puncture was performed through the lumbosacral foramen, and 15 cc. of cloudy spinal fluid was removed. The wound was dressed with sterile cotton and collodion. On account of apparent occlusion of the foramen of Magendie no attempt was made to irrigate through and through.

Chemic examination of the cerebrospinal fluid from the spinal canal showed about ½ of 1% albumin; that from the cranial cavity showed only a trace.

In the microscopic examination (made within a half hour after the completion of the operation) no organisms of any description whatever were detected. Bouillon cultures and re-examination of the cerebrospinal fluid itself after incubation yielded only negative results.

March 10.—At 8 a.m. all previous symptoms had disappeared, except slight ptosis of left eyelid, and the plantar reflex of the left foot was slightly delayed. By 6 p.m. the pressure symptoms were nearly as great as before the operation. Frequent and persistent vomiting and retching continued through the day. The highest temperature was 101.8° F., at 5.30 p.m. One suture was taken out of the flap, the gauze drain removed, the wound explored, thoroughly antisepticized, and dressed with hot 1 to 2,000 mercuric chlorid solution.

March 15.—Only 12 short convulsive attacks have occurred

since operation. Feels nervous as night comes on, and the attacks of late have all been between 8 p.m. and 10 p.m. Compresses saturated with hot lead and opium wash seem to render more or less permanent relief after being applied to spine for about an hour.

March 23.—With difficulty, patient got up out of bed himself (for purpose of taking measurements for Sayre's suspension apparatus), but could not walk. Remained out of bed for 15 minutes. Spinal column appears to be curved slightly to the left from the third to seventh dorsal spinous processes and a slight right lateral curve in the lumbar region, but upon palpating each individual spinous process the bony column is singularly free from lateral curvature. This morning patient was bright and much buoyed when told that he could get up a few minutes at 11 a.m., but two convulsive seizures occurred between 1 p.m. and 1.15 p.m., necessitating the use of chloroform for 20 minutes.

March 26.—Severest convulsive seizures since operation (March 10) began at 9 p.m.

March 27.—Apomorphin (in .0065 gm. doses) hypodermicly, substituted for morphin (.016 gm.), with better results. Never caused vomiting, in most instances sleep followed slight nausea.

March 30.—Under chloroform, aspirated (through lumbosacral foramen) 20 cc. of perfectly clear spinal fluid (all in canal), and injected 10 cc. of saline solution (.650 cc. to 100 cc.).

Chemic examination of spinal fluid: Specific gravity, 1,001; negative.

Notwithstanding the fact that chloroform was used, the retching and headache were severe and persistent. A peculiarity noticed (while under anesthetic) was that the right pupil was widely dilated, while the left was normal.

March 31.—Pain (upon pressure) and stiffness (upon movement) markedly noticeable over left laminas of sixth and seventh dorsal vertebras. All things considered, this appears to be cerebrospinal meningitis and spondylitis following the traumatic injury incurred on the night of December 25, 1903; and, while all methods of observation (except the tuberculin test, which has as yet been unavailable) fail to show a tuberculous focus, there is a strong probability that the osteitis is of a tuberculous nature.

April 1.—Muscular power in left leg and arm becoming considerably greater.

April 6.—At 9.45 a.m., suspended patient by the arms at the axilla and by the head and applied a wire-reinforced plaster-of-paris jacket. This required 45 minutes, on account of patient fainting after being suspended about 20 minutes. He ate a large dinner and a large supper, and said they were the first meals he had enjoyed since February 11. At night the jacket was cut at edge of ribs as high as ensiform cartilage to relieve pressure, "dinner pads" not being large enough. At 10.40 p.m. slight contractions of muscles of back of head, neck, and lower limbs (without loss of consciousness) occurred and lasted for only a few minutes.

April 8, 11, 20, 24.—More or less marked convulsive seizures (opisthotonic in character) with loss of consciousness occurred upon these dates. In every case the attacks developed (and usually terminated) some time between the hours of 7.30 p.m. and midnight.

April 12.—Only slight difference in strength noticeable in opposite limbs.

April 14.—The spring days having come it was decided that fresh air and sunshine would be useful therapeutic agents (especially since the process at that time was thought to be tuberculous), consequently, notwithstanding the convulsive attacks, an improvised jury mast (Sayre's pattern) was strapped over the plaster jacket (the pelvis being used as a support), the patient dressed, placed in a wheel chair, and taken out of doors daily for a few minutes (only 10 at first). Thereafter, whenever the weather would permit, the patient was taken out during the warmer portion of the day, the length of the stay in open air being gradually increased.

April 20.—Weather has been bad since April 18 and patient has not gone out. Has taken cold and coughs more. Plaster jacket removed for purpose of examining lungs and left off during night. At 11.20 a.m. attack of muscular spasms of extremities occurred, but yielded to treatment in an hour.

April 24.—Put hooks on plaster jacket and laced it on again; put in jury mast and patient was out in an hour without developing any untoward symptoms at the time, but at 9.30 p.m. the second most severe attack of convulsions since April 1 developed and lasted until 3.30 a.m, April 25. Chloroform and spinal stretching were persistently employed.

This was the last attack of convulsions occurring in this case—the remaining being more or less severe muscular contractions lasting for a few seconds.

April 28.—Patient was able to stand up for five minutes without becoming tired.

May 1.—Slight symptoms of cranial and spinal irritation occurred, and patient complained of pain in back and left hip.

May 11.—Patient put upon Fowler's solution and cod-liver oil; later, mercury protiodid and iron compound pills.

May 15.—Able to walk short distance.

May 16.—Remained out of doors from 10.30 a.m. to 5.30 p.m. Improvement marked.

May 18.—Patient remained in bed on light diet (temperature to be taken every three hours), preparatory to giving of tuberculin test.

May 19, 20, 21, 22, 23.—Injections of tuberculin were given about 8 a.m., without effect.

May 23.—Last attack of cerebrospinal irritation occurred this date. Convalescence until time of departure (August 13) uninterrupted.

August 12.—Patient weighs 147 pounds, and looks well. Although he is able to walk without the crutch (left side) he is afraid he will slip and wrench his back. Some tenderness still exists in the region of sixth and seventh dorsal vertebras (left side), and while sensation in the left arm is practically normal, it is still far from acute in the left foot.

August 13.—Transferred to Post Hospital, at Vancouver Barracks, Washington; was able to perform full duty by January 1, 1905, and left with his organization for Philippine service, April 1, 1905.

I believed the meningitis of the cranium, of the cervical, and of the middorsal regions in this case had its incipiency in traumatic injuries in these regions, and that its exacerbation was precipitated by the exposure, respiratory inflammation, and consequent depression of vitality incident thereto. Regarding the etiology of the most prominent symptoms, and the extent and nature of the pathologic lesions, little can be definitely stated; however, the following conclusions have been reached:

The ptosis of the left lid was probably due to an inherent weakness of the levator palpebrarum of the left side, as no change in the condition was noted while the patient was under observation.

The dilation of the pupils might be attributed to irritation by cerebral pressure, or to reflex from the cervical or basilar regions.

The paresis of the left side might be accounted for by pressure (meningeal) over the upper third of the ascending frontal and upper two-thirds of the ascending parietal lobes of the right side, or pressure below the decussation on the left side of the cord (cervical and dorsal regions). Pressure upon the lower fibers (origin) of the spinal portion of the eleventh cranial nerves may have caused the paralysis of the left palatoglossus and palatopharyngeus.

The fixation of the eyes, muscles of the face, and engorgement of the skin of the neck and face would seem to indicate additional intracranial pressure, due probably to reflex nervous irritability from any or all of the traumatic lesions; this offers the most plausible explanation regarding the cause of the convulsions.

No satisfactory conclusion as to the cause of the muscular swelling of the left biceps flexor cubiti, the left sternocleidomastoid, and both temporals, or of the anesthesia below the left elbow and knee, has been arrived at. At first, several theories seemed capable of elucidating these problems, but upon following them out closely, none has been found which does not contain some contradictory feature.

In fact, the interest in this case arises chiefly from the opportunity it affords for multiplicity of opinions and extensive discussion.

ORIGINAL ARTICLES

A STUDY OF CERTAIN COMPLICATIONS AND SEQUELS MET IN OPERATIVE CASES OF LARYNGEAL DIPHTHERIA.*

BY

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Diphtheria of the larynx, as you all know, may occur in the larynx primarily. In very many cases, however, it is secondary to diphtheria occurring in the throat, in the nose, or in both situations, and may then be properly spoken of as a descending infection. It may occur primarily in the trachea, and extending upward to the larynx, be termed a true ascending infection. When primary, the first symptoms may consist chiefly of hoarseness and laryngeal irritation, shown by cough, harsh and brassy in character; and with the laryngeal mirror, the mucous membrane about the vocal cords in the vestibule and upon the arytenoids will be found swollen and red. Later, perhaps within 24 hours, or at the most within 48 hours, pseudomembrane may be seen and symptoms of laryngeal stenosis are shown. The cough becomes more paroxysmal, is higher pitched, and dry in character, great restlessness supervenes, and the patient labors for air. The exudate continues to form, grows thicker, and extends perhaps through the vocal cords to the lower margin of the larynx or into the trachea. The thickening of the exudate, plus the swollen condition of the vocal cords, makes respiration very difficult. At times portions of exudate may become partly detached and occlude the larynx by a flap-like action. In this stage labored breathing is constant, and added to this are paroxysms, spasmodic in character, which make it almost impossible for respiration to continue. Now a tube, designed for the purpose, may properly be inserted by passing it through the larynx within the cast of exudate. It should rest with its retention swell in the base of the larynx, and be hugged about its neck by the vocal cords, made tense by the adductors of the organ. Perhaps all have seen the rapid relief which follows intubation in these cases after stenosis has existed for some hours. No one who has seen such a patient given relief, even though not cured, can help but say, "All honor to him who devised the instrument for making this relief possible." While O'Dwyer has presented to mankind the most useful surgical device yet invented, certain conditions follow his method of treatment similar to the stenosis which follows the older methods of treating diphtheria by tracheotomy.

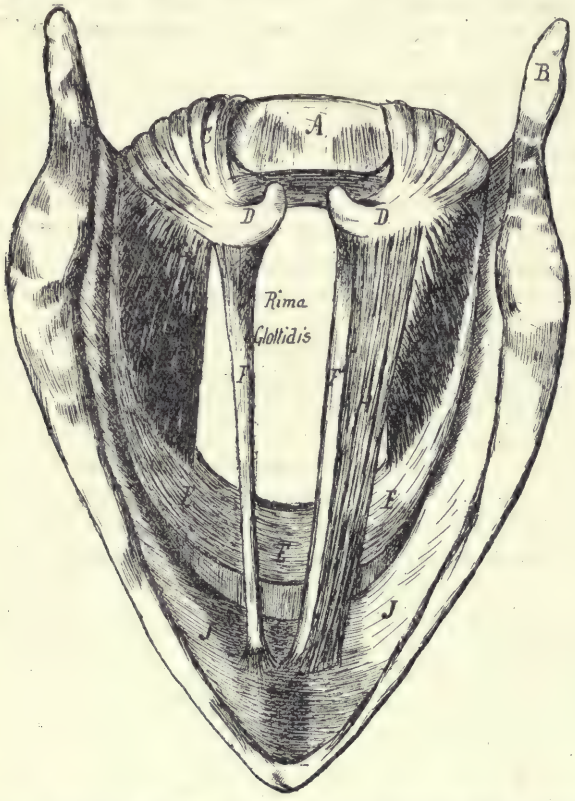
In this paper I purpose to deal with the complications of laryngeal diphtheria of the greatest interest to the laryngologist. I shall take up first, complications immediately following intubation or attempts made to intubate when from reflex apnea, cardiac or respiratory disturbances occur of such gravity as to compel one to modify the procedure, or of such serious type as to cause the death of the patient. Omitting entirely the most common complication of laryngeal diphtheria, bronchopneumonia, I will proceed to discuss autoextubation, its cause and treatment, laryngeal stenoses of the various types causing prolonged intubation and retained intubation tubes, and then take up stenosis following both intubation and tracheotomy. With the latter conditions, a patient and a specimen illustrating each lesion will be shown.

Reflex apnea causing grave respiratory and cardiac inhibition must be entirely familiar to those who do considerable operative work in and about the larynx. In a paper by Harland and Good,[1] studying this condition from an experimental viewpoint as well as from the practical standpoint of the operative laryngologist, it was clearly shown that irritation either purposely made in the larynx or air passages of animals, or irritation from operative procedure in man would cause very serious cardiac or respiratory inhibition. Crile[2] has shown that forcible dilation of the pharynx or virulent traction on the tongue will cause reflex inhibition and even death. He met this inhibition six times in a series of 156 intubations. On two different occasions within the past year we admitted to the Diphtheria Hospital patients whose general condition demanded intubation—color blue and cyanotic, respiration labored, marked retraction of the xyphoid and a deep peripneumonic groove. The child would sit up in bed and fight for air. Intubation was done in each of these cases promptly. Each patient did badly from the beginning, one dying on the operating table; the other after doing badly with the tube, was extubated, reintubated, again extubated; the color at first blue changing to pallor, the pulse becoming very weak and almost imperceptible. Tracheotomy was done, the child dying under operation. On enlarging the tracheotomy incision the amount of exudate was not great enough to cause profound depression from toxemia, nor did it extend far into the trachea; none could be seen below the field of operation. In each of these cases I feel death was hastened by operative procedure. In the first, dilating the larynx and placing within it a hard resisting foreign body caused the irritation. In the second case, the same cause and cutting the tissues about the trachea, retracting them and retracting the trachea itself, had in some reflex way succeeded in disturbing the centers which control both respiration and circulation. In these cases the respiratory disturbance is usually the most serious element, and circulatory failure rapidly follows. The heart may beat several minutes after respiration has ceased while the operator induces artificial respiration. As to the treatment in this unfortunate condition I have nothing new to recommend. It will be met perhaps once in 75 intubations. It cannot be anticipated, and when it occurs, death follows so quickly that resuscitation is almost hopeless. When the operation is undertaken deliberately and this condition is feared, physiologic doses of atropin[3] will certainly obviate the danger. In the vast majority of cases, intubation must be done as an emergency operation, and no time can be allowed for absorbing sedative drugs.

Under the second heading I will first discuss symptoms, the character of which suggests paralysis as a cause. I would first direct attention to a diagram showing the muscles of the larynx, chiefly the groups known as

* Read by invitation before the Section of Laryngology and Otology of the College of Physicians of Philadelphia, March 15, 1905.

abductors and adductors. (Cut made from drawing by E. Burrill Holmes.) As these muscles are viewed from above looking downward and their function recalled, it will be remembered that the cricoarytenoidei postici rotate the arytenoid cartilages outward, relax the vocal cords and open wide the larynx. The vocal cords are approximated by the cricoarytenoidei laterales and made tense by the cricothyroidei. The arytenoids are drawn together by the arytenoideus muscle. When an intubation tube is inserted, what occurs? First, the work of the cricoarytenoidei postici is done by the tube. If the tube is left in place three, four, five days, or a week, what will happen to the adductors (the cricoarytenoidei postici)? Atony from disuse. It is analogous to relaxing the biceps or relieving it from duty by fixing the forearm in complete flexion for several days. There is no paralysis, but there is atony. The biceps has become helpless. Does this atony obtain in the other muscles of the larynx? No, I think not, to any considerable degree. Why not? In the first place the tube is snugly hugged by the vocal cords. The cricoarytenoidei laterales close the larynx by pulling indirectly against the elastic cords through the arytenoid cartilages and against the arytenoideus muscle. Pulling against the tube they do become overworked, but the pull is elastic and atony is not noticeable. Indeed, hypertrophy may occur. Suppose the tube is removed at the end of five days. The muscle that has remained active, but is a little overworked, quickly closes the larynx; the muscle that had its work done by the tube, the cricoarytenoideus posticius, from atony is powerless and we say abductor paralysis has supervened. What actually has occurred is this—the abductor muscles have atony from disuse. They are too slow to regain their tone. The abductor muscles keep the larynx and vocal cords so tightly closed that the tube must be reinserted. Sometimes we are able to get along a few hours without a tube, the abductors toning up may begin work again, and after some hours or days of labored breathing, full muscle tone is regained and the patient is cured. This is a complication very frequently encountered. Many times the tube must be reinserted, to be taken out later when the adductors may be exhausted and weak from overwork, both regain tone together. If this occurs your patient is, happily, cured.



The point I would emphasize is that in many cases in which at the first or second extubation acute stenoses occur, the cause of trouble is atony of the arytenoideus posticus; atony from disuse. Abductor paralysis conveys some idea as to cause, but the term is misleading. Later in the disease a true diphtheric paralysis of these muscles may occur. This usually comes in the third, fourth or fifth week of the disease. This is more serious and will be mentioned later.

The second set of symptoms suggesting paralyses are noted chiefly in the adductors. Here the cricoarytenoidei laterales may be exhausted from holding the cords constantly taut against a tube, which is, perhaps, too large for the larynx to wear comfortably. In a moment of quiet the muscles relax for rest, the child coughs, the tube pops out before the tired muscle arouses to full duty. The tube being out, the muscles (stimulated by its absence), finding the resisting body removed, close the larynx. The abductors not having recovered from atony, cannot properly oppose them. Stenosis results. Reintubation is required, and often almost instantaneously.

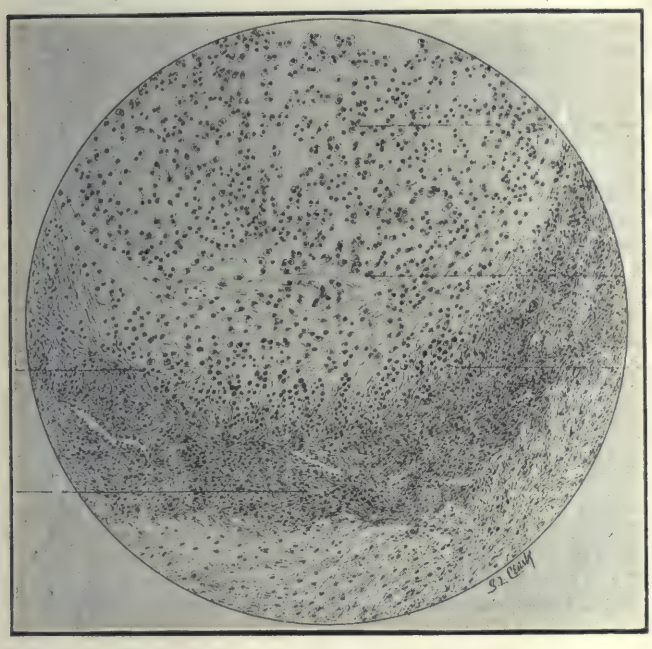
A second condition met in the adductors, is one that might properly be termed pressure paralysis or traumatic paralysis. Pressure paralysis may obtain with the cricoarytenoidei laterales from wearing a tube too large for the larynx. The same tube might cause traumatic paralysis of the arytenoideus from too great stretching of this muscle, and by keeping up this stretch so that no chance to regain tone is afforded. This condition often secured unintentionally, may cure the patient suffering with socalled abductor paralysis, by so depressing the muscle tone that abductors and adductors recover power about the same time.

The same thing is secured deliberately, as will be shown later in discussing a cure for frequent autoextubation.

The most frequent cause of autoextubation is, perhaps, adductor paralysis, such as has just been described. To this condition, however, may frequently be added, traumatic causes, due, sometimes, to injury done while inserting the tube, but more frequently due to irritation from wearing the tube, or to damage from the diphtheria lesion itself. These lesions, spoken of by the Germans as "decubitus," often excite the adductors to greater contraction and hasten the relaxation of exhaustion. At other times, when the decubitus or other cause has been persistent, inflammatory thickening may result. Infiltration may take place in the subglottic tissues, in the mucous or submucous tissues, in the cricoarytenoidei laterales or the cricothyroidei, and in still other cases, a

specimen of which I shall present, this irritation and infiltration extend to the perichondrium, and we find cartilaginous changes taking place in the perichondrium. Paralysis from pressure or traumatism, and in the earlier stages, infiltration in the muscle, seems to me to be very frequent causes of autoextubation. At times it may occur because of an abnormally shaped larynx, and in some cases badly shaped intubation tubes may be the cause.

In discussing retained intubation tubes, it seems well to explain what is generally understood by a retained tube. Men differ as to what they shall refer to as a retained tube. For the purpose of this discussion, however, let us understand retained tubes to apply to those cases requiring intubation for 3½ weeks, 4 weeks, 6 weeks, several months or several years. Why is it necessary to continue intubation beyond the third week? Rarely, if



A, cricoid cartilage; B, line of junction of cartilage and perichondrium; C C, line of merging of perichondrium with cicatricial tissue. The zone between B and C shows invasion of perichondrium by cartilage cells. D, cicatricial tissue occupying the position of the submucosa. Below is the edematous superficial portion of the cicatrix which at this point formed the inner surface of the larynx, the mucosa having entirely disappeared.

ever, does the diphtheria process continue long enough to account for it. Occasionally the degeneration paralysis of diphtheria occurring the third or fourth week, or later, may be responsible. Very often, I fear, one of the conditions described earlier in this paper, namely, atony of the abductors, exhaustion, or paralysis of the adductors, is the cause. In a large proportion of the remainder of the cases, inflammatory infiltration of the mucous or submucous tissues about the retention swell of the tube, where there has been marked decubitus, is responsible for the stenosis.

Rogers[4] says: "The commonest cause of postdiphtheric stenosis necessitating long-continued intubation is a hypertrophy of the subglottic tissues accompanied by a chronic inflammation. The intubation is in no way the cause of this, as it occurs irrespective of the operation. Less often there is an ulceration, and subsequently a formation of a greater or less amount of cicatricial tissue and contraction. This likewise is not the result of the intubation, except in rare, and practically unavoidable instances. But it certainly may follow a tracheotomy, and in a larynx, already chronically stenosed, it makes the condition worse, but not necessarily more difficult to cure. Exuberant granulations within the larynx apparently do not occur with intubation, no matter how prolonged."

Berg[5] divides the subject into "Cases of prolonged stenosis in which the original conditions which necessitated the intubation persist beyond the usual length of time. Cases of prolonged stenosis due to pathologic changes which have arisen during or subsequent to the primary intubation, and are not those of the diphtheric process which necessitated the primary intubation. Such lesions are due (1) to the injurious effect of the intubation tube upon the structures of the glottis, larynx, or trachea; (2) to traumatism produced by the operator either during intubation or extubation. Cases of persistent intubation due to paralysis of the vocal cords: (1) Temporary paralysis or spasm; (2) persistent paralysis."

Preble[6] has recently discussed the cause of retained tubes, and takes issue with the method of allowing tubes to remain in place for five and six days after primary intubation. He believes the tube should never remain in position longer than three days without removal, and further says he is rapidly coming to believe that 48 hours is nearer the correct time. He is convinced that the frequency of retained tubes is due to the attending physician allowing them to remain too long in place.

I am not prepared to accept this statement as a cause. I have been sufficiently impressed by it, however, to direct that for the present all tubes in my wards at the Municipal Hospital be removed at the end of 48 hours. I shall give this method an impartial trial.

The intubation tube, it must not be forgotten, is a foreign body placed in the larynx, and as such may cause pressure sloughs, inflammatory thickening with resulting contraction, or it may cause a true hypertrophy of the tissues. It is not always possible to determine during life the cause of this prolonged stenosis.

In the following case prolonged intubation was believed to have been caused by paralysis of the abductors:

The patient was admitted to the hospital on the third day of the disease, late in the afternoon, with some stenosis. He passed a restless night, and was intubated in the early morning. After wearing the tube four full days it was thought wise to remove it. When the tube was taken out, the larynx closed like a trap, and reintubation was done immediately. After wearing the tube three days longer a second attempt was made to get along without it, with a similar result; a tube of larger size was replaced within a few minutes. The tube was then allowed to remain in place five full days; on removing it a similar experience ensued. On the nineteenth day of disease, the fifteenth day of wearing the tube, autoextubation occurred, and for 35 minutes he lived without it. On the twenty-third day of disease, extubation was practised, the tube being inserted almost at once. On the twenty-seventh day a similar result proved ineffective, and later in the day autoextubation followed, and death almost ensued. Twice on the twenty-ninth day the child barely escaped death. On the thirty-second day of disease, less than five minutes after autoextubation, a tube many sizes

larger than indicated was inserted while the child was blue, flabby, and absolutely relaxed from asphyxiation. This tube was worn 14 days, and after its removal no further trouble was noted. I show you the patient cured. Unfortunately I can not tell you what might be shown in the laryngeal mirror. His voice is husky and hoarse, his vocal cords may have become thickened and infiltrated, subsequent to his many intubations or to decubitus. His chart will show that he passed through a pretty severe bronchopneumonia some days after the tube was removed, but survived the attack.

This case then would illustrate two or, possibly, three types: (1) Abductor paralysis, when the larynx closed tightly after the first, second and third extubations; (2) during the later intubations after larger tubes were inserted, pressure paralysis of the adductors, and (3) as the cyanosis became most marked after the twenty-sixth or twenty-seventh day of disease, we might reasonably infer that added to this pressure paralysis was true post-diphtheric paralysis from degenerative nerve change.

Three courses of operative treatment are available for these conditions: First, to persist with intubation, keeping a doctor at all times near the patient, as was done by Dr. Watson [7] and as is done many times in diphtheria hospitals; the second course and next procedure is to insert a large-sized tube, as large as the larynx will bear without laceration, taking advantage of relaxation following extubation, or, as was recommended by Rogers,[8] and later by Fisher,[9] insert it under ether anesthesia, induce pressure paralysis; and the third method of treatment would be to follow that practised for a patient whom I now show you:

In this case two extubations and 32 autoextubations occurred, and on the twenty-third day of disease the patient was tracheotomized. In this case we tried first frequent reintubation, and, later, large tubes, with complete failure. We tried having intubation done at once after autoextubation, but we found the child losing ground and growing weaker from the very frequent manipulation. Tracheotomy was performed, the operation being done deliberately under infiltration anesthesia with the intubation tube in place. Having carefully exposed the trachea and anchored it with single tenaculums, the intubation tube was moved by means of the extractor, the trachea was incised just above the isthmus of the thyroid, and a tracheotomy tube of appropriate size, having a fenestrum on the superior surface of the outer canula, was inserted. For 25 days this tracheotomy tube was worn, the inner tube being removed frequently for the purpose of cleaning, the outer tube remaining for five days. Each time the outer canula was removed we did intubation. Intubation was performed to be certain that the larynx and upper trachea were remaining patulous. The tracheotomy tube was worn a little longer than was intended, because the child, in the interval, had been exposed to scarlet fever and was placed in an isolation ward, where the resident physican could not readily reach him. At the end of 35 days, the tracheotomy canula was removed and a two-year-old intubation tube was placed in the larynx. It was necessary to use either one or the other canula. This tube was removed in six days: in a half hour it had to go back. Two days later autoextubation occurred, the tube going back in two hours. The following day autoextubation occurred, the patient getting along for 11 hours. On the fifty-ninth day of disease, 35 days after tracheotomy, an interval of 15 hours elapsed before intubation was required. On the sixty-first day of disease an interval of three and a half hours elapsed, and later on in the same day 12 hours passed without it. No further trouble ensued until the sixty-fifth day, when autoextubation occurred with relief for several hours. On the sixty-sixth day, after autoextubation, a relief of eight hours followed in the morning and an hour in the evening. The last tube inserted remained in place seven days, since which time the child has had no further stenosis requiring treatment. He has had the tube inserted at intervals of from five days to a week, but has not worn a tube now for 25 days, and I believe may be regarded as practically cured, although it would be wise to insert a tube at intervals of two weeks or a month for the next six or eight months.

This case shows that even tracheotomy is only a temporary aid to help you when your patient must have an opportunity to regain strength, or to save the life while the laryngeal muscles tone up.

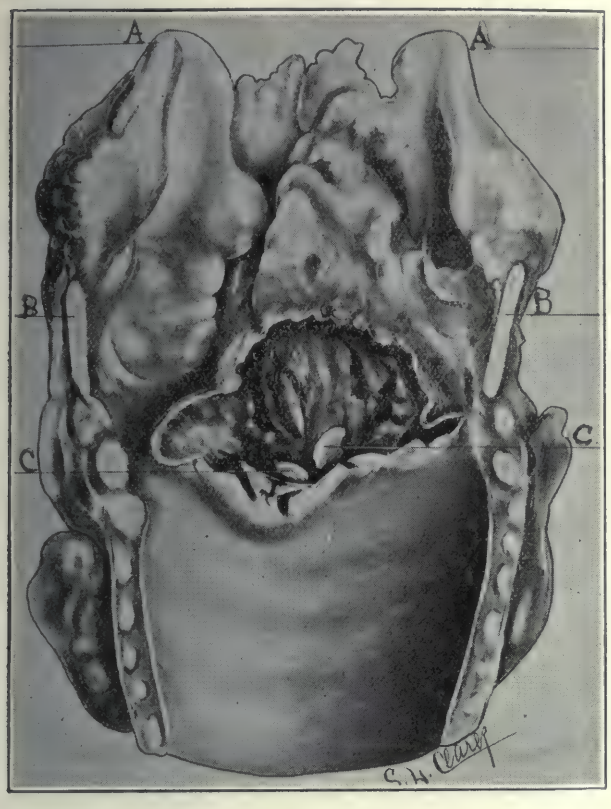
In a case of both scarlet fever and diphtheria about a year ago it was found advisable to do tracheotomy for a retained tube. In this case, after 33 intubations and 21 autoextubations, each of the latter of which was followed by considerable bleeding, tracheotomy was performed.

This case showed evidence of granulation tissue or pressure slough. The child was so weak from the two diseases that no attempt was made to pass a tube through the larynx for ten days. When I first attempted insertion of a one-year-old tube I found the larynx almost completely closed, and later, when I tried to pass a small flexible probe through the larynx, I found this, too, impossible. Still later I attempted to pass a flexible probe up through the larynx from the tracheotomy wound and failed here. The child was then sent home and in November was admitted to the service of Dr. Kyle in the Jefferson Hospital. While there I had the pleasure of assisting Dr. Kyle in an operation which he performed. The tracheotomy incision was enlarged upward; a pair of curved hemostatic forceps was very carefully and gradually worked up until it passed between the vocal cords; this instrument was then gradually opened, thus stretching the cicatricial tissue. A laryngeal dilator was then passed in and still further stretching followed. A long intubation tube, of three-year caliber and six-year length, was inserted. A long tube was used that it might pass beyond the tracheotomy wound and thus act as a splint to the cartilaginous rings about the tracheotomy wound while healing took place about the incision. This tube passed through the larynx to the normal position, the head later slipping down to the base of the larynx. We then found that either acute reflex apnea or stenosis from acute edema above the head of the tube caused asphyxia. We removed the tube. It was necessary because of the tube going beyond the reach of the extubator, to grasp it through the tracheotomy wound and push it up within reach. It was feared that in the manipulation a false passage had been made at the base of the larynx into the esophagus. The child was doing badly with the anesthetic and it was decided to do nothing further until the next sitting. The specimen showed no evidence of a false passage. The patient had some fever for a few days after the manipulation. The father then insisted that the child go home for Christmas and return after New Year. Parental objection caused further postponement until January 30, when the patient contracted an acute pleurisy with pneumonia and died within 24 hours. He was sent to the hospital and I secured the specimen, which is of particular interest, because it shows inflammatory thickening extending from the base of the vocal cords all the way to the superior margin of the tracheal incision.

This shows that in such a case there is a condition exactly analogous to a stricture of the urethra. To cure it, thorough dilation with the frequent passage of bougies or graduate intubation tubes kept up for weeks, months or years, might seem to offer some hope of curing the condition. The chances are, in a larynx like this, the larynx of a child, with the amount of involvement and scar tissue found here, that operation holds out but little hope of cure.

The operation done by Keen, in the case reported by Jones and Keen,[10] of dissecting out the obstructing tissue and sliding the mucous membrane together would be impossible of performance. The amount of mucous

membrane that could be dissected loose would not cover half of the exposed cartilage. Gallati's[11] method of dissecting out the scar and doing skin-grafting inside the larynx and trachea could hardly be recommended, because of the small size of the larynx and the difficulty of holding it open while the grafts were taking; and



Section of the larynx of a child of nine months, dead of laryngeal diphtheria, in whom repeated and prolonged intubation was practised, showing ulcers on the posterior surface of the larynx and trachea. A A, halves of the epiglottis; B B, cricoid cartilage; C C, ends of first ring of trachea. The ends of the first ring were completely denuded by the ulcerative process. [Specimen from the Municipal Hospital collection preserved by Dr. Royer.]

even if this were possible, the resulting scar would perhaps prove as disastrous as the condition here shown. Then, too, in this case, as Dr. Ellis has found by histologic study, the cartilage has suffered from the irritation. The perichondrium shows beginning cartilaginous changes. The lumen of the larynx is being partly encroached upon by this new cartilage and the whole is being pulled together by the contracting scar tissue.

The next case is one in which I am convinced there was some loss of tissue at the base of the epiglottis, and there seemed to be some thickening of the epiglottis.

This child was frequently intubated. Autoextubation occurred many times. Asphyxia ensued so rapidly that it was the custom of a nurse, at night, to take the child in her arms and run into the bedroom of the resident physician to have it intubated immediately. It happened once while wearing the tube that when ready to remove it, the head was found to be so covered by the base of the epiglottis that two of my residents, both of them skilled in intubation, failed to get the beak of the extractor into the tube. I succeeded in extubating the child myself by the following method: With the left forefinger the epiglottis was drawn forcibly forward; at the same time my left thumb under the chin pushed the larynx forcibly backward; the head of the tube was dislodged from the pocket in which it was held; the extractor was then introduced without great difficulty, and the tube was removed. I believe the specimen showing ulceration at the base of the epiglottis illustrates what would have been found there at that time. I believe that the tube caused destruction of tissue at the base of the epiglottis and the head of the tube in this depression, together with some edema of the base of the epiglottis above, made it so difficult to expose the head of the tube. A tube with a larger head was inserted and after a few more intubations the child recovered. A subsequent stenosis, however, occurred, requiring an intubation tube to be worn for some days and for a time it appeared as if the case would become chronic. However, since January 1, she has been getting along without a tube. We did not discharge her, however, until February 1, and I shall intubate her before sending her home and ask the parents to return with her at least once a month for the next six or eight months.

I have another type of case to show you. The patient's condition was similar to that shown in the specimen a few minutes ago.

This little girl some two and a half years ago was brought to the diphtheria hospital in the service of Dr. Welch, with laryngeal diphtheria. She contracted measles there, and while in the measles isolation ward developed the habit of autoextubation. This isolation ward did not have a resident physician. The child came so near dying on several occasions that a tracheotomy was performed. The tracheotomy was done low, and several attempts to get rid of the canula failed. The child was so extremely nervous and the parents so impatient, that Dr. Welch was forced to send the child home still wearing a tracheotomy tube. She returned to the hospital last autumn to have another tracheotomy tube inserted. The old one was worn and likely to break. I admitted her to the hospital, and



Section of larynx of a child aged 8, in whom repeated intubation was practised, showing an ulcer on the anterior surface overlying the lower portion of the cricoid cartilage and the first ring of the trachea. [Specimen from Municipal Hospital collection preserved by Dr. Welch.]

since that time, about six months in all, I have been trying to cure her. The work was new to me, and was somewhat experimental. The child was able to talk aloud and sing a little by pressing her finger over the trachea canula, the air readily going through the larynx. For this reason I thought that the air passing out with so little difficulty, might also pass in easily. I believed her dependence on the trachea tube had be-

come a habit. Although wearing the trachea canula when she came to the hospital, my first effort was to remove it and let the tracheal opening close. I did so, and the effort came near proving disastrous. The tracheotomy tube was placed back in position; an attempt was made to intubate her, and we failed with the smallest sized tube. The tracheotomy opening was then enlarged upward. A curved hemostatic forceps was forced up to near the vocal cords, and carefully opened, while Dr. O'Neill, who has long fingers, passed his left forefinger into the larynx against the cords to protect them. With his finger in this position, I gradually dilated the constriction, and then passing a large laryngeal dilator up from the same opening, stretched the narrowed portion to a size that a 12-year-old intubation tube could be passed through. I found on manipulating this larynx and trachea that there was a stricture at the upper margin of the cricoid cartilage, and that I had cut through a second stricture by enlarging the tracheal opening. This special length 5-year-old tube was then inserted, passing well beyond the tracheotomy opening. This tube was worn two weeks. On removing it I attempted to insert another, when acute stenosis occurred, and some bleeding followed our hasty manipulation. The trachea and bronchial tubes quickly filled, respiration entirely ceased, and we were forced to do a rapid tracheotomy. In four or five days, under chloroform anesthesia, I inserted a 12-year-old rubber tube of the usual length. This was deemed wise because the tracheotomy operation had been made a little higher than the preceding one. An attempt was made to keep this trachea wound open by means of a metal plug, so that in case there would be trouble air could be quickly supplied. This method succeeded for a time. The tube was allowed to remain in place for a month, then it was taken out and remained out for four days. We believed her to be on the road of recovery, and decided to intubate twice each week for several weeks under choloroform anesthesia. At the first reintubation, a 12-year-old tube was again inserted. Some traumatism was done through the operation, and it was thought best to allow the tube to remain in for a few days. It remained this time until four full days. At the present time she is getting along very well, but it seems to me now that perhaps the best plan of treatment is to continue to intubate her under chloroform anesthesia twice a week, then once a week, then twice a month, and later, once a month. In this way we hope to cure the stricture just as a stricture of the urethra is cured. It requires great patience on the part of the suffering individual, the relatives, and operator to accomplish anything.

The boy whom I now show you is one whose history I have not at hand. It is sufficient to say that his case is chronic and that he has worn his tube for four years. A tracheotomy was done, in order to cure the autoextubation habit. They have had him at the University Hospital, where frequent intubation and a subsequent tracheotomy were done. Dr. Reeser has extubated him every three or four months for several years. Last summer, Dr. Warmuth admitted him to his service in the Medico-Chirurgical Hospital, and after several weeks of dilation by graduate bougies and intubation tubes, and wearing a tracheotomy tube alternately with an intubation tube, he was called out of the city by the death of a relative. During his absence, the doctors and nurses grew tired of him and made arrangements to send him home. I bring him to you that you may study his case with me, that you may discuss with me the work that I have undertaken in others. Criticise me where I have erred, and outline new procedures if you will.

With this case, I purpose to dilate the larynx from above with the larngeal dilator, and then insert a large-sized rubber tube. A month later I shall remove it and insert a tube for a short time at frequent intervals until I feel that I am overcoming the stenosis. I will then lengthen the intervals, being guided by results obtained.

While preparing this paper, Dr. Schamberg, in discussing these cases with me, suggested the use of röntgen-ray exposure to aid in softening the scar. I may arrange to have it supplement the other treatment in both this boy and the girl, who now gets along without the tube for some days at a time. The röntgen ray undoubtedly softens keloids, and it may soften these laryngeal strictures.

In conclusion, I would emphasize the following: Reflex apnea causes dangerous disturbances. Atony of the abductors causes a tube to be returned in many instances. Pressure paralysis and exhaustion of adductors frequently cause autoextubation. Retained tubes are also caused by pathologic changes in the soft structure of the larynx and trachea. Such changes are often hypertrophic in character, following traumatism from the tube or loss of tissue from disease. There may be new cartilage formation in the perichondrium narrowing the lumen of the larynx, thus making a distinct pathologic change.

Treatment.—For reflex apnea but little can be done. The courses of treatment open for the other conditions are: (1) Persist with intubation; (2) insert large tubes, allowing them to remain for long intervals of time; (3) when autoextubation becomes dangerous and large tubes are not retained, do tracheotomy; (4) intubate frequently while wearing the tracheotomy tube in order to prevent stricture stenosis; (5) with chronic stenosis due to contracting scar tissue, practise wide dilation with persistent intubation; (6) consider röntgen-ray treatment as a possible adjunct in softening scars causing chronic stenosis; and (7) avoid, if possible, tracheotomy as a means of curing a patient of a tube habit.

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THE FREQUENCY AND ETIOLOGY OF ACUTE NONTUBERCULOUS PNEUMONIA IN A GENERAL HOSPITAL.[1]

BY

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An examination of the index-catalog of the autopsy records of the pathologic laboratory of the Lakeside Hospital showed such frequent occurrence of acute nontuberculous pneumonia at autopsy, that I made a critical analysis of the relative frequency and the causes, both predisposing and determining, of this affection.

This hospital has about 225 beds, divided into med-

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ical, surgical, gynecologic, and private ward services, all of which are active, and, in general, receive only acutely ill patients. These patients represent all classes of society. About two-thirds of the deaths come to autopsy.

This study is based upon a series of 550 consecutive autopsies, which cover a period of about seven years. All doubtful cases and all cases of simple bronchitis are excluded. The diagnosis in every case is based upon microscopic as well as upon macroscopic examination. The autopsy technic is exhaustive, and the microscopic as well as the macroscopic appearances of the various organs are recorded in the protocols.

The routine bacteriologic investigation includes coverslip preparations from all exudates, and plate and other cultures from the heart, lungs, gallbladder, liver, spleen, kidneys, and exudates. The cultures are worked out with care.

The pneumonias are classified according to the usual custom into croupous or lobar, and broncho or lobular.

The 550 consecutive autopsies furnish 195 instances of acute nontuberculous pneumonia, an incidence of 35.45%.

The cases of pneumonia are naturally grouped under several headings.

1. Primary pneumonia (for which the patients were brought to the hospital and admitted as cases of pneumonia), 35, or 6.36% of the total number of autopsies.

(*a*) Acute croupous pneumonia, 31 cases.

(*b*) Acute bronchopneumonia, 4 cases.

2. Secondary pneumonia (developing in the hospital as a complication of some other disease for which the patient was admitted, as typhoid fever, appendicitis, nephritis, arteriosclerosis, injuries, etc. Many of these cases are "terminal infections,") 160 cases or 29% of the autopsies.

(*a*) Acute croupous pneumonia, 36 cases.

(*b*) Acute bronchopneumonia, 124 cases.

1. The primary pneumonias present nothing of special interest.

Group *a* primary croupous pneumonia, 31 cases, in which pneumococcus occurred alone in 25, and with streptococcus in 2; streptococcus was found alone in 1, and with *B. mucosus capsulatus* in 1; *Staphylococcus pyogenes aureus* was isolated in pure culture in 2. Pneumococcus was probably present in the 4 cases in which we failed to find it; for, as is well known, this organism often fails to grow in cultures, and is not always found in coverslip preparations from exudates, from which cultures give positive results. In 10 cases there was arteriosclerosis, and in 10, nephritis. The former was the most marked lesion in 8, and the latter in 5 cases.

Group *b* primary bronchopneumonia, 4 cases; pneumococcus was found alone in 3 and *Streptococcus pyogenes* alone in 1. All these cases occurred in young persons. One had chronic glomerulonephritis.

2. Secondary and often terminal pneumonias, 160 cases, 29% of the autopsies.

Group *a* secondary croupous pneumonia, 36 cases, 6.5% of the whole number of autopsies. Pneumococcus occurred alone in 19 cases, with *Staphylococcus pyogenes aureus* in 2, and with *B. typhosus* in 1. *Streptococcus pyogenes* was found alone in 2, *Staphylococcus pyogenes aureus* alone in 4 and *B. mucosus capsulatus* in 3. *B. coli* occurred alone in 1. In 5 cases there is no record of the isolation of bacteria. It is quite probable that pneumococcus was or had been present and was overlooked for the reasons given.

In this group of cases arteriosclerosis was present in 17 and chronic nephritis in 20.

Many of these cases were examples of terminal pneumonia developing in the course of serious and usually chronic visceral disease. These were in the order of their importance, arteriosclerosis 10, chronic nephritis 3, cirrhosis of the liver, brain tumor, cerebral hemorrhage, epilepsy, gunshot wound of the brain, myocarditis, cholecystitis, chronic dysentery, carcinoma of the breast, 1 case each. There were 2 cases of carcinoma of the stomach, in one of which operation was done. The cases of cholecystitis, gunshot of the brain, the carcinoma of the breast, were the only other cases in which operation was done. Of the remaining 13 cases, there were 5 of typhoid fever (in 2 of which operation was performed for perforation), 3 of appendicitis with peritonitis (operation in all), 1 of gunshot of the abdomen with peritonitis, 1 of puerperal infection, 1 of carbolic acid poisoning, and 2 of morphin poisoning.

Group *b* secondary bronchopneumonia, 124 cases or 22.5% of the autopsies. Cultures were positive in 120 cases.

Tables giving occurrence of bacteria in secondary bronchopneumonia.

TABLE I.

Giving total number of cases in which the various bacteria were present.

	Cases.
Pneumococcus	25
Staphylococcus	30
Streptococcus	23
B. mucosus capsulatus	35
B. coli	16
B. typhosus	2
B. influenzæ	2
B. diphtheriæ	1

TABLE II.

Showing occurrence of pneumococcus.

	Cases.
Pneumococcus alone	16
Pneumococcus and streptococcus	2
Pneumococcus and staphylococcus	1
Pneumococcus, streptococcus and staphylococcus	1
Pneumococcus, streptococcus and B. mucosus capsulatus	2
Pneumococcus and B. coli	2
Pneumococcus and B. influenzæ	1
Total	25

TABLE III.

Showing occurrence of *Staphylococcus pyogenes aureus*

	Cases.
Staphylococcus alone	18
Staphylococcus and streptococcus	5
Staphylococcus and pneumococcus	1
Staphylococcus, pneumococcus and B. typhosus	1
Staphylococcus and B. coli	2
Staphylococcus, B. coli and B. mucosus capsulatus	1
Staphylococcus and pneumococcus	1
Total	29

TABLE IV.

Showing occurrence of *Streptococcus pyogenes.*

	Cases.
Streptococcus alone	13
Streptococcus and staphylococcus	5
Streptococcus, staphylococcus and B. typhosus	1
Streptococcus and B. coli	1
Streptococcus and pneumococcus	2
Streptococcus and B. mucosus capsulatus	1
Total	23

TABLE V.

Showing occurrence of *B. mucosus capsulatus.*

	Cases.
B. mucosus capsulatus alone	30
B. mucosus capsulatus, pneumococcus and streptococcus	2
B. mucosus capsulatus and staphylococcus	2
B. mucosus capsulatus and streptococcus	1
Total	35

TABLE VI.

Showing occurrence of *B. coli*.

	Cases.
B. coli alone	11
B. coli and streptococcus	1
B. coli and pneumococcus	2
B. coli and staphylococcus	2
Total	16

TABLE VII.

Showing occurrence of other organisms.

	Cases.
B. influenzæ alone	1
B. influenzæ and pneumococcus	1
B. typhosus alone	1
B. typhosus, streptococcus and staphylococcus	1
B. diphtheriæ alone	1
Total	5

It is difficult to estimate the importance to be given to *Bacillus coli* as a cause of pneumonia. It was the only organism found in 11 cases. It is probable that in at least some of the cases one or more other organisms may have been present and overlooked. It is interesting to observe, however, that of these 11 cases the primary disease was intestinal obstruction in 2, typhoid fever with perforative peritonitis in 1, and cholecystitis in 3. There was peritonitis in 9 of the 11 cases.

Of far greater interest, however, is the analysis of the primary diseases in which this series of bronchopneumonia was secondary. The following tables give the incidence of bronchopneumonia in connection with various diseases:

TABLE VIII.

Acute infections.

	Cases.
Typhoid fever	22
Meningitis	5
Phlegmon of subcutaneous tissues	5
Diphtheria	4
Acute endometritis (after abortion)	5
Umbilical infections	3
Pertussis	2
Empyema	3
Purpura hæmorrhagica	1
Enterocolitis	2
Tetanus	1
Pemphigus	1
Appendicitis	2
Total	56

TABLE IX.

Noninflammatory affections of the nervous system.

	Cases.
Injury to the brain (fracture of skull)	3
Injury to the cord (fracture of vertebras)	2
Cerebral hemorrhage	2
Cerebral tumor	2
Total	9

TABLE X.

Diseases of the liver and biliary system.

	Cases.
Cirrhosis	2
Acute yellow atrophy	1
Abscess	1
Cholecystitis (abscess of liver in one case)	4
Dilation of biliary passages and obstructive jaundice	4
Total	12

TABLE XI.

Certain diseases of the intestines.

	Cases.
Ulcers of the colon	1
Strangulated hernia	1
Intestinal obstruction (all with peritonitis at operation)	4
Total	6

TABLE XII.

Other affections.

	Cases.
Arteriosclerosis, the most marked chronic lesion	12
Chronic nephritis, the most marked chronic lesion	3
Morphin poisoning	3
Carbolic acid poisoning	1
Thrombosis of large veins	2
Diabetic gangrene (amputation)	1
Extirpation of spleen (after injury)	1
Multiple fractures	2
Carcinoma of esophagus (rupture into trachea)	1
Tuboovarian abscess (chronic)	3
Pyonephrosis (death 11 days after suprapubic cystotomy)	1
Cardiac disease	8
Total	38

In the following cases, bronchopneumonia developed after operation in individuals who had no apparent previous focus of infection:

TABLE XIII.

	Cases.
Gastroenterostomy	1
Carcinoma of neck (tracheotomy)	1
Carcinoma, ovary	1
Total	3

SUMMARY.

It will be noted that 76, or about 61% of these cases occurred in individuals with acute infectious processes. Of the 43 autopsies in typhoid fever cases in this series, 22 of the subjects had had bronchopneumonia and 5 croupous pneumonia. Of 81 cases of peritonitis from all causes, 36 of the subjects or 44.4% had had pneumonia. A study of these cases does not indicate that operation in peritonitis increases the incidence of pneumonia. This point, however, needs further study. In all the cases of diphtheria and pertussis coming to autopsy, there had been pneumonia. There were no autopsies in cases of scarlatina, measles, or variola.

Individuals with chronic nephritis and arteriosclerosis are apparently more likely to have croupous than bronchopneumonia as a terminal infection. Thus of 36 cases of secondary croupous pneumonia, arteriosclerosis was the most marked chronic lesion in 10 and chronic nephritis in 3, while of 124 cases of secondary bronchopneumonia, arteriosclerosis was the most marked lesion in 12, and chronic nephritis in 3.

It is of interest that *B. typhosus* was obtained from the exudate in two cases of bronchopneumonia and in one of croupous pneumonia in typhoid fever. It is doubtful, of course, if it held any etiologic relation to the pneumonia, as it is commonly present in the blood in typhoid fever, and the typhoid bacilli present in the cultures from the lungs may have come from the pulmonary bloodvessels. Of the 21 cases of appendicitis coming to autopsy, only 5 of the subjects showed pneumonia, 3 croupous and 2 bronchopneumonia.

In the secondary pneumonias associated with acute infectious processes it is not always possible to determine whether the organisms reach the lung by inspiration or by the blood. Those associated with streptococcus infections and many of the staphylococcus and colon bacillus infections, especially cases of septic endometritis, peritonitis, and wound infections, are commonly embolic, while those due to pneumococcus and *B. mucosus capsulatus* are probably, in most cases at least, examples of inhalation pneumonia. The pneumonias of typhoid fever are commonly inhalation pneumonias and are caused by a variety of organisms. In the croupous pneumonia of typhoid fever, pneumococcus occurred in 4 out of 5 cases, in 2 alone, in 1 with *B. typhosus*, and in 1 with staphylococcus and streptococcus. In the bronchopneumonias of typhoid fever the bacteria found were:

	Cases.
B. mucosus capsulatus alone	9
B. mucosus capsulatus, pneumococcus, and streptococcus	1
Pneumococcus alone	1
Pneumococcus and streptococcus	1
Pneumococcus and B. coli	1
B. typhosus alone	1
B. typhosus, streptococcus, and staphylococcus	1
Streptococcus and staphylococcus	1
Undetermined	8
Total	24

In many of the secondary cases the areas of pneumonia were not extensive; this was especially true of the bronchopneumonias, in which the process would have often been overlooked but for routine microscopic examination of the lungs. Since over 50% of our autopsies on typhoid fever subjects showed pneumonia, it would be of interest to know the proportion of patients with this disease who have pneumonia and recover. The clinical diagnosis of pneumonia was not made in many of the secondary or terminal cases; this is readily explained by the occurrence of the pneumonic process in patients so seriously ill with some primary disease that the disturbance entailed by a careful physical examination of the chest was not justified. It is evident that in a considerable number of these cases the complicating pneumonia had little influence upon the lethal issue, occurring, as it so often did, during the last hours of individuals destined to die of the primary disease for which they entered the hospital. In another class of cases, however, it is clear that the complicating pneumonia turned the scale and carried off patients who would otherwise have recovered, or in chronic diseases, have improved. In some of the cases there was general infection with pyogenic organisms, which probably played a more serious part than the pulmonary affection. There are in the records, however, a considerable number of cases of chronic visceral disease, arteriosclerosis, and chronic nephritis especially, with terminal general infections without pneumonia, which are not, of course, included in the present paper.

A CONSIDERATION OF HYPERCHLORHYDRIA.[1]

BY

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About a third to a half of the patients suffering from digestive disturbances have hyperacidity. Of 225 consecutive patients whose stomach contents I have analyzed, 84, or about a third, had more than the normal amount of acid.

Many cases of neurasthenia, hysteria, hypochondriasis, and melancholia, and some of the organic nervous diseases, such as tabes dorsalis, are frequently associated with hyperacidity. A patient with tabes under my care, in which there was marked gastric crises, was entirely relieved of them by appropriate treatment for the existing hyperacidity. Gastric ulcer is, in the great majority of cases, associated with hyperacidity, and diseases of the gallbladder and bile ducts are sometimes accompanied by marked symptoms of hyperacidity.

The anatomic lesions in hyperchlorhydria are not constant. In some there is a proliferation of the glandular element, in others there is no change from the normal whatever. It is, therefore, not considered a disease in itself, but rather a symptom of some underlying condition or disease. This condition is usually of a neurotic nature. I am coming to the opinion that hyperchlorhydria proper is always associated with a neurotic condition and that those cases in which there is a hyperacidity and no associated neurotic condition belong to a group of another class of cases, namely, those manifesting the earliest stage of chronic gastritis.

In this last group of cases there is a history of constant abuse of the stomach by irritating and excessive food and drink, taken at irregular hours and in great haste. There is no history of overwork or nervousness. The symptoms are referred directly to the stomach or associated organs, and the stomach content is hyperacid, as in true cases of hyperchlorhydria. But in the course of the disease the secretions of the stomach change and there begins to be a diminution of hydrochloric acid, and the hypoacidity common in chronic gastritis prevails.

Proper and timely treatment of these patients is followed in a surprisingly short time by entire recovery.

The term hyperchlorhydria, I think, therefore, should be reserved for that larger class of cases of hyperacidity accompanied by marked and rather constant nervous symptoms. This distinction should be made because the etiology, symptoms, prognosis and treatment of the two classes differ entirely. Whether hyperchlorhydria is the proper term to apply to this last class of cases will not now be considered.

The patient suffering from hyperchlorhydria proper usually gives no history of indiscretion of diet. He dates the beginning of his illness from the time he sustained a severe nervous shock, or was passing through a period of worry and anxiety, or was overworked at his studies or in his business. Gradually the wellknown symptoms of hyperacidity come on: Burning pain below the ensiform cartilage, occurring about two hours after meals, aggravated as the stomach becomes empty and relieved by eating; pyrosis; a feeling of heaviness in the stomach; often the patient is constipated. His appetite may be good, but he limits his diet to a few articles of food which he takes in insufficient quantity. There is loss of weight and failure of strength and there arises in the mind of the patient the idea that there is "lack of assimilation." A bizarre of nervous symptoms arises suggesting neurasthenia or hysteria. The nervous and digestive symptoms increase *pari passu*. The appearance of such a patient is entirely different from the wellnourished and overfed patient suffering from the hyperacidity of incipient chronic gastritis.

Physical examination may reveal little, if any, more than the patient has already described. There is loss of weight. The abdomen is scaphoid and slightly tender to pressure. Immediately below the ensiform cartilage there is decided tenderness. This is rarely absent. In advanced cases there is often dilation of the stomach and occasionally splanchnoptosis. The dilation no doubt is due to distention by gas, and myasthenia due to delayed passage of food through an irritated and spastically contracted pylorus. The splanchnoptosis is the result of the starvation diet to which these patients are driven. The fat, which in health surrounds and supports the abdominal organs, is drawn upon to supplement the strength of the body and the organs sag down toward and into the pelvis.

The stomach contents, after an Ewald test-breakfast, has a characteristic appearance. It is well diluted, easily withdrawn, and filters rapidly. In these respects it

[1] Read before the Pittsburg Academy of Medicine, April 11, 1905.

differs from the thick tenacious mass found in achylia. In titrating 100 cc. of the filtrated juice with a decinormal solution of sodium hydrate, it takes more than 60 cc. to neutralize the acid. The curdling ferment is active and proteolysis rapid. These figures are necessarily empiric, but it is very seldom that the symptoms of hyperacidity are present when the acidity is less. The starch granules are raw, and erythrodextrin reaction is faint. This varies, however, with mastication and salivary digestion.

The blood (of these patients) is usually concentrated, that is, there is a high hemoglobin and an excess of erythrocytes, and a high specific gravity. The diagnosis of hyperchlorhydria depends upon the degree of hyperacidity of the stomach contents, the presence of neurotic symptoms, and the course of the disease. Reference to this last point will be made in speaking of the prognosis. It is necessary to differentiate from the hyperacidity of a beginning chronic gastritis, from gastric ulcer, from gastric succorrhea or Reichman's disease, and from gallstone.

As has already been said, the etiology of hyperchlorhydria differs very markedly from that of chronic gastritis; the nervous symptoms so prominent in the first are rarely present, or of only minor importance, in the second, and the course of the diseases differs in the one from the other. Simple hyperchlorhydria yields very gradually to treatment, while the hyperacidity of beginning chronic gastritis will yield to rational diet and medication in a remarkably short period.

In gastric ulcer the history given by the patient is different. Nervous symptoms are not prominent. Pain is prominent and definitely located and described. Food, especially coarse food, aggravates it, and the stomach is comfortable only when it is empty. This is in marked contrast to the comfortable feeling which follows the taking of a heavy meal by the patient suffering from hyperchlorhydria. There are acute exacerbations of pain which may be accompanied by the symptoms and signs of gastric hemorrhage. The patient often has an anemic appearance, and the blood-examination confirms the appearance. In hyperchlorhydria the patient may appear anemic, but the blood-examination seldom shows any anemia. In 39 cases of hyperchlorhydria the average hemoglobin was 91%, and the erythrocytes were 5,556,000, while the lowest hemoglobin was 68, and the red blood cells 3,920,000, and the highest hemoglobin 112, and red blood cells 7,200,000.

That it is not always easy, however, to differentiate hyperchlorhydria and gastric ulcer, I will illustrate with the following case:

Mr. J. W., aged 28, consulted me December 14, 1903. Five years previously he had an attack of jaundice. He had no fever during this attack, no acute sharp pain, no gallstones were recovered. The jaundice disappeared gradually, and in due time. He was well after this until three months ago, when he had a severe attack of pain in the stomach. Since then he has had much gas in the stomach, nausea, and vomiting of sour, yeast-like material after meals. He was using the stomach-tube every second day for the purpose of lavage.

Physical Examination.—Patient was thin and pale; weight, 120, usual 138, five years ago. Physical signs outside of the abdominal region were normal. The abdomen was flabby, the lower border of the stomach was 2 in. below the navel, and there was tenderness below the ensiform cartilage. The urine was normal. The stomach contents showed free HCl 30, and total acid 72; much mucus. A subsequent examination confirmed this. By careful treatment the stomach, at the end of four months, was normal in size and position. The patient's weight had increased 12½ pounds, and there was comparative comfort.

Diagnosis.—Hyperchlorhydria. January 1, 1905, the patient again consulted me. His symptoms were the same, only he regurgitated his food almost as soon as it was taken, and had more pain and discomfort. The stomach content was the same as before. The size and position of the stomach remained normal. The patient had not lost weight. In spite of all dieting and medication, no food was retained. I was unable to make a definite diagnosis other than hyperchlorhydria. While making very strong pressure upon the pylorus, during the course of an examination, the patient vomited, and I noticed a small particle of food tinged with blood. I concluded after this that there might be an old ulceration. I sent the patient to the Passavant Hospital, where Dr. Montgomery did an exploratory operation. He found considerable induration at the pylorus, evidently the result of ulceration. A gastroenterostomy was performed, and in two weeks the patient was up and has been perfectly well thus far.

In this case there was a rather indistinct history of gallstone, there were the symptoms of hyperchlorhydria, and at the operation a suspicion of gastric ulcer was confirmed.

Some authorities do not attempt to differentiate hyperchlorhydria from gastrosuccorrhea or Reichman's disease. Others, among them Riegel, insist that continuous secretion of gastric juice presents a different clinical picture and demands a specific mode of treatment and should therefore not be confounded with hyperchlorhydria. From my own experience I am led to believe that the difference between simple hyperchlorhydria and gastrosuccorrhea is one of degree only; gastrosuccorrhea being simply an aggravated and continued form of hyperchlorhydria.

Gallstone.—It might seem unnecessary to consider the symptoms of gallstone when making a diagnosis of hyperchlorhydria, but the symptoms of hyperchlorhydria are often present in gallstone disease and are the earliest and most prominent. The pain in gallstone disease may be referred to a point immediately below the ensiform cartilage; there may be pyrosis, there may be tenderness only over the pit of the stomach, and gastric analysis may reveal a decided hyperacidity. The history of the case is of the greatest importance here. It will usually be found that some time, it may be years, there was an attack of acute pain, conforming in description to a typic attack of biliary colic. If this history cannot be obtained it is often well to withhold a diagnosis of hyperchlorhydria, for in time such an attack will occur and the suspicion of gallstone be confirmed. I have several times had this experience. It is very easy to say that in gallstone disease there usually is jaundice, while in hyperchlorhydria there never is jaundice, but such a statement is of little value when making a diagnosis of an individual case.

It might seem desirable to differentiate between hyperchlorhydria and neurasthenia, but from the nature of both conditions this is impossible and could be of very little practical benefit. It is of great importance to have a careful history before making a diagnosis of hyperchlorhydria; and when the history gives the least

suspicion of previous attacks of gallstone or of ulceration, the diagnosis must be withheld until sufficient evidence is obtained to confirm or destroy the suspicion. This delay in making an absolute diagnosis need not interfere with establishing a prompt and rational treatment of hyperchlorhydria, since the treatment of gastric ulcer always is directed against a hyperacidity, and the best palliative treatment for gallstone is directed along the same lines.

In considering the treatment of hyperchlorhydria it is well to recognize two classes of patients. One class includes those advanced cases in which there is usually a splanchnoptosis, a dilated stomach, emaciation, and prominent nervous symptoms. In these cases an absolute or modified rest treatment is indicated, and will accomplish most satisfactory results. The other class includes those early cases in which the patients are still well nourished and have scarcely any symptoms but those referred to the stomach. They are usually relieved without adopting any extreme measures.

The diet is the all-important consideration in the treatment of hyperchlorhydria, but there are differences of opinion as to the proper food. Some advocate a diet consisting largely of starches and fats, while others prefer the proteids. This contention is based largely upon theoretic grounds. In actual practice, it will be found that a mixed diet is most suitable, one kind of food predominating at one time and another kind at another time. To maintain nutrition and increase weight, fats, olive oil, butter and cream, with starchy foods, must be given. To combine with and neutralize a hyperacid juice, proteids, meats, and whites of eggs with milk, must be given, while properly cooked green vegetables, and fruits which are not acid, are desirable when constipation is a prominent symptom.

In those advanced cases in which a rest treatment must be undertaken, milk and cream and whites of eggs may for some time be the only food. Later, properly selected solid food may be given in the middle of the day. Butter, 4 oz. to 6 oz., and olive oil, 2 oz. to 3 oz. in a day, not only insure an increase in weight, but afford relief of some of the most distressing symptoms. It must always be impressed upon the patient that an abundance of proper food affords greater relief than a small amount, and that dieting does not mean starving. Sour foods, condiments, and alcoholic beverages must be absolutely avoided. Mineral waters, such as Saratoga vichy or some of the French vichy waters, are indicated in these cases.

For the rest-cure patients, and for those in whom the abdominal muscles are flabby, massage and electricity are necessary; also certain physical exercises which will develop the abdominal muscles, are indicated. Outdoor exercise is very helpful, but the patient must be warned not to eat when tired or to tire himself immediately after eating.

It is rarely necessary to use gastric lavage in simple hyperchlorhydria. When it is used, it should be done by the physician or nurse only, otherwise the patient may become a stomach-tube habitue.

The medical treatment of hyperchlorhydria is often a necessary aid to the foregoing treatment. Properly selected alkalies, such as magnesia, sodium bicarbonate, carbonate and phosphate of lime, or bismuth subcarbonate, afford instant relief. When the nervous symptoms are prominent and persistent, strontium bromid may be given to great advantage. Atropin sulfate or extract of belladonna has an inhibiting effect upon the secretion of gastric juice, and may be combined with any of the foregoing remedies. It is best to give as little medicine as is consistent with the comfort of the patient.

With the treatment as outlined, the most annoying symptoms of hyperchlorhydria will yield in time, and the patient recover. The symptoms will often disappear very promptly, but it is surprising, and, in fact, discouraging to note with what persistence the hyperacidity of the stomach contents remains in spite of the euphoria. The symptoms and physical signs may all disappear, and the acidity remain the same for several years. The prognosis, so far as the relief of symptoms is concerned, is good, but insofar as complete recovery is concerned, it is very unfavorable. I report a case in illustration:

Mr. J. N. V., aged 31, first consulted me in December, 1900. He complained of feeling generally tired, not sleeping well, and not feeling refreshed in the morning. He could not talk, read, or write without experiencing great fatigue; had a feeling of fulness in the lower abdomen, which was increased after eating was constipated. The patient had not been well for eight years past, and had been in the pursuit of health most of this time, at one time taking a rest treatment under a celebrated specialist in London, and again, in company with a young physician, climbing the mountains of Switzerland, only to find after each venture that he was more nervous and miserable. When I saw him he was nervous and pale. His weight was 125 pounds. Eight years before it had been 148 pounds. The physical signs were negative, except that the abdomen was flabby, the right kidney was palpable, and the stomach was dilated and prolapsed so that the lower border came within an inch or two of the pubic arch. The position was determined by inflating both the stomach and the colon with air. Urine: 1,025, acid, calcium oxalate and uric acid crystals; no albumin; no sugar. Blood: Hemoglobin 85%, and red blood cells 4,260,000. Stomach contents: In a number of examinations the free HCl was 45 to 50, and the total acid 63 to 96. Erythrodextrin reaction was sharp, no mucus. I made the diagnosis of hyperchlorhydria, and established a complete rest treatment. In two months the patient was up. He had gained 37 pounds, the stomach was in normal position, and the nervous symptoms had largely subsided. I have had the opportunity of following this case, and have the patient still under observation. He has had no relapse. The stomach remains up, and the nervous and digestive symptoms are absent, but the free HCl is still 40, and the total acid 82. The patient is practically well, but on account of the hyperacidity is compelled to observe rather strict rules in his diet.

In concluding this paper I wish to emphasize the following points: (1) Hyperacidity is a frequent condition; (2) hyperchlorhydria is difficult to diagnose. The diagnosis cannot be made without an analysis of the stomach contents, and often must be withheld until the course of the condition can be observed; (3) the treatment must be persistent; (4) the prognosis, so far as relief of symptoms is concerned, is good; so far as overcoming the acidity, it is unfavorable.

Physiologic Congenital Albuminuria.—Leube adduces examples of members of strictly hereditary chains, families in whom there are demonstrable circulatory weaknesses. These cardiopathics may exhibit transient periods, shorter or longer, during which albumin appears in the urine, although no renal lesion has developed. Hepatic catarrh or insufficiency is often a complication.—*Il Policlinico* (Rome). [T.H.E.]

THE TREATMENT OF HYPERACIDITY AND HYPERSECRETION OF THE STOMACH.

BY

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Since chemic research has paid more attention to hyperacidity of the stomach, this condition has proved one of the most frequent of gastropathy. At the present stage of our knowledge, hyperacidity may be considered as a hyperchlorhydria, and be divided, etiologically, into four different forms: 1. Hyperchlorhydria as a pure nervous disorder of secretion—a frequent form of gastric neurasthenia. 2. Hyperchlorhydria as a complication of chlorosis. 3. Hyperchlorhydria as a first phase of peptic ulcer. 4. Hyperchlorhydria as a symptom of chronic hyperplastic gastritis, being dependent on the atrophic chronic gastritis, which usually leads to hypochlorhydria and achlorhydria.

Without entering into details of the differential diagnosis of these four forms of hyperacidity, attention may be directed to the common symptomatology, which sometimes renders very difficult the just differentiation of the etiologic form. In the first instance we must remark, there are quite latent cases of hyperchlorhydria, which are only revealed by an accidental occasion of making a chemic analysis of the gastric juice. Other cases exist for months, and even for years, until the symptoms increase so much that medical aid is sought. In general, the symptoms are so characteristic, that the diagnosis can very often be made simply from the history of the patient.

Nevertheless an absolute diagnosis can only be obtained by quantitatively estimating the amount of hydrochloric acid in the gastric contents, siphoned after a test-breakfast. Also the occurrence of the opposite condition may shortly be mentioned, the symptoms of hyperchlorhydria being present, save that they cannot be proved by chemic analysis.

It seems to me, that in practice, the diagnosis of hyperacidity upon a mere anamnestic research is made far more frequent than can be justified.

The most common symptoms are acid eructations, heart-burn, regurgitation of acid food, sour taste in the mouth, and sour vomiting, appearing especially after dietary faults of various kinds, as the ingestion of sour, highly-seasoned and fat food, coffee, and alcohol. Sometimes the sensations in the stomach, mostly described as an aggravating pressure, etc., increase to severe pain, even to spasms, simulating a socalled gastralgia. Upon the onset of nausea these pains usually abate. The pains do not appear, as a rule, before the first, second, or even third hour after the ingestion of food, owing to the fact that the patient is not conscious of the surplus of hydrochloric acid, overflowing the free surface of his gastric mucous membrane, before the stomach has emptied its contents for the most part, so that the hydrochloric acid of the gastric juice, permanently secreted in superabundant quantities, no longer sufficiently neutralized by the food contents of stomach, has the effect of a corrosive poison.

Many patients assert very characteristically, that the gastralgia usually abates at once after the taking of food. The vomited matter does not only taste sour, but it also has a sour odor, and quantitative analysis of the gastric juice often proves an amount of 0.25% to 0.4% HCl, that is, an increase up to double or three times that of the normal quantity in the gastric juice, whereby it must be admitted that the acidity of the gastric juice varies greatly, not only in men of different countries, but also of the same country or town.

Neurasthenic individuals, so abundant nowadays, have, as a rule, corresponding to the general increase of their functions, also an easier excited gastric secretion, *i. e.*, the amount of hydrochloric acid in them is as high as would be considered pathologic in normal cases. In real hyperacidity two-thirds, or even five-sixths, of the total value of acids (ascertained by titration with a tenth NaOH) is referred to free hydrochloric acid, the remaining part to neutralized HCl and other acid salts. In addition to this, it must be mentioned that there exists a chronic, chiefly atonic, more rare, spastic constipation, as one of the most frequent complications of hyperchlorhydria, after the cure of which the most essential part of the whole treatment is often accomplished.

After these introductory remarks concerning the etiology of the disease, therapeutics have of course to be mentioned, in the first place, with reference to the primary disease. I will therefore only mention the mere symptomatic treatment of hyperchlorhydria, as it proves to be suitable for the most frequent form of it, in nervous hyperacidity.

Therapeutics have to be chiefly dietetic, not only in a negative sense, by forbidding sour foods, sauces and drinks, spices, and other stimulants, alcohol, etc., but in a positive sense by prescribing a very detailed diet.

For many years it was regarded as a dogma, that in hyperacidity of the gastric juice nothing but an exclusive albuminous diet should be indicated, as according to experimental tests albumin most perfectly neutralizes hydrochloric acid. These patients therefore were advised to subsist upon almost nothing but meat, eggs, and milk. Subsequently, however, the albuminous diet in this disease proved to be Janus-headed, being, on the one hand, able to neutralize the surplus of hydrochloric acid, but, on the other hand, stimulating the gastric mucous membrane to an increased secretion of juice and acid. Obversely, vegetables are a far milder food for the easily irritated mucous membrane of such stomachs. In consequence of this, Jürgensen, v. Tohlern, and others have for a number of years recommended a chiefly vegetable diet in hyperchlorhydria. In accordance with these authors, and with my own numerous and favorable experiences, I also pleaded, as early as 1899, in favor of the vegetable diet, of course, in a carefully prescribed form. For not only all uncooked vegetables have to be excluded absolutely, but cooked vegetables and fruits should be given only in purée form, sifted as much as possible, and not containing the slightest remnant of cellulose of hulls, shells, etc. By such careful preparation, legumes, for instance, are relished very well by these patients. Soups, moreover, are superior to ragouts and stews, because of their attenuating effect upon the hyperacid gastric juice. Amylaceous victuals

are also well borne by these patients, provided that the finest sorts of flour, carefully freed from bran, are used. Therefore, while these patients are strictly forbidden to eat brown bread, they will enjoy wheaten bread, especially toast bread, cakes, crackers, etc. While cabbage, cucumbers, radishes, raw fruits, etc., must be excluded, purée of vegetables, of spinach, cauliflower, artichokes, carrots, of green peas, etc., and strained compotes may be given without harm. An albuminous food (meat, fish, eggs, curds, etc.), is of course allowed at the same time, and all kinds of adipose meat and fish; goose, pig, ham, bacon, eel, salmon, herring, etc., have to be excluded. Of fats, only good, unsalted butter, fat of milk and cream, as well as of eggs should be employed, on account of their being better emulsified. Some authors even attribute to fat, for good reasons, an especially favorable influence upon hyperacidity. From this point of view, the good effect of copious doses of oil, three times a day, one to two spoonfuls of the best olive oil, one to two hours after the chief meals, is of course quite obvious. Cane sugar is well endured by some of the patients; others, on the contrary, suffer from an increase of their complaints. As drinks, milk and cream, cocoa and chocolate, are allowed. Weak tea is generally innocuous.

In general, the meals should not be taken of too heavily; small amounts after frequent intervals is better, in order to neutralize the surplus of free hydrochloric acid in the stomach as soon as possible. It is also advisable to allow the patient to take something in the evening immediately before going to bed—for instance, a cup of milk with some crackers, which should also be available during the night should the patient awake with any sensations in the stomach, as usually occurs toward morning.

In severe and obstinate cases, lavage of the stomach is recommended, especially late in the evening, about three hours after the last meal, in order to obtain an undisturbed night's rest, otherwise on an empty stomach. To the lavage, infusions of any alkali are joined to the best advantage; for instance, a powder suspended in water, the best being calcined magnesia with sodium bicarbonate mixed in equal portions (magnesium carbonate and calcium carbonate being of inferior value), or any alkaline spring water, for instance Neuenahr-Sprudel. The use of an alkaline mineral water of that kind must always be regarded as a very homeopathic dose compared with any other concentrated alkali. The most efficacious means, however, of combating hyperchlorhydria by medicaments is by the combination of alkalies with belladonna, of which Riegel has first given the exact proof of its limiting the secretion of acids in the stomach. The following is an example of a suitable prescription:

Extract of belladonna . . . . . 30 cg.
Bismuth nitrate } of each . . . . . 10 gm.
Magnesium usta }

Three times a day, as much as can be held on the point of a knife, or a half teaspoonful 1 to 2 hours after the chief meals.

I have had very good results with Bergmann's chewing tablets, containing alkali and pilocarpin, which, by stimulation of the secretion of saliva, supplies the stomach besides with rhodankalium in greater quantities. The bowels are easily regulated, insofar as they are not affected by the ingestion of large quantities of vegetable food, systematic doses of oil, or by the laxatives and enemas occasionally prescribed.

Hypersecretion of the stomach, still less than hyperacidity should be regarded as a uniform condition. On the contrary, several forms differing considerably from one another have to be distinguished: (1) as a complication of gastrectasia, the most frequent form of gastrorrhea; (2) as a complication of slight disturbances of motility (atonia); (3) as a complication of peptic ulcer, especially of an ulcer of the pylorus; (4) as a complication of hyperchlorhydria; (5) as an independent continual hypersecretion (Reithmann), and finally, (6) as an intermittent gastrorrhea, belonging to the class of central neuroses.

Hypersecretion is easily recognized by siphoning the retained liquids (50 cm. to 200 cm. and more) out of the empty stomach, or after a test-meal. In the siphoned stomach contents a layer of liquids overlies a proportionately small sediment of solid substances (for instance, in a proportion of 20–20 to 1). The overlying liquid mostly reacts as an acid. It need not be stated that the treatment of hypersecretion depends, in the first place, upon the primary disease. Owing to the brevity indispensable to this exposition, I must again speak about the general symptomatic treatment. On account of the repletion of the stomach with liquids, in the first instance, the intaking of drinks and liquid food must be limited to the minimum; at most, milk and cream may be allowed in small quantities. Milk may be reduced by boiling to half its volume, water being a useless, even noxious ballast for the motor function of the stomach, the muscle wall of which in hypersecretion is mostly considerably weakened. Moreover, solid food is always recommended in the form of thin broths. Single portions should be taken in as small quantities as possible after intervals of one to two hours. Food should, in general, be chosen much in the same way as in hyperchlorhydria, the latter almost without exception being associated with gastrorrhea and always giving the indications for diet.

Lavage of the stomach with water is easily performed by siphoning in the evening or on an empty stomach, and likewise irrigations of the stomach are beneficial, if a careful removal of all the injected solution is attended to. Without giving particulars of the treatment of the primary disease, merely the special case of gastrectasia may be mentioned, in which the complication of hypersecretion and hyperchlorhydria makes it appear desirable to draw the retained masses of the stomach content into the intestines by a gastroenterostomy.

School Sanitation in England.—Dr. Davies, medical officer of health in Bristol, Eng., states in his annual report that there are 65,000 school children in that city, and that medical inspection is essential. The London Board of Education has appointed a medical officer, and is preparing a method for examination. Other localities are also working in this direction. Dr. Davies suggests that if Bristol took some action, also, there would be a saving in taxes as well as a saving in public health.

INSOMNIA AND ITS TREATMENT.

BY

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SECTION IV.

GENERAL THERAPEUTICS.

It being generally conceded that sleep requires a reduced circulation of blood in the brain as compared to the waking state, it is evident that agents or conditions which can be utilized to induce this state will constitute the remedies for insomnia. And, in fact, it will be observed that all efficient means (aside from drugs) which are adapted to induce sleep, result either in mental easing or a degree of physical fatigue as antecedent to a lowering of the circulation of the brain.

We may place the various causes which produce insomnia, directly or indirectly, under the following headings: (1) psychic, (2) toxic, (3) physically irritative. Factors from all three groups may, in various degrees, operate simultaneously in the same person, and most commonly do so.

Among the psychic causes are all forms of mental disturbance, such as grief, worry, anxiety, fear, disappointment, homesickness, emotional shock, mental overwork, joy, delusions, hallucinations, illusions, etc.

Among the toxic causes are the general fevers, and such affections as gout, rheumatism, syphilis, leukemia, lithemia, malaria, tuberculosis, diabetes, stomach, liver, pancreatic, intestinal, kidney and pelvic diseases; also, unwholesome food, morphin, cocain, lead, arsenic, alcohol, coffee, tobacco, etc.

Among the physically irritative causes are physical pain or discomfort of all kinds, whether arising from external conditions or from internal disturbances of the various sensory, digestive, pelvic, emunctory, and other organs of the body; hemorrhage, sexual excess, physical shock, simple exhaustion, neurasthenia, starvation, eyestrain, previous and perverse habits, etc.

The remedies to be prescribed will, of course, correspond with the particular cause or combination of causes as found in each case, and perhaps also with other circumstances of the patient—social and financial. It may be that a check on the bank is the required remedy, or a word of encouragement, or employment at some fitting work, or simply a hot footbath on retiring, especially in cases of anemic patients with cold feet.

However it may be, it appears that a large proportion of chronic cases which otherwise differ in various particulars, are greatly benefited by a daily round of exercises of both a moral and physical nature. As illustrative of this I quote Dr. Ernest White,[1] who says "twenty-five years ago there were any number of sufferers of chronic mania who were noisy all night and created a perfect pandemonium in the institution. This was the state of affairs when he first went to Stone. But for some years past, the quietude of the night was not disturbed by a sound, the change being brought about largely by moral influence in the treatment of the insane. They were brought into line as in school. They had regular exercises daily and periodic meals, and they amused themselves at stated hours. By this regular sequence of events the patients who at first had to be kept quiet by the administration of drugs now slept naturally without any drugs whatever. In cases of acute mania for many years past, the general exhibition of bromid and chloral has been given up at this asylum, and instead, the patients were got out of bed and taken for exercise for an hour or two, or given a sunbath. It was found such patients gradually fell in line and slept naturally, or with only very slight assistance from drugs." I may here add that from my own experience at the Wisconsin State Hospital for the insane, over 20 years ago, it is evident to me that Dr. White's statement is quite representative. It will be observed that the method he refers to involves a reduction in both psychic and the physically irritative factors, a condition which would naturally have the effect of reducing such autotoxic conditions as might exist.

The same principles and practice will apply to the treatment of insomnia in many persons outside insane asylums, even when the mental condition is comparatively normal. The value of a simple psychic and physical combination of exercise as a remedy for some forms of insomnia, is illustrated by the practice of the Arabs. In this connection, Surgeon-General Sir William Moore[2] says that "when an Arab suffers from insomnia, they do not try to cure the complaint; they make use of him by setting him to watch the camels, and thus employed, he generally goes to sleep."

It appears generally agreed that insomnia in persons of a nervous temperament leading a strenuous life, is best treated by systematic physical occupation of some kind, especially horseback riding, billiards, bagatelle, open air games, travel, entertainments, change of association, ocean or mountain air, etc. Dr. J. V. Shoemaker advises mountain air as being best for those with an increased vascular tension or diminished vasomotor control, especially in those cases in which sea bathing, tonics, and alcohol disagree. He finds the sea level and humid atmosphere good for the anemic subjects. These views are sustained by the observations of others.

It has been suggested that as an aid to sleep, the head of the bed should be directed to the north, because of the electric currents which are constantly passing from the north to the south, and which are supposed to produce a disturbing influence upon the nervous system of the individual who sleeps in a manner at variance with this condition. In certain very nervous people this may be true. At all events, it is a suggestion that may be acted upon when expectancy is of value. Indeed, there are many simple cases of insomnia in which the physician may devise some scheme which will induce a tranquilizing expectancy, such, for example (as Shoemaker has suggested), as the eating of an apple at particular times, or the performance of some particular act which can be invested with expectancy. In some cases an antiphone may be of service, as suggested by Dr. Scripture,[3] of Yale University. "Four years of experience," says Dr. Scripture, "have proved my ability to obtain sound sleep by means of antiphones, whereas before their use (and now at any time when they are omitted) comparatively little sleep was to be obtained." He found Denison's American Express No. 2 wax in this country,

and Packet-Lack in Germany pressed into the external ear, the best. Fresh wax should be used each night. The first night subjective noises may disturb.

In the cases of insomnia in which there is headache, dyspepsia, etc., remaining obstinate to treatment which appears rational, the cause may exist in eyestrain. Should this be suspected, and expert correction of the ametropia is not possible, Dr. Gould recommends an instillation of the eyes once a day with a solution of atropin (4 gr. to the oz.) for the purpose of differential diagnosis. If the trouble is due to eyestrain, and if not so chronic as to have induced organic changes, almost immediate relief is said to follow.

INSOMNIA AND NEURASTHENIA.

Insomnia is most commonly associated with neurasthenia in some form or degree. This is a condition which is characterized by irritability of the brain or spinal cord and may be manifested by simple nervousness or it may be profound. It affects males more than females. When it is pronounced, the will is enfeebled, self-consciousness is evident, and the temper is vacillating and often an unreasoning obstinacy is exhibited. Trifling troubles seem to overwhelm the subjects. Often they are afraid to be left alone in a room or to ride on a train or a boat and may live in dread of becoming victims to some deadly malady. They are apt to complain of "swimming of the head," of occipital headaches, of specks floating before the eyes, of dimness of vision, and intolerance of strong light. Singing of the ears and yawning are common. Many of them cannot sleep away from home or on a different bed from their usual one. Numerous cases of socalled simple insomnia and some cases of hysteria belong to the neurasthenic group.

Neurasthenia results from various exhausting diseases and habits, the latter being chiefly dietary irregularities, sexual excesses, and overexertion. It is commonest in men and women who lead strenuous lives. Nevertheless successful treatment will depend upon proper attention to personal peculiarities, both mental and physical. Generally speaking, the best remedy is travel, with a prescribed dietary for a short period, with, as Professor Suckling advocates, milk predominating. In many cases of the hysteric type the Weir Mitchell treatment is effective. It removes the patient from her surroundings and her sympathizing friends by isolating her for some weeks in bed and employing massage, electricity, and extra feeding.

SHOCK INSOMNIA.

Shock, as in railroad accidents, causes a rapid depletion of the brain and skin and an interference with the normal irritability of the mental, motor, and sensory centers. The respiration and circulation are deranged, and the temperature of the body is lowered. The conditions combine to bring about a partial paralysis of the heart and a sudden dilation of the abdominal bloodvessels, which are found after death from shock, to be enormously distended, while the vessels in the rest of the body are comparatively empty. Sleeplessness, often of a pronounced character, follows, and may continue for years. In many cases, the heart and vasomotor centers may never recover their tone, and even organic heart disease may thus be originated. During the progress of such cases, the nervous system is excitable and impressionable, the chief constant and persistent symptom being insomnia or imperfect sleep, disturbed by distressing dreams, from which the patient frequently awakens in a condition of terror. In such cases the use of opium, strychnin and phosphorus has been found of great value in promoting sleep.

In all cases of insomnia, the blood-pressure is an important index to its treatment. If the tension is high, a few minute doses of calomel at night, with alkalies during the day, will be of good service, *e. g.*, calomel, .03 gm. to .06 gm. (½ gr. to 1 gr.); hyoscyamus, .09 gm. to .32 gm. (1½ gr. to 5 gr.), combined in pill form and taken at bedtime for three or four nights. For the daytime, the following prescription has strong advocates:

Potassium bicarbonate	16 gm. (½ oz.)
Tincture aconite root	1.9 cc. (½ dr.)
Tincture bitter orange peel	11.3 cc. (3 dr.)
Water, sufficient to make	236 cc. (8 oz.)

Take 15 cc. (½ oz.) in water before meals.

Dr. Charles,[4] of London, recommends for insomnia, with high arterial tension, the hydrate of butyl chloral, combined with bromid and cannabis indicus; cold baths daily are also beneficial, with a warm bath on retiring. Mountain climbing may also be mentioned as (according to Shoemaker and others) high altitudes are favorable in such cases.

In cases of low arterial tension or relaxed arteries, the following pill, given in proportions to suit the case, will be found of value:

Zinc phosphid	5 mg. (1/12 gr.)
Reduced iron	.2 gm. (3 gr.)
Strychnin	2 mg. (1/30 gr.)
Extract of gentian, sufficient quantity.	

One pill after meals, thrice daily; also daily tepid baths, with hot bath before retiring.

As a general practice in the treatment of insomnia, Dr. E. Gorton[5] recommends a warm bath, a hot drink, and a hypnotic just before retiring. He has commonly given .65 gm. (10 gr.) of sulfonal at 6 p.m., 1 gm. (15 gr.) of trional at 8 p.m., and the warm bath with 2.6 gm. (40 gr.) of bromid and a glass of hot milk at 9 p.m.

ELECTRICITY.

Dr. Shoemaker[6] speaks of electricity as being a most valuable therapeutic agent in the cure of insomnia. He speaks especially well of the galvanic current. He places the negative pole or cathode at the back of the head and the positive pole or anode, to which a sponge is attached, is moved across the forehead; 10 to 20 milliamperes have been usually found sufficient.

Others have found electricity of service by placing the anode on the back of the head and the cathode on the extremities in the form of a footbath, metal plate or sponges. The current descends from the head to the feet. The anode is usually made double so as to be applied to both sides of the head and neck simultaneously.

Dr. W. S. Hedley[7] effected a cure in an obstinate case of neurasthenic insomnia by the use of electricity for seven weeks, during which time there were 30 sittings.

Dr. W. F. Somerville,[8] of Glasgow, advocates high-frequency treatment in neurasthenic insomnia. He says that the more severe cases of insomnia do not, as a rule, respond till the patients have had about three weeks'

daily treatment. Many cases require it to be continued for a month or so more, for adult females 200 to 700 milliamperes, and for adult males 400 to 850 milliamperes. The dose is always increased gradually. Occasionally the brush effleuve is employed over the head and back, and in obstinate cases he found benefit from massaging directly over the back, the patient being connected with one of the terminals, while the current from the other terminal passed through the operator. This, he says, may be varied by laying the hand and forearm over the patient's back, from the nape of the neck downward over the spine. In this direct form of massage, he states, about 400 milliamperes may conveniently be employed.

MASSAGE.

Dr. Shoemaker observes that the most immediate influence of massage is upon the skin. It increases the volume and rapidity of the circulation. It promotes the secretory and respiratory functions of the skin. It promotes the absorption of oxygen, and the excretion of waste products. The blood is temporarily withdrawn from the brain and spinal cord, and thus sleep is favored.

Dr. Bertram Hunt[9] refers to Dr. Donald MacAlister, of Cambridge, England, as having frequently cured the insomnia of overworked students by ordering a night-shirt soaked in cold water and worn under the flannel pajamas, the shirt acting as a temporary cold pack.

VALUE AND DANGER OF DRUGS.

In regard to the use of drugs for the cure of insomnia, it need hardly be said they should be avoided as much as possible. But that they can be of great service in many cases is beyond question. Dr. Blandford,[10] of London, states that he has been treating patients for 40 years, and he was as certain as could be of anything that a great number of these patients had been saved from insanity and materially benefited by the use of some medicine the object of which was to procure sleep. He also states that these medicines were often continued for a long time. Dr. Savage[11] tells us that "it was the constant practice at Bethlehem Asylum to give drugs on alternate nights to patients who did not sleep well and then as the case improved to give the hypnotic every third night." Dr. Folsom reminds us that in some families narcotics establish a bad habit and effect, while in others, "they may be taken for a long time with good results." On the other hand, Professor Tirard,[12] in referring to the bad effects of drug hypnotics, states that "a very serious feature in most of the fatal cases of poisoning by them is that usually the patients have been under treatment for some time and have been apparently benefited by the drug up to the time of the appearance of the toxic symptoms."

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[*To be continued.*]

REPORT ON A SERIES OF EXPERIMENTS TO DETERMINE THE ANTITOXIC DEPRECIATION OF ANTIDIPHTHERIC SERUM.

BY

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of Detroit, Mich.

Introduction.—This is a subject of great practical importance to the physician, yet one on which very little has been published in this country, though several articles have appeared in foreign literature; and in these the views expressed by the writers differ greatly. The prevailing opinion seems to be that antitoxic serums rapidly lose their potency and that the maximum length of time this product retains its activity is about a year; how this belief has been reached is difficult to determine. It has existed in America since the earliest days of antitoxin, as evidenced by the fact that the three principal commercial producers of antidiphtheric serum have placed a date on each package, beyond which they would exchange it for fresh serum without cost. This custom is not in vogue in Europe, nor in the laboratories of the American health departments engaged in the production of antitoxins. The result of thus arbitrarily placing a date on the serum has been that some physicians have considered the antitoxin valueless or even harmful after the time stated on the label had expired, and would not use it unless compelled to do so by the urgency of the case under treatment. That some of the specific antitoxic property is lost will not be denied by anyone engaged in this line of work, but the extent of this loss has not been definitely determined.

Recently two articles have appeared bearing directly on the question of loss in diphtheric antitoxin. E. Marx[1] (of the Royal Institute for Experimental Therapy in Frankfort) is in a position to give some particularly valuable information on this subject, as all the serums used in the German Empire are tested at this institute, and samples of each lot issued are retained and frequently tested. These samples are kept without any special precautions, being stored in a darkened case in a room not heated in winter. Marx says: "From March, 1895, to June, 1903, there were tested and sent into the market 1,104 lots; of these 34, or 3.08%, had to be recalled on account of deterioration." But in looking over a table describing these lots it will be seen that of the 34, 21 were not recalled until a period of 20 months elapsed, leaving only 13 that had to be recalled after 3, and before 20 months elapsed. He also calls attention to the marked falling off in the number of lots called in during the latter years as compared with the number called in in 1896, this no doubt being due to improved methods of testing employed in the primary tests of later lots. Marx gives a table of tests on some serums 5 and 6 years old, that have retained the full number of antitoxic units, and he concludes his article with the following statement: "The results of the tests on very old serums are sufficient to prove that any mistrust concerning the use of old serums is entirely unfounded."

The other contribution by E. C. L. Miller,[2] gives the

[1] Extract from Festschrift in honor of Robert Koch's sixtieth birthday. "On the Permanence of Antidiphtheritic Serum." Prof. Dr. E. Marx, of the Royal Institute for Experimental Therapy, in Frankfort.

[2] E. C. L. Miller: "On the Keeping Qualities of Antidiphtheritic Serum." Centralbl. f. Bakt. u. Parasitenk., Bd. xxxviii, Heft 2, 1905.

results of a careful study, satisfying all practical requirements, of the tests made on 95 different lots of American serum that have been kept under unknown conditions, or conditions which obtain in the physician's office or drug store, as they were serums that had been issued and remained out varying lengths of time and then returned. Of these 95 lots, only 9 show a loss below the labeled number of units, and these were all in serums over 45 months old; the others show an excess in some instances as high as 60% over the label content in antitoxic units. Miller finds: 1. Antidiphtheric serum undergoes gradual deterioration, the high potency serums changing more rapidly than the weaker serums, but in neither case is the loss of potency as rapid as is usually supposed. 2. The ordinary packages of serum containing, as they do, the excess allowed by the manufacturers, retain their full therapeutic value for months or even years after the time limit, as stamped on the label, has expired. 3. The demand frequently made for fresh antitoxin, is, therefore, not justified, nor is it advisable, because the serum at hand may have passed its time limit, to postpone the treatment of a patient until the receipt of fresh serum.

The Writer's Experiments.—These experiments have been undertaken with the object of determining the loss occurring in serums kept under known conditions for a period of one to four years. Before considering the results of this study, certain factors should be noted. In testing serums for mercantile purposes, it is not the practice to determine the absolute number of units in each cubic centimeter; for example, should a serum be tested for 400 and 500 unit values, the 400 unit guineapig living the required length of time and the one for 500 unit strength dying, the serum would be classed as 400 units, although the absolute value lies between 400 and 500 units. It will be evident that the determination of the absolute potency of each lot of antitoxin would necessitate the sacrifice of many additional guineapigs; for this reason, and because of the time consumed, no attempt to reach a final figure is made in practical antitoxin manufacture. For this reason, also, in many instances cited below, the serum was initially stronger than credited, but since the same latitude has been allowed in the retests, this apparent source of error is nullified, so far as practical results are concerned. In serums older than 30 months, the 100 minimum lethal dose (M. L. D.) of toxin was used, and the L + dose in all of the retests.

Method of Testing.—My technic has been that in vogue by those engaged in testing diphtheric serum for the market, and since this may not be familiar to the physician generally a brief description of the modus operandi is offered. The toxin is first tested to obtain approximately the minimum lethal dose or dose necessary to kill a 250-gm. guineapig in four days. When this has been determined, a number of pigs are used to determine the L + dose of toxin; that is the amount of toxin just necessary to kill in four days a 250-gm. guineapig that has been given at the same time, mixed with the toxin, 1 U. S. Standard Antitoxin Unit, the mixture being agitated and allowed to stand for 15 minutes prior to injection which is made subcutaneously. After the L + dose is exactly determined, which often requires a large number of guineapigs, the serum to be tested is diluted 1 to 100 with sterilized physiologic salt solution. From the original tests made with the serum as a guide, approximate amounts of the serum are measured into dishes; for example, .002 cc., .003 cc., .004 cc., and .005 cc., to these amounts are added in each instance the L + dose of toxin, afterward diluting with 2 cc. physiologic salt solution; the mixtures are agitated and allowed to stand 15 minutes, after which the subcutaneous injections are made into guineapigs weighing exactly 250 gm. Should the .002 pig die within four days and the others live, the serum is classed as 333 units, for .003 or $\frac{1}{333}$ part of a cubic centimeter is seen to be the smallest amount of serum necessary to protect from death a 250-gm. guineapig that has received the L + dose of toxin.[1]

Results of Tests.—The serums shown in Table I have been kept in bulk. After the blood was drawn from the horse and serum separated, 0.4% of trikresol was added and it was placed in the refrigerator, which is kept uniformly, winter and summer at a temperature of 4° C., where it remained for about a year; it was then removed to a dry, cool room for a year; and lastly has been kept at ordinary room temperature, which in summer is quite high, some times reaching 32° C., and in winter falling to almost 0° C. All serums have been kept in partially filled amber bottles, and during the last year exposed to diffused daylight. All are more or less cloudy or opalescent, with a heavy precipitate in the bottom of the bottle. From the tests it will be seen that the maximum loss for the serum three years and eight months old is only 33⅓%, and in only one serum was the loss 40%, showing that even though kept under unfavorable conditions, the loss is not as great as it is thought to be.

TABLE I.—DIPHTHERIC ANTITOXIN KEPT IN BULK.

Serum No.	Horse No.	Tested.	Strength units.	Retested.	Strength units.	Loss units.	Loss percent.	Time elapsed.	
								Yrs.	Mos.
701	22	Sept. 28, 1901.	200	May 5, 1905.	125	75	37½	3	8
219	58	July 24, 1902.	200	" "	166	33	16⅔	2	8
358	38	July 26, 1903.	300	" "	250	50	16⅔	1	9
152	35	Jan. 10, 1902.	200	July 20, 1905.	137	63	33⅓	3	6
166	19	Feb. 7, 1902.	200	" "	137	63	33⅓	3	5
233	54	Aug. 21, 1902.	200	" "	137	63	33⅓	2	10
243	61	Sept. 11, 1902.	166	" "	100	66	40	2	9
459	44	May 7, 1903.	300	May 5, 1905.	250	50	16⅔	2	
642	117	Sept. 28, 1903.	300	" "	250	50	16⅔	1	8
806	121	Feb. 10, 1904.	300	" "	250	50	16⅔	1	3
751	123	Dec. 23, 1903.	800	" "	700	100	12½	1	6
812	117	Feb. 5, 1904.	200	" "	150	50	25	1	3
293	72	Nov. 14, 1902.	400	" 27, 1905.	333	66	16⅔	2	6
134	29	Dec. 3, 1901.	500	" "	350	150	33⅓	3	6

The lots comprising Table II have been kept in the refrigerator at 4° C., in hermetically sealed bulbs, quite full and protected from light. It is interesting to note that all of these are bright and show very little precipitation, which if present, appears at the lowest parts of the bulb, leaving the upper layers of fluid as clear and transparent as freshly separated serum. The maximum

[1] For a description of the precise technic and great accuracy employed in the Hygienic Laboratory of the Public Health and Marine-Hospital Service of the United States, where it is necessary to determine the exact number of units or parts of a unit, and for a complete review of the literature concerning the standardization of diphtheria antitoxin, consult Rosenau's contribution, "The Immunity Unit for Standardizing Diphtheria Antitoxin." Bulletin No. 21, Hygienic Laboratory, April, 1905.

loss in these has been 16⅔%, while the majority show no loss whatever.

TABLE II.—DIPHTHERIC ANTITOXIN KEPT IN SEALED BULBS.

Serum No.	Horse No.	Tested.	Strength units.	Retested.	Strength units.	Loss units.	Loss percent.	Time elapsed. Yrs.	Mos.
174	41	Feb. 20, 1902.	500	May 31, 1905.	460	40	8⅓	3	3
237	36	Aug. 20, 1902.	300	" "	285	15	5	2	10
244	38	Sept. 16, 1902.	333	June 5, 1905.	333	.....	.....	2	9
227	50	Aug. 18, 1902.	500	" "	500	.....	.....	2	10
273	44	Oct. 21, 1902.	500	" "	475	25	5	2	7
144	41	Dec. 21, 1901.	600	" "	600	.....	.....	3	6
305	18	" 1, 1902.	333	" "	333	.....	.....	2	8
246	31	Sept. 19, 1902.	300	" "	300	.....	.....	2	9
135	18	Dec. 5, 1901.	250	" 18, 1905.	225	25	10	3	7
158	41	Jan. 21, 1902.	500	" "	460	40	8⅓	3	5
213	50	July 18, 1902.	300	" "	300	.....	.....	3	
270	31	Oct. 17, 1902.	300	" "	300	.....	.....	2	8
148	18	Jan. 6, 1902.	300	July 20, 1905.	250	50	16⅔	3	6
291	41	Nov. 10, 1902.	300	" "	250	50	16⅔	2	8
300	74	" 20, 1902.	500	" "	490	10	2	2	8
303	61	" 25, 1902.	333	" "	333	.....	.....	2	7

The samples of Table III have been returned from the market, having been received after the expiration of the time limit as stamped on the label, and they represent serums sent to different parts of the United States. The maximum loss in these lots has been 16⅔%. Still all show an excess of from 16⅔% to 33⅓% over the labeled amount after the expiration of a year.

TABLE III.—DIPHTHERIC ANTITOXIN RETURNED FROM MARKET.

Serum No.	Horse No.	Tested.	Strength units.	Retested.	Strength units.	Loss units.	Loss percent.	Time elapsed. Yrs.	Mos.
357	50	Jan. 26, 1903.	250	June 12, 1905.	225	25	10	2	5
516	38	July 1, 1903.	300	" "	250	50	16⅔	1	11
578	103	Aug. 19, 1903.	400	" "	333	66	16⅔	1	10
615	44	Sept. 14, 1903.	400	" "	333	66	16⅔	1	9
711	102	Nov. 25 1903.	300	" "	300	.....	.....	1	7
308	31	Dec. 2, 1902.	300	" "	250	50	16⅔	2	6
324	81	" 17, 1902.	250	" "	250	.....	.....	2	6

The serums of Table IV have been kept in bulk in the refrigerator from 10 months to a year and four months, and only one shows a loss, and that an exceedingly small one.

TABLE IV.—DIPHTHERIC ANTITOXIN KEPT IN BULK IN REFRIGERATOR.

Serum No.	Horse No.	Tested.	Strength units.	Retested.	Strength units.	Loss units.	Loss percent.	Time elapsed. Yrs.	Mos.
785	124	Jan. 18, 1904.	300	May 23, 1905.	300	.....	.....	1	4
896	148	April 4, 1904.	300	" "	300	.....	.....	1	1
1064	106	July 29, 1904.	300	" "	300	.....	.....		10
1095	114	Aug. 22, 1904.	400	" "	400	.....	.....		10
972	114	May 21, 1904.	333	" "	333	.....	.....	1	
941	142	" 31, 1904.	400	" "	375	25	6⅔	1	
1034	157	July 1, 1904.	300	" "	300	.....	.....		11

CONCLUSIONS.

From the results of Marx's tests, which comprise 1,138 lots; Miller's, with 95 lots, and my own of 44 lots, made with the same purpose in view, and satisfying all the various conditions under which commercial antitoxin is kept, both in the laboratory and in the market, it seems reasonable to conclude that antidiphtheric serum retains its potency for a period much longer than has been supposed. When kept under the most perfect conditions, the majority of serums retain their potency undiminished for two to five years. Under less favorable conditions, and even with extremely bad conditions, such as commercial antitoxin is rarely subjected to by the physician or druggist, the loss of antitoxic strength in one to five years varies from that which is inappreciable to one of 33⅓%. Even this extreme loss is not such as to bring the total antitoxic content of a package of American serum below the labeled value, since the manufacturers add sufficient excess to cover this loss. Finally I take pleasure in acknowledging my obligation to Dr. A. P. Ohlmacher, who has kindly supervised the more recent of my experiments, and has aided me in preparing this report.

SPECIAL ARTICLES

A BANKER'S ADVICE TO PHYSICIANS.[1]

BY

CHARLES D. BARNEY, ESQ.,
of Philadelphia.

It was with many misgivings that I accepted an invitation to make a few remarks upon this subject. I can only imagine that the request to do so came from philanthropic motives—the desire to save you from the "bulls" and "bears" of Wall Street, so that you shall not be included among the "lambs," who have so often been sheared. It might be interesting for you to know that the higher classes of the professions furnish the greater number of these gentle little creatures. The physician and lawyer seem to be regarded as the legitimate prey for those who make and break the stock markets. There is no doubt that the medical and legal professions contribute enormously to the operations in the stock market.

The man who speculates in the stock market and loses, gets little sympathy, and most of this comes from his broker. It is never to the advantage of the latter to have a customer lose his money. In this respect the broker and his customer stand in just about the same relation as that of the physician and patient. The latter dies, and a patient is lost forever. The operator in stocks loses, and a customer is lost to the broker. A broker who has the success of his business at heart will therefore protect his customer in every way possible consistent with his own protection. Neither trouble nor expense is spared in obtaining all needful and helpful information about the properties in which his customer is interested or in which he contemplates becoming interested. We diagnose the subject-matter as closely and conscientiously as you diagnose the case of a patient. But the broker, like the physician, is not infallible. Mistakes of judgment sometimes occur, and the customer or patient is the sufferer. It is one of those unavoidable things, which, while regretted, cannot be helped, for in speculation, as in sickness, there come complications which no human mind could have foreseen or avoided. For instance, who of the public had any warning a few years ago that President Cleveland intended handing down a decision in the Venezuelan dispute which would throw the stock markets of the world into panic? Or, who could conceive in advance that our beloved Presidents, Lincoln, Garfield, and McKinley, were to be shot down in such a cold-blooded manner? Scores of similar instances could be cited. They occur at the most unexpected, and generally, most inopportune moment, and cost the public hundreds of millions of dollars, and the broker must be included with the public. He was in no way to blame for the unexpected developments, yet only the day before, perhaps, general conditions might have been such as to have warranted him in advising his customers to buy stocks.

It is the unexpected which the average speculator must at all times be prepared to meet, and it is for this reason that I am going to advise you, first, not to speculate on margins, that is, buy securities with only a small percentage of their total cost deposited with the broker. There is another and safer way of

[1] Read at the Southern Branch of the Philadelphia County Medical Society, June 30, 1905.

dealing in securities—purchase them outright. Prices may depreciate to an alarming extent. There may come over-night developments, the existence of which have not even been suspected, which would result in panic. But, if you own your securities, you have very little about which to worry. You are not called upon to make needless sacrifices. You have no calls for margins to meet, no heavy interest charges to pay if money rates advance sharply. It is not pleasant, of course, to witness the depreciation of the value of your securities, but you have the knowledge that, if you have invested judiciously, it is only a question of time when their full value will be restored.

Now, for a moment, look at the other side—at the man who carries his stocks on margin. A sudden panic is developed. Prices collapse. He is hastily called upon by his broker for a sum of money, or other security, at a moment when it might not be available to him. There is one of two resources left to him, he must either sacrifice a part of his holdings to protect the remainder, or, in the event of the shrinkage being excessive, liquidate his entire account. In the latter case, his loss, so far as it goes, is absolute; in the former he has a chance of a later recovery. But in the meantime he must constantly be worried, and the fear is always present that, with a continuation of the decline, he may be called upon to suffer still further losses.

It is for the reasons stated that my advice is not to speculate upon margins. Purchase your securities outright. Select a broker of prominence, of unsullied reputation, and one who is known for his conservatism and superior judgment. It costs you no more to deal with such a man than it does with another less well known. It is, as you can well understand, a distinct advantage to you, for you have the benefit of all his essentials—his conservatism, judgment and reputation. Trust him as you would have a patient trust you. Let him think for you as far as that is possible. Do not, after he has made a few successes for you, become imbued with the idea that the game is an easy one—that you "know it all." I once knew a gentleman of means, now dead, who, by following the advice of his broker, invested heavily in Chicago street railway securities. His profits were at one time enormous. But he was not satisfied. He refused to be longer guided by his broker, who begged him repeatedly to sell out. Two or three times each year he would visit Chicago, make a thorough examination of the condition of the property, and return home a bigger bull than ever. Gradually his profits began to disappear, then his margins began going the same way; finally there was nothing left. He did not survive his losses long. Just before he died, he was asked why he had not taken his broker's advice to sell. "Because," he replied, "I knew too much," meaning as he explained, that his visits to Chicago had revealed to him only surface conditions. His broker knew the inside workings of the properties.

The percentage of men who purchase their securities outright and lose, is small indeed. Such a one can hold until the clouds pass away and sunshine comes again. There is an old saying that "there are just as good fish in the sea as have ever been caught"; so with the stock market—the last chance in it to make money never comes. Business prosperity follows depression just as surely as night follows day, and if you have invested wisely, your patience will be well rewarded. Everything, however, depends upon the character of your investments.

So far, I have spoken to you only as a broker. Now let me give you a few words of advice as a banker. All brokers are bankers, to a greater or less extent, but all bankers are not brokers. It is the banker with whom the investor most frequently transacts his business, and the banker will talk bonds where the broker will take the stock end of the business. All good banking houses prefer to invest their clients' money in first-class bonds, rather than have them "dabble in stocks," and from my experience, I am more and more impressed with the wisdom, especially for professional men, to let speculation of all kinds alone, and with any surplus money they may have to invest, purchase such bonds as a conservative banker with a good reputation recommends to them. My advice in the selection of one's broker applies with equal force to the selection of a banker. Such a banker will only advise the purchase of first mortgage bonds or issues, the safety of which have been clearly and fully demonstrated. His selection for you will be made with a care and deliberation such as you yourself would not use, so that when he assures you that "these bonds are all right," you can feel content in the event of panic, business depression or other factors which from time to time suddenly and unexpectedly develop. You will then have the knowledge that your investments are safe and no cause for worry exists.

The trouble with us all is that we are too apt to be drawn from legitimate into the illegitimate channel. We seem to prefer the quack, the get-rich-quick schemes, to the trained and tried professional or regular business methods. The public will spend millions on Hood's Sarsaparilla and Paine's Celery Compound, in preference to paying the small fee charged by the physician. The same public, and it includes the professional man, will, on the other hand, turn to some alluring gold-mine prospectus or other well-advertised catch-penny scheme, instead of pursuing the course I have attempted to point out. The physician well knows his best results are obtained when he has the confidence of his patient. Treat your banker or broker with the same consideration and confidence, and I am free to say that your percentage of losses will be the minimum. We all make mistakes sometimes, but I sincerely believe that if the advice I have given you is followed out to the letter in your speculation or investments, you will not need a guardian in your old age.

PROFESSIONAL COMPENSATION: THE RIGHT AND ITS ENFORCEMENT.*

BY

HON. WILLIAM W. PORTER,

of Philadelphia.

Ex-Judge of the Superior Court of Pennsylvania.

The topic discussed in this paper is not perhaps the most lofty for presentation by a member of one learned profession to the members of another. It was suggested by your president because of its practical interest. The material has been gathered hastily in the intervals of an active professional life. The attempt is made to present in a concentrated form the result of some of the judicial precedents in Pennsylvania affecting the right of the physician to compensation and the methods of enforcing such right.

Under the ancient English Common Law neither lawyers nor physicians were permitted to enforce payment for services rendered. If anything were paid it was received as honorarium or gratuity.[1] In the early part of the nineteenth century the Courts of Pennsylvania followed this rule as to lawyers, but not as to physicians, who seem always in Pennsylvania to have had the right to charge for their services.[2] Somewhat later the Supreme Court recognized in lawyers the right to maintain an action for fees, thus giving the members of the sister professions similar rights to compensation.[3] The right is founded in contract, expressed or implied. The relation of the physician to his patient implies on the part of the former that he is competent; that he possesses the degree of skill ordinarily exercised by his profession, having due regard to the advanced state of the profession at the time, and that he will exercise this skill and treat his patient with reasonable care and diligence.[4] There is no implication that he shall certainly cure. The failure to effect a cure will not bar his right to recover a proper compensation if no actual want of skill be proved.[5] In this connection it may be observed that the law presumes that a physician is competent in the absence of all evidence to the contrary.[6]

When there is no express contract on the part of the physician, the law implies on the part of the patient an obligation to pay a reasonable sum for the services rendered.[7] This implication is strong. When a claim is met by evidence that the physician agreed to render the services gratuitously, and such evidence falls short of an express contract so to do, the issue becomes a question of fact to be decided by a jury whether the evidence submitted is sufficient to overcome the implication of obligation raised by law.[8] To determine what a reasonable

* Read at the Southern Branch of the Philadelphia County Medical Society, June 30, 1905.

compensation is, it is necessary to take into consideration the customary rate of charge in the locality (if there be such a customary rate), together with the extent of the ability of the patient to pay.[9] As Judge Ashman, of the Philadelphia Orphans' Court, has said: "No flight of rhetoric can escape the plain fact that life has a pecuniary value of variable quantity, greater, for instance, in the case of a millionaire that in that of a day laborer. . . . The question . . . is one of values and the law which must govern it is a thing of common sense rather than sentiment." Judge Penrose, of the same court, has sustained the right of a physician to maintain a sliding scale of charges regulated by the pecuniary circumstances of each patient and to use his judgment in applying this scale to the particular case. To quote from Judge Penrose: "That a physician may adopt a minimum rate of charge for his professional services to the poor and a maximum rate regulated only by his mere volition or fancy in dealing with the rich, admits, of course, of no possible doubt either as an abstract question of personal liberty or as a matter of bookkeeping. And if the maximum should be in excess of the real value, the only consequence would be that patients who survive the first employment will probably, after receiving their bills, not repeat it."[10]

In determining reasonableness of charge when claims for services are made against the estate of a decedent, the size of the estate may be considered by the court in conjunction with other circumstances.[11]

The foregoing considerations have to do with implied contracts. Of course, a specific agreement between physician and patient to perform and receive certain treatment for a definite sum, is binding upon the parties, irrespective of any question of reasonableness of the amount to be paid,[12] and when a physician maintains a fixed rate of charge for certain kinds of services, and a patient employs him having knowledge of this rate, the employment amounts to an express agreement on the part of the parties to render and to pay in accordance with that rate in the absence of any agreement to the contrary.

In this connection it may be noted that a close family relationship subsisting between the physician and the patient is a fact to be considered with other circumstances, as tending to show that the services rendered by a physician are not purely professional,[13] and in such connection but slight additional circumstances are required to rebut the implication of an obligation to pay on the part of the patient.[14] Again, the fact that both physician and patient are of the same profession does not rebut the implied promise on the part of the latter to pay; but does render admissible evidence of the Code of Ethics of physicians in general and the custom of physicians in the locality as to their requiring payment for services rendered to a brother physician. Such evidence may be considered with other facts in the cause showing an understanding between the parties that the services were to be rendered gratuitously.[15] In this connection it is interesting to note that in a case in the Superior Court of Pennsylvania the Code of Ethics was attempted to be used as a piece of evidence to affect the right of one physician to charge for services rendered to another. Judge Orlady, of that court, holds that the code is not admissible in evidence without accompanying proof that both of the parties acknowledged themselves bound by it at the time the services were rendered.[16]

Medical attendance and medicines are by the law regarded as necessaries. Consequently, a physician may recover his compensation, by an action at law, for services rendered on Sunday,[17] and it has been held that the mere fact that an operation might safely have been delayed until Monday will not deprive the surgeon of the right to recover his compensation because performed on Sunday.[18] Also, inasmuch as such services are necessaries, a man is obliged to pay for medical services rendered to his wife or family, and in the absence of evidence to the contrary, the law presumes the wife to possess the requisite authority from her husband to employ, on his behalf, a physician to treat herself or some other member of his family.[19] This authority to the wife, however, may be revoked by the husband by notice to the physician before the services are rendered.[20] No authority has been found which determines the right of a physician to recover in the case of the employment by a wife in a case of clear necessity, in opposition to notification from the husband. The right of the wife to charge the husband with liability for the cost of a surgical operation, does not extend to a case in which there is no immediate need of such operation and when the husband could have been himself consulted.[21] This ruling was had in a case in which the husband was not consulted; had no knowledge that the particular operation was to be performed, and was shown to have been opposed to an operation of the kind performed.

The authority of the wife to bind the husband arises out of the family relation and out of the obligation of a husband to furnish necessaries. When no family relation exists no implied promise to pay for medical services rendered to another is raised by a request to furnish to a third party, living in the home of the person making the request.[22] This principle extends to the case of a father requesting the services of a physician for his adult son who resided with the father, the facts that the son was in business for himself and had means of his own, being known to the physician when requested to attend the patient.[23] Again, when a conductor of a trolley car engaged the services of a physician to treat the injuries of a passenger when there was no proof that there was any immediate need of treatment, the Court held that the conductor had no authority to bind the corporation of which he was a servant, and that the corporation was, therefore, not liable to pay the doctor for the services rendered to the passenger.[24]

No little difficulty may arise when physicians are called to attend one person at the request of another, when the relationship is not definite and known to the physician. When a person living with another (whose relationship is not sufficiently close to raise an implication of a promise to pay) and the other orally promises to pay for all the services rendered both before and after the promise, the question arises whether the promise is to pay the debt of another or is an original obligation on the part of the promiser. An original promise to pay by one requesting the services, is a direct obligation. A promise to pay, if the patient does not, or a promise to pay the debt of the patient already contracted, must be in writing, in order to hold the promisor to his promise if the amount involved exceeds the sum of $20.[25]

The liability of the patient to pay for the services of a consultant is quite clear. When an attendant physician feels the need of a consultant, and calls him in with the consent or acquiescence of the patient, the attendant physician acts as the agent of the patient who becomes liable to pay for the services rendered by the consultant.[26] When, however, the patient is not in a position to be consulted by reason of his state of mind, or the seriousness of his condition making such a proceeding dangerous or inadvisable, and some other member of his family cannot be consulted in his place, the law implies an authority in the attendant physician to act on behalf of the patient according to the physician's best judgment, and if under such circumstances he engages the services of a consulting physician, the patient or his estate becomes liable to pay a reasonable sum for the services of the consultant.[27]

Under the judicial interpretation placed upon the term "physic" in an early statute,[28] a physician's bill for professional services rendered to a decedent in his lifetime, and to the members of his family for a period of six years previous to decedent's death, was made a claim, payable out of the estate before general creditors.[29] By a statute (approved February 24, 1834) a physician's preferred claim for medical attendance was limited to such as represented the value of the services rendered during the "last illness" of the decedent. Just what constitutes a "last illness" has been variously determined by the lower Courts; but the Supreme Court has said that the phrase means such illness as is the proximate, not the remote cause of the decedent's death.[30] In the case referred to, in which the decedent partially recovered from an injury and soon after became worse and died, the Court held that the claim of the physician who treated the decedent immediately after the injury up to the time of the partial recovery, was not a preferred claim. Serious difficulty arises in defining "last illness" in cases in which the decedent dies of some lingering though fatal disease. In such cases the disease must be one which continuously disables and in which mortal symptoms become manifest.[31] Furthermore, services rendered during a last illness must have been rendered within a "reasonable

time preceding the death."[32] This expression is elastic and results in various conclusions. No definite rule can be stated. For example, the claim of a physician for services rendered a decedent during the period beginning with the initial stages of softening of the brain until his death, was narrowed to a brief period immediately preceding death after the disease had assumed a fatal form.[33] Again, a claim of a physician who had treated a tuberculous patient for five months preceding his entry into a hospital, where he died five months afterward, was held to be entitled to preference because there had been no improvement in the patient's condition.[34] Again, when there had been no improvement it was held that a claim for three months' services rendered a tuberculous patient, when a month intervened before another physician treated him until his death three months later, was entitled to preference, the time being held to be reasonable and the interval immaterial.[35]

No difficulty in proving a physician's claim for services ordinarily arises when a patient is alive when the suit is tried. Both parties are competent witnesses under such circumstances. A physician may testify to the extent and value of the services he has rendered, using to refresh his memory any memoranda he may have made at the time. When, however, the claim is against the estate of a decedent, the conditions are changed. When one of the parties is dead, the other will not be permitted to testify.[36]

It is usually difficult to secure any testimony as to the services other than that of the physician himself. It thus becomes important for him to have some written evidence in proof of his claim for compensation. The admissibility of a physician's book account of original entries as evidence against a decedent's estate has not been passed upon explicitly by the Supreme Court.[37] The Superior Court has, however, held that a physician's book of original entry is admissible.[38] The latter decision is in accord with the practice in such of the lower courts as the question has arisen and been decided. Certain things are necessary to make a physician's book account admissible as evidence: 1. The book must be regularly kept and a usual book in which to keep accounts. The entries must be made in a regular way and at the time the services are rendered.[39] What is sometimes called a physician's "visiting list" is not such a book and is not admissible in proof of services rendered.[40] But it has been held that entries made by a physician's clerk from memoranda are admissible in evidence.[49] 2. The charges must be specfied, itemized and not lumped.[41] When services, are rendered, different from such as are incident to a regular visit and for which a specific charge is made, the full nature of the services should be set out.[42] When an operation is performed, it should be entered in the book not in general terms, but with some particularity.[43] On the other hand, a charge for medicine has been held sufficient without specifying its character and quantity.[44] 3. The entries must be self-sustaining, that is, sufficiently clear to be understood without the use of a glossary (without unintelligible abbreviations or hieroglyphics), and full enough to disclose the nature of the entries without resort to oral testimony by way of explanation.[45] 4. The value of the services must be set forth and the charges entered opposite each of the items.[46] This charge is not conclusive, but is *prima facie*, proof of the value.[47] 5. The character of the entries must be such as to disclose an intent to charge, as distinguished from a casual memorandum.[48] These requisites to the book are essential. No attempt is here made to indicate how the books shall be kept or to suggest a form. With the rules just suggested before him, a physician following his own thought and inclination can, it is believed, produce a book which will be of great assistance in proving a claim against the estate of a decedent.

In conclusion, I desire to say that the foregoing does not purport to be more than a statement of the law contained in a few of the decisions, and it will always give me pleasure to extend to any member of the body which I now address, and indeed, to any member of the medical profession, such assistance as I am able, if circumstances should arise which would make the opinion of a member of the legal profession desirable.

In submitting the foregoing I have been discussing that which is of serious importance to the members of the profession, but I am conscious that if is to the lower side of the professional life that I have addressed myself. I cannot read the Code of Medical Ethics under which you are all practising without being taken into the upper levels of professional life. To all of us the primary importance is not in the getting, but in the doing. No man true to his profession draws his inspiration from its pecuniary rewards. That comes from the consciousness of duty well done and in the alleviation, if in ever so small a degree, of human misfortune.

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[10] Mortimer's Est Supra.
[11] McCann's Est., 11 Dist. R. 244 (1902).
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[18] Korring's Est., 50 Pitts L. J. 190.
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[22] Boyd vs. Sappington, 4 Watts, 247 (1835).
[23] Boyd vs. Sappington, Supra.
[24] Patterson vs. Traction Co., 9 Dist. R. 362 (1900).
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[26] Korring's Est., 50 Pitts. L. J. 190.
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[46] German's Est., Supra.; Foreman's Est., Supra.
[47] Langolf vs. Pfromer, 2 Phila. 17 (1856).
[48] Foreman's Est., Supra.
[49] Haines Est., 10 Dist. 677 (1901).

A PHYSICIAN'S EARNINGS.[1]

BY

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of Philadelphia.

No one should adopt the profession of medicine as a business. The first and most potent consideration in undertaking the life work of a physician should be the unselfish one of helping those in physical affliction. The best means admitted of doing so is the study of preventive medicine. There are plentiful methods open to all of acquiring money honestly; never more so than at the present. Development of natural resources seems to be at a maximum, even on the confines of what is termed to be civilization, and human powers to accomplish this, and to place the output in the most favorable markets, are sufficient to the demands. Not only so, but the devices of transportation, of the diffusion of commercial knowledge, are so ample that the greater factor in trade, viz., the knowledge of markets whereby excess of production can be most judiciously placed, reducing loss and amplifying gains, were never so well systematized. Hence we have the common spectacle of millionaires in most localities, or at least those who possess far more than they can possibly make rational use of. Many of these people recognize certain responsibilities to their fellow-

[1] Read at the Southern Branch of the Philadelphia County Medical Society, June 30, 1905.

man, not the least of which is to provide means of research in medical lines, to spend large sums in providing safeguards against preventable diseases. It is not too much to expect that in the near future the standing disgrace to our civilization, the existence of preventable diseases, will be made to cease. If so, the agency will be in chief part wise individuals endowed with vast fortunes.

To be sure, the State will, or should, play the chief role, but judging from the records of current legislation, little is to be expected from governmental regulations or provisions till the material of which legislators are made becomes less venal and more wise. What, then, is the largest ground of hope for the best resultants or products of medical science? Clearly the education of the community. The opportunity of the medical profession, the highest aim which they can evolve, is to preach unceasingly that disease can and shall be limited, prevented, made to cease.

In accomplishing this, their occupation would seem to end. The day, however, is far distant, yet attainable. The first principle of commerce is to increase the demand for products; to amplify the opportunities for supply. Supply is always forthcoming.

Clearly this is contrary to the plainest concept of the healing art. However, if it be true that a fool is born every minute something revolutionary must be attempted from the ground of embryology. While the postulate may stand that disease, the outcome of folly is self-limited, not so the supply of foolishness whereby desire prevails. Meanwhile, in every community composed of average human beings, there must be supplied guides in physical conduct who shall be equipped with both knowledge and forcefulness, and if possible, will be ample authority, direct or vested, who not only shall succor the lame, the halt, the diseased, to turn the fool from the rich deserts of his folly, but also to exercise an inhibitory influence upon the acts of the unwise, both individual and joint, and throttle health-destroyers—human or demoniacal—in their lairs.

In the doing of this, in the pursuit of his chosen line of duty, the physician has great need to possess large capacities, powers, wisdom and knowledge. Furthermore, he must be ready to give his undivided attention to a quest which, while perfectly possible to attainment, has never been near realization. To fit himself for his lifework requires exceptional traits, years of training, and the ceaseless exercise of judgment night and day. He must live; he has a right to the enjoyment of equal privileges and emoluments with the man who tills the ground, digs the ore, or sets choleric human savages by the ears to their own undoing and his financial betterment, or who manipulates the market whereby lambs yield their fleece. It would indeed seem that all his patience, his years of dangerous toil, ought to be highly rewarded. Health and life are, especially in the hour of great peril, for a brief period regarded as of more account than mere material acquisitions. Furthermore, physical efficiency conditions mental efficiency, and when once imperilled, limits the earning powers, and is therefore worth a fair proportion of the money which is being then earned.

All which tends to show that a capable, conscientious, experienced medical adviser is a boon to any community, and should be provided with full returns for his labor, time, his skill, and his strength. Not only so, but when once his capabilities are demonstrated, experience ripened, the earning capacity ought to increase, not lessen. He gives his time and energies freely to the very poor. The rich man, who has more than enough, should pay in proportion to his means. Specialization is not an unmixed good. Oneness of purpose develops knowledge and power in narrow lines, but impairs breadth of view. The general physician who gives the same earnest effort to the whole field of his art, as done by the specialist, is the more valuable member to the community.

Again, the pursuit of medicine, involving as it does much self-abnegation, immolation on the altar of duty, of occasion, and of the troubles of others, impairs not only health but the financial sense. Moreover, the prejudices of the community are quick to press upon a physician who attempts to do business outside the strict line of his vocation. Hence his opportunities to achieve a fortune are few and poor. When, in the fulness of his power, ripeness of his judgment, the physician is right to charge as large fees as he is capable of getting. He should not be deterred from doing so by the competition of those whose abilities are manifestly less. The community owes him protection, appreciation, and fair rewards.

The form of competition forced upon medical men is humiliating. We are in no sense rival tradesmen, nor artisans. We are trustees for the life and health of the community. Our function is at the base or capstone of economics. The world is gradually awakening to this conviction.

One final word as to how professional dues may be regulated. An incident was related to me recently affording a most practical suggestion which may well be followed by most communities. In a certain town, prosperous enough, the physicians found that, owing to the force of circumstances, they were compelled to reduce their fees to such a plane that it became impossible for them to earn a livelihood; their families suffered grievously.

They, by joint action, called a meeting of certain leading experienced business men, and laid the matter frankly before them. A committee was formed of these gentlemen, and the whole subject fully ventilated. These men of practical affairs were asked to decide what were reasonable fees for that locality.

From these conferences a fee table was prepared, exhibiting a maximum and minimum scale for ordinary conditions. Below the lowest scale the committee advised to give advice gratis. This is a most admirable plan, strengthening the hands of the profession in all ways. Conditions in different towns must differ and can thus be best met.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 21, 1905. [VOL. XLV, No. 17.]

1. Chronic Ulcer of the Stomach and First Portion of the Duodenum, with Especial Reference to the Surgical Treatment.—William J. Mayo. See *American Medicine*, Vol. X, No. 6, p. 220.

2. The Early Diagnosis of Gastric Ulcer.—H. D. Niles. See *American Medicine*, Vol. X, No. 6, p. 220.

3. The McGraw Ligature.—A. J. Ochsner. See *American Medicine*, Vol. X, No. 6, p. 220.

4. Periodic Paralysis.—George E. Holtzapple. See *American Medicine*, Vol. X. No. 7, p. 261.

5. American Hygiene: Chairman's Address before the Section on Hygiene and Sanitary Science.—John S. Fulton. See *American Medicine*, Vol. X, No. 5, p. 179.

6. Innocent Fibromyoma of the Uterus.—Thomas B. Eastman. See *American Medicine*, Vol. X, No. 4, p. 136.

7. The After-effects of Diphtheria on the Heart.—Franklin W. White. See *American Medicine*, Vol. X, No. 12, p. 473.

Boston Medical and Surgical Journal.

October 19, 1905. [Vol. CLIII, No. 16.]

1. Bilateral Birth Paralysis of the Lower Arm Type.—J. J. Thomas thinks the lesion must be one of the brachial plexus. Explanations offered of the mode of injury are: (1) Compression between the clavicle and the first rib; (2) between the clavicle and transverse processes of the vertebras; and (3) stretching of the plexus. Experimenters have shown that it is impossible to apply the forceps while traction is being exerted so as to produce any pressure on this point of the plexus. In the writer's cases the presentation was of the face or the chin, and he confirms the opinion of Jolly that the injury to the plexus is by stretching from overextension of the head. [H.M.]

3. Sugar in the Cerebrospinal Fluid of Diabetics.—N. B. Foster has examined 12 diabetic patients and in all, the fluid contained from .5% to 3% of sugar, the amount bearing no relation to that in the urine. In the two cases in which the percentage was highest, the urinary glucose being only moderate, coma and death followed the lumbar puncture within a week. There is a reducing substance normally present, which is usually held to be pyrocatechin. Various observers have reported glucose in several morbid conditions. The cerebrospinal fluids in all these cases fermented with yeast, and in addition to the reduction, polariscopic and osazone tests, the only conclusive test left is the melting point of the phenylglucosazone crystal. A melting point of 205° determined the identity of these sugars. [H.M.]

4. Diagnosis of Cancer and Ulcer of the Stomach by Expert Methods of Clinical Procedure.—H. F. Hewes reasons out his diagnosis as follows: (1) Food residue in fasting contents or sarcinas in any contents indicates obstruction of the pylorus or simple dilation without obstruction; (2) lactic acid or yeast fermentation in the fasting contents, no food residue being present, also indicates one of the above causes of stasis. Absence of ptosis or dilation by the inflation test tends to fix the diagnosis as ulcer, cancer, or adhesions. In some of his cases in which dilation was present, a diagnosis of ulcer or cancer was made from the combined picture. Blood in addition to stasis makes the indication of ulcer or cancer very definite. Absence of HCl or presence of lactic acid with stasis is strongly suggestive of cancer. The presence of free HCl with stasis has little weight in differentiating ulcer and cancer. In the absence of any of the above findings the diagnosis of cancer or ulcer requiring surgical interference is not considered proved, barring, of course, cases with a history of hematemesis or with a showing of stomach symptoms associated with cachexia. [H.M.]

Medical Record.

October 21, 1905. [Vol. 68, No. 17.]

1. A Plea for Local Anesthesia in the Radical Cure of Inguinal Hernia, Based on a Study of 300 Cases.—John A. Bodin has operated on 284 patients, with 300 hernias, under local anesthesia, without a death or a suppurating wound. By means of Schleich's infiltration the amount of cocain is reduced to a minimum and limited to a small area, producing acute local anemia, effectually retaining the fluid in one spot. Cocainization of a sensory nerve trunk, abolishing pain sensation in the region supplied by it, renders it possible to operate for hernia by its use. The operative area is superficial, and the region restricted by the anatomy of the parts. In strangulated hernia local anesthesia does not increase the shock, while general anesthesia is often too great a load to be borne. The local anesthetic permits of the application of hot towels to a possibly gangrenous intestine for some time, in order to determine whether it will react. The operation does not give rise to the danger of injury to the nerve fibers. The danger to a line of deep sutures from vomiting is done away with. The cocain solution should be made fresh. The solution is .2% for infiltration of skin and nerve trunks, and for subdermic infiltration half this strength is used. The line of skin incision should be infiltrated throughout its extent sufficiently tightly to maintain the local anesthesia for an hour. The aponeurosis of the external oblique requires no infiltration. It should be incised over the situation of the underlying ring; the ilioinguinal nerve will be exposed by retracting the flaps, and its trunk is then cocainized by a few drops of the solution. The incision may be carried painlessly into the external ring, and the flaps reflected to expose Poupart's ligament and the conjoined tendon. The iliohypogastric, if found, may now be cocainized. The margins of the internal ring are infiltrated. A line of infiltration along the long axis of hernial protrusion permits a clear cut through the hernial sac and coverings. The neck of the sac is infiltrated, dissected away from the underlying cord, ligated, and amputated. The genitocrural nerve is cocainized. The sac is dissected away from the cord, and the operation completed. Operation on the female is easier than on the male.

2. The Etiology of Tabes: Its Social, Legal, and Therapeutic Consequences.—Feodor von Raitz attacks the view that tabes is caused by syphilis, and points out the injustice from social, legal, and therapeutic standpoints that is caused to patients by this assumption. Those who accept syphilis as the cause of tabes have no difficulty in finding syphilitic evidence in everybody who has tabes. He contrasts the pathology of syphilis and that of tabes, to show that the lesions of the nervous system in the two conditions have nothing in common, the degenerations of the latter disease being foreign to the former. It is also absurd to believe the syphilitic virus can remain dormant, and, furthermore, if tabes were a postsyphilitic disease, antisyphilitic treatment would have a curative effect, but it has been found that the reverse is the case.

3. Eye Defects Associated with the Development of Puberty.—K. Wheelock describes seven cases of defective vision occurring in boys and girls shortly before the age of puberty. They are characterized by great loss of vision, marked limitation of the visual field, and an eye ground varying from the normal to frayed bloodvessels with a "shot silk" fundus, while the general health of the patient remains good. These phenomena he believes are due to change in the nerves and blood stream incidental to the development of the reproductive organs, as treatment is of little avail and recovery is not complete until menstruation has been established in girls and the seminal function in boys. He particularly emphasizes: The existence of defective vision for distance and reading, limitation of the field for form and color, the age of the patients from 8 to 10, the absence of chlorosis or hysteria, the existence of a leukocytosis, and the recovery of normal sight both for reading and distance with much contracted field.

4. Diagnosis in Carcinoma of the Stomach.—Edward F. McIntosh, in discussing the difficulties attending the early diagnosis of carcinoma of the stomach, in order to show the unreliability of symptoms, cites two cases in which complete recovery under nonsurgical treatment followed in spite of the fact that several consultants had expressed the opinion that malignant disease was present. The life of a gastric carcinoma may be divided into three periods: 1. From inception to the appearance of an exudate. 2. From the beginning of the exudate to the breaking down of the neoplasm. 3. From the breaking down of the neoplasm to death. Measures intended to enable the diagnosis to be made during the first period are impracticable, but the earlier in the second stage the nature of the disease is recognized the better are the patient's chances of cure. The diagnosis should be made from several examinations rather than from a single one, and this is especially true of chemic examinations of the stomach contents. For example, in stenosis of the pylorus due to a cicatrix from a former ulcer there may be the following symptoms: Cachexia, emaciation, ectasy, a decided tumor, and quite likely hematemesis. These are very suggestive of carcinoma, but the examination of the stomach contents reveals a large amount of free hydrochloric acid and no lactic acid. In this class of cases an examination should be made every week to ascertain if there is any change in these constituents of the stomach contents; the whole matter will hinge on this very point, and if there is no substantial change the diagnosis is pyloric stenosis, but of a benign nature. If there is progressive decrease in the HCl and development of lactic acid, with

weakened albumin digestion, it is carcinoma. A reliable diagnosis can never be made from one symptom.

5. The Whitman Method of Treatment of Fracture of the Neck of the Femur.—F. E. Aschcroft describes a successful application of the plan of treatment for this injury advocated by Dr. Royal Whitman, of New York. The essential features of the treatment consist in traction on the limb under anesthesia to reduce shortening, followed by abduction until the trochanter is in contact with the side of the pelvis, so that upward displacement is impossible. The entire trunk and leg are then encased in a plaster dressing, which is cut away to the knee at the end of four weeks, and is entirely removed at the end of eight weeks, more or less. Aschcroft's patient sustained an intracapsular fracture of the neck of the right femur, in addition to other injuries, as the result of a mine accident, but by the Whitman treatment, at the end of the eighth week he was able to cut down his own cast and move about on crutches. Four months after the accident, he has a scarcely perceptible limp, only slight pain at the knee, no appreciable shortening, and is back at his work in the mine as an able-bodied man.

New York Medical Journal.

October 14, 1905. [Vol. lxxxii, No. 16.]

2. Reflex Irritations from the Urethra.—L. B. Bangs believes that simple lesions in the urethra may (through the intensity of the reflex symptom aroused) cause a degree of bodily suffering, which, although not dangerous to life, gradually undermines the constitution of the patient and impairs his vigor. Several cases are reported. Two of these patients were constitutionally neurotic, one of them being the subject of profound neurasthenia. The others were not at all neurotic and were calm, self-possessed, sensible, but leading a strenuous life. In each of them the lesion in the urethra was similar, but the pathologic result varied in kind and degree. In one group of cases the suffering was due to an exaggeration of the sexual function, and in the other to a disturbance of the function of the bladder. Marked improvement was noted in these patients, as the chronic urethritis cleared up by topic applications of silver nitrate. [C.A.O.]

3. Surgery of the Gallbladder and Ducts.—J. M. Baldy reports the case of a woman of 38, who complained of pain in right side, intense jaundice, constant belching, no appetite, etc. The gallbladder and part of the cystic duct were removed. The walls of the bladder were thickened, and it contained two large and a quantity of small stones, while its lining membrane showed signs of suppuration. The bladder was adherent to the intestine and there was no drainage. For five or six days the jaundice became intense, stools white and pulse bad. The wound was reopened and a quart or more of free bile emptied out. Bile was found escaping from a point in the liver substance. This was closed by suture and the wound drained. Recovery followed. Some months later she became intensely jaundiced, had white stools, belched constantly, no appetite, itching and intense eczema from scratching, over the whole body. The abdomen was again opened and adhesions separated. At this time it was impossible to find an opening leading into the intestine. A drainage-tube was placed in the common duct. The patient made a good recovery and was free from all symptoms. Some months later the patient had a third attack. The administration of calomel and magnesium sulfate caused the disappearance of all symptoms in two weeks. Subsequent events have proved that the common duct is surely open and the bile passing into the intestines. [C.A.O.]

4. Extraperitoneal Rupture of the Bladder.—J. R. Eastman reports three cases, in which rupture of the bladder complicated fracture of the pelvis. The first is that of a man of 50, in which a large spicule of bone from the right horizontal ramus was found thrust through the anterior bladder wall below the peritoneal fold. The rent extended around the right side of the internal meatus almost to the right urethral orifice. In the second case the rectum and bladder were transfixed by impalement upon some sharp object. A fracture of the anterior superior spinous process of the ilium extended inward, splitting the horizontal ramus of the pubes. In the third case the symphysis was fractured and the bladder and urethra ruptured by a crushing injury. The treatment in these cases consisted, in brief, in combating shock (chiefly with normal salt solution and adrenalin), in the removal of clot, suture of the rent in the bladder, appropriate bladder drainage, rest, and the application of a bandage in such a manner as to prevent movement of the pieces of bone. Recovery followed in each case. [C.A.O.]

5. Relation of Emotional States to Insanity.—T. H. Kellogg takes up the extreme emotional states, such as anger, fear, hatred, and jealousy. He says that the final contention is that these extreme emotional states, though sometimes precursors of, or among the intercurrent phenomena of mental disease, are distinct pathologic conditions, which may exist independently of any of the recognized types of insanity—that they merit special clinical study and description, and are to be separately dealt with in medical and forensic practice by medical experts. [C.A.O.]

7. Polycythemia and Cyanosis.—A. J. Zimlick reports such a case in a man of 32. For years he had suffered from severe headaches, and had noticed that his hands were generally moist and congested. His nose, gums, and even other parts of the body, had always bled freely upon slight provocation. Later the headaches became more severe, and were accompanied by pain in the eyes and loins, with cyanosis of the hands and face. The spleen and liver became enlarged, the heart dilated. He was suddenly taken with paralysis of the whole left side of the body, and died the following day. Three blood counts had been made. At first the red blood cells were 6,480,000; white cells, 13,600. The second, red cells, 9,240,000; white cells, 13,200. The third, red cells, 7,632,000; white cells, 20,100; and the hemoglobin 120%. [C.A.O.]

Medical News.

October 21, 1905. [Vol. 87, No. 17.]

1. Pericardial Effusions.—F. A. Jones thinks it inexcusable to confuse a pericardial with a pleuritic effusion. In the latter the apex beat can be seen and felt, when on the left side, the apex is displaced toward the right. In pericardial effusion the displacement, if any, will be upward. In the majority of cases the beat can neither be felt nor seen; the area of flatness is over the cardiac region, and is triangular in shape with the base downward; while in pleuritic effusion the flatness is laterally, anteriorly, and posteriorly. Dyspnea is more marked in pericardial effusion than any other affection. Cyanosis is marked in some cases, in others it is absent. A valuable aid in diagnosis is flatness on percussion in the fifth interspace to the right of the sternum. [H.M.]

2. Antitoxin for Poisonous Mushroom Intoxication.—W. W. Ford states that poisoning from *Amanita muscaria* is practically never fatal. Atropin is the antidote. Fatal cases are from *A. phalloides*. The extract, when brought to isotonic solution by addition of NaCl, quickly dissolves erythrocytes. The toxic principle phallin is a bacterial not a serum hemolysin. Rabbits treated with small doses subcutaneously, followed by large doses intraperitoneally, are able to withstand about five times the fatal dose. [H.M.]

4. Different Conditions in Tuberculous Kidney and Their Treatment.—C. L. Gibson divides these into

(1) a limited focus on the kidney substance; (2) multiple foci which may become confluent, phyonephrosis; (3) complicating lesions of the pelvis and ureter; (4) extension to surrounding tissues. There are usually lesions in other parts of the body. Radical operation is practically limited to tuberculosis of one kidney. Usually there develops early a chronic diffuse nephritis, with increased secretion, traces of albumin, lowered specific gravity, and occasional casts. Another early symptom is persistent evening rise of temperature. Pain, hematuria, and pyuria with acid urine are more pathognomonic, but they also occur in other conditions. A later symptom is enlargement in the lumbar region. Bacilli may or may not be found. All ordinary means of investigation having been exhausted, we are justified in making a negative diagnosis as regards the other kidney. In doubtful cases use direct palpation. An advantage of early diagnosis is that resection rather than complete nephrectomy may be feasible. Drainage does not improve the underlying disease, and opens new avenues for infection. Nephrostomy means a permanent tuberculous sinus plus escape of urine. If there is unbearable pressure, it may be indicated notwithstanding its drawbacks. Perinephritic abscess may be repeatedly evacuated by aspiration and treated with injections of iodoform emulsion, although there is little prospect of cure. [H.M.]

5. Bacterial Treatment of Sewage.—R. F. Palmer discusses (1) single and double contact beds or intermittent filters; (2) continuous or trickling filters, and (3) septic or precipitation tanks. Bacterial treatment practically eliminates all danger of contaminating the subsoil and by running a pure effluent into streams keeps their waters more fit for use, the nitrifying bacteria even improving an already polluted body of water. In time of epidemic, chemic treatment in addition would be well. The initial cost of bacterial treatment is small, and cost of maintenance practically nothing. [H.M.]

6. Results of Hysterectomy for Fibroids, with and without Drainage.—J. Brettauer's conclusions are based on 54 cases, 32 with and 22 without gauze drainage. The pulse and temperature were practically the same in both series. Patients drained enjoyed more gastric comfort. No difference in intestinal reaction was noted. The period of catheterization was the same. In drained cases there was a vaginal discharge persisting for weeks. In undrained cases vaginal irrigations were never necessary. The writer prefers sewing up the stump to insure more perfect hemostasis. [H.M.]

CLINICAL MEDICINE

David Riesman A. O. J. Kelly
Norman B. Gwyn Bernard Kohn
Helen Murphy

EDITORIAL COMMENT

Condiments, i. e., "Carminatives."—Condiments have been used in every age and clime. Their presence in the alimentary canal stimulates the lining membrane, causing expansion of the capillaries and increased vermicular activity of its involuntary muscular fibers; also reflex stimulation of the nerve centers, and consequent quickening of their circulation and the metabolism thereon dependent. The latter effect, in connection with the cerebrospinal axis, is necessarily productive of a feeling of (more or less approximate) euthanasia; it is the effect of the bellows on the previously smouldering fire; so that we do not share the opinion of our contemporary, *The Lancet*, that, apart from the improvement of flavor, "It is not quite clear, however, why, for example, a person takes mustard with ham, pork, or beef, and not with mutton; vinegar with salad or lobster, and not with ham or other foods." By some unexplained process, however, the writer almost immediately after begins to see his way through the obscurity of his forest of facts, for he proceeds:

> In generalizing, however, it would appear that condiments are chosen to accompany those foods which are less digestible, or which are richer than others. Mutton, for example, is more digestible than beef, pork, or duck, and it is to these three that mustard is generally added. Vinegar, again, is known to soften the hard fiber of both meat and vegetables; hence it probably renders such foods as crabs, lobster, salmon, salads, red cabbage, and walnuts less tough and more digestible. Vinegar in dressing and sauces probably has a similar action.

With regard to the last sentence, we consider that our own suggestion—of the stimulating effects, local and reflex—to be the true explanation, as suggested above. An additional local effect—and a very important one, must be emphasized: The filip given to the various glands which furnish the digestive secretions. *The Lancet* gives, however, some items of good collateral advice—both general and specialized:

> Hunger is the best sauce, but failing hunger, the appetite must be coaxed, and herein lies the true uses of sauces, condiments, and other aids. The abuse of condiments has its attendant evils. The excessive use of vinegar is calculated to lead to an anemic condition, while it has an unfavorable influence on gout. Some silly women take vinegar to produce a pale complexion. Similarly, a free indulgence in pepper or mustard, which are both irritants, is likely to have an irritating effect upon the organs of secretion. On the other hand, their moderate indulgence promotes digestion, for they act as carminatives.

So the writer was actually wise without knowing it! "Carminatives," when duly interpreted, conveys all the ideas which we have been trying to enunciate; but, as ordinarily written and read, have, we suspect, little definite meaning for either writer or reader.

REVIEW OF LITERATURE

Fleas a Source of Infection of Epidemic Cerebrospinal Meningitis.—Verrill[1] says that mosquitos and the common house-fly have been assailed as carriers of disease, and that the place which fleas may hold is worthy of study. He suggests their relation to the spread of infection of the type attributed to *Diplococcus intracellularis* of Weichselbaum. Fleas must be feared by healthy individuals not alone for sentimental reasons, but because they may play a part in the life cycle of the microorganism mentioned. [T.H.E.]

The Connection between Abnormal Symptoms of the Eye and Pneumogastric Symptoms.—O. Rosenbach[2] calls attention to the fact that there is a condition in which disturbances of organs supplied by the pneumogastric are associated with eye disturbances, particularly hyperemia of the conjunctiva of the upper eyelid. The pneumogastric symptoms consist mainly of respiratory oppression, palpitation, flatulence, dyspepsia, abdominal pain, etc. The conjunctival hyperemia is frequently associated with irritability of the nasal mucous membrane. The condition is a reflex neurosis, which in some cases arises primarily in the eye, in others in the pneumogastric nerve. The former is cured by curing the cause of the eye disturbance; in the latter the treatment must be directed mainly to the abdominothoracic symptoms, the local treatment to the eye only keeping those symptoms in check; regulation of diges-

[1] Il Policlinico (Rome), August 27, 1905.
[2] Münchener medicinische Wochenschrift, 1905, lii, 605.

tion, bowels, diet, and changes in methods of living will cure the entire condition without employment of any local eye agents. [E.L.]

LEGAL MEDICINE

JOHN MARSHALL J. H. W. RHEIN

EDITORIAL COMMENT

The war of the experts is such a scandal in the modern judicial system, it is surprising that no organized effort has been made to end it. There have been suggestions innumerable, and almost all of them recommend something in the nature of a subjury of one or more experts appointed by the court and therefore not under a bias toward either prosecution or defense by reason of employment by them. The last proposal of this kind has been made by the medical faculty of the University of Rome, but it suggests that the knowledge of the board of experts shall be impartially at the service of both sides.[1] As a rule the suggestions tend to the view that such experts should be at the service of the court. Unfortunately for all these plans, an accused person demands that he should have experts devoted to his interests on the same basis as advocates, and the disposition of American practice is to give the defense every advantage as demanded by a public opinion which always has a feeling for the under dog. The courts have no doubt gone to such extreme lengths in this matter as to make it too difficult to convict the really guilty. It is the reaction from the time when the individual was almost helpless if under accusation by the government, and there is still a lingering feeling that every man is liable to unjust prosecution. Hence it is not at all likely that the desired reform will be accomplished soon. The attorney for the defense will not willingly give up his present advantage, and for this reason no concerted action can be expected from the legal profession. Yet it is possible to have a board of experts whose majority and minority reports can be accepted as expert testimony and still permit both sides to hire experts to bring out desirable facts before the board though not permitted to testify in court. It is to be hoped that the matter will be taken up in earnest to avoid the unseemly spectacle of two scientific men testifying to opinions diametrically opposite to each other and based upon the same evidence.

REVIEW OF LITERATURE

Liability of Physicians and Surgeons for Acts of Others.[2]—It seems to be pretty well established that the physician or surgeon may be held accountable for the acts of his assistant or those acting under his direction, although the question of responsibility is not so easily determined. The question often arises whether the surviving partner is responsible for the actions of the deceased partner, but it seems well established that the partners are responsible for the torts of each other if committed during the period of partnership. If, however, the damages sued for arise out of an injury to the person of the plaintiff, and either partner dies, the cause for action is annulled as far as it affects the liability of the decedent or the representatives. Corporations are not responsible for the carelessness, negligence, or malpractice on the part of the physicians or surgeons employed by them to take care of their employes injured in service. A public hospital or a private hospital is responsible for the negligence of one of its officers or servants only when it has been negligent in selecting such an officer or servant. There is some doubt whether a physician may be held responsible for the acts of another physician who may be acting as his representative, if the physician has been selected with proper care and diligence. [J.H.W.R.]

Prevention of the Spread of Venereal Disease.—Senator Berenger, of France, suggests that a legal penalty be imposed upon any one found guilty of transmitting wilfully any form of venereal disease. Le Foyer, a lawyer, remarks that to commit a crime is a form of disease, and to transmit a disease is surely a form of crime. Garofalo[1] has brought together the opinions of many of Europe's most eminent men concerned in the struggle against the spread of venereal disease. Many are conservative, a few reactionary, but it is apparent that a consensus arrives at the point of making it a distinctly legal, as well as moral question, in establishing ground for civil and criminal suit where a conscious and wilful neglect has caused transmission of disease. [T.H.E.]

Mosquitos in New Jersey.—The State of New Jersey appropriated $10,000, which it turned over to the New Jersey Agricultural Experiment Station, for the purpose of studying the mosquitos in the State of New Jersey, their habits, life history, breeding-places, relation to malaria, and other diseases, the injury to the agricultural, sanitary, and other interests of the State caused by the mosquitos, their natural enemies, and the methods which are most effective in lessening, controlling, and otherwise decreasing the numbers, injury, or detrimental effect which they may cause to agricultural, sanitary, and other State interests. The State empowers this station to do this work, according to Chapter xcviii of the New Jersey laws of 1902. [J.H.W.R.]

Consideration of the Epileptic by the Courts.—John B. Chapin[2] says that the apparent return to a normal state of the epileptic between attacks is one of the embarrassing features in all medicolegal inquiries as to the responsibility of such person charged with crime. For various reasons it is but fair and just that a prolonged period for observation, both night and day, of the criminal should be granted in all cases of suspected epilepsy. Clinical experience and observation go to show that in all forms of this disease some of the recognized marks of its actual existence will soon or late be observed. The courts have declined to admit the irresponsibility of the epileptic, no matter how many convulsions he may have had, unless it were shown that the criminal act was committed during or preceding the seizure and was done in a state of unconsciousness. This, of course, is based on the demonstration that in the intervals the defendant possessed the usual elements that constitute a state of responsibility. Chapin, in conclusion, submits certain general propositions for consideration: (1) It is the result of observation that epileptics do show some mental failure and a tendency toward morbid states as the disease and age advance; (2) these changes become more marked during the interval between convulsions as the intervals between seizures diminish; (3) in every medicolegal inquiry it is essential to establish the existence of paroxysms by actual observation and not by hypothesis alone; (4) if it is shown in the trial of a criminal epileptic that mental or moral degeneration has taken place, the defendant is entitled to acquittal; (5) generally speaking, because of certain facts and results of experience, the criminal epileptic is entitled to merciful consideration. [A.G.E.]

The Law in Massachusetts Regarding the Furnishing of Liquor at Hospitals.[3]—The Acts of Massachusetts, 1903, provide that a fine of $50 or imprisonment for not more than two months is the penalty for selling or giving intoxicating fluids to a patient of the Massachusetts Hospital for Dipsomaniacs and Inebriates, or any of the State hospitals for the insane, unless so directed by a physician of the hospital. [J.H.W.R.]

[1] *American Medicine*, July 29, 1905.
[2] Medicolegal Bulletin, February, 1904.

[1] Il Policlinico (sez. prat.), Rome, December 12, 1903.
[2] Medicine, February, 1904.
[3] Medicolegal Bulletin, February, 1904.

American Medicine

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Diphtheria at the Naval Academy has become so widespread among the cadets of the new class that it has been necessary to postpone the opening of the school and institute a rigid and extensive quarantine. Coming at the very time when the new buildings for the great academy of the future are being constructed, it is a veritable disaster. As far as we are aware, no report has been made public as to the reasons for this extraordinary infection, but there are ill-defined rumors of some essential defects of the buildings, and one newspaper hints at other things. The matter would receive no notice whatever were it not for the fact that it illustrates the public apprehension that in some way sanitation has again been defied until disease stalks in. We trust that when the results of the investigation are published they will show that there has not been a repetition of the first system at the canal zone. Too many valuable lives are cooped up in that little area in Annapolis to run the slightest risks and we presume that the sanitary requirements of the new buildings were given the very greatest consideration by experts in sanitation and not by gunnery experts as was too often the method in camps.

The United States Pharmacopeia.—Since the appearance of our editorial review of the eighth decennial revision of the United States Pharmacopeia that guide has been in use nearly two months. So far as we have ascertained, the work is, in general, meeting the approval of physicians and pharmacists. The agents, P. Blakiston's Son & Co., are distributing a fair number of copies, but every practising physician in the United States should own a copy and thoroughly familiarize himself with its contents. This statement is in no sense a "boom" for an author or a publisher. The committee on revision contracts with one firm to print the book and with another to sell it, any profit being applied to liquidate the expenses of revision and paying the members of the committee a richly deserved honorarium. If the book met the sale it should, the price could be very materially lessened. But even now, when it sells for $2.50, no physician can conscientiously say this amount is beyond his means. We know the average physician is sorely puzzled in the matter of keeping his reading material up to date, but in this instance he is not dealing with a book that is revised annually, but instead with a work which requires replacing only every ten years. In view of these facts we cannot believe the chief reason for a small circulation of the pharmacopeia is one of finance; it appears due rather to a lack of familiarity with, or appreciation of the work itself.

What the Pharmacopeia Offers to the Physician.—The United States Pharmacopeia furnishes a list of official names of all the remedies in common use by the medical profession and therefore enables the physician correctly to order the drug he wishes to prescribe; in the late revision the average dose of each is also supplied. Further, and of much greater importance, the physician is assured of the standard purity and strength of the substances thus officially enumerated. In these days of multitudinous trade preparations of uncertain strength this point is of prime importance and in this respect the recent revision is an advance over all others, assay processes being detailed for some 20 potent drugs and a dozen of the essential oils. The revision of 1900 does not present an excessive number of changes in official names and strengths of drugs, but still they are numerous and in some instances radical. The tinctures of cantharides, capsicum, strophanthus and rhubarb have been doubled in strength. The tincture of lobelia and the syrup of ferrous iodid are now only half their former strength. The tinctures of aconite and veratrum are 10% each instead of 35% and 40% respectively. The tinctures of belladonna, colchicum seed, digitalis, gelsemium, hyoscyamus, physostigma, sanguinaria, squill and stramonium have each been reduced from 15% to 10%. No physician should be satisfied to familiarize

himself with these changes through any source but the pharmacopeia itself.

The Double Nature of the Pharmacopeia.—Although furnishing the names, strengths, and doses of the drugs he prescribes for his patients renders the pharmacopeia of paramount value to the physician, it in another way is of no inconsiderable importance. It is the official guide not only of pharmacists, but also of the legal profession in all questions pertaining to the strengths of drugs. In the prosecution of physicians or pharmacists by authorized Boards of Health, the pharmacopeia is the standard for all matters coming within its scope. A working knowledge of its contents may at any time be of exceptional value to any physician who is concerned in a medicolegal case. But in spite of the official standing of this publication, it is in origin and nature essentially popular in that its contents are determined by the physicians of the country; what they prescribe makes up its subject-matter. This aspect is too generally lost sight of, the prevailing opinion being that it is a book for teachers and writers, for pharmacists and for the courts, but is not specially useful to the general physician. It is very desirable that this impression be changed. Thorough acquaintance with the drugs in the pharmacopeia means less polypharmacy, and above all a diminished use of the proprietary nostrums of uncertain composition and strength which are often deliberately, but in many instances unthinkingly prescribed by physicians. It is estimated by those who should know that at least 20,000 copies of the new revision of the pharmacopeia will be sold by January 1, 1906; the number should be five times 20,000.

The immunity to malaria of the natives of Panama is perhaps the most interesting fact mentioned in the first report of the chief sanitary officer of the canal zone (February 20, 1905). This report is merely a synopsis of the sanitary conditions found when the first commission reached the isthmus, and of the sanitary organization attempted, together with some details of the subsequent inspections and medical work in general. Naturally, there was not much to report in the way of permanent measures for prevention of disease, and still less scientific investigation. Yet this one statement of the malarial index of infection of the native population presents a serious practical problem of sufficient importance to demand the careful consideration of the administration itself. Blood-examination of 315 average individuals, mostly school children and laborers presumably in health, revealed the plasmodium in 60.31%, a certain unmentioned number also showing more or less fever. This result was to be expected, for it is the same as found in almost every other malarial tropic country; indeed, some reports from Africa have stated that the organism was found in every case, though the percentage among Filipinos is markedly less. It seems that this is an illustration of the "tolerant immunity" mentioned by Lankester in a discussion of the trypanosomes, and it is the same, perhaps, as that curious immunity to the piroplasma of red water or Texas fever of South Africa. Bruce has shown that the native cattle in certain areas harbor the organism harmlessly, but that cattle imported from abroad or even from other districts are infected from the natives and perish. As the plasmodium and piroplasma are allied organisms, it is probably true that in Panama aliens can be fatally infected from apparently healthly natives who indeed might never show any evidence of malaria, unless they lose resistance from some other cause.

The prevention of Panama malaria is, then, not a simple matter by any means. Either all *Anopheles* must be killed off—apparently an impossibility—or all the natives, whether healthy or sick, must be heavily and repeatedly dosed with quinin, an equally impossible task. There is no doubt that the warfare on mosquitos must be carried on regardless of cost, for it will so reduce their numbers as to lessen materially the probability of being bitten by an infected one. As stated in the report, it is desirable to determine how much the malarial index of infection can be reduced by a systematic administration of quinin to a whole tropic population. It will surely reduce the number who can infect aliens, but the plan will be so resisted or evaded that many will not be treated. It is evident that for a long time, if not always, there will be some mosquitos and some infected natives, no matter what we do to prevent, so that alien employers will be subjected to danger and must be protected. The construction of proper houses seems then to be the first necessity. It is a matter for congratulation that the new commission has had the courage to state that they would pay no attention to the popular clamor to dig the canal at once, and has boldly announced that all such work would be stopped until it could prepare housing, food and recreation to keep the future employes alive long enough to accomplish something. We suggested such a plan,[1] timidly, to be sure, but it is in order to remark that if this decision had been made at the start, the canal would now be 18 months nearer completion; as it is, we are just beginning. No better illustration is needed that we have not learned the dreadful lesson of the Spanish war—that the first thing to do in every undertaking which removes men

[1] *American Medicine*, August 6.

from their normal environment, is to attend to sanitation. We cannot dig the canal with dead men—the French found that out long ago, yet we did not learn it until now. It is proper to start an investigation to find out why it is that in so many governmental undertakings there is so often a disposition to ignore or hamper the sanitarians who are able to keep the employes alive.

The Diseases of Infancy.—A live discussion of the various aspects of diseases peculiar to infancy, always timely and acceptable, is yearly becoming of greater interest, as the birthrate in some countries is diminishing, and artificial feeding, with its inherent dangers, appears to be on the increase. For these reasons the October "special number" of *The Practitioner*, devoted entirely to this subject, is of special value to the pediatrist and general practitioner. In the 17 papers therein contained may be found reference to almost the entire scale of the affections of children and their care, from the hygiene of the mother during pregnancy to the disorders associated with dentition. Mother's milk, artificial feeding, diarrhea, convulsions, scurvy, atrophy, diseases of the eye and of the skin, the proper time and technic of vaccination, and infant mortality are among the topics discussed. In addition, Dr. Grünbaum supplies a pharmacopeia of 140 titles, with dosage for infants, and the editor furnishes brief notes regarding a score of the best books on the diseases of children. In this connection it may be noted that the works of Holt and of Rotch are highly commended for their general trustworthiness, the latter being designated as one of the most complete and practical books upon the subject in the English language. Abstracts of some of these papers will appear in our literature department, but we cannot even mention half the good things to be found in this monograph of 150 pages. No other special number of *The Practitioner* in recent years has appealed to us as being in every way so eminently practical as is this on the diseases of infants. It deserves widespread reading by physicians.

Public interest in scientific research is discussed by Professor John M. Coulter, University of Chicago, in an article in *Popular Science Monthly* (August, 1905), and the facts he mentions as to science in general, are so pertinent to medical science in particular as to demand the widest publicity of his views. He mentions the well-known reluctance of scientists to contribute to newspapers and magazines, articles in a style of plain English which avoids technical terms. There is a great demand for such literature on the part of the reading public—at least the intelligent part of it—and the editors do the best they can to supply the demand. Unfortunately they must depend upon a middle man as an interpreter, whose articles are apt to assume a sensational tone wholly inconsistent with the scientific spirit and more or less inaccurate also. Then, again, the real scientific work of the world—the work which counts—the patient painful searching for new facts, is apt to be ignored, while attention is directed to some one final discovery which has a practical bearing. Without all the preliminary work in pure science, the final practical result would never have been attained, yet the impression is too often conveyed that the former is wasted effort. The public is not only kept in ignorance when it desires enlightenment, but valuable work is generally dished up in a joking way which gives a false idea of its importance. The editors themselves deplore these necessary evils, and would like to abolish the middleman altogether. Prof. Coulter suggests that it would be better if some scientists would cultivate the art of writing so that the unscientific could understand it and appreciate the progress the world is making. The reports would be authentic and would retire from the field the charlatans, who too often seek notoriety in this way. The intensely practical business man would learn that every bit of scientific work has a practical value sooner or later. As research demands endowments, there would be a more generous response for that material aid, the lack of which has hitherto so hampered the progress of civilization. There is certainly much to be said in favor of Prof. Coulter's views, though it is to be confessed that it will be a most difficult matter to accomplish. Scientific workers, as a rule, are apt to be so deeply interested themselves as to forget that others want to know what is being done, and how.

Public instruction in medical science is a much more difficult matter than in the case of the other sciences. The ethical rules which restrain physicians cannot be easily modified, and yet the necessity to impart the knowledge can scarcely be doubted. Medical research needs endowment just as much as the other sciences, and it would probably be materially aided if those who are able to do so could be kept in touch with the hard work of the patient plodders, who sacrifice themselves to do it. Until recently, wealth was poured out only to endow hospitals to cure disease, never to aid men who were learning how to prevent it. Even research laboratories are likely to be endowed for the sole purpose of furthering therapeutics and generally by a grateful patient or by some one who has lost relatives whom he thought might have been saved if we knew a little bit more. There is great need of many institutions for pure research, irrespective of any immediate practical value—the harvest is ripe and the laborers are

plenty, but they have no tools. There seems also a growing disposition to get into closer touch with the lay public to end that aloofness which so often tempts the average lay writer to flippancy whenever he must touch medical matters, even those of the gravest importance. The desire of the lay journalist to secure authentic medical information in popular language is therefore most laudable. It is a matter deserving the earnest attention of the leaders of the profession, to whom the public looks for the exact facts at first hand and not through interpreters, who are liable to misinterpret.

Public instruction in sanitation is a modern necessity upon which there is no difference of opinion in the profession. It is an intensely practical matter, but how it is to be done is not quite clear, though there is a growing suspicion in the minds of a few physicians that the profession has neglected its duty in some way. The present ethical rule, though shown by past experience to be necessary, does have a tendency to keep in ignorance the very men upon whom we depend for the proper prosecution of sanitary reforms. The fear of appearing quackish, of seeking notoriety, or of bidding for patients, no doubt keeps many a leader from contributing to lay journals for the instruction of the public, so that sanitary matters dished up to the intelligent readers too often come from incompetent middlemen or the charlatans. The men who should be enlightened never see a technical journal nor could they interpret many of the articles, even if they did read them. One of the most pleasing signs of the times is the manner in which the lay press is taking up this important public duty, calling attention to dangerous drugs and foods and to unsanitary habits in general. The excellent result in allaying public apprehension as to cholera shows what good can be accomplished, and the work should receive the hearty support of the profession, and ways should be devised whereby the proper facts can be authentically and accurately imparted without violating one's ethical conscience. As the public is enlightened, Legislatures will feel the pressure of public opinion and do those things for which we now clamor in vain.

The possibility of a cholera epidemic has naturally occurred to a number of lay journals since this disease has made its appearance in Europe. In former times the march of cholera around the world, was watched with apprehension due to the recollection of the dreadful results of its past visits to America, but the tone of the press comments today is so reassuring that there is public indifference rather than panic. Several lay journals have given quite accurate accounts of the bacillus and the methods of killing it, and have shown that with very simple precautions it is somewhat difficult to contract the disease. There seems also to be a growing opinion that the quarantine and health authorities are wholly competent to deal with any cases which might be imported. The people are evidently not disposed to lose any sleep over the matter and are inclined to leave the affair to the duly constituted expert authorities. It has now been widely published that the germ is easily killed by drying in sunlight or boiling, so that even if it does get into a water-supply it can be made harmless, but they now know that it is essential to confine the cases merely to disinfect the excreta. In regard to infecting those around them, the sick themselves are about as dangerous as one having typhoid, and that is not a great danger. They require similar management to prevent spread of the infection. The present epidemic seems to be marching around the world rather slower than on previous occasions—a result probably of the intelligent checks it receives—whereas formerly it spread as it pleased, for no one knew when or how to attack it. Since the bacillus seems to lose vitality during its excursions from host to host in an unaccustomed climate, there is a possibility that sanitary measures may hold its march in check until all virulence is lost.

The comparison of American and European scientists has been made by Professor Waldeyer, professor of anatomy in the University of Berlin, in an address before the Royal Prussian Academy of Sciences, a few months ago, suggested, no doubt, by his visit to the St. Louis Congress, in 1904. In a review of this address,[1] Professor Llewellys Barker mentions its value as showing how American achievements are gaining recognition abroad. The United States has easily led the world in all mechanical matters tending to increase material wealth, and the impression has been very widespread that we are so occupied in the struggle for the almighty dollar as to have no time for the arts and sciences. In spite of the fact that the people of a new country are occupied in opening up and developing their resources and in laying foundations, it is not at all unlikely that in proportion to our numbers we have always accomplished a fair share of the world's scientific discoveries, and have done a goodly work in other directions. Waldeyer points to a long list of eminent American naturalists, economists, jurists, philologists, philosophers, and historians, and he might have added physicians and surgeons. He has apparently been amazed at the rapid strides of the last decade, as though we had just started on the superstructure of our national work. His intimate knowledge of Americans and their work gives great value to his statement that it is now time

[1] Science, September 15, 1905.

for European students and teachers to come to America to learn, in the same way that Americans formerly went abroad. We have worked out our own salvation, and have therefore cut new trails, so that it is now necessary for foreign workers to know what we are doing and how we are doing it, if they are to avoid narrowness.

The racial factor in scientific work is touched upon by Waldeyer, who mentions the wellknown fact that the world's achievements are now mostly made by those northern types which through some climatic influence have developed the largest brains. To be sure, very exceptional men appear in every race and often spring from mediocrity or worse, and become ancestors of noted lines themselves, but, as a rule, heredity often shows itself, because prominent men come from families already above the average for some generations. It is to be expected, then, that as Americans and Europeans are of the same stock, they will progress equally, but by mere force of numbers and hereditary genius, the bulk of investigators and the great majority of discoveries must arise in Europe. Yet it seems as though the extraordinary development of schools, colleges, and scientific institutions in America was training more men in proportion to our population than is possible in Europe. The advantage always being with the trained over the untrained, it is not unlikely that Americans are destined to make more than their share of the world's advances. There is a nervous tension developed in our more southern climate which may also assist to this end. Indeed, Waldeyer warns his colleagues that they may even fall behind. All this is of considerable importance to medical students who, a century back, had to go abroad, but who now can stay home and be as well trained, or even better. It has long been claimed that a foreign course is not necessary except for the mental broadening sure to result, and it is comforting to know that the advances of our schools have now made them attractive to foreigners. All this flattering talk should not blind us to the sad fact that there are still bad schools and worse, and that there is a tremendous lot to be done in the way of raising the standard of medical education in America.

New York Water-supply Queries.—The State Water-supply Commission has sent to the authorities of all municipalities in the State a list of 60 questions concerning the local water-supply, and 42 questions on the local sewage system. Replies to these questions will be embodied in the State Commission's first annual report. All of the questions are technical, and cover the amounts of water supplied and consumed, the cost of constructing and maintaining plants, supply for fire purposes, the character of the filters, analysis of the water, sources, filtration, treatment of sewage, and deathrates of the several communities.

BOOK REVIEWS

International Clinics.—Edited by A. O. J. KELLY, M.D. Volume ii. Fifteenth series, 1905. Philadelphia and London: J. B. Lippincott Company.

The latest number of this standard publication contains 23 articles, many of which are carefully prepared original papers instead of the more informal clinical lectures. The branches receiving attention are Treatment, Medicine, Surgery, Gynecology, Ophthalmology, Rhinology, Physiology, and Pathology. Among the more valuable are papers on the Treatment of Acute Nephritis in Childhood, by John Lovett Morse; Diagnosis of Incipient Thoracic Tuberculosis, by R. N. Willson; Seasickness, by A. L. Benedict; Application of Ehrlich's Side-chain Theory to the Physiology of Digestion, by J. C. Hemmeter; and the Pathology of the Chromaffin System, by J. Wiesel. There are relatively few illustrations in this number, but all of the 305 pages contain excellent medical literature. The paper by Willson is the most elaborate in the volume, and is worthy of careful reading; it should do much to stimulate the profession to the early diagnosis of pulmonary tuberculosis.

A Textbook of Physiology, Normal and Pathologic.—By WINFIELD S. HALL, M.D. Second edition, revised and enlarged. Lea Brothers & Co., Philadelphia and New York, 1905.

Hall's physiology now contains 712 pages of text which show careful revision. This, with the author's wellknown ability as a teacher and writer, means that it is fully abreast of the recent advances in the branch treated. The extensive outlines which head each chapter aid materially in giving the student a grasp of the material contained therein. The most noteworthy changes in this edition are the addition of subchapters on pathologic physiology, particularly in connection with the subjects of circulation and blood, respiration, digestion, metabolism, and excretion. These in most instances were written by colleagues thoroughly conversant with the topic discussed and form a most valuable addition to the work. We believe this departure, by correlating normal and abnormal physiologic processes and thus aiding in a better understanding of both, will prove of distinct value to students. The pathologic part has very properly been kept in the subsidiary position it should occupy in a work on physiology. The illustrations in this edition are very satisfactory.

A Laboratory Manual of Human Anatomy.—By LEWELLYS F. BARKER, M.B. (Tor.), assisted by DRS. D. D. LEWIS and D. G. REVELL. Illustrated. Philadelphia and London: J. B. Lippincott Company, 1904.

This manual contains 553 pages of text and about 300 illustrations, selected from the best works on anatomy in all languages. The nomenclature of the German Society of Anatomists is employed, but the old terms, when different, are given in parenthesis. Dr. Barker has put his recognized successful method of teaching anatomy, as much as is possible, into book form, which means a very practical and helpful manual for the student; it is fortunate that he accomplished this task before beginning his work in a new field and along other lines of medicine. The facts of anatomy are put before the student in a clear and concise style, in connection with well-selected illustrations and directions for dissection. Further, he is encouraged to see things for himself, by suggestions that must be followed to be understood, and this is the true art of teaching. Another valuable point about the book is that the author insists upon the necessity of acquaintance with larger works on the subject, instead of recommending it as being all that

is required. It is a working book, but not intended to be the final word to the student. It can be made to answer the purpose of a compend for review by utilizing the various lists of structures as reminders of the points to be regarded. We believe the manual will take a high place among the many similar books now upon the market. The printing and binding are all that could be desired.

A Practical Treatise on Sexual Disorders of the Male and Female.—By ROBERT W. TAYLOR. Lea Brothers & Co., New York and Philadelphia, 1905.

The third edition of this valuable work has been enlarged and thoroughly revised. In this edition the subject of sexual disorders in women has been more thoroughly treated and four new chapters have been added. The chapter on the anatomy and physiology of the sexual apparatus has also been very much amplified and many new illustrations added. Throughout the book sexual disorders of the male and female have been treated in careful detail, many typic cases being given, thus facilitating diagnosis and rendering most practical aid in questions of treatment both medical and surgical.

Bacteriology and Surgical Technic for Nurses.—By EMILY M. A. STONEY. Second edition, revised and enlarged by Frederic Richardson Griffith, M.D. Philadelphia, New York, London: W. B. Saunders & Co., 1905.

The reviser states he has made but few alterations in the text of this book. Descriptions of technic have been modernized; illustrations have been added; new chapters have for subjects certain minor procedures, obstetric nursing, bandaging and dressings, the nurse herself. A glossary has also been supplied. The book now contains 256 pages of text, 80 more than the first edition, and is a thoroughly reliable guide for nurses. The very thick paper makes it rather unwieldy to handle.

A Manual of Mechanical Dentistry and Metallurgy.—By GEO. W. WARREN, A.M., D.D.S. Second edition. Philadelphia: P. Blakiston's Son & Co., 1905.

This manual now contains 257 pages of text, and in a very lucid manner describes the various technical procedures of which it treats. The illustrations, numbering 179, are exceptionally clear and explanatory. The quality of paper used in the book aids materially in this respect. We can hardly imagine a better book for students of mechanical dentistry.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Transactions of the Southern Surgical and Gynecological Association. Vol. xvii. Seventeenth session, held at Birmingham, Ala., December 13, 14, and 15, 1904.—Edited by W. D. HAGGARD, M.D. Published by the Association, 1905.

Index Catalog of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series, Vol. x.—M. MNIKHOVSKI, Government Printing Office, Washington, D. C., 1905.

Practice of Medicine.—By HUGHES DAYTON, M.D., Principal to the Class in Medicine, New York Hospital, Outpatient Department; Clinical Assistant in Medicine, Vanderbilt Clinic, College of Physicians and Surgeons, Columbia University. In one 12mo volume of 324 pages. Cloth, $1.00, net. Lea Brothers & Co., Philadelphia and New York, 1905.

Vital Questions.—By HENRY DWIGHT CHAPIN, M.D.; 200 pages. 12mo. Cloth, $1.00, net. Thomas Y. Crowell & Co., New York.

A Textbook of the Practice of Medicine.—By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of Medicine and of Clinical Medicine at the Medico-Chirurgical College, Philadelphia. Seventh edition, revised and enlarged. Octavo of 1,297 pages, fully illustrated. Philadelphia and London. W. B. Saunders & Co., 1905. Cloth, $5.50 net; sheep or half morocco, $6.50 net.

AMERICAN NEWS AND NOTES

GENERAL.

Miscellaneous.—Agnes Memorial (Phipps) Sanatorium, Denver, Colo.—Not approving of the present policy of the institution, the entire medical board, consisting of Drs. Arnold Stedman, W. H. Bergtold, Carroll E. Edson, J. A. Wilder, and L. B. Lockard, has resigned.

Hospital Car for Railroad.—A hospital car built for the Southern Pacific Railway, contains an operating-room, equipped with all the appliances of a modern hospital, and a dietary kitchen. A novel feature is the arrangement of berths. When not in use they are sunk into the floor, leaving the entire floor space in the main section of the car free.

To Live on Cold Storage Food.—The famous "poison squad" of the Agricultural Department has returned to duty under Dr. Wiley, and for the next six months will eat only refrigerated foods—eggs, chickens, beef, and vegetables kept in cold storage for a few months or years. If they endure this test, as they did borax, salicylic acid, and other preservatives, they will be given something harder next time.

Personal.—Henry D. Holton, Brattleboro, Vt., has been elected a member of the State Tuberculosis Commission, to succeed Don D. Grout, of Waterbury; also chairman of the commission.—**Professor Eberth,** director of the Pathological Institute in Halle, and discoverer of the bacillus of typhoid fever, celebrated his seventieth birthday on September 21.—**Professor Franklin C. Robinson,** head of the department of chemistry of Bowdoin College, has been elected president of the American Public Health Association, which will hold its annual meeting in January in the city of Mexico.

Bequests to Charity.—By the will of the late John Alter, of Philadelphia, $50,000 is given to Jefferson Hospital for the erection of a John Joseph Alter memorial, the trustees to decide what kind of a memorial would be most suitable. Also $5,000 each for the endowment of two free beds in the Jefferson Hospital, and $10,000 for two beds in the University Hospital.—By the will of the late David Teller, the Jewish Hospital Association, of Philadelphia, received $200, and the Jewish Foster Home and Orphan Asylum a like sum.—By the will of the late Mrs. Frances E. Loeb, of Philadelphia, the Jewish Hospital Association and the Jewish Maternity receive $500 each.—By the will of the late Susan C. Whelan, of Philadelphia, the Maternity Hospital receives $500.

Examination for Physician for Indian Service.—The United States Civil Service Commission will hold an examination on November 22, 1905, to secure physicians to fill the following positions: San Juan Indian Agency, N. M., at $1,000 per annum; at Fort Bidwell, Cal., at $900 per annum, and other vacancies as they may occur in the Indian service. As the commission failed to secure more than five eligibles in an examination held September 13, they urge that qualified physicians enter the examination. The examination is open to all male citizens of the United States between the ages of 25 and 55. Applicants should at once communicate with the United States Civil Service Commission, Washington, D. C., or to the secretary of any civil service board of examiners, for application form 1,312.

A department of military hygiene will be established at the military academy at West Point in accordance with the recommendation of the academic board and the superintendent of the institution. It will not be possible to appoint a head of the department with the salary of a professor, since

that special position and the accompanying compensation would require new legislation. The law necessary in such a case may be asked for during the coming session of Congress. In the meantime, there being found no legal objection to the establishment of the department, the army surgeons will conduct the work which would naturally come under such a branch. The *Army and Navy Register* says it is by no means intended to make surgeons of the cadets by having a department of military hygiene, but it has long been considered advisable to have a means of instructing the young men in the rules of camp and garrison sanitation.

EASTERN STATES.

Vermont Physicians Must Be Relicensed.—Because of a law passed by the legislature in 1904, 78 physicians from various sections of Vermont, who have been practising without having their licenses recorded, have been summoned before the State Medical Board for examination. In this number are some physicians who have been practising for 30 years, and three of these are members of the faculty of the medical department of the University of Vermont.

Typhoid Fever at Springvale, Me.—With an estimate by physicians of 60 cases of typhoid fever and 5 deaths from the disease within five weeks, of which three took place in four days, the residents of Springvale, Me., are much alarmed at the hygienic conditions. The disease first appeared September 18 and spread rapidly among all classes, especially among the mill operatives. There are at present a dozen cases regarded as critical. A cause for the epidemic has not been located definitely, although it is partially charged by many to the water-supply, which was changed temporarily, October 5, while alterations in the pipes were being made.

NEW YORK AND VICINITY.

Consolidation of Medical Journals?—It is reported that a sale has been effected of the *Medical News* to A. R. Elliott, proprietor of the Elliott Advertising Agency, and of the *American Druggist* and the *New York Medical Journal*. At this writing the report cannot be substantiated.

Smallpox at Ellis Island.—A case of smallpox was discovered at Ellis Island, Friday, among 1,300 steerage passengers from the steamer Nord Amerika from Naples and Genoa. After all but 60 passengers had been passed out with a clean bill of health, a woman was found to have the disease. The remaining 60 men and women were detained. Commissioner Watchorn notified the various railroad lines to hold all passengers from the Nord Amerika. All, however, with the exception of 15, who were held at the barge office, were on their way to their final destinations and are now scattered throughout the city and different parts of the country. During the coming week over 4,000 immigrants are expected at Ellis Island. Should it be necessary to quarantine Ellis Island, the largest immigration service in the world will be at a standstill.

Ordinance against Noise.—In Mount Vernon, N. Y., the following edict has just been promulgated by the Board of Health: "The ringing of church bells, or any other bells; the moving or shunting of trains, except in connection with the through traffic of the railroads; the handling or movement of large masses of rock, metals, and other substances, so as to interrupt or disturb the sleep of the residents, will be prohibited in the city of Mount Vernon between the hours of 10 o'clock in the evening and 6 o'clock in the morning. The maintenance of lowing animals, crowing cocks, barking dogs, and other birds or other animals, which produce or are calculated to create noise, to disturb the sleep and quiet of the neighbors, within the same hours, is hereby prohibited." Breach of these stringent regulations is punishable by arrest or a fine of $50 to $100. The president of this active Board of Health is Dr. Archibald McCampbell.

PHILADELPHIA, PENNSYLVANIA, ETC.

Annex for Mercy Hospital, Pittsburg.—It has been decided by the board of directors of the Mercy Hospital to build a three-story annex to the hospital, to contain operating-rooms, free dispensary, and an amphitheater, to cost $50,000.

The bacteriologic laboratory report of the Bureau of Health, of Philadelphia, Pa., shows that 400 typhoid blood specimens were analyzed, 456 diphtheria cultures were made, 86 sputum specimens were examined, and 808 specimens of milk were analyzed.

Money for Physicians.—Assistant Director of Health Mackey announces that the internes at the Philadelphia Hospital will shortly receive the money deposited with former Superintendent Robert E. Smith. When Mr. Smith died he had the deposits of $100 required to be made by each of the internes to insure the institution against loss during their terms. This money is now in the hands of the Orphans' Court, and will be distributed as soon as the account is adjudicated.

New Staff for Atlantic City Hospital.—The following medical staff has been elected by the board of governors of the Atlantic City Hospital to serve one year from November 1: Drs. W. Blair Stewart, Elisha C. Chew, Theodore Senseman, Emery Marvel, W. Edgar Darnell, A. Burton Shimer, Walt. P. Conaway, J. Addison Joy, William M. Pollard, William H. Bennett and Joseph C. Marshall. Dr. Charles K. Mills, Philadelphia, has been appointed consulting physician, and Dr. W. F. Ridgeway, pathologist of the hospital.

Typhoid Fever in Philadelphia.—Returns to the Health Bureau show 92 cases of typhoid fever for last week. There were 11 cases in the Tenth ward—a most unusual condition, as in the past the most cases have been in the northeastern part of the city. Ten new cases were reported for the week in the Tenth ward and seven from the Eighth. There was a marked decrease in the disease in the northwestern wards, where filtered water is supplied. There was also a decrease in the number of new cases for the whole city for the week, as compared with the preceding. The whole number of cases reported for the week was 92, against 96 last week.

SOUTHERN STATES.

Baltimore Supervisors of Charities to Continue Service.—It has been decided by the supervisors of city charities to continue the hospital and dispensary service for 1906 the same as in 1905. It was found that the arrangement worked very satisfactorily, the concentration of patients in a few hospitals giving a better oversight and inspection of patients and institutions. Many applications are coming in from the hospitals and dispensaries throughout the city.

Surgeon J. H. White Sued.—One John H. Whyte has filed suit in the New Orleans courts against Surgeon J. H. White, of the Marine-Hospital Service, for $10,000 damages, because of his disclaiming authority for reports sent to the public prints over the title "J. H. Whyte, Special Yellow Fever Commissioner to New Orleans." The disclaimer by Dr. White was as follows: "It is announced that none of the articles that have appeared in various papers through the country signed with the initials of Surgeon J. H. White, or with a name similar to his, with the legend attached thereto, 'Special Yellow Fever Commissioner to New Orleans,' have been written by Surgeon White, or that he has had anything to do with them. It is further said that the telegram sent to

John D. Rockefeller signed in this way, asking for a contribution to the fight against fever, was not in any way an emanation from the federal officer."

Two Yellow Fever Deaths.—For the first time in seven days a death from yellow fever was recorded October 24, and later in the day a second one was reported. Both victims were white girls, one aged 14 and the other aged 16. One of the new cases is that of a son of Dr. Maxim Landry, who himself had the fever two months ago. Dr. Landry was medical expert for the Marine-Hospital Service. One case was brought into the city from Waggaman. The fever report to 6 p.m. was as follows: New cases, 4; total to date, 3,369; deaths, 2; total to date, 347; new disease centers, 1; cases under treatment, 59; cases discharged, 2,873.

Medical Society of Virginia.—The society at its annual meeting determined to ask the Legislature to repeal the State license fee of $10. Dr. Lomax Gwathmey, of Norfolk, was elected president, Dr. S. T. Kent, of Ingraham, Halifax county, first vice-president. Second vice-president, Dr. Greer Baughman, of Richmond; third vice-president, Dr. T. C. Quick, of Falls Church; recording secretary, Dr. Landon B. Edwards, of Richmond; corresponding secretary, Dr. John F. Winn, of Richmond; treasurer, Dr. R. M. Slaughter, of Alexandria; executive committee, Dr. P. A. Irving, Dr. M. D. Hoge and Dr. G. M. Miller, of Richmond; Dr. W. F. Drewry, of Petersburg, and Dr. F. H. Hancock, of Norfolk. State Medical Examining Board (subject to appointment by the governor), Raleigh W. Martin, Lynchburg; R. B. James, Danville, and A. S. Priddy, Bristol, members-at-large; W. B. Robinson, Tappahannock, first district; Herbert M. Nash, Norfolk, second; J. E. Warriner, Brookhill, third; W. W. Wilkinson, Lacross, fourth; R. S. Martin, Stuarts, fifth; W. M. Lile, Lynchburg, sixth; Robert Randolph, Boyce, seventh; R. M. Slaughter, Alexandria, eighth; E. T. Brady, Abingdon, ninth; C. W. Rogers, Staunton, tenth.

WESTERN STATES.

New Editor for "Colorado Medicine."—Dr. Edward Jackson has resigned the editorship of *Colorado Medicine* and is succeeded by Dr. J. M. Blaine, formerly secretary of the Colorado State Medical Society. Dr. Jackson still remains on the publication committee of the journal.

Incorporation of the Lancet-Clinic Co. of Cincinnati.—With a capital stock of $100,000, the Lancet-Clinic Company of Cincinnati, O., was incorporated October 16 by Drs. James C. Culbertson, William Ingram, William H. Falls, William D. Haines, and Rufus B. Hall, all of Cincinnati.

Home for Physicians.—Impetus was given to a movement having for its object the erection of a $2,000,000 home for the physicians of Chicago at a meeting of the Physicians' Club last week. It is planned to raise $500,000 to start the project, 100 members of the medical societies of Chicago contributing $5,000 each toward that purpose. The home will consist of club-rooms, lecture-rooms, and other features necessary to the demands of the organization.

The American College of Medicine and Surgery.—The medical department of the Valparaiso University, Chicago, has made extensive changes in its policy and in the personnel of its faculty. Formerly an eclectic school, it has become regular, and has made application for membership in the American Association of Medical Colleges, having conformed its curriculum to the requirements of that institution. The following are the heads of departments in the reorganized school: Henry S. Tucker, Dean, Gynecology; Ross C. Whitman, Pathology and Medicine; Victor J. Baccus, Surgery; J. Newton Roe, Chemistry; Charles H. Francis, secretary, Ophthalmology; Henry F. Lewis, Obstetrics; Henry G. Anthony, Dermatology, Genitourinary and Venereal Diseases; Leonard L. Skelton, Neurology; Robert H. Good, Laryngology and Rhinology; George J. Tobias, Hygiene and Preventive Medicine; George F. Butler, Therapeutics; William L. Copeland, Anatomy; Mason L. Weems, Physiology. In addition to the regular work the students are required to attend the clinics given by Truman W. Brophy, Malcolm L. Harris, and Harold N. Moyer.

FOREIGN NEWS AND NOTES

GENERAL.

Plague in Argentina.—A dispatch from Buenos Ayres reports an outbreak, rather a recrudescence, of bubonic plague in Choya, and that during the past few days there were nine new cases reported.

OBITUARIES.

Robert H. Harrison, aged 78, October 17, from paralysis, at his home in Columbus, Texas. He was graduated from Cincinnati Medical College, in 1846. He was a member of the American Association for the Advancement of Science, the Colorado County Medical Association, the South Texas Medical Association, vice-president of the Texas State Medical Association in 1876, member of the American Medical Association, and Consulting Surgeon to the Atlantic division of the Southern Pacific Railroad. During the Civil war he served as inspector general and brigadier-general in the Confederate army. He had a national reputation as a yellow fever expert.

Louis A. Malone, aged 47, October 14, of Indianapolis, Ind., from cerebral hemorrhage, at the Indianapolis City Hospital. He was graduated from the Northwestern University Medical School, Chicago, in 1885. He was a member of the Marion County Medical Society, and the American Medical Association.

Charles L. Hart, aged 62, October 13, at his home in Longton, Kan. He was graduated from the University of Pennsylvania, department of medicine, in 1865. During the Civil war he served as hospital steward of the Sixteenth Connecticut Volunteer Infantry, later assistant surgeon of the U. S. V.

Joseph Huyett, aged 85, October 6, at his home in Milan, Ill. He was graduated from Jefferson Medical College in 1843, and the Illinois Army Board in 1862. During the Civil war he served as surgeon of the Ninety-third Volunteer Infantry, and was the oldest practitioner in Illinois.

Wellington G. Beyerle, aged 74, October 15, from cerebral hemorrhage, at his home in Bernville, Pa. He was graduated from Jefferson Medical College in 1853. During the Civil war he served as surgeon of the One Hundred and Forty-first Pennsylvania Volunteer Infantry.

John O. McReynolds, aged 78, October 6, from senile debility, at his home in Elkton, Ky. He was graduated from Jefferson Medical College, in 1849. He was a member of the Kentucky State Board of Health and health officer of Todd county for many years.

John H. Dickenshied, aged 80, October 17, from hemorrhage of the stomach, at his home in Plover, Pa. He was graduated from the University of Pennsylvania, department of medicine, in 1847. He is said to have been the oldest practitioner in Lehigh county.

Albert M. Knapp, aged 63, of Arlington, Providence, R. I., October 6, from uremia, at the Rhode Island Hospital. He was graduated from the University of Michigan, department of medicine and surgery, Ann Arbor, in 1865.

J. R. Buist, October 24, at his home in Nashville, Tenn. He was graduated from New York University, medical department, New York City, in 1857. During the Civil war he served as surgeon in the Confederate army.

Samuel L. Thompson, aged 62, October 28, suddenly, while prescribing for a patient, at his home in Danville, Pa. He was graduated from Long Island College Hospital, Brooklyn, N. Y., in 1866.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended October 28, 1905:

McANDREW, First Lieutenant PATRICK H., assistant surgeon, is granted leave for one month, from about October 25.

BYERS, JOHN D., sergeant first class, now at Chambersburg, Pa., is relieved from further duty in the Philippines Division, and upon expiration of furlough will report at Fort Leavenworth to relieve Sergeant First Class Martin Simmel. Sergeant Simmel will be sent to the depot of recruits and casuals, Fort McDowell, reporting to the commanding officer, who will send him to Manila on the transport leaving San Francisco, Cal., about December 5, for assignment to duty.

OWEN, Major WILLIAM O., surgeon, is directed to report to Brigadier-General Frederick Funston, president of the Army Retiring Board at San Francisco, for examination by the board.

CARTER, Major W. FITZHUGH, surgeon, now at San Francisco, Cal., will proceed to Fort Monroe for duty, relieving Major Ogden Rafferty, surgeon. Major Rafferty will proceed to San Juan, P. R., for duty, relieving Major William F. Lippitt, surgeon. Major Lippitt will proceed to Fort Assinniboine for duty.

EASTMAN, First Lieutenant WILLIAM R., assistant surgeon, now at San Francisco, Cal., will report to the commanding general, Department of California, for assignment to duty at the Army General Hospital, Presidio of San Francisco, relieving First Lieutenant Robert E. Noble, assistant surgeon. Lieutenant Noble will proceed to the depot of recruits and casuals, Angel Island, Cal., for duty.

MUNSON, Captain EDWARD L., is granted leave for two months.

BOYER, First Lieutenant PERRY L., assistant surgeon, leave granted August 17, is extended two months.

NEWLOVE, GEORGE, contract surgeon, leave granted July 22, is extended one month.

KUHN, CHARLES F., contract surgeon, now in San Francisco, Cal., will proceed to Fort Lawton for duty.

McALISTER, JOHN A., dental surgeon, is granted leave for two months, from about November 15.

PARKMAN, WALLACE E., contract surgeon, is granted leave for one month, from about November 25, with permission to apply for an extension of one month.

DEWEY, FREDERICK S., contract surgeon, is relieved from the further operation of so much of orders of May 27, as assign him to duty as examiner of recruits, Oklahoma City, O. T.

PURNELL, JULIUS M., contract surgeon, now in San Francisco, Cal., is relieved from further duty in the Philippines Division and will report to the commanding general, department of California, for assignment to duty in that department.

WYTHE, STEPHEN, contract surgeon, is relieved from duty at the depot of recruits and casuals, Angel Island, Cal., to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about November 6, for Manila, P. I., where he will report to the commanding general, Philippines Division, for assignment to duty.

The following changes in the stations and duties of contract surgeons are ordered: Clarence A. Warwick, contract surgeon, now on leave, is relieved from further duty in the Philippines Division and will proceed to Fort Mott for duty, relieving Contract Surgeon Sparrenberger. Contract Surgeon Sparrenberger will proceed to Fort Washakie for duty.

So much of orders of July 7, as direct Major Edward C. Carter, surgeon, to proceed to Fort Leavenworth, are amended so as to direct him to proceed to that post via Hot Springs, Ark., for the purpose of conferring with the commanding officer, Army and Navy General Hospital, at that place.

Changes in the Medical Corps of the U. S. Navy for the week ended October 28, 1905:

STEPP, J., passed assistant surgeon, ordered to the Southery, and to additional duty at the navy yard, Portsmouth, N. H.—October 21.

DABNEY, V., acting assistant surgeon, detached from the Southery, ordered home, and resignation as acting assistant surgeon accepted to take effect November 6, 1905—October 21.

LAW, H. L., surgeon, retired, ordered to the naval recruiting rendezvous, Boston, Mass., November 3.—October 25.

Changes in the Public Health and Marine-Hospital Service for the week ended October 25, 1905:

VAUGHAN, GEORGE T., assistant surgeon-general, granted leave of absence for three days from October 25, 1905—October 24, 1905.

SAWTELLE, H. W., surgeon, granted leave of absence for one month from October 23, 1905—October 23, 1905.

STONER, G. W., surgeon, granted leave of absence for seven days from October 18, 1905, under the provisions of paragraph 189 of the regulations. Granted extension of leave of absence for five days from October 25, 1905—October 25, 1905.

WICKES, H. W., passed assistant surgeon, granted two days' leave of absence from October 26, 1905—October 23, 1905.

ANDERSON, J. F., passed assistant surgeon, granted leave of absence for one month from November 1, 1905—October 20, 1905.

ROBERTSON, H. McG., assistant surgeon, granted leave of absence for six days from October 23, 1905—October 20, 1905.

HUNT, REID, chief, Division of Pharmacology, Hygienic Laboratory, granted leave of absence for six days from October 23, 1905—October 24, 1905.

ADDIS, W. E., acting assistant surgeon, granted leave of absence for seven days—October 24, 1905.

LYALL, R., acting assistant surgeon, granted leave of absence for four days—October 21, 1905.

NALL, R. P., acting assistant surgeon, granted leave of absence for seven days—October 24, 1905.

GOODMAN, F. S., pharmacist, relieved from special temporary duty at New Orleans and Patterson, La., and directed to rejoin station at Norfolk, Va.—October 23, 1905.

WATTERS, M. H., pharmacist, relieved from duty in bureau at Washington, and directed to proceed to Chicago, Ill., reporting to the medical officer in command for duty and assignment to quarters—October 18, 1905.

SOCIETY REPORTS

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

Officers Elected.—The following officers were elected for the ensuing year: President, J. Henry Carstens, Detroit, Mich.; first vice-president, Joseph Rilus Eastman, Indianapolis, Ind.; second vice-president, H. H. Grant, Louisville, Ky.; secretary, Henry Enos Tuley, Louisville, Ky., reelected; treasurer, S. C. Stanton, Chicago, reelected.

Hot Springs, Arkansas, was selected as the place for holding the next annual meeting.

Surgical Section.

Surgical Dressing.—CARL E. BLACK (Jacksonville, Ill.) presented a preliminary report on the technic of the after-dressing of surgical cases. He pointed out briefly the principal elements necessary for the proper dressing of a wound, whether it be a surgical or an accidental wound. While the technic differs somewhat in different kinds of tumors, the fundamental principles are the same in all. Such a consideration divides itself into: 1. The patient. Certain modifications must always be made to suit the individual case. 2. Those things which are auxiliary to the dressing itself, but which do not come in contact with the wound. 3. The surgeon or nurse making the dressing and his or her assistant. 4. The instruments, dressings, and solutions coming in contact with the wound. Septic wounds should be so dressed that there is no opportunity for a further mixture of infection in the wound nor any opportunity for the infectious material from the wound to in any way be scattered where it can come in contact with other wounds. These two points should always be the basic principles of a surgical dressing and should always be kept prominently in mind by those undertaking the dressing of wounds. The author described a plan at great length which has proved quite satisfactory.

Curetage in Septic Cases.—C. E. RUTH (Keokuk, Ia.) said that within the last two and a half years he had operated upon four cases of puerperal sepsis which illustrated the dangers of curetage. These cases were reported in detail. O. H. ELBRECHT thinks that many deaths are due to the curet being used in cases of septic uteri. It is just as criminal, in his opinion, to introduce a curet into a septic or infected uterus as it is a sound or curet for the purpose of producing criminal abortion. He mentioned a case in which a physician cureted a uterus contrary to his advice, and the next day the patient died. He mentioned two other cases of sapremia which terminated fatally from what he believes to be curetment of the uterus.

Artificial Hyperemia in Surgery.—ALEXANDER C. WIENER (Chicago) pointed out the indications for the Bier method in surgery, as follows: 1. Subacute mild inflammations of joints and soft tissues are rapidly relieved. 2. Acute purulent inflammations of soft tissues, either on the extremities or the head, can be relieved by this method. 3. Acute and subacute inflammation of joints and purulent arthritis; gonorrheal infection of joints, etc. In these cases, the elastic bandage has to be applied in such a manner as to produce energetic venous stasis, without causing pain to the sufferer. In acute inflammations, comparatively light constriction produces extensive hyperemia. This conclusively shows that the arterial blood is not diminished, but slackened. Cases were cited in which excellent results were obtained by the Bier method.

Surgery of the Gallbladder and Its Ducts.—H. O. WALKER (Detroit, Mich.) related his experience with 185 cases upon which he has operated. He quoted from a former paper written by him several years ago, adding that what he said then still obtains today. 1. Jaundice, which heretofore has been regarded as almost pathognomonic of the presence of gallstones, is present in only about 20% of all stone cases. 2. That pain in the region of the gallbladder does not by any means indicate the presence of gallstones, but is quite as often the result of a kinking of the cystic duct from lesions, the result of one or more attacks of cholecystitis combined with pericholecystitis. 3. The passage of stones in the feces is not as common as was formerly supposed, for colics are rarely successful in passing a stone from the gallbladder. 4. Empyema of the gallbladder is not always determined by palpation, for frequent attacks of cholecystitis tend to diminish the size of the gallbladder. 5. Tumors of the gallbladder without pain or jaundice indicate a simple dropsy, while a painful, distended gallbladder indicates empyema, and when accompanied by jaundice indicates constriction of the choledochus. 6. A hard nodular painful tumor of the gallbladder, with or without jaundice, is almost certain evidence of carcinoma. 7. Obstruction of the choledochus, accompanied with inflammation and jaundice, quickly disappears after the passage of the stones into the papilla of the duodenum. Cholelithiasis is of greater frequency than is supposed. Approximately every tenth individual has concretions in the gallbladder, yet only about 1 in 20 ever complains of their presence, so that quiet stones need no treatment. It is only the cholecystitis and cholangitis which make manifest the irritable presence of gallstones without demanding treatment, both medicinal and surgical. The conditions that require operative intervention are: 1. An acute seropurulent cholecystitis, and accompanying pericholecystitis. 2. Persistent and frequent pains due to adhesions between the gallbladder, intestines, stomach and omentum. 3. Chronic obstruction of the common duct. 4. Chronic empyema of the gallbladder and its accompanying accidents. Cholecystectomy is undoubtedly advisable where the gallbladder has been subject to frequent attacks of inflammation, and where chronic septic conditions exist.

[*To be continued.*]

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

Officers Elected.—President, F. C. Robinson, Brunswick, Maine; first vice-president, J. J. Kinyoun, Glenolden, Pa.; second vice-president, Domingo Orvananos, Mexico City, Mexico; third vice-president, Richard H. Lewis, Raleigh, N. C.; secretary, Charles O. Probst, Columbus, Ohio; treasurer, Frank W. Wright, New Haven, Conn.

Mexico City, Mexico, was chosen as the place for holding the next annual meeting, in 1906.

Experiments on the Purification of Boston Sewage during the Years 1903-5.—C. E. A. WINSLOW and EARL B. PHELPS (Boston, Mass.) said that under the conditions of their experiments, crude Boston sewage has been successfully filtered through a two-foot bed of sand, having an effective size of 0.12 mm., at a rate of 0.4 million gallons per acre per day, divided into four doses in the 24 hours. Their sand effluents were bright, clear and well purified. The depth of the beds cannot safely be reduced below two feet. Preliminary septic treatment for 12 and 24 hours does not improve the effluents contained by sand filtration, although it makes the care of the surface of the beds somewhat easier. Crude Boston sewage may be treated on single contact beds of fine stone (a half inch diameter) at a rate of about 1.2 million gallons per acre per day. The effluent, though only partially purified, is generally stable and could be discharged into water without any

tendency to create a nuisance. The beds clog rapidly, and the surface needs much attention. A more practical process is the treatment by the double contact system, in primary beds of two-inch material and secondary beds of half-inch material. Such a combination yields a fairly well-purified and stable effluent at a rate, on the combined double system, of about 0.7 million gallons per acre per day with beds six feet deep. Such a system does not clog seriously. Primary beds slowly decrease in capacity, but a portion of the loss may be made good by resting for a period. Preliminary septic treatment enables the beds to maintain a higher capacity, but produces an effluent so difficult to purify that their efficiency is interfered with. The most practical method of those which they have studied appears to be the treatment of crude sewage in double contact beds. The trickling filter remains to be studied. They purpose to continue their work by an investigation of this process during the coming year. For this end a pair of outdoor trickling beds, each 100 square feet in area, have been installed at the station and equipped with a distribution device of an original design.

Industrial Wastes and Their Sanitary Significance.—MARSHALL O. LEIGHTON (Washington, D. C.) read this paper. Although the study of trades wastes has for many years occupied a prominent place in industrial development, the efforts have been directed toward the economic recovery of valuable ingredients rather than the treatment of objectionable polluting materials. So successfully has this work been conducted, that there are some industries in which the by-products have become more important from a financial point of view than the original product. The investigations which have been thus successful have usually terminated when the prime object of the work has been accomplished, and not infrequently the by-product wastes are as objectionable as the original wastes. At all events, if the result has been of benefit to streams and decreased dangerous pollution, it has often been a matter of chance rather than intention. While it is true that probably no industrial waste contains the germs of any disease, and therefore, from a purely pathogenic standpoint, the relation to sanitation is remote, there are several considerations to be borne in mind which render the subject of prime concern to a public health association. Unstable organic wastes, such as distillery slops, sulfite pulp liquors, soap liquors and creamery effluents, all produce a condition of putrescibility in streams. While this may not of itself be a menace to health, it is certainly included among those reprehensible features common to modern civilization, which have been turned over to the sanitarian for treatment. It may also be claimed that as a large proportion of this organic matter is nitrogenous, it provides food for bacteria, and therefore the specific germs of water-borne diseases introduced by sewerage systems during longer periods, and thereby extend their baneful influence beyond that at which they would normally remain virulent. Such wastes, too, when discharged in large quantities, increase the burden of water filtration systems, and in some cases render them inefficient. In other words, these highly organic wastes are detrimental to rivers, from practically all sanitary and economic standpoints. If sanitarians would be truly successful in their efforts to purify streams, they must give their attention to the subject of industrial wastes, and study them with the object of recovering valuable by-products. In so doing, they will enlist the cooperation of the commercial and industrial world, which finally and inevitably controls the situation.

[To be continued.]

Vermont Medical Monthly Changes Its Management.—The *Vermont Medical Monthly* is to be conducted by the following board: Dr. Bingham H. Stone, editor-in-chief; Dr. Henry C. Tinkham, Dr. Charles F. Dalton and Prof. H. L. White, all of Burlington.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SOME TENDENCIES IN MEDICINE TODAY.[1]

BY

WILLIAM CLARK, M.D.,

of Cleveland, O.

To those of us who are old enough to make comparisons between the medical students of today and those of fifteen years ago, great changes can be observed. No longer do we notice the married man aged 40 to 45, the father of four or five children, studying medicine; no longer are there admitted to the classes, men so illiterate that they must stop to spell the words of three syllables in the textbooks; and no longer do we have the man who worked in a drugstore for a year, and who, possibly, could not tell opium from rhubarb unless labeled, graduated in a year, or at the most, two years.

Today the laws of most States demand from the prospective student of medicine at least a good high school education, and most good schools the possession of a literary degree, before being allowed to study medicine within their walls.

This demand on the part of the State for a higher degree of education on the part of the prospective student, and also a higher teaching efficiency on the part of the colleges, has accomplished certain changes. It has cut off a large number of incompetents, who ought never to be permitted to study medicine, and this in turn has resulted in smaller classes and better individual instruction. This, in its turn, has closed the doors of many of the independent medical colleges and forced others to flee to the sheltering wing of some university. The day has gone by when some half dozen physicians, who wished some prominence in the medical world, could contribute a hundred dollars apiece, rent some old shack of a building, buy a few chemicals, and launch a new medical college on the community, with their names in large black type on its literature as professors of various chairs of medicine. Alas! gone forever is the precious title of weight and authority, professor, today unconsciously associated with some dancing master or long-haired charlatan.

In former days the hope of remuneration to the professor lay in his consultation work, and the poorer the student graduated, the more consultations he received. Today the State demands that the recently graduated physician know something more than a smattering of physiology or elementary chemistry, more of pathology than could be gleaned from an autopsy or two, and a knowledge of drugs greater than could be secured from a study of his preceptors' saddlebags.

The possession of a well-trained mentality on the part of the embryo student of medicine, the systematic drill of four years or its equivalent, within the walls of the medical college, the thorough training not only in the various laboratories, but also in direct contact with disease; turns out a physician as much superior to the graduate of 15 years ago, as the electric car is to the old time horse-car; turns out men, young, vigorous, full of action, thoroughly trained in scientific thought and the methods of scientific investigation, men who realize that a whole lifetime is before them, and that their success depends on hard work. And this is having its effect on the medical world today.

I am sure the following is a corollary few would care to dispute. The better educated the physician, the better drilled he is, the better is the work he will do and the wider will be the scope of that work. The young man of today no longer hesitates at a laparotomy, no

[1] Read before the Alumni Association of Resident Physicians of St. Alexis Hospital, Cleveland, September 8, 1905.

longer fears to remove a polypus from the nose or uterus, to tap the subarachnoid space, or to do many things that were formerly referred to the specialist. This necessarily has had its effect on specialism. I venture to assert that today there are no more specialists in this city than there were 10 years ago when Cleveland was half its present size. This has directly resulted from the higher education of the young physician, who now demands from the specialist a greater knowledge of his specialty, a higher developed technic and a skill far beyond what was required of him a few years ago. Another effect has been the contraction in the number of the specialties. Today the general surgeon will tell you that there is no such specialty as gynecology; that it has been merged into the field of general surgery. The pediatrist vainly beats his tom-tom to attract attention to himself, and the genitourinary specialist is rarely consulted except perhaps to catheterize the ureters. Slowly but surely the general practitioner is coming back to be what he was in the past, the predominant factor; slowly but surely his field is widening and the specialist's contracting; and slowly but surely the specialist is becoming a thoroughly trained, broad gauge man, of markedly superior attainments; a patient investigator and skilled observer in his field.

With an increasingly greater proportion of men doing a much larger percentage of their own business, it will mean an increasingly larger proportion of men using the hospitals of this and other cities. This will mean ultimately greater concessions to the profession at large, and a greater representation in the actual management of hospitals. Thus the hospitals of the future will have their efficiency increased; but this must come through a surrender of all idea of private ownership, and an increasing realization that institutions that depend on the general public for their support, must be run for the benefit of the general public, and not for the exploitation of the individual.

Along with this will come a proper regulation of that increasing evil in this and other cities, namely, clinics for the poor. Granting that such clinics have a legitimate field in large cities where the poor are ever present, there must be removed from the public mind, the more than suspicion, that many unworthy are being treated free, and many taught their first lesson in vagrancy and pauperism—the getting of something for nothing. A strong public sentiment will provide the means for proper investigation of all applicants, to the end that the unworthy may be excluded, and the means provided for the worthy poor may be distributed more generously among them.

The contract surgeon, like the poor, we will ever have with us. He exists as the result of changed conditions in the business world. In the past his contact with his fellow practitioner has been a thorn in the flesh and his conduct a stench in the nostrils. But there are evidences in his conduct today that he has profited from contact with the refining influences of his brother in medicine, and that he has a little regard for the ethics of his profession. Whatever our feelings in the matter may be, we must always keep in mind the right of the individual to sell his services to an individual, or that collection of individuals called a corporation, for such a price as he may deem them worth. One may be pardoned if he holds such an individual in little esteem when he puts an extremely low price on his services. However, the mantle of charity should be thrown over his sins of the past, and he should be led gently to see the injustice of charging a rich corporation less for his services than he would charge the poor workman of that corporation. The excuse that if he did not do so, some one else would, and that he might as well get the money for it, should not be tolerated any more than such a reason would excuse him for selling his vote. With higher ideals and a better appreciation of his services, it is not beyond reason to hope that the corporation surgeon will attain the same eminence in the professional world as the corporation attorney.

In conclusion, the higher standard of education is providing a better type of physician with higher ideals, and this in turn is reacting upon all pertaining to medicine, resulting in its betterment.

MISPLACED HEART.

BY

C. H. MAXWELL, M.D.,

of Morgantown, W. Va.

To the Editor of American Medicine:—I desire to report the following peculiar case of misplaced heart:

Mrs. H. called at my office about a year ago for some slight indisposition. I did not make a physical examination, and never saw her again until two months ago. In the meantime, she had consulted another physician, who had made an examination, and discovered the heart on the right side. He pronounced it a transposition. When I was called to see the patient, I found the heart on the right side, with its apex beat in the fifth interspace in the nipple line. The base of the heart extended to the left margin of the sternum. I diagnosed the case as one of misplaced heart, from the expansion of the left lung to compensate for the destruction of the right lung, from an old pneumonia and empyema that occurred when she was a child.

The right lung is almost entirely destroyed, only a little of the upper part has any breath sounds. The left lung was apparently normal in function when I made the examination two months ago, but the right lung (or its remnants) was breaking down with tuberculosis. Under treatment, the patient gained a few pounds in weight. Last week she had a particularly severe fit of coughing, and she said she felt a peculiar "fainting" sensation; epigastric weakness and her heart beat violently. She has been very weak ever since. She called my attention to the heart-beats in her left side, and on examination the heart was found to be practically in the proper place.

I cannot understand how the heart could get back to its proper place. I can see how a coughing fit could loosen up the adhesions, but I do not understand how the heart could swing back and crowd the hypertrophied lung out of its nest. There does not seem to be a "vacuum" on the right side where the heart was wont to rest. This is the only case of the kind I have ever seen.

DEVICE FOR APPLYING VAGINAL TAMPONS.

BY

F. POWERS, M.D.,

of Westport, Conn.

To the Editor of American Medicine:—The device for applying vaginal tampons described by Dr. Quicksall in your issue of September 16, is not a new idea. More than 15 years ago I instructed some of my patients to apply tampons through the glass cylindric speculum.

House Flies Spread Typhoid.—The carrying of typhoid fever germs by flies is regarded by Dr. C. A. Lindsley, secretary of the State Board of Health, as the cause of much of the typhoid infection from which Connecticut suffers. Together with medical societies of the various counties, a movement was put on foot by Dr. Lindsley and other physicians this summer to start a State campaign against typhoid, one of the plans of the doctors being to secure some sort of legislation next year that would bring the control of country typhoid infection under the State wing. The attack on the house fly is part of the general educational movement in this State to rouse people to the necessity of taking some precautionary methods against typhoid.

ORIGINAL ARTICLES

EXAMINATION OF THE LEUKOCYTES AS AN AID TO THE DIAGNOSIS AND PROGNOSIS OF DISEASE.

BY

THOMAS R. BROWN, M.D.,

of Baltimore, Md.

There is no problem in hematology more interesting than that of the study of the leukocytes as an aid to the diagnosis and prognosis of disease. The wide distribution of these cells, occurring as they do in all the higher and most of the lower members of the animal kingdom, and their definite variations in many diseases and pathologic conditions have made their careful study of great interest as well as of much practical value, and have enlisted as investigators in this field many notable pathologists and clinicians, as Virchow, Cohnheim, Schultze, Ehrlich, Müller, Hayem, Neusser, and many others. Notwithstanding that these investigators have devoted much time to the study of the leukocytes, many of the interesting questions in regard to their mode of origin and significance remain unanswered. On the other hand, an enormous amount of material has been collected showing the changes that these cells undergo in various diseases and pathologic conditions, and it is this, after all, which has furnished us with conclusions of the greatest value in medical and surgical diagnosis. As to the number of the leukocytes in the blood, the relative percentages of the various forms and the methods of making these determinations, but little of value has been added within the past few years. Hewes has recently advised the counting of the leukocytes in a certain number of fields in order to determine their number, and has found by comparison with the figures obtained by the Thoma-Zeiss instrument that very accurate results can be obtained by this method. From the study of 30 cases using a No. 3 eye-piece, and a 1/12 Zeiss objective, he found that the average number of leukocytes in normal cases varied between 40 and 90 per 100 fields; that a count of more than 90 suggests a leukocytosis, while a count of 100 is a sure indication thereof. A count of 50 per 100 corresponded to a leukocyte count of 8,000 per cmm. He found that the afternoon counts were from 3,000 to 4,000 more than the morning counts. From the study of 100 normal human beings, we have concluded that the average number of leukocytes per cmm. was 6,500, of which 68% to 74% should be polymorphonuclear neutrophiles, 18% to 22% small lymphocytes, 4% to 7% large mononuclear and transitional cells, and 1% to 2% eosinophiles. Ehrlich gives the following percentages: Small lymphocytes, 22% to 25%; large mononuclear and transitional cells, 2% to 4%; polymorphonuclear neutrophiles, 70% to 72%; and eosinophiles, 2% to 4%; while Taylor gives the total number of leukocytes per cmm. as 3,000 to 10,000, of which the polymorphonuclear neutrophiles comprise 55% to 80%; the eosinophiles, ½% to 8%; the large mononuclear and transitional cells, 1% to 8%; and the lymphocytes, 10% to 40%.

Many other figures, of course, have been given, but the foregoing are sufficient to show in a general way the rather wide variation as regards total number of leukocytes, as well as the relative proportions of the various forms which are met in absolutely normal conditions. In fact, there are many physiologic conditions which have a very marked effect upon the leukocytes, and these must always be carefully considered in the study of each individual case. Thus, the number of the leukocytes is slightly greater in childhood, while as regards the relative proprtion of the various forms, the lymphocytes are markedly increased, sometimes up to 50%, the neutrophiles correspondingly decreased, sometimes down to 35%. Also, there are many conditions associated with an increase of leukocytes, and yet not pathologic, for example, the increase of 2,000 to 4,000 noted a few hours after a hearty meal, the increase after cold baths and violent exercise, the increase during pregnancy and the puerperium, and the rapid increase at the time of labor, as recently shown by Payer, Pankow and others, and the leukocytosis met with just before death, although whether this last is to be considered physiologic or pathologic, is still undecided. Some of the increases noted are undoubtedly due to a change in the relative numbers of leukocytes in visceral and peripheral bloodvessels referable to vasomotor disturbances. Practically speaking, the study of physiologic leukocytosis teaches us in the first place that to get results of value, the leukocytes should be determined under conditions of similarity; for example, with the patient at rest and before the ingestion of a hearty meal. In the second place, the absence of the digestive leukocytosis normally met, should make us suspect some lesion of the gastrointestinal tract, although it is not pathognomonic of gastric carcinoma, as it was originally supposed to be, but is met in other organic as well as functional diseases of the stomach.

Mode and Place of Origin of the Leukocytes.—The most interesting and undoubtedly the most important question in regard to the leukocytes, namely the place and mode of origin of the various forms, still remains unsettled, and there is no *rapprochement* between the camp of Ehrlich and his followers and the school of Pappenheim, Uskoff, Gulland, Fränkel and many others. Ehrlich believes the lymphocytes are formed in the lymph-glands, the neutrophiles and the eosinophiles in the bone marrow from preexisting neutrophilic and eosinophilic cells, while the spleen is normally an organ of hematolysis and not hematogenesis, his views being based on a large number of clinical and experimental observations. Recently one of his students, Kurloff, from a series of experiments in extirpation of the spleen in guineapigs, has shown that the spleen is not indispensable to life, that its removal is followed during the course of the year following the operation by marked increase of lymphocytes, due to vicarious compensatory hyperplasia of the lymph-glands, while during the second year there is a distinct increase of the eosinophiles; during the first year the bone marrow cells do not show the slightest variation. The studies of Carstens, Goodall, Gulland, and Paton show that spleenless men react to the ordinary excitants of leukocytosis in the same way as normal individuals. A careful study of the marrow seems to bear out Ehrlich's views that it is the seat of

origin of the neutrophiles and the eosinophiles, while it must be admitted that all the cases of supposed local origin of the eosinophiles, either from neutrophiles or from preexisting eosinophiles, can be quite as well explained on Ehrlich's hypothesis. According to Ehrlich the increase of lymphocytes is due to an increase of these cells in the lymph-glands and lymphatic apparatus generally, while their appearance in the blood is not due to active movements but to their mechanical expression. It must be mentioned in this connection, however, that a number of recent investigators have shown that the lymphocytes are capable of ameboid movements; that is, lymphocytosis may possibly also be due to chemotactic influences.

The other view, based partly on theoretic considerations, partly on embryologic studies and, it must be admitted, least of all on convincing laboratory demonstration holds that all white blood cells are derived from one form, according to Uskoff the lymphocyte, according to Saxer the primary wandering tissue cell, according to Grawitz the large mononuclear cell. Pappenheim, who also regards the large lymphocyte as the mother cell claims that he has discovered all kinds of transitional stages between lymphocytes and red blood-corpuscles on the one hand, and lymphocytes and granular leukocytes on the other. He has introduced on this account a new nomenclature for the leukocytes, first into two great groups, granule-free lymphocytes and granular granulocytes, the latter being subdivided into neutrophiles, eosinophiles, basophiles, etc.; all these cells are again subdivided into the amblychromatic and trachychromatic according to whether their nuclei take pale or deep stains. Gulland and Pfeiffer believe that the special kind of leukocyte found in each locality depends upon the surroundings and conditions in which the cells live.

As to the origin of the eosinophiles beside the two views mentioned, namely Ehrlich's view of their origin from preexisting eosinophiles in the bone marrow and the view of Pfeiffer, Uskoff, and others, that they are derived from the common form, various views have been held of their local origin in various portions of the body, as Kischensky's view that in bronchial asthma they are formed from the neutrophiles in the bronchial mucosa; Müller and Rieder's view of their origin from neutrophiles in the circulating blood; Kanthack and Hardy's theory that they are derived from fixed connective-tissue cells in the intestines and serous cavities; Howard's belief in their origin from plasma cells; various views regarding their origin from the eosinophiles normally met in the tissues and the suggestion advanced by us six years ago that in trichinosis they may possibly be derived from the neutrophiles in the affected portions of the muscles—a view, incidentally, which our subsequent observations on the same and other lines has led us to regard as improbable.

In fact it must be admitted that there are more arguments, both positive and negative, in favor of Ehrlich's views regarding the mode of origin of the blood cells after the embryologic period than there are for those of the other school.

Functions of the Leukocytes and Their Granulations.—Fortunately there is much more unanimity of opinion regarding the function of the leukocytes and the significance of leukocytosis. Metchnikoff's brilliant work on the reaction of the leukocytes toward bacteria and other foreign bodies in the lower as well as the higher forms of animal life followed by the careful observations of Gabritschewsky and others along the same lines has shown that one and probably the most important function of these cells is that of phagocytosis, that is, the removal or destruction of bacterial, chemic or mechanical irritants or the products of bacterial activity. Although many of Metchnikoff's views have been proved erroneous and although the discovery of distinct bactericidal properties of the blood-serum for a certain length of time drew away attention from the leukocytes, recently the demonstration that the bactericidal agent in serum, lymph and exudates is at least partly derived from the leukocytes has drawn more closely together the phagocytic and humoral theories of immunity, and has again brought the leukocytes forward as an agent of great importance in the defense of the organism against disease-producing bacteria and their toxins. Hankin especially has insisted upon the secretion by the leukocytes, especially the eosinophiles, of an alexin which is bactericidal, while Hahn and many others have demonstrated that the alexins are the secretory products of the leukocytes, especially the neutrophilic cells.

As regards the functions of the granules, whose study was rendered possible by the brilliant work of Ehrlich three decades ago, it seems probable that their function is one of the very greatest importance; besides their defensive role, the leukocytes and their granulations are undoubtedly important factors in the resorption of the products of cellular destruction and necrosis in transforming these products and in aiding in their elimination, while, according to Ehrlich, they may also play an active role in nutrition and the granules may be regarded as an alimentary reserve. Recent experimental work has demonstrated beautifully some of these functions of the leukocytes, for example, that of Helly in the injection of various bacteria or their toxins into rabbits, and that of Respravy, who has shown their phagocytic properties when into one animal has been injected the red blood-corpuscles of another species.

Recently their great resisting property, an extremely essential quality when we consider their function, has been beautifully demonstrated by Christian. Ehrlich has carefully studied the granulations of the white blood cells by the method of vital staining with neutral red which is characterized by a great affinity for the majority of granules, and these studies have made him even more firmly convinced of the correctness of his original view that the granules which are found in practically every species of animal and are practically only found in cells capable of motility must be regarded as metabolic products of the cell deposited in solid form, some of which are intended as reserve material, others to be secreted from the cell, while work along this and other lines, especially the study of the chemotactic effect of various substances upon the various leukocytes, has convinced him that the various forms of granulation are not related to each other.

In regard to the granulations it must not be forgotten

that Altmann, Gulland, and others, believe the granules are plasmatic and are connected by a mitoma, in other words the granules are the carriers of the cell function.

Other granulations beside the eosinophilic and the neutrophilic are met in the white blood corpuscles and during the past few years considerable significance has been attached to them. Thus Ehrlich and others insist that cells with basophilic granulations or mastzellen are normally met in the blood in very small numbers; these cells which seem to be able to be formed from fixed connective-tissue cells show a significant increase in but one disease, splenomyelogenous leukemia. Grünwald describes certain very fine granules in the polymorphonuclear blood cells which take the acid stain and which he calls hypeosinophilic. Numerous observers have described granules which take the iodin stain and which were at first regarded as glycogen; these granules were first supposed to be found exclusively in severe contusions and other conditions associated with much trauma in pneumonia, in various conditions associated with suppuration and in general toxemia, but according to Galli, Wolf and Hirschberg, these granules are met in both normal and pathologic conditions, although more easily demonstrable in the latter; according to Biffi and others they are not true glycogen. The perinuclear basophilic granules regarded by Neusser as a sign of the uric acid diathesis have been shown by Futcher, Simon, and others, to be present in a great variety of other conditions.

Varieties of Leukocytosis and Their General Significance.—From what has been said before, it will be seen that leukocytosis may be theoretically produced under a variety of conditions, as the presence of substances positively chemotactic to any of the special forms of leukocytes, conditions associated with a hyperplasia of any of the organs or tissues in which white blood cells are formed, and increased functional activity of the blood-forming organs. As we have different varieties of leukocytes, so we meet different types of leukocytosis; thus we have the polymorphonuclear neutrophile leukocytosis, the polymorphonuclear eosinophile leukocytosis—these two being regarded by Ehrlich as forms of active leukocytosis, and lymphocytosis, or Ehrlich's passive leukocytosis. Beside this, some authors regard the various types of leukemia as varieties of leukocytosis, but these will not be considered in this paper, as it is beyond our scope.

The polymorphonuclear neutrophile leukocytosis, the type most frequently met, is found in a great number of pathologic conditions, as most of the inflammatory and infectious diseases, a large number of intoxications, after the use of many drugs and in many cases of anemia and of malignant disease. In the vast majority of cases the increase of leukocytes is supposed to be due to the presence in the blood of substances, often of bacterial origin, which exert a positive chemotactic effect upon this variety of leukocytes. Ehrlich's subdivision of this form of leukocytosis into the infectious, toxic, anemic, and cachectic, is a convenient one. The first two of these represent in a broad way the expression on the part of the body of the extent of its resisting power in connection with the degree of virulence of the infection or intoxication. The third is probably more distinctly referable to an increased functional activity of the bone marrow.

The polymorphonuclear eosinophile leukocytosis, although studied for only a comparatively short time, has furnished us with facts of extreme interest and importance to both diagnosis and prognosis; in fact, the natural history of these cells must be peculiarly interesting, as shown by their presence in almost all forms of animal life, and their characteristic variations in a large number of important diseases. As we have said before, the exact seat and mode of origin of the eosinophiles has not been definitely proved, but a careful study of the bone marrow in leukemia and other conditions seems to prove that in the majority, if not in all cases, these cells are derived from preexisting eosinophiles in the bone marrow. Eosinophilia is met in a number of conditions besides splenomyelogenous leukemia, in which it was first described and which, as we have stated before, will not be discussed in this paper. Among the important diseases in which the eosinophiles are increased, either absolutely or both relatively and absolutely, may be mentioned bronchial asthma, pemphigus, various acute and chronic skin diseases, various diseases due to animal parasites, notably trichinosis and ankylostomiasis, postfebrile conditions, in some cases of malignant tumors, after extirpation of the spleen, after various drugs, and in a number of other diseases, such as gout, gonorrhea, syphilis, malaria, rheumatism, and certain of the functional neuroses. Neusser's view, that these cells are increased in conditions associated with an irritation of the sympathetic nervous system, is suggestive and interesting, though far from proved.

Certainly in the majority of cases the eosinophilia may be regarded as due to chemotactic influences, the substances which seem to possess a peculiarly marked attraction for the eosinophiles being those produced by the destruction or degeneration of the epithelial cells and the toxins produced by various forms of animal parasites during their growth and development.

Lymphocytosis, the passive leukocytosis of Ehrlich, was regarded by him as due to the mechanical expression of lymphocytes from the lymph-glands and other portions of the lymphatic apparatus, which had become hyperplastic. Recent work, however, by Flexner, Bunting, Wolf, and others seems to show that the lymphocytes are capable of ameboid movements, and for that reason we must consider the possibility of an increase in the lymphocytes due to chemotactic influences, although in all probability Ehrlich's views hold in the majority of instances. It must be stated, however, that all recent observers do not believe in the active motility of the lymphocytes; for instance, Wlassow and Sepp found that active movements in the lymphocytes were never seen under normal conditions, although constantly met when the temperature was above 40° Centigrade. Lymphocytosis, beside being met physiologically in childhood, and, according to some observers, during digestion, is seen in a few infectious diseases, notably whoopingcough, typhoid fever, and malaria, and has been described in other infections as mumps, smallpox and chickenpox, malaria, epidemic influenza,

and tuberculosis. According to Holmes and others, who believe that the lymphocytes are young cells, the number of such cells found in the blood is to be regarded as an index of the resisting power of the patient.

Until we know more regarding the life history of the various forms of leukocytes it will obviously be impossible to discuss rationally the exact relationship of these various types of leukocytosis to each other, but there are certain facts in this connection which are worthy to be remembered, although not explained as yet; as for example, that as a rule, those substances that are positively chemotactic to the neutrophiles are negatively chemotactic to the eosinophiles, and vice versa, and that in a number of cases eosinophilia seems to follow lymphocytosis, while in other cases the latter condition seems to definitely follow the former.

Leukopenia.—No study of leukocytosis would be complete without a consideration of the opposite condition or leukopenia, often also spoken of as hypoleukocytosis. This condition may be due to the presence of substances in the blood possessing negative chemotactic properties toward the leukocytes, or it may be caused by an aplasia of the blood-forming organs, by a lessening of their functional activity or by an unequal distribution of leukocytes in peripheral and visceral circulation.

Peculiarly interesting are those cases of leukopenia sometimes met in those conditions in which a leukocytosis is normally found; in such cases it is an expression of the absolute inability on the part of the body to react against an infection or intoxication of overpowering virulence, and it is thus a sign of the gravest prognosis; in fact, in the vast majority of cases it is shortly followed by the *exitus lethalis*.

Certain experiments in this connection are of especial interest; thus Bentvegna and Carin have shown that after the injection of nonfatal doses of various mineral poisons, such as arsenic and mercury, a leukocytosis regularly takes place, while if the doses are sufficiently large to produce death a rapid diminution of white blood cells is seen.

In connection with those forms of leukopenia produced by negative chemotaxis, the work of Bohland is interesting; after the injection into the blood of the toxin of the colon bacillus a leukocytosis regularly followed, while after the injection of the typhoid toxin leukopenia invariably occurred.

The Leukocytes in Various Diseases and Pathologic Conditions.—It is, however, the changes in the number and proportion of the leukocytes in the various diseases, as determined by frequent and careful counts, that is of practical value in diagnosis and prognosis. In this article we shall discuss briefly the condition of the leukocytes in the anemias, infectious diseases, diseases due to animal parasites, diseases which come to the especial attention of the surgeon and gynecologist, gout, cancer, mental and nervous diseases, diseases of the skin, various intoxications, and bronchial asthma. Such an enormous amount of work has been done on the variations of the white blood cells in these diseases that it will be obviously impossible to do more than touch upon the most important changes in the white blood cells in an article of this nature.

Anemias.—Generally speaking, we meet an increase of the leukocytes in the anemias, especially in high grades of anemia after hemorrhage. In pernicious anemia, however, there is usually a diminution of the leukocytes with a relative increase of the mononuclear forms; in fact, the grade of leukopenia and of the relative degree of lymphocytosis is of great importance in the prognosis of this disease, the smaller the number of leukocytes and the greater the proportion of lymphocytes the worse being the prognosis. In fact, in all cases of anemia, continued diminution of leukocytes is a sign of serious prognosis, as it indicates a diminished functional activity of the blood-forming organs.

Infectious Diseases.—As we have said before, the general blood picture in the infectious diseases is a polymorphonuclear neutrophile leukocytosis, the degree of the leukocytic increase depending on the extent and virulence of the infection and the resisting power of the patient.

The blood in tuberculosis generally shows an absence of leukocytosis, and in some cases, especially those of intestinal or peritoneal tuberculosis, a leukopenia, unless the tuberculous area has been secondarily invaded by pyogenic microorganisms. Thus, the presence of leukocytosis in tuberculosis is very suggestive of a secondary infection, while in doubtful lesions of the bones and joints the absence of leukocytosis speaks for tuberculosis. Memmi and others believe that a moderate increase of the eosinophiles in both blood and sputum is a good prognostic sign; according to Achard, a relative increase of the mononuclears is regularly met in tuberculosis of the serous membranes.

In whoopingcough the studies of Frölich and Meunier and of De Amicis and Pacchioni show that a marked leukocytosis averaging 18,000 is the rule, this leukocytosis beginning on the first day of the disease, reaching its height in the convulsive stage and demonstrable even after the cessation of the typical symptoms; the increase seems to be especially confined to the small mononuclears in the first and second stages of the disease and the large mononuclears in the third stage. Other investigators give as high as 28,000 as the average leukocyte count in whoopingcough, and have described cases in which 50,000 leukocytes per cubic millimeter were found. We feel that a leukocyte count is extremely helpful in differentiating the catarrhal stage of this disease from certain forms of epidemic influenza.

In diphtheria, leukocytosis is the rule and its absence, as in all other conditions usually associated with leukocytosis, is a sign of the gravest prognosis. Engel believes that a high percentage of myelocytes is always an unfavorable sign in this disease, while Besredka thinks the higher the grade of polymorphonuclear neutrophile leukocytosis after the injection of antitoxin, the better the prognosis.

In typhoid fever, as we have said before, a diminution of leukocytes is the rule, and in this disease the presence of leukocytosis at any stage is a very important sign of some complication, as intestinal perforation, etc. The blood picture renders us the greatest help in differentiating this disease from central pneumonia, appendicitis, pyosalpinx and various other inflammatory and

suppurative processes, all of which regularly produce a marked increase of leukocytes. The masterly monograph of Naegeli gives very definitely the variations of the different forms of leukocytes in this disease; the usual picture, according to him, is a progressive decrease of the neutrophiles, an early disappearance of the eosinophiles and an early diminution of the lymphocytes followed in the latter portion of the second stage of the disease by an increase of these cells which steadily increase during the rest of the disease, the neutrophiles not beginning to increase again until the disappearance of the fever. According to Naegeli favorable prognostic indications are the early appearance of the eosinophiles, the moderate diminution of the neutrophiles and the marked increase of the lymphocytes.

In scarlet fever and measles, the white blood cells are of distinct help in making the differential diagnosis between the two diseases; thus, according to Reckzeh and others, leukocytosis with relative increase of the neutrophiles, and later, also, of eosinophiles, is regularly met in scarlet fever, while in measles, the leukocytes are either normal or diminished in number, with, as a rule, a relative increase of the lymphocytes. According to Kotschetkoff, Zappert, ourselves and others, during the first and second weeks of scarlet fever, in favorable cases, a distinct increase of the eosinophiles (sometimes reaching 15%) was found, while in the fatal cases this increase was absent; this observation is, therefore, likely to prove helpful in the prognosis of this disease.

In pneumonia, leukocytosis, as a rule, between 15,000 and 30,000 is generally met, although higher counts than these are found in severe infections in which the body reaction is good. With the crisis, or shortly afterward, the leukocytes fall to normal. A diminished number of leukocytes is one of the worst prognostic signs in this disease.

In varicella, the definite blood picture has not been determined, as according to various observers, the leukocytes are sometimes normal, sometimes slightly increased, sometimes diminished; if the vesicles become pustular, a neutrophile leukocytosis of moderate degree has been described.

In smallpox, leukocytosis is the rule, while according to Courmont, Montagard, Weil, and Ferguson, there is a very marked relative and absolute increase of the mononuclear forms. According to Ferguson, the neutrophiles fall sometimes as low as 33%, while the lymphocytes, which reach their maximum on the eighth to the tenth day of the disease, sometimes comprise as much as 66% of all the white blood cells. He also describes the presence of a number of myelocytes in very severe cases.

In influenza, we meet either a normal or subnormal number of leukocytes; according to Blum, leukopenia is especially likely to occur in the gastrointestinal type of this disease. The leukocyte picture in influenza is a distinct aid in differentiating the various types of this disease from whoopingcough, lobar pneumonia and appendicitis.

In a number of other infectious diseases various changes in the leukocytes have been described which are of great interest in bearing upon the general subject of leukocytosis but not of great practical importance in diagnosis or prognosis. Thus, Axisa and Arcangeli have shown a moderate leukopenia in Malta fever, although Musser and Sailer had a normal leukocyte count in their cases. In gonorrhea a moderate neutrophile leukocytosis is met, while in the acute cases a significant increase of the eosinophiles has been described. In bubonic plague, cholera and yellow fever the leukocytes are as a rule increased, usually markedly so in the first two diseases; in cholera this increase may be due to the profuse diarrhea and consequent concentration of the blood. A neutrophile leukocytosis of moderate extent is usually met in epidemic cerebrospinal meningitis, acute articular rheumatism, tonsillitis and erysipelas. In mumps most observers describe a moderate leukocytosis with increase of neutrophiles and eosinophiles, and Sacquepée a leukocytosis of 8,000 to 13,000 with a marked increase of the mononuclears of small and moderate size. If orchitis is present as a complication, the neutrophile leukocytes are increased to a greater extent. In leprosy many observers have described an eosinophilia of moderate grade, although others have not found this to be present in their cases. Courmont has described a marked neutrophile leukocytosis in hydrophobia in both men and animals which may prove a valuable diagnostic sign in determining whether or not suspected animals are rabid.

Thus the general blood picture in the acute infectious diseases is a leukocytosis of the neutrophile type, with, as a rule, marked diminution of the eosinophiles until the fever is over; there are, however, several important exceptions to this rule, notably typhoid fever, uncomplicated tuberculosis, measles and epidemic influenza. It must also be remembered that in all cases in which increase of leukocytes is the rule, diminution of leukocytes is a sign of grave prognosis.

Diseases due to Animal Parasites.—Of the diseases due to animal parasites those in which the most important changes in the white blood cells occur are malaria and diseases due to various intestinal parasites, notably trichinosis and ankylostomiasis.

In malaria the typical blood picture is a marked diminution of leukocytes associated with a relative increase of the mononuclear forms, the large mononuclears according to most observers, but the small according to Bastianelli. In some cases of chronic malaria, with a high grade of anemia, a moderate leukocytosis with eosinophilia has been described. Of course, the finding of the malarial parasite in the red blood-corpuscle is of paramount importance in the diagnosis of this disease, but in some cases, especially those of infection with the estivo-autumnal parasite, this is often difficult, and the demonstration of a marked leukopenia, often associated with pigment-carrying leukocytes, is of aid in differentiating malaria from syphilis, pyosalpinx, and other suppurative processes, in which we may have chills and a type of temperature very suggestive of malaria.

In filariasis, Calvert, Gulland, and Coles describe a moderate leukocytosis with an increase of the eosinophiles, the eosinophilia in one case of Calvert's reaching 22%.

A striking characteristic of many of the diseases due

to animal parasites inhabiting the intestinal canal is the presence of an increase of the eosinophile cells in the blood with other changes to be mentioned shortly. The best explanation of this eosinophilia is that the parasites form certain circulating toxins, which exert a strongly positive chemotactic effect upon the eosinophiles.

In trichinosis, the absolute and relative eosinophilia reaches its highest extent. In 1897 we described for the first time the increase of the eosinophiles in this disease, subsequently diagnosing three other cases from the blood picture alone; in all of our cases the diagnosis was verified by examination of a piece of excised muscle. There was always a marked leukocytosis, reaching over 30,000 in one case, while the eosinophiles were markedly increased, being 68% in one of the cases, that is, there were over 20,000 eosinophiles in each cubic millimeter of blood. We insisted that this combination of marked leukocytosis with marked eosinophilia was a sign of great diagnostic importance, and by its means we could differentiate this from other diseases associated with gastrointestinal or muscular symptoms. Since the appearance of our article on this subject nearly 100 cases of trichinosis have been diagnosed by this means. In a recent article Schleip reports 62 cases of trichinosis, in 60 of which leukocytosis with eosinophilia was met; the diagnosis of the two negative cases was doubtful, according to Schleip. Schleip concludes that the blood-examination is the most important means of reaching a correct diagnosis of this disease and that the eosinophile cells show almost regularly a marked increase, which is pathognomonic for trichinosis, as the diseases with which it might be confounded do not show a significant increase of these cells; during convalescence he described a lymphocytosis, which we also met in our cases.

In ankylostomiasis, the blood picture is usually an anæmia of extremely high grade, a normal or very slightly increased number of leukocytes with a marked relative increase of the eosinophiles. This blood picture should be remembered because of the increasing number of cases of this disease met in the United States, especially in the South Atlantic and Gulf States.

In various other diseases due to intestinal parasites, eosinophilia, generally associated with no appreciable increase of the total number of the white cells, has been described, as in oxyuris, ascaris, tenia, hydatid disease, bothriocephalus, and bilharzia hæmatobia; in all of these cases there have been only a few isolated reports of the eosinophilic increase.

The Blood in Inflammatory Processes and Conditions Usually Treated by the Surgeon or Gynecologist.—In inflammatory conditions, abscesses, appendicitis, pyosalpinx, suppurative conditions and other pathologic processes which fall especially within the domain of the surgeon and the gynecologist we feel that the determination of the number of leukocytes and the percentages of the various forms is a matter of paramount importance. Broadly speaking, leukocytosis is the rule in inflammatory and suppurative processes and is an expression of the reaction of the body against the invading microorganisms. With good body resistance the degree of leukocytosis expresses in a general way the virulence of the infection, while here, more than perhaps in any other condition, a diminution of leukocytes, especially when all other clinical signs point to an active process, is a sign of the gravest prognosis. Thus, keeping in mind the exact nature of leukocytosis, how in a broad sense it represents the conflict of two factors, virulence of infection and resistance of patient, we can derive a vast amount of knowledge from its study in surgical and gynecologic cases. Two ways of making this study lie open to us, first to see whether the leukocyte count gives us in a general way information regarding the character of the pathologic process under observation, and second, frequent determinations of the leukocytes in the individual case to determine whether or not the condition is becoming more severe. From the former of these we derive great aid in diagnosis for by its means we are often able to differentiate inflammatory conditions from conditions with a somewhat similar clinical picture, but not of inflammatory origin, that is, not associated with a leukocytosis; it also helps us to judge of the severity and extent of the pathologic process and is of peculiar service in determining whether or not operation is advisable.

The latter, on the other hand, that is, the counting of the leukocytes in the individual case at frequent intervals, tells us better than any other means whether or not the pathologic process is progressing; in other words whether the case is likely to end in recovery without surgical intervention, or whether and when operation is necessary. We cannot insist too much upon the value of the latter procedure; in all inflammatory and suppurative conditions it is helpful, but it is of especial value in those cases in which delay or indecision is fraught with such deplorable consequences to the patient, notably appendicitis. Thus from a careful study of a large number of cases of this disease, Wassermann concludes that the condition of the leukocytes is the most reliable clinical sign in appendicitis, and may furnish the only means of determining whether or not operation is indicated. Da Costa believes that a count of 25,000 or more points to the purulent form of the disease while Bloodgood gives 18,000 as the figure at or above which operation is indicated; the latter investigator insists especially upon the necessity of making frequent leukocyte counts in this disease, a rapid rise of leukocytes, according to him, being an absolute indication for operation. There are some surgeons, it is true, who put but little faith in leukocyte counting in appendicitis, but these we feel are becoming more and more in the minority as better and more systematic leukocyte counting is done in this disease, for by its means it is being shown every day not only that we have a ready means of assisting us to decide whether or not operation is indicated, and also a very helpful procedure for differentiating appendicitis from diseases simulating it in which no leukocytosis is met, for example, hysteria, Dietl's crises, gallstones or renal calculi, the gastrointestinal type of influenza and typhoid fever.

The count of the leukocytes furnishes us with information of value also in postoperative cases, in differentiating beginning peritonitis from marked constipation

associated with autointoxication from the gastrointestinal tract.

Sondern has paid especial attention to the percentages of the various forms of leukocytes in various surgical conditions, and he believes that the percentage of the neutrophiles is a good index of the degree of the inflammatory lesion. In gynecology the same rules as regards leukocytes hold as in general surgery. Thus Neumann believes that a leukocytosis over 15,000 always speaks for pus; he also has found, as many other investigators, that when the pus becomes well encapsulated, the leukocytes generally decrease.

We cannot leave this division of our subject without again insisting that it is our firm conviction that in no domain of medicine or surgery is the systematic determination of the leukocytes of greater practical importance.

Diseases of the Skin.—In diseases of the skin, an eosinophilia, both local and general has often been described, bearing out Ehrlich's belief that the substances produced by the disintegration of epithelial cells have a marked chemotactic effect upon the eosinophiles. Thus, if there is but a small amount of this chemotactic material, a certain number of the eosinophiles are abstracted from the blood, and we get a local eosinophilia, while if the amount of this chemotactic substance is greater, we have a general increase of these cells in the circulation at large; thus, in a broad way, the degree of the eosinophilia depends upon the amount of body surface involved by the cutaneous disease. Eosinophilia has been described in pemphigus, chronic eczema, scleroderma, psoriasis, pellagra, lupus, urticaria, dermatitis herpetiformis, xeroderma pigmentosum, Hallopeau's dermatitis, epidermolysis bullosa hereditaria, herpes zoster, Duhring's disease, and various skin affections produced by different vesicants, notably picric acid.

Various Other Diseases and Pathologic Conditions.—The changes in the leukocytes are of interest and in some cases of importance in a variety of other diseases and pathologic conditions.

Thus, in bronchial asthma a marked increase of the eosinophiles in the blood has been regularly described, this increase being most marked during the paroxysm and immediately afterward, and associated with the appearance of large numbers of these cells and Charcot-Leyden crystals in the sputum. In gout a moderate increase of the eosinophiles has been frequently described, while Neusser thought that his perinuclear basophilic granules were characteristic of this disease, a view undoubtedly erroneous. In carcinoma and sarcoma, leukocytosis is the rule, while the absence of the digestion leukocytosis in cancer of the stomach is of some, although not very great, diagnostic importance.

In a number of mental and nervous diseases the leukocytes have been studied and in some have shown quite marked variations from the normal; thus, Capps describes a leukocytosis after the convulsions in general paralysis, while Jenks believes that an increase of large mononuclears is met prior to the epileptiform seizures in this disease. We have described a moderate eosinophilia in chorea, while Neusser gives a number of cases of eosinophilia in various of the functional neuroses. Leukocytosis has been observed after the administration of a number of drugs and chemicals. Thus, it has been described after the use of camphor, potassium chlorate, alcohol, mercury, arsenic, snake venom, and also antivenomous serum, nucleinic acid, various of the bitter tonics, ethereal and essential oils, and a number of other substances. We have already called attention to the fact that it has been demonstrated that nonfatal doses of certain of the mineral poisons are regularly followed by marked leukocytosis, while if the doses are sufficiently large to produce death, a diminution of leukocytes occurs. We have described a leukocytosis of 30,000, of which 12% were eosinophiles, after the use of enormous doses of acetanilid, while a leukocytosis usually of the eosinophilic type has been described by a number of observers after the injection of tuberculin.

As to the effect of ether and chloroform upon the white blood cells, authorities differ to a certain extent. Most observers describe a neutrophile leukocytosis after the administration of ether, although, according to many there is a distinct diminution of the white blood cells during the administration of the anesthetic. As to the effect of chloroform on the blood, Benassi has described a diminution of leukocytes after chloroform anesthesia, while Fiodoroff, from a study of 48 cases, concludes that lymphocytosis regularly occurs during and shortly after the administration of chloroform. Recently Loewy and Paris have demonstrated that the neutrophiles are diminished during the administration of chloroform, show a slight increase after the anesthesia is stopped, and then again a diminution, while the lymphocytes react in an exactly inverse way. After thyroidectomy in animals, Levy found a marked leukocytosis, with great increase of the lymphocytes the day following the operation.

CONCLUSIONS.

The preceding pages give in a brief and incomplete way our knowledge of the variations in the white blood cells in health and in disease, and the aid that may be derived from their study. As we have said before many of the most important questions in the life history of the leukocyte remain unanswered, and a thorough appreciation of the exact significance of leukocytosis will not be possible until we have definitely determined the mode of origin of the various forms of the white blood cells and their relationship to one another. Nevertheless study of these cells in the various diseases and pathologic conditions has demonstrated beyond a doubt that their determination is of real practical help in the diagnosis and prognosis of disease. There are only a few diseases, it is true, in which an absolute diagnosis can be made from the blood-examination alone; in the vast majority of cases the condition of the leukocytes is a point to aid us in making the diagnosis—nevertheless in many cases it is an important point without which our diagnosis would be even more incomplete than, of necessity, it is often forced to be.

Thus, the study of the leukocytes has rendered possible the diagnosis of a certain number of diseases, as the leukemias and trichinosis, beside rendering marked

assistance in the diagnosis of others, as tuberculosis, typhoid fever, central pneumonia and various inflammatory and suppurative conditions. It will tell us much in regard to the prognosis of all forms of infection and inflammation, as pneumonia, peritonitis, appendicitis and pyosalpinx, of the anemias, of scarlet and typhoid fevers. It has aided us in discriminating diseases presenting clinical pictures markedly alike, such as central pneumonia and typhoid fever, appendicitis and conditions simulating it but of entirely different origin, peritonitis and gastrointestinal autointoxication, lymphatic leukemia and Hodgkin's disease, myelogenous leukemia and Banti's disease, measles and scarlet fever, etc. It has provided the surgeon and gynecologist with a ready means of determining in the first place whether or not he is dealing with inflammatory or suppurative processes, in the second place whether the process is diminishing or increasing, while in the third place it tells him much, if he can but read the figures aright, regarding the prognosis of his cases.

For these reasons it seems to us proved beyond peradventure that the determination of the leukocytes by careful investigators under proper conditions is of real value in the diagnosis and prognosis of disease, and that the more careful and more systematic the studies of the blood, the more help we may hope to derive in drawing correct inferences. Leukocyte counting has not and never will reach the point at which it and it alone will furnish us without possibility of error with correct diagnosis and prognosis, but it has been in the past a great, and it will be in the future an even greater help to the physician and surgeon who value correctly its possibilities and its limitations.

DILATION AND CURETMENT FOR DYSMENORRHEA: A REPORT OF 95 CASES.

BY

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Operations upon the cervix, intended to cure or relieve dysmenorrhea have been in vogue ever since Dr. John Macintosh, over 75 years ago, first definitely outlined the mechanical theory of dysmenorrhea and showed that by dilation of the cervix, dysmenorrhea could sometimes be relieved. While various cutting operations devised by Sims, Simpson, Dudley, Schroeder, and many others, have been performed to a certain extent, the most popular procedure has been the gradual dilation, as done by Macintosh, or the rapid dilation, which was advocated so warmly by Goodell in this country.

At the present time, in this country, rapid dilation of the cervix with or without curetment of the endometrium is performed more frequently than any other one procedure for the relief of dysmenorrhea. Although the value of the method was first explained by the mechanical theory, in that an "obstruction" to the free menstrual flow was overcome by the dilation, and its success was supposed to be a clinical proof of that theory, yet today many operators who hold not at all to this mechanical theory of dysmenorrhea still employ dilation.

To know the actual value of this procedure it is necessary to have the postoperative history of as large a number of patients as possible. The majority of reports are based either upon a small number of cases or else upon cases under observation for but a short time after operation. The operation has been performed over 200 times at the Johns Hopkins Hospital. I have tried to get a postoperative history from as many of these patients as possible, and have been successful in hearing from 95. The information in most cases was obtained by letters; in a few cases by personal interviews. The periods from the time of the operation to the time of the report vary from one to twelve years. Although a larger number of cases would be desirable, still from these 95 cases much can be learned, and upon them is based this report.

Varieties of Dysmenorrhea.—The immediate cause of dysmenorrhea is not known. Of the many theories attempting to explain it, none has as yet been satisfactorily proved to be true. We may, however, recognize various conditions in the pelvic organs as accessory causes, or predisposing factors. For example, in many cases of inflammatory diseases of the tubes or ovaries, dysmenorrhea comes on definitely after the onset of the inflammatory disease; myomas, especially the submucous variety, frequently cause dysmenorrhea; while in retroposition of the uterus, dysmenorrhea is also frequently present. In analyzing the histories of 120 nulliparas with retrodisplaced uteri which were giving symptoms, I have found dysmenorrhea as a prominent symptom in 90%. In pathologic conditions of the pelvic organs other than the three mentioned, dysmenorrhea is much less constantly present.

As contrasted with these cases of dysmenorrhea with marked pathologic conditions of the pelvic organs there is another large group of cases in which there is no abnormality of the pelvic organs present, except in some instances marked anteflexion (if one chooses to consider that an abnormality) or poorly developed pelvic organs. This last group may be considered as cases of "primary" dysmenorrhea as distinguished from the "secondary" dysmenorrhea of the first group, in which the dysmenorrhea is definitely dependent upon pathologic conditions of the pelvic organs.

Formerly a clear distinction between these two groups was not drawn and dilation was used often indiscriminately. Now we know that dilation should be limited to cases of "primary" dysmenorrhea. Manifestly, when the dysmenorrhea is caused by a retroverted uterus or a myoma, no relief will be obtained from dysmenorrhea until those conditions which are causing the dysmenorrhea are cured, and I shall show that when inflammatory disease of the tubes or ovaries is present actual harm may be done by dilating and curetment.

Results of Dilation and Curetment for Dysmenorrhea.—At the Johns Hopkins Hospital, dilation and curetment for dysmenorrhea is limited to those cases in which the pelvic organs are normal or else merely poorly developed. Anteflexion itself is not considered an

abnormality. When extreme anteflexion is found it is usually in poorly developed or infantile uteri, and the maldevelopment is considered the chief factor.

Before considering the reports which I have received from these 95 patients, I wish first to present a few facts obtained in examination of the histories taken from these patients at the time of operation.

Fifteen date their dysmenorrhea from long illnesses, occurring at or soon after the onset of menstruation. In ten cases this was said to be typhoid fever. Measles, diphtheria, "grip," and inflammatory rheumatism were each given in one case. One patient suffered from tuberculosis of the hip as a child. None of these patients fully recovered her physical strength after her illness. Five patients give distinct histories of dysmenorrhea occurring after undertaking sedentary occupations or coming to live under bad hygienic surroundings. Such conditions are: Hard study, one case; teaching school, two cases; too much social activity, one case; a country girl going to live in the city under poor hygienic conditions, one case. Fifty-seven patients were of a more or less marked neurasthenic temperament. Forty-one patients were anemic; 40 were definitely not anemic. No mention as to anemia in 14. Twenty-nine patients are described as "thin," "emaciated," or "poorly nourished," while but 31 of the entire 95 are definitely "well nourished." In 20 patients, maldevelopment of the uterus, ovaries or tubes was recognized by examination under ether.

As will be shown later, four cases must be regarded as dysmenorrhea due to pelvic inflammatory disease present at the time of operation, but not recognized at the examination under ether.

A certain number of these cases were in young women who were apparently normal in every way except for their dysmenorrhea. How many such cases are included in my series cannot definitely be stated from the study of the histories, but probably not over 10 or 15.

In each case reported a general anesthetic was given and a careful examination under ether preceded the operation. In no case was any abnormality of the pelvic organs (other than maldevelopment in 20 cases) recognized at this examination. The operation in each case was rapid dilation of the cervix with the Goodell-Ellinger dilator, followed by curetment of the endometrium.

The results of the treatment in these 95 cases I have divided into four classes:

CLASS I.—*Complete or very great relief for a year or more, with no subsequent return of the dysmenorrhea.* In this class, 32 cases, or 33%, of the entire 95 cases; 18, 18% of the 95 cases were absolutely relieved; 14, 14% of the 95 cases, were very greatly relieved. The different periods from operation to report are as follows: Twelve years, 1 case; 10 years, 1 case; 9 years, 3 cases; 8 years, 2 cases; 7 years, 2 cases; 6 years, 6 cases; 5 years, 6 cases; 4 years, 3 cases; 3 years, 2 cases; 2 years, 3 cases; 1 year, 3 cases.

CLASS II.—*Complete or very great relief for a year or more, with subsequent return of the dysmenorrhea.* In this class, 7 cases, or 7% of the entire 95 cases; 3 cases completely relieved, 4 cases very greatly relieved. Various periods from operation to return of the dysmenorrhea were as follows: Nine years, 1 case; 4 years, 2 cases; 3 years, 1 case; 1 year, 3 cases.

CLASS III.—*Slight or moderate relief for a year or more.* Eight cases, or 8% of the entire 95 cases. Periods from operation to report varied from one to nine years.

CLASS IV.—*No relief, or relief lasting for less than a year.* Forty-eight cases, 50% of the entire 95 cases. There was no relief whatsoever in 28 cases, or 30% of the entire series. The remaining patients had a certain degree of relief, in some cases very marked, but in none of them did it last for a year.

The operations included in the first two classes; I consider as "successful." Each patient was entirely or very greatly relieved for at least a year. This result repays her for the inconvenience of taking an anesthetic and the few days' detention in the hospital. Although in some cases of Class IV very great benefit occurred, it lasted but a few months, and both the last two classes I consider as not successful.

Of the entire series of 95 operations, 40% were successful; 60% were not successful, half of the unsuccessful cases receiving no benefit whatsoever, the other half receiving benefit which is either so slight or of so short duration that the operation cannot be regarded as successful.

Successful Cases.—A brief consideration of some of the conditions which I have shown to be common to many of the cases, brings out some points regarding these successful cases. In the following table there is given the occurrence of some of these associated conditions:

	Total number of cases in the entire series.	Number of cases which were successful.
Anemia	41	17, or 41% of the 41 cases with anemia.
Neurasthenia	57	20, or 35% of the 57 cases with neurasthenia.
Malnutrition	29	12, or 41% of the 29 cases with malnutrition.
Good nutrition	31	13, or 41% of the 31 cases with good nutrition.
Maldeveloped pelvic organs.	20	5, or 25% of the 20 cases with maldevelopment of the pelvic organs.

Of the entire 95 cases, the treatment was successful in 40%. If we compare with this the percentage of successful results in each of the separate conditions mentioned, it becomes evident that but one of these conditions, *i. e.*, maldevelopment of the pelvic organs, has any effect upon the success of the treatment. In anemia, neurasthenia, malnutrition, or good nutrition, the percentage of successful cases varies but little from the 40% of successful cases of the entire series. In poorly developed pelvic organs, however, the percentage of successful cases falls to 25. Apparently, therefore, when the pelvic organs are poorly developed, the prognosis after dilation and curetment for the relief of dysmenorrhea is considerably less favorable than when the organs are normally developed. The presence of anemia, neurasthenia, or general malnutrition at the time of operation is of no prognostic value. It is significant, however, that in the majority of the successful cases in which such conditions are present at the time of operation the patients were

said to be in good general health at the time of the report.

Analysis of the character of the menstrual pains and their duration yields results which are of more value from a prognostic standpoint. It is difficult for women to give a good account of the character of their menstrual pain. I have taken, therefore, only those cases in which the various points were most clearly stated. The results are as follows:

Time of onset.	Total number of cases analyzed.	Successful.	Not successful.
4 to 7 days before flow appears...	10	2	8
2 to 4 days before flow appears...	4	0	4
1 day before flow appears.....	6	4	2
Day of flow.....	27	13	14

Of the cases, therefore, in which the pains began on the day before or the day of the flow, 17, or 51 + % of the total 33 cases, were successfully treated, while of the 14 cases in which the pains began more than two days before the flow, but 2, or 14 + % of the total 14 cases, were successful.

Character of pain.	Total number of cases analyzed.	Successful.	Not successful.
"Sharp" or paroxysmal.....	34	17	17
Dull.....	22	6	16

Seventeen cases, or 50 % of the total 34 cases with sharp or paroxysmal pains, were successful, against 6 successful cases, or 27 + % of the total 22 cases with dull pain.

Duration of pain.	Total number of cases analyzed.	Successful.	Not successful.
The first day.....	16	8	8
To the second day.....	10	6	4
To the third or fourth day.....	6	4	2
Throughout the period.....	46	12	34

Fourteen cases, or 53 + % of the total 26 cases in which the pain lasts but 1 or 2 days, were successfully treated, against the 16 successful cases, or 30 + % of the total 52 cases in which the pain lasted for 3 or more days.

It is evident, therefore, that the prognosis in treatment of dysmenorrhea by dilation and curetment is more favorable in those cases in which the pain (1) is sharp or paroxysmal, (2) begins on the day of flow or the day before, and (3) lasts but a day or two. The prognosis is apparently less favorable when the pain (1) is dull in character, (2) begins several days before the flow appears, and (3) continues for several days, or throughout the flow.

Very similar conclusions have been reached by Herman and Andrews.[1]

Cases Associated with Retroposition.—Three cases in which periods of relief for periods over a year were later followed by a return of the dysmenorrhea are worthy of especial mention. Cases Nos. 66, 70, and 76 of my series (Gyn. Nos. 9,511, 2,556, and 892) were relieved for 14 months, 8 years, and 3 years, respectively. Then the dysmenorrhea returned. The patients came again to the hospital, and upon examination the uterus was found in retroposition in each case. Ventral suspension of the uterus was done in each case with marked relief of the dysmenorrhea.

Case No. 94 of my series (Gyn. No. 10,087), while not a successful case, is best considered here in connection with the three cases mentioned above. When examined under ether, the uterus was found in normal position. Dilation and curetment was performed. The patient had no relief from her symptoms. Three months later she was again examined, and her uterus was now found in retroposition. Suspension was done, and 18 months later she reported that since this second operation she had suffered no more from dysmenorrhea.

These cases are extremely instructive. In the first three a dysmenorrhea, not due to any pathologic condition of the pelvic organs, was cured by dilation and curetment. It remained cured until a pathologic condition occurred, retrodisplacement of the uterus. The dysmenorrhea then returned, apparently a direct result of the displacement, but on correction of the displacement, the dysmenorrhea was again relieved. The first dysmenorrhea was primary, the second was secondary, each being relieved by the appropriate operative procedure.

In the last case the supposition is that the uterus was extremely mobile, usually being in the retroposition. At the time of the first examination, however, it was in anteposition and the real cause of the dysmenorrhea was not made out. Fortunately, after the failure of the dilation and curetment became evident, a second examination revealed the true cause of the dysmenorrhea, retroposition of the uterus, and upon correcting the displacement, the symptom was relieved.

These cases emphasize not only the necessity for the utmost care in pelvic examination in cases of dysmenorrhea, but also the fact that in the same patient both a primary and secondary dysmenorrhea may be present at different times, the proper treatment in each instance varying greatly.

Unsuccessful Cases.—A detailed examination of some of the cases in which the treatment failed to relieve the symptom brings up some points of interest.

Cases Associated with Pelvic Inflammatory Disease.—There were five cases associated in various ways with pelvic inflammatory disease. Their histories are as follows:

CASE XXV (Gyn. No. 5,995).—Colored woman, aged 32. Married, nullipara. For five years before admission patient had profuse leukorrheal discharge. This began soon after marriage. For 18 months before admission there was more or less constant abdominal pain in the lower portion of the abdomen. Suffered from severe dysmenorrhea only since the onset of the leukorrhea (five years). At examination under ether, her pelvic organs were apparently normal. Dilation and curetment was done to relieve the dysmenorrhea. Careful histologic examination of the curetings showed nothing abnormal.

After this operation her condition became worse. Dysmenorrhea increased and abdominal pain became more severe and practically constant. Eleven months after the first operation she was readmitted. Ether examination now showed the presence of bilateral chronic pelvic inflammatory disease, and at

[1] Trans. Obs. Soc. of London, 1902, Vol. xliv, p. 371.

operation bilateral salpingectomy with left oophorectomy was necessary. No history of this case after the second operation can be obtained as the woman cannot now be located.

Apparently the dysmenorrhea was caused by chronic pelvic inflammatory disease, gonorrheal in origin. This was not made out at the first ether examination. The treatment apparently stirred up the inflammatory condition and left her in worse state than before the dilation.

CASE XXVI (Gyn. No. 6,089).—White woman, aged 28. Married three years. Never pregnant. Soon after marriage patient had an attack of "inflammation of the bowels." She was in bed for two weeks. Only since this illness has she complained of dysmenorrhea. Occasionally she has some abdominal pain between the menstrual periods.

At ether examination the pelvic organs were apparently normal. Dilation and curetment was done. Curetings normal at histologic examination. For five months there was complete relief from dysmenorrhea. Then the dysmenorrhea returned together with occasional attacks of abdominal pain in the intervals between the periods. Two years after the first operation she was readmitted. Ether examination showed an extensive chronic pelvic inflammatory disease. Removal of uterus, tubes, and ovaries was necessary. Gonococci were found in the tubes.

The dysmenorrhea at time of first operation was probably caused by pelvic inflammatory disease, dating from a gonorrhea contracted from her husband soon after marriage. Apparently no harm was done by the dilation and curetment, though, as we should expect, no permanent benefit resulted.

CASE LV (Gyn. No. 8,578).—White, aged 30. Married. One child three years before admission. Dysmenorrhea since confinement. No dysmenorrhea before. At examination under ether the pelvic organs were apparently normal. Dilation and curetment. The curetings at histologic examination showed chronic endometritis. Patient became worse after this operation and five months later, at another hospital, the right tube and ovary were removed on account of pelvic inflammatory disease.

Apparently dysmenorrhea caused by pelvic inflammatory disease which dated from an infection received at the time of labor. The inflammatory condition not recognized here when patient was examined under ether.

CASE LXVII (Gyn. No. 9,514).—White, aged 29. Unmarried. Nullipara. Ten months before admission patient had an attack of abdominal pain, dysuria and profuse leukorrhea. She has had dysmenorrhea only since this attack. At examination under ether the pelvic organs were apparently normal. Dilation and curetment. The curetings normal at histologic examination. After this operation she became much worse. Had constant abdominal pain and increased dysmenorrhea. About a year later, at another hospital, both fallopian tubes were removed on account of pelvic inflammatory disease.

Apparently at the time of operation here a pelvic inflammatory disease dating from an acute gonorrhea ten months before, was the cause of her dysmenorrhea. The inflammatory condition was not recognized at the ether examination. The operation aggravated the inflammatory process and her condition was made worse by the procedure.

CASE LXIX (Gyn. No. 6,147).—White, aged 22. Unmarried. Nullipara. Typhoid fever at 15. Never became "strong" since typhoid and suffered from dysmenorrhea since then. At ether examination pelvic organs apparently normal. Dilation and curetment. Curetings normal at histologic examination. For the first two periods following the operation she had no pain. Then the dysmenorrhea returned. Seven months later she was readmitted. Laparotomy done and numerous adhesions found about both tubes and ovaries. Adhesions released on the right side. The left tube and ovary removed on account of chronic inflammatory processes.

It is difficult here to say whether the dysmenorrhea at the time of her first operation was due to inflammatory processes or not. The possibility of an inflammatory process, due to and dating from the typhoid fever, cannot be overlooked, however.

One other case in which dilation and curetment was done outside of this hospital should be mentioned here, although it is not included in my series of 95 cases.

(Gyn. No. 6,229).—White, aged 28, married four years, never pregnant. Patient had suffered from dysmenorrhea since onset of menstruation. When she was 23, dilation and curetment was performed at her home by her family physician. This was followed by much abdominal pain and a profuse purulent vaginal discharge, lasting for several weeks. Dysmenorrhea became much worse after this curetment, and was associated with abdominal pain between the menstrual periods. Two years later she was admitted to this hospital with chronic pelvic inflammatory disease. The right tube and ovary were removed, and adhesions about the left tube and ovary were broken up. Dysmenorrhea was not relieved by this procedure. Three years later she was again admitted. A second laparotomy was done. The left tube and ovary were again bound down by adhesions. The adhesions were released, the cervix was also dilated. I have been unable to learn the result of this last operation.

Apparently at the first operation, done in her home, she was infected by poor surgical technic, though it is possible that a preexisting inflammatory disease was aggravated. The case serves to emphasize the point that dilation and curetment, while technically simple, is fraught with danger, unless done under proper surgical conditions and by men of good surgical knowledge.

These cases show us the great importance of the histories in cases of dysmenorrhea. In none of the first five cases could any inflammatory disease of the pelvic organs be made out, even by a most careful examination under ether, yet the history in the first four cases suggests it, and the postoperative history makes it seem most probable. Cases 25 and 67 illustrate the positive dangers of curetment in some of these obscure inflammatory cases. The inflammatory conditions were apparently aggravated by the treatment. If an exploratory laparotomy is not done in cases in which the history points to inflammatory disease, it is apparently better to limit operative interference to simple dilation. The curetment would tend more to stir up the old inflammatory process.

Neurasthenia and Malnutrition in Unsuccessful Cases.—In 40 of these unsuccessful cases, neurasthenia, malnutrition, or both, were present. In Cases 18 (Gyn. No. 5,558), 39 (Gyn. No. 7,374) and 5 (Gyn. No. 4,043) death occurred in one, four and five years, respectively, after the operation, of "consumption." There was no relief from dysmenorrhea in any of the three cases. Case 16 (Gyn. No. 5,510) had complete amenorrhea after leaving the hospital and died 10 months later of "typhoid fever." Case 47 (Gyn. No. 7,893) was confined in an insane asylum within a year after leaving the hospital. Two other cases, Nos. 40 (Gyn. No. 7,488) and 73 (Gyn. No. 971), were morphin habitues at the time of operation and continued the habit. None of these three cases was relieved by the operation.

Relation of Neurasthenia and Malnutrition to Dysmenorrhea.—I have shown the frequent association of these conditions with dysmenorrhea. That all but two of the successful cases in which these factors were prominent at time of operation were in "good general health" at time of report, while all the unsuccessful cases of this category were not in "good general health" at time of postoperative report, strengthens the impression that the association is not accidental. Shall we consider the dysmenorrhea as the result or the cause of these conditions?

In some cases, certainly, the neurasthenia is the result of the monthly recurring paroxysms in women with unstable nervous systems. In other cases the women probably suffer no more pain than that which the average woman with a sound nervous system endures as a matter of course. But the neurasthenic morbid woman unable to endure silently the slightest discomfort, by her complaints makes the case apparently one of actual "dysmenorrhea."

In 19 of these cases, however, we have histories of debilitating illnesses or bad hygienic surroundings immediately antedating the dysmenorrhea. Neurasthenia in some of these cases dates from the prostration following a long illness. In some cases dysmenorrhea is apparently caused indirectly by poor physical condition or neurasthenia. The direct connection between these factors and the dysmenorrhea, *i. e.*, the immediate cause of the dysmenorrhea is, as I have remarked, unknown. No one theory is satisfactory.

Dysmenorrhea and Infantile Pelvic Organs.—If maldevelopment of the genital organs is a cause of dysmenorrhea we should expect but little benefit from dilation and curetment, as this operation naturally would have no effect in stimulating the development of these organs. My results show that benefit is received in these cases less frequently than when the organs are normally developed. Of the 20 cases in which maldevelopment of the pelvic organs was present, 75% were not successful. Subtracting these 20 cases with maldeveloped organs, and the four cases in which pelvic inflammatory disease was probably present at the time of operation, we have left from the total 95 cases, 71 in which the pelvic organs are fully developed and absolutely normal. Thirty-seven, or 52+%, of these 71 normal cases were successful, as against the 25% of successful cases in which the organs were poorly developed. This certainly supports the theory that maldevelopment of the pelvic organs may cause dysmenorrhea.

Relation of Chronic Endometritis to Dysmenorrhea.—In 61 of these 96 cases, the curetings were examined microscopically. The results of these examinations do not support the assertion, so often repeated, that chronic endometritis is a frequent cause of dysmenorrhea. For a number of years at the Johns Hopkins Hospital all endometrial curetings have been subjected to a careful routine pathologic examination. When chronic endometritis is found in pathologic specimens, usually there is also inflammatory disease of the tubes or ovaries. Chronic endometritis with tubes and ovaries normal is not often met in this clinic.

In 45 of these 61 cases in which the curetings were examined, the endometrium was found normal. In 9 cases hypertrophy of the uterine glands was present. The endometrium was "edematous" in one case. Six cases showed chronic endometritis. One of these 6 cases, No. 17 (Gyn. No. 5,526), had been wearing an intrauterine stem pessary for five years before admission; her dysmenorrhea was of much longer standing; another, No. 55(Gyn. No. 8,578), probably had pelvic inflammatory disease. In the first case the endometritis was probably caused by the pessary; in neither case can endometritis alone be regarded as the cause of the dysmenorrhea. This leaves but four cases, 6% of the 61 cases, in which endometritis existed as an independent infection of the endometrium, and in which it might be a cause of dysmenorrhea.

Dysmenorrhea and Sterility.—For many years the fact that sterile women are frequently subject to dysmenorrhea has been noted, and the mechanical theory of dysmenorrhea attempts to explain such cases by assuming an obstacle to the entrance of spermatozoa into the uterus. Therapeutic measures intended to overcome this "obstruction" or "stenosis" have been in vogue as a means of curing the sterility as well as the dysmenorrhea. Occasionally previously sterile married women have conceived so soon after dilation of the cervix that it seemed as if the operation was of value in relieving the sterility.

In my series there are 26 cases of women married over a year who have never become pregnant. Three of these cases are among the list of pelvic inflammatory cases and therefore should not be used in drawing conclusions as to the effect of the procedure. Two cases failed to report as to any subsequent pregnancies. The facts in the other 20 cases are recorded below:

Case No.	Gyn. No.	Number of years married.	Age of patient.	Period between operation and conception.	Effect of treatment on dysmenorrhea.
9	5,114	3	31	No subsequent pregnancy.	No relief.
12	5,287	2	33	3 years.	Relief.
14	5, 81	7	29	No subsequent pregnancy.	"
15	5,497	5	22	2 months.	"
17	5 526	4	25	No subsequent pregnancy.	"
20	5,572	2	31	" " "	"
27	6.097	8	27	" " "	No relief.
29	8,101	3	28	5 months.	Relief.
32	6,215	3	26	No subsequent pregnancy.	No relief.
39	7.374	9	27	" " "	" "
41	7,535	7	22	" " "	Relief.
42	7,655	8	36	" " "	No relief.
56	8,747	4	22	" " "	" "
59	8.924	11	30	" " "	" "
65	9.445	1	16	2 years.	" "
66	9,571	4	23	No subsequent pregnancy.	Relief.
74	3,248	8	30	" " "	No relief.
75	8,356	9	29	" " "	" "
81	9.877	5	24	" " "	" "
89	10,503	2	23	2 months.	" "
95	9,992	8	31	1 year.	Relief.

Six of these 20 patients, therefore, became pregnant after dilation and curetment. In the three becoming pregnant in one, two, and three years after operation, it is hard to see how any beneficial effect can be ascribed to the operation. This leaves but three cases, those becoming pregnant in two, five, and two months, respectively, in which any value can be ascribed to the operation in relieving sterility, 15% of the 20 cases.

It would appear, therefore, that dilation and curetment is not of great value in relieving sterility. The

possibility of sterility in the husband, as well as possible attempts to prevent pregnancy, must of course be borne in mind when considering these cases. On such points I have no data.

As two of the six patients who became pregnant were not relieved of dysmenorrhea, while 5 of the 14 who did not become pregnant were relieved of dysmenorrhea, it seems as if the connection between dysmenorrhea and sterility is accidental and of no significance. These women have never had the physiologic cure offered by labor to relieve the dysmenorrhea from which they suffered as young unmarried women.

CONCLUSIONS.

In these 95 cases I would draw the following conclusions:

1. Dysmenorrhea may be primary or secondary. In primary dysmenorrhea the pelvic organs are either normal or else merely poorly developed. In secondary dysmenorrhea marked pathologic changes are present in the pelvic organs, and these pathologic changes are the cause of the dysmenorrhea. The most frequent pathologic conditions causing dysmenorrhea are: (1) Pelvic inflammatory disease; (2) retrodisplacement of the uterus; (3) myomas, especially the submucous variety.

2. Primary dysmenorrhea often dates from debilitating illnesses, and is often apparently caused by anemia, malnutrition, and neurasthenia.

3. In 40% of all cases of dysmenorrhea in which the pelvic organs are normal, or else merely poorly developed, successful results may be expected from dilation of the cervix and curetment of the endometrium. By "successful results" is meant entire or very great relief from dysmenorrhea for a year or more, with or without subsequent return of the trouble. No relief whatsoever may be expected in 30% of the cases. The relief in the remaining 30% varies in degree and duration.

4. The presence of anemia, malnutrition, or neurasthenia does not necessarily cause a bad prognosis after dilation and curetment, but in order to obtain a successful result from the operation these conditions must be rectified. If the patient's general condition is not improved little relief will be given by the operation.

5. The prognosis is better in those cases in which the pains (1) begin the day of flow or the day before, (2) are sharp in character, and (3) last but a day or two. The prognosis is worse when the pains (1) begin several days before the flow appears, (2) are dull in character, and (3) last for several days or throughout the flow.

6. Every operation should be preceded by a careful examination under ether. If the organs are not normal the prognosis is worse. When the history points to inflammatory trouble, even though none can be recognized at the ether examination, its possible existence should be carefully considered. If in such cases an exploratory laparotomy is not thought advisable, it is best to limit operative procedures to dilation of the cervix and omit curetment.

7. In dysmenorrhea recurring after a period of relief following dilation and curetment, the possibility of the new appearance of a pathologic condition in the pelvis, *e. g.*, a retrodisplacement, should be carefully considered.

8. When the pelvic organs are poorly developed, the prognosis for relief after dilation and curetment is much worse than when the organs are normally developed. Apparently maldevelopment of the pelvic organs causes dysmenorrhea.

9. Chronic endometritis is rarely present in cases of dysmenorrhea unless there is at the same time an inflammatory condition of tubes or ovaries. Chronic endometritis alone is rarely a cause of dysmenorrhea.

10. Sterility is relieved by dilation and curetment in but 15% of the cases of sterile married women who are in the child-bearing period. The relief of dysmenorrhea does not necessarily mean the relief of the sterility, and vice versa, sterility may apparently be relieved without relief of the dysmenorrhea.

The relationship between dysmenorrhea and sterility seems an accidental one, and of no significance.

11. While dilation and curetment in the majority of cases is perfectly safe, still when the technic of the operator is imperfect, either on account of unfavorable surroundings or lack of proper skill, it may be exceedingly dangerous.

METHOD OF ADMINISTERING MERCURY IN SYPHILIS.

BY

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That mercury not only relieves symptoms but is curative in syphilis is the accepted view. Ever since its introduction at the end of the fifteenth century it has kept its place as one of the few specifics we have to battle with this disease. Confronted with lues, we administer the drug with the same confidence to cure our patients as we administer quinin in malaria or antitoxin serum in diphtheria. If, time and time again, it has found adversaries, "antimercurialists" by the score, it is mainly due to the fact that an overaction of this drug, like many others of our therapeutic agents, may cause serious troubles. It is firmly established by the investigations of syphilographers of the past and present that the injuries caused occasionally by the administration of mercury have no connection with the symptoms caused by a syphilitic infection, and if even at the present, voices are heard to the contrary, they are disregarded as unscientific by the profession. It is the method of administering that has caused opinion to divide. Mercury in any form will cure the disease, and this is the reason why it is difficult to decide upon this point. Yet it seems to be the almost unanimous opinion of experienced observers to use the mercury by inunction. This notwithstanding its defects, has given the best and most permanent results.

When administered by inunction it is mechanically pressed through the pores of the skin into the glands and hair follicles, where the glandular secretions convert it into a compound that can be absorbed.[1] Some of it is inhaled. Mercury has been excreted by the kidney in patients living in the same room with others that were

[1] Neuman and Fürbringer.

treated with inunctions. The mercury absorbed by inhalations seems to be of minor importance. The method once in vogue to administer calomel in this way has been entirely abandoned.

Regarding the hypodermic injection of soluble mercury, preparations were used occasionally by Hebra and Hunter, and finally permanently introduced by Lewin. During the last 15 years the injection of insoluble salts has been added, and, like the former method, has given good results in many instances, and has found its adherents. The administration by the mouth, on account of its convenience, is preferred by the patient and largely used by the general practitioner, in outdoor clinics and in some of our hospitals.

It is the undivided opinion that to prevent future trouble, the first treatment must be active and acute and it seems therefore of the greatest importance to settle upon the most reliable method. Though the consensus of opinion among specialists points to the inunction method as the one that promises the best results, an explanation beyond showing superior clinical results, why this should be selected, has never been given within my knowledge. At a recent meeting of the Louisiana State Medical Association the question was asked but left unanswered. This, as well as the hope that an explanation of this question might lead to a more general use of the method by the general practitioner and in our hospitals and clinics, has prompted me to advance one.

Studying the progress of the disease we find that a lymphadenitis is one of the first symptoms. A few days after the primary effect has made its appearance, generally in the third or fourth week after infection, lymphatic glands may be palpated in the neighborhood of the ulcer. The glands are more or less hard, sometimes stone-hard, and reach the size of a bean or walnut, rarely larger and are usually easily movable. The disease spreads from gland to gland so that in from six to eight weeks all the glands of the body are swollen. It is quite typical that this takes place without causing pain, redness, or heat of the invaded glands and is so characteristic that it frequently allows a positive diagnosis to be made. If the ulcer is located, as is usually the case, upon the genital organs, the inguinal glands are the first invaded. The swelling of the glands lessens with the increase of distance from the seat of infection; this differs only in exceptional cases.

The process consists of an irritation by the syphilitic virus causing interstitial tissue growth and finally breaking down of the newly-made tissue "cheesy degeneration." That the virus exists in the glands has been shown by Baum, who, after taking lymph from an infected gland, inoculated a healthy individual, causing a typic syphilitic infection. It goes without saying that the invasion of the glands takes place along the lymph vessels and these are diseased as well, as has been shown in many instances.

If it must be admitted that the general infection of the body takes place along the lymph vessels and glands it seems at once clear why the inunction method should give better and more permanent results than any of the others now in use. The absorption of the ointment through the skin takes place by way of the lymphatics and the drug is immediately brought in direct contact with the virus, destroying it and preventing its spread. That this is actually the case seems to be proved not alone by the work of Neuman and Fürbringer as stated, which shows the far better results obtained by the employment of this method generally, but especially by the fact that the enlarged gland which will not be affected by the employment of any of the usual administrations will respond to local applications. The enlargement of glands is one of the earliest and one of the latest symptoms of syphilis and is always of greatest importance. Just as it is pathognomonic in the early stage of the disease so it will assist the physician to come to a conclusion, when, after years have passed, he has to answer the question whether a complete cure has been effected. For diagnostic purposes it may be remembered that syphilitic glands do not cause pain as a rule, whereas in malignant tumors pain is frequently severe, also the rapid growth of the sarcomatous glands and the metastatic nature of carcinomatous glands should be kept in mind. Leukemia can be easily differentiated by a blood-examination and pseudoleukemia shows greater tendency to degeneration, a slower and less malignant progress.

In some cases the history will assist to make a correct diagnosis, yet there remain many in which it is almost impossible to make a positive diagnosis. Experience has shown that we cannot do harm with a carefully conducted antisyphilitic treatment, and that in such cases it is wise to treat, and as it has been said, to make a therapeutic diagnosis.

It is of importance to remember that the lesions of the skin, the affection of the vessels and viscera, of the bones and nervous system follow the lymphadenitis, and that after all symptoms have disappaared glands may remain enlarged, perhaps palpable when superficially located, but not to be detected when deeply seated. These contain deposits of the syphilitic virus that may remain dormant for years, and when the resisting power of the body is lowered by various causes, as an infectious disease, a wound, exposure, excesses in venery, and alcoholic beverages, they may be set free and again invade the organism.

Glands are first invaded from the seat of infection, and may keep deposits of the virus when a cure seems perfect. I am confident that if all the glands of the body were subject to inspection we could tell with ease whether our patients are cured, but as this unfortunately cannot be done, this important question, so often anxiously asked, will remain doubtful, and we must content ourselves with doing the best we can. The method best adapted to attack the virus in its strongholds should be selected, and various treatments directed at intervals, to eradicate it. If after years have passed any disease or ailment, no matter how apparently light, will not yield to the usual means, a suitable antiluetic treatment should be employed at once. Too frequently this is neglected. The investigations of Baum and Virchow have shown, as can be expected from the course and progress of the disease, that the glands keep the virus. Koebner was the first to call attention to the fact that the swollen glands yield far better to local applications than to any other method.

To sum up: The virus spreads from the seat of infection along the lymph channels, and glands remain swollen when no other symptoms of the disease can be discovered. Secondary infection of the vessels, viscera, and nervous system takes place, and late infections can be easily explained by such deposits of virus.

In spite of all methods of treatment relapses occur, but according to all observers, inunctions protect best, and swollen glands yield best to local applications. These facts, I believe, support the theory that mercury used by inunction is taken up by the lymphatics and brought immediately and directly in contact with the virus, immunizing the glands and making them unfit for deposits of the poison.

If the drug is used by mouth it has to travel a circuitous route to reach the original deposits, and part of it is lost by way of the intestines, kidneys, and liver. If given by injections of soluble salts, it meets a similar fate, as it is largely taken up by blood capillaries, and this is also true if administered by injection of insoluble salts, though better results seem to have been obtained by this method, which gives the lymphatics a better chance. The method is dangerous in the event a stomatitis is set up. Absorption takes place constantly, as long as there is mercury left in the deposit, and we have no way to stop it. This alone ought to be sufficient to condemn this method in most cases when another method may be employed with superior results.

Though employment of inunctions deserves a serious consideration in all cases, I do not want to say that in exceptional cases not one or the other of the various methods may be found preferable. All have their defects, and all are more or less followed by relapses; but, again, this occurs less often in the inunction method.

It is true that the employment of mercury by inunction is inconvenient, dirty, and tiring, and that a stomatitis, intestinal colics, erythema, and eczema cannot always be avoided and that the exact amount of the mercury absorbed cannot be determined. Most of these defects are shared by the other methods, and especially this last point upon which so much stress has been laid offers no more certainty than we encounter when the drug is administered by mouth or hypodermic injection. It is true that the amount given by mouth or injection can be exactly determined, but it is also true that the amount left in the system to act is an unknown quantity.

Inunctions are painless, do not disturb the digestive system and, above all, clinical experience shows "they give superior results." The progress of the disease along the lymph channels, with deposits in the glands seems to prove the explanations advanced and on this account inunctions should be preferable to all other administrations, and it also explains why it will be impossible for us to decide whether a cure has been perfected. "Deepseated glands cannot be inspected." It urges the necessity of repeated treatment when no syphilitic symptoms can be detected, a method that has, and has had, many adversaries simply for lack of an explanation, dictated only by experience, and further explains late infections from dormant glandular deposits, calling for a course of treatment when no symptoms can be detected and the severe atypic course of an infectious disease or the persistence of a gunshot wound not yielding to proper treatment, are the only indications of the hidden infection. A rapid cure after treatment is commenced frequently confirms the diagnosis.

It is a well-established fact that syphilis of the nervous system occasionally gives the exact symptoms of tabes dorsalis and of progressive paralysis, and it is also well known that the diseases are parasyphilitic, and incurable at the present. Causes that will produce neurasthenia in the healthy will produce paresis in the syphilitic.

A number of prominent observers, among whom are Leyden, Senator, and Oppenheim, claim that the treatment is sometimes injurious after a positive diagnosis of tabes or paresis has been made. This is doubtless correct, the difficulty lies in making a positive diagnosis.

Yet again and again we hear of cures by an antisyphilitic treatment. This apparent discrepancy of competent observers is readily explained by our theory and at the same time encourages the physician to treat vigorously, even if no syphilitic symptoms can be discovered. The success of the treatment depends on the fact that the process is syphilitic, and not tabetic or paretic.

The success obtained at Hot Springs is not due to the waters, but to the inunctions given.[1]

Treatment.—If the ulcer can be extirpated without difficulty it ought to be done in every instance to insure healing by first intention, to modify favorably general infection, and perhaps prevent it altogether in a few cases. After positive diagnosis has been made, generally only after the appearance of constitutional symptoms, characteristic enlargement of glands, skin eruptions, etc., mercury ought to be administered.

The mercury may be given by inunction in from 3. gm. to 7.78 gm. (45 gr. to 120 gr.) doses, in severe cases, blue ointment should be used each 24 hours.

The patient is directed to divide the amount into two equal parts, and use the one for each leg over the inside, with vigorous massage. It is necessary to continue the rubbing for 15 minutes over each side to cause absorption, and it is best to control the time by the watch, as the process is tedious and too often the time of rubbing is shortened by the patient. The second day the process is repeated over the inside of the thighs in the same manner, the third day the inside of the arms, fourth day, chest and abdomen; the fifth day the back must be treated, and on the sixth day a full warm bath for cleansing purposes is administered. To prevent colds, especially during the winter, the patients are directed to use the inunction before retiring. The patient may use the inunction himself during the first four days, after full instructions, or all may be given by a professional masseur. Thirty inunctions generally constitute a full treatment. In other words, the process has to be repeated six times.

Belladonna ointment may be added to the mercurial

[1] Tabes can be benefited and occasionally brought to a stop by the usual mostly hygienic treatment. In paralysis not even this can be done.

ointment, as is customary in this country, to make it more pliable, and for its action upon the salivary glands. Attention must be paid to good nutrition; the sign of a well-conducted treatment is that the patient feels better, and gains in weight.

It is best to give the inunctions at home and to send the convalescent to a watering place or to travel to stimulate metabolism and to change the accustomed surroundings. The inunctions are given on the inside of legs and arms, places which are most free from hair and where the skin is most tender. A mercurial eczema may occur and has to be treated in the usual way. The inunctions have to be discontinued for a few days and the eczema treated with zinc oxid paste.

This is the method first used by Sigmund and after him by many others and still holds good. Treatments have to be repeated for at least two years, generally one every six months will be found sufficient. Iodin in some form has to be added to complete the cure. Fournier recommends the chronic intermittent methods.

Mercurial treatments change off with iodid medication, separated by intervals, more frequent during the first year, gradually diminishing in number.

Local applications to the swollen glands are of the greatest importance and have to be repeated again and again in the course of years till none can be palpated. Only after this result has been obtained ought the patient to be discharged. It is, of course, understood that during the administration of mercury the mouth has to be kept in perfect condition.

A certain analogy between tuberculosis and syphilis insofar as both infections spread along the lymphatics and keep the virus dormant till the resisting power of the organism is lowered, has led me to employ inunction in tuberculosis. I have selected iodoform, which on account of its specific effect on the bacilli, I have given by mouth to my patients in hospital and private practice for years with good results. The results obtained by inunction, so far as I have tested this method, are superior. Looking over the literature I find that Flick, of Vienna, recommends the method. I have not been able to see the original paper.

INTRANASAL DRAINAGE OF THE FRONTAL SINUS.[1]

BY

E. FLETCHER INGALS, M.D.,

of Chicago.

The objections to opening the frontal sinus by an external operation have led to many efforts to obtain intranasal drainage; but the dangers attendant upon enlarging the nasofrontal canal by most of the methods heretofore proposed have been great, and the drainage secured imperfect, and because of a tendency to speedy closure of the opening, the various operations proposed have been found very unsatisfactory. I desire, therefore, to call attention to an operation that, I believe, will be found of great value in many cases, and in so doing will present the histories of a few cases that illustrate the technic of the operation and show its results. I do not offer this operation as a certain cure for chronic suppurative sinusitis, but it is safe, efficient, and causes no scar, and I confidently recommend it in suitable cases for establishing free drainage, which is an essential factor in the curative treatment.

[1] Presented to the American Laryngological Association, Atlantic City, June, 1905.

CASE I.—In the early part of 1904, I had under my observation a lady suffering from suppuration of the frontal sinus, who had been under my care at intervals for 16 years. A reference to the old record shows that at the first visit there were polypi in the left nasal cavity. In the spring of 1893, suppuration of the ethmoid cells was noted, and in February, 1895, I find the first record of having washed out the frontal sinus through the natural opening with antiseptic solutions. Subsequent to that she had been treated for the discharge and other catarrhal symptoms by detergent and antiseptic washes and sprays, but at no time had I been able to induce her to accept a radical operation for the suppuration of the frontal sinus. Suppuration of the antrum of Highmore had also developed and an opening had been made through the alveolar process by which free drainage had been established. When her symptoms were especially bad, I would sometimes see her frequently, but at other times several months or even years would intervene between her visits to my office. All of this time, however, more or less purulent discharge was escaping from the left naris. During the fall of 1902 her symptoms became so annoying that the frontal sinus was washed out frequently with a saturated solution of boric acid, followed by a silver solution. In the meantime the partitions between the ethmoid cells had been broken down, the cells cleared out and the antrum of Highmore had healed. During June, 1902, the patient was seen frequently. She improved considerably, but again in the latter part of July and the early part of August she was treated about every third day. It is recorded by one of my assistants on September 2 of that year that there was no more purulent discharge, and neither pain nor fulness in the frontal region. In October, however, the discharge had returned, and from that time forward until March, 1904, she was treated irregularly, but on an average of nearly once a week. At this time her persistence in declining a radical external operation, and the continuance of the discharge, led me to devise a new operation for internal drainage. I had frequently given this matter considerable thought in connection with this particular case, but had never struck upon an idea that worked out satisfactorily. I finally conceived the idea of making a hollow drill or burr which could be run in over a pilot and thus enlarge the normal opening without danger to adjoining parts. In working out the problem, I very naturally met with discouragements, but finally perfected an instrument that yielded most satisfactory results. The instrument consisted of a steel pilot from 1 mm. to 2 mm. in diameter, a hollow burr attached to a flexible hollow wire cable and this to a hollow steel tube which had a shank for attachment to the chuck of a dental engine; also a spiral steel tube that fitted easily over the cable of the burr which was designed to prevent irritation of the nasal mucous membrane when the instrument was in operation (Fig. 1).

In addition to these, a packer similar to a uterine packer, but bent at a curve corresponding to the outlet from the frontal sinus, was made for drying out or cauterizing the frontal sinus after the canal had been enlarged (Fig. 2). Later a self-retaining gold tube with an internal caliber of 5 mm. was made (Fig. 3); also a simple instrument for its introduction and a small syringe for subsequent treatment of the frontal sinus by the patient (Fig. 4). I experimented with the instruments upon the cadaver until I had them perfected. On March 25, 1904, I operated upon the patient. First, I washed out the sinus thoroughly with equal parts of hydrogen dioxid and a saturated solution of boric acid, and followed this by a saturated solution of boric acid, which left the cavity clean. I then introduced into the frontal sinus a 10% solution of cocain with 1 to 4,000 of suprarenalin. By this, anesthesia was secured in a few minutes. I then introduced the pilot and passed in over it the hollow burr, and over this the spiral tube; the burr was then connected to the chuck of an electric motor. I then had the patient inhale ethyl chlorid for about two minutes, by which time she was unconscious. The

electricity was then turned on, gentle pressure made, and the burr ran into the frontal sinus in about six seconds. I then introduced a curet, which had been made for the purpose, and cut away the mucous membrane about the opening from the frontal sinus into the enlarged canal. After this was completed, I introduced the curved packer and passed through it an inch strip of absorbent gauze until the sinus was filled. This was left for a few minutes and then drawn out, when bleeding seemed to have ceased entirely. I then introduced through the packer a strip of the same gauze saturated with a 95% solution of carbolic acid. This cauterized the inner part of the frontal sinus quite thoroughly and was then withdrawn through the packer. I next introduced through the packer a strip of gauze of the same kind, which had been saturated with iodoform and left it in that position for three days. At the end of that time the patient reported that she had suffered a great deal of pain and I found



Fig. 1.—Ingals' Pilot Burr; two-third size. A, pilot; B, burr; C, shield.

that temperature had run up to 103.6° F. On account of the pain she had removed the packing herself. No bleeding had occurred.

At this time I hoped that the large canal which was 6 mm. in diameter would remain patent until the empyema of the sinus had been cured. Subsequently the patient washed out the frontal sinus daily with a solution of boric acid followed by a silver solution. I applied a stronger solution about once a week when she came to my office. The discharge from the frontal sinus steadily diminished and it appeared as though she would speedily recover, but in about 6 weeks the pains returned over the frontal sinus and upon investigation I found that the canal had been narrowed to about 2 mm. in diameter at a part of its course, by the formation of new bone tissue. After anesthetizing the parts, I again ran the burr in over the pilot and then introduced the self-retaining gold tube like the one I had made for Case II. Subsequently I saw the patient about once in from four to eight weeks until she came to me on December 8, when I discovered that the gold tube had gradually worked its way downward nearly half an inch. In the meantime the purulent discharge from the frontal sinus had ceased, but in her attempts to wash out the naris she had discovered that there was something wrong with the tube. The gold tube in this case had retained its position about six months. I withdrew the tube without difficulty and opening out the springs farther so as to make its retention more sure, I reintroduced it and she has worn it without any change in position and without any discomfort up to the present time. When I removed the tube on December 8, 1904, I examined the canal with a probe and it felt as though it was covered with mucous membrane throughout its entire length. There has been no purulent discharge from the frontal sinus for many months and the patient is considered cured, although as a precaution she is still wearing the tube. I shall advise its removal the next time I see her.

This case illustrates the possibilities of intranasal drainage even in very protracted suppuration of the frontal sinus. From it I learned that the tube had a tendency to work gradually downward, but I found that by opening the gold springs outward so as to bring their outer ends about 13 mm. apart (instead of 9 mm., as at first) this tendency was overcome.

CASE II.—M. R. P., male, aged 42, came to me from Mississippi in March, 1904. He stated that 16 years previously after a hard cold he had been left with an offensive purulent discharge from the right naris. This had continued ever since. Nine years before I saw him, empyema of the antrum of Highmore had been diagnosticated, a bicuspid tooth had been drawn, a free opening made into the antrum, and the patient had washed this cavity regularly ever since. His general health was fairly good, although his digestion was poor and he was suffering at the time from a mucous colitis. There were no symptoms of pulmonary disease; the fauces and larynx were normal. I found tenderness over the right frontal and maxillary sinuses. Both nares were four-fifths closed as a result of an acute rhinitis. There was some pus in the right naris, and a mucous polypus was found in the middle meatus. There was a small opening through the alveolar process into the antrum, through which the patient washed out the cavity. Transillumination showed a distinct shadow over the right antrum of Highmore, and a less marked shadow over the right frontal sinus with normal conditions on the left side. A diagnosis of suppuration of the frontal sinus was made. The same day I removed the polypus and the anterior end of the middle turbinated body from the right side and packed the naris with iodoform gauze. The packing was removed three days later, and the naris cleaned with antiseptic solutions. April 4 a detergent and antiseptic solution was given the patient with which he was to keep the naris free and clean. April 5, I cleaned out the middle meatus thoroughly of all polypoid tissue, opened a couple of ethmoid cells and removed a polypus from one of them, and again packed the naris to prevent bleeding. The next day I removed most of the packing, and the following day a large mass of fibrinous deposit was removed from the same side, but the upper part of the naris was so swollen that I could not inspect it. At this time I passed a large bent trocar into the right antrum through the inferior meatus, and after withdrawing the stylet, packed the cavity through the tube with an inch strip of absorbent gauze that had been treated with iodoform. This was allowed to remain four days. The next day, the swelling of the upper part of the naris having partially subsided, I passed a silver canula into the frontal sinus, washed it out with hydrogen dioxid and a boric acid solution; washed out the antrum with the same solution, and later injected a silver solution into both of these cavities. This treatment was continued three or four days to allow healing of the wounds, and on April 16 I enlarged the nasofrontal canal in the manner described in Case I, by the hollow burr passed over the steel pilot. In this instance, the burr passed into the frontal sinus in less than a second—in so short a time, indeed, that I did not know it had entered. The noise caused by the hollow cable turning on the pilot, was so like that of the burr cutting bone that I thought I was still drilling, and this was kept up for several minutes. I knew that the projecting end of the pilot would surely prevent injury

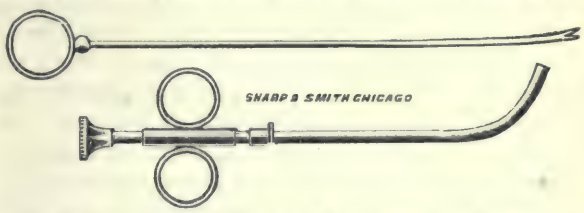


Fig. 2.—Frontal Sinus Packer; one-third size.

to the upper wall of the frontal sinus, so that I did not hesitate. Finally, as I was making no progress, I withdrew the burr, and then discovered that it had been in the frontal sinus for several minutes. I cauterized the frontal sinus and the enlarged canal with 95% carbolic acid, carried through the packer, as in the former case, and then introduced a virgin silver tube, both ends of which had been slit down 12 mm. in several places, and then I attempted to bend out these ends, both above and below, with various instruments, but there was a good deal of bleeding, so that it was very difficult to see, and as a result, this part of the operation was tedious and unsatisfactory. I washed out the sinuses as before for the next five days, and then becoming satisfied that the silver tube would not answer the purpose, I removed it. In the meantime I had made a tube of spring of gold, 3.5 cm. long, 5 mm. internal diameter, with an ovoid, cup-shaped lower extremity, and upper ex-

tremity slit down 18 mm. in 6 places, so as to make 6 gold springs each 2.5 mm. in width. The upper end of each spring had been bent over so as to make a blunt end that would not irritate the lining of the frontal sinus. This tube was bent to correspond to the curve of the canal. The springs were bent outward so that they would flare at the upper end 9 mm. In introducing this tube the springs were pressed together and enclosed in a gelatin capsule. An obturator was passed into the tube, and it was quickly carried up the canal into the frontal sinus. The capsule dissolved in a few seconds so that the springs were released and the tube was firmly held in position. Subsequently there was perfect drainage from the frontal sinus and the patient could easily wash out the cavity and apply remedies. He also washed out the antrum regularly. As the patient was very anxious to return to his home in the South, he was given directions about washing out the sinuses and allowed to go.

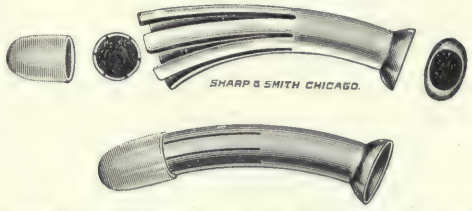


Fig. 3.—Ingals' Self-retaining Spring Gold Frontal Sinus Drainage-tube; full size. The upper portion of the cut shows the drainage-tube with springs bent with a circle showing the actual size of the tube at the left and to the left of this the capsule; to the right, actual size and form of the lower end of the tube. Lower portion of this cut shows the tube with capsule slipped over the springs ready for introduction.

Four months later he reported that there was still a purulent discharge from the nose, that the opening into the antrum had apparently closed, but that he could wash out pus through the fistulous tract in the alveolar process. He stated that the frontal sinus tube had apparently worked down a little way and asked if it should be removed. I advised him not to do so. Three months later he reported that the frontal sinus tube had worked down nearly to the nostril. As he could not return to Chicago, I advised that his local physician get the necessary instruments, remove the tube, and enlarge the canal again if necessary.

In reply to a letter of inquiry, I recently received a letter from the patient dated May 10, 1905, 13 months after the operation, in which he states that the gold tube gradually worked down to the lower part of the naris, when it was removed by his local physician between eight and nine months after the operation. A free permanent drainage canal into the frontal sinus remained, through which he could easily wash out the cavity, and all purulent discharge from the sinus has ceased, although there is still some discharge from the antrum.

In this instance the tube gradually worked down so that at the end of four months it should have been replaced. Although it allowed perfect drainage from the frontal sinus, the latter continued to suppurate and it seemed probable that an external opening and curetment would finally be necessary, but complete recovery took place within nine or thirteen months.

CASE III.—Miss L. M., aged 25, came to me April 25, 1904, with the following history. For four years she had suffered from an offensive purulent discharge from the right naris with severe pains over right eye. There was also tenderness over right antrum of Highmore, over the right side of nose and throughout an area of 8 cm. in diameter at the top of the head. She had considerable cough and much trouble with her stomach which was apparently caused by swallowing the pus from the naris. Her appetite was poor and for several months she had had frequent pains in the stomach. She had lost a little flesh, was not up to her full strength and when I first saw her, she had an increase of 1° in temperature. Examination of the chest and abdominal organs yielded negative results. There was marked tenderness of the supraorbital plate just beneath the inner portion of the eyebrow. Transillumination showed marked shadow over right frontal sinus and right antrum. I had no difficulty in passing a probe and canula into the right frontal sinus, the anterior end of the middle turbinated body having been removed before the patient saw me. At her first visit, I removed the anterior end of the inferior turbinated body in preparation for an opening into the antrum from the inferior meatus. March 4, I washed out the frontal sinus thoroughly with hydrogen dioxid and a saturated solution of boric acid, then introduced a small quantity of a 20% solution of cocain in 1 to 4,000 of suprarenalin. In about three minutes I followed this by the introduction of the pilot, slipped the burr over it, connected this with the chuck, then gave the patient ethyl chlorid, by which she was completely anesthetized in about two minutes. The motor was turned on and the burr passed into the frontal sinus in about a second. It was withdrawn, the packer introduced and through it a strip of gauze saturated with 95% carbolic acid which was allowed to remain about 5 minutes. It and the packer were withdrawn and with a ring knife the mucous membrane was cut away about the opening from the frontal sinus into the canal, it having been shown in the operations upon the cadaver that the burr did not make an opening through the mucous membrane more than about half the diameter of the opening through the bone.

This same plan had been followed in previous operations, but subsequently I dispensed with the cutting away of the mucous membrane because the gold tube perfectly prevented it from interfering with drainage, and its presence appeared to me likely to facilitate, by just that much, lining of the canal with new mucous membrane. I then introduced the gold tube with a capsule over the end into the frontal sinus, introduced a probe to push off or break the capsule, and the operation was complete. The patient was then given ethyl chlorid for a minute, and with a Krause trocar I opened through the inferior meatus into the antrum. This opening I enlarged with a sharp spoon, hoping to make it permanent. The same packer that was used in the frontal sinus was then introduced into the antrum and the cavity was filled with iodoform gauze, and a portion of the naris was also packed with gauze, which was allowed to remain two days; then the antrum and frontal sinus were again washed out. The patient was instructed how to wash both cavities herself, and a silver solution was ordered to be used after washing them each day. I saw her again in six weeks, and found that she had been doing very well until a few days previous to the visit, when she began having pain in the head. The tube had apparently been crowded down a little, but it was not removed. A week later, on a careful examination, I found that the tube had been crowded down about 9 mm., and it was held firmly. Passing a steel probe through it, I felt what appeared to be new bony tissue closing the canal into the frontal sinus just above the end of the tube. I removed the tube and found that the opening through the upper part of the canal, which had been partially closed by new bony formation, was apparently only about 1.5 mm. in diameter. I introduced the pilot into the frontal sinus, anesthetized the patient, and easily ran the burr over it into the frontal sinus. I bent out the springs of the tube so that they would be separated from each other about 12 mm., and then reintroduced it. I found also that the opening into the antrum through the inferior meatus had completely closed. This was opened again, and reamed out to 1 cm. in diameter.



Fig. 4.—Syringe for washing Frontal Sinus; two-third size.

The patient was directed to continue the home treatment in essentially the same way as before. I saw her again the next week and washed out the sinuses. The following week it was noted that the pains in the head and the nose had practically ceased and that the antrum was not suppurating, though pus

was still coming from the frontal sinus. About two months later it was noted that there was still suppuration from the frontal sinus, and she was having some pain over the right eye and in the top of the head, but there was no pain over the antrum. I recommended opening through the front wall of the sinus for curetment, but she could not submit to the operation at that time. On February 7, 11 months after the operation, I removed the drainage-tube and explored the canal and the frontal sinus with a probe. The canal seemed to be lined with mucous membrane, but I did not deem it wise to remove the tube permanently until after the frontal sinus had been cureted. The opening into the antrum had again nearly closed, and was enlarged; at this time we endeavored to set a time for the radical operation, but circumstances prevented us from doing so. May 12, 1905, in response to my letter of inquiry, the patient called at my office. She stated that she was worse than ever, and I found a profuse purulent discharge from the naris. The opening into the antrum of Highmore through the inferior meatus had closed. Three months previously a radical operation had been done on both the frontal sinus and the antrum. The operation seemed to have been well done, but instead of improvement she reported herself worse, and she had been considerably disfigured by the operation. Upon examining the drainage canal that I had made I found it of full size, with smooth walls, evidently lined with mucous membrane. She had worn the gold tube until it had been removed at the time of the radical operation. In this case I established free permanent drainage, and accomplished much more for the patient's comfort than did the radical operation.

Case IV.—M. C., aged 30. I was called to see this patient in consultation with Dr. L. N. Grosvenor, who had been treating the nasal cavities for about eight weeks, having removed considerable tissue that appeared like granulation tissue. The symptoms indicated disease of the frontal sinus. The patient was having much pain and running a temperature of 102° or 103°. We anesthetized the patient and I introduced a silver drainage-tube made in the same form as the gold ones that I had previously used. The next day the temperature was only 99° and the patient appeared to be considerably relieved. I was called to see him again a few days later and I found that the drainage from the frontal sinus was free, but the nasal cavity was nearly filled by a rapidly growing tumor, which we decided to be of a malignant nature. The patient died of the disease about four weeks later. This patient had to be operated on in bed, but the position caused no difficulty.

Case V.—M. T., aged 41, came to me in April of this year, complaining of suppuration of the frontal sinus, for which he had already undergone a radical operation, but the drainage canal into the nose had become nearly closed and an opening remained at the inner end of the eyebrow, through which pus escaped every day. His pulse was 100, temperature 99¼°. Transillumination showed a distinct shadow over the right antrum, but the frontal sinus was translucent. On account of the contraction of the canal from the frontal sinus, I enlarged it with the pilot burr, as in the operations already reported, and put in the gold tube. I found, however, that the upper end of the tube apparently struck against the upper wall of the frontal sinus, so that the flange at the lower end was about 5 mm. below the nasal opening of the canal. I therefore had another tube made about 7 mm. shorter and substituted it for the first one. Thereafter he was able to wash out the cavity easily and was given directions for its care similar to those I had given in previous cases. He was under my observation about two weeks, and everything appeared to be doing well. He returned two weeks later and said that he had no difficulty in treating the sinus, but the amount of discharge appeared to be about the same as formerly. He was directed to wash it out with a silver solution.

These cases have been reported as the patients came to me in order to give an opportunity for an unbiased judgment of the value of this operation. The first case, although of many years' duration, resulted in cure within nine months. The second case probably began 16 years before I saw it. The patient was allowed to go home the day after the gold tube was inserted, since which time he has attended to the treatment himself. The tube was removed in about nine months; the large drainage canal remains, and in less than 13 months he reports that there is no discharge from the frontal sinus. He does not state just when it ceased, but from his letter I should think it was within ten months after the operation. The third case was of four years' duration, and the purulent discharge was very profuse. Free drainage was established and remained, although the tube was removed at the end of about 11 months. A radical operation through the front wall of the sinus has increased the discharge and discomfort, but she had perfect drainage. All these cases were complicated with empyema of the antrum of Highmore.

In three of the cases the tube worked down within from a month and a half to four months, so that it had to be removed and reintroduced. From the fact that after opening out the springs wider the tubes have all been retained for several months without displacement, I think that the cause of their gradually working down has been overcome. The operation can be recommended only in cases in which it is practicable to introduce a probe, but in all such I believe that it is safe and efficient in establishing drainage. I am confident that in many instances free drainage will effect a cure, but when the frontal sinus is much diseased, curetment is necessary. Even in the worst cases I think this operation might be very advantageously done before the radical operation, thereby establishing free nasal drainage and securing practically normal tissues in the nose before the curetment of the frontal sinus and thus limiting very materially the annoyances and dangers of the radical operation, because the nasal cavity and the drainage canal would not be sore, and the wound through the eyebrow could be immediately closed.

The following conclusions seem to me reasonable:

1. This operation for intranasal drainage of the frontal sinus can be easily, quickly, and safely done in those cases in which it is possible to introduce a probe through the nasofrontal canal.

2. It establishes free drainage and furnishes a means whereby the patient may without aid wash out and medicate the sinus as desired.

3. I cannot conceive of a hemorrhage resulting from this operation that could not be checked by the packing, except in hemophilia.

4. The pilot effectually prevents perforation of the cerebral wall of the sinus.

5. The patient's consent can be obtained for this operation much more easily than for an opening through the eyebrow and thus many cases may be cured in their incipiency that would otherwise prove very tedious and would ultimately demand a more serious operation.

6. This operation would probably prove curative in nearly all cases of acute suppurative frontal sinusitis.

7. It will prove curative in a large percentage of chronic cases.

8. It will be a valuable preliminary to the radical operation in practically all cases.

9. From the curative results in two out of three chronic cases and from the marked benefit in the third,

it would appear that the advantages of this operation are so marked that it should be recommended in preference to the external operation in practically all cases, for even if a cure should not result, the conditions will be improved for a radical operation.

VALUE OF DRUGS IN THE TREATMENT OF INSOMNIA.

BY

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SECTION V.

DRUGS AND INSOMNIA.

Few, if any drugs are universally extolled for any special condition. This is chiefly owing to faults in their administration. All the relevant features of a case have not been correctly considered or observed. But whatever else there may be peculiar to a case, there are two points to be always remembered in the administration of hypnotics, namely, the degree of vascular tension, and the condition of the stomach. As a rule, no hypnotic should be given within five hours after taking food, if the best result is desired.

Although I only name a few observers, most of the drugs mentioned have many other endorsers for their claims as stated. Details of their chemic, physiologic and clinical qualities, etc., together with their references, will be given in subsequent articles.

In *simple* insomnia, Dr. F. Gordon recommends chloralose as more reliable than chloralamid. Veronal also has strong advocates for the same condition. In the insomnia of *neurasthenia* proper, Macfarlane recommends sulfonal 1.3 gm. to 2.6 gm. (20 gr. to 40 gr.), taken in a hot drink before retiring. Water, milk, gruel, or soup may be used. Shoemaker recommends the warm bath at 100° just before retiring. Macfarlane also recommends the following prescription:

Spirits of chloroform . . . . . 15 cc. (½ oz.)
Tincture of sumbul . . . . . 15 cc. (½ oz.)
Tincture of lupulin . . . . . 30 cc. (1 oz.)

Take 7.5 cc. (2 dr.) in water every hour or two until sleep is procured.

Dr. C. W. Suckling recommends sulfonal 1.3 gm. (20 gr.) in warm milk every other night.

Dr. Lermette specially recommends chloralamid, and the same agent is also strongly endorsed by Peiper for nervous people and in cases of subacute rheumatism. But veronal, bromipin, and hedonal have also strong advocates in neurasthenic insomnia.

For the insomnia of *fatigued brain*, Dr. Warburton Begbie recommended spirits of turpentine. It may be given in doses of .9 cc. to 1.8 cc. (15 m. to 30 m.) in capsules at bedtime. Ale or beer, with bread and cheese, on retiring, usually renders good service in such cases.

In insomnia from *overwork*, without anemia, Macfarlane recommends the following prescription:

Lithium bromid . . . . . 2.6 gm. (40 gr.)
Fluid extract of ergot . . . . . 3.75 cc. (1 dr.)
Tincture of digitalis . . . . . 1.25 cc. (20 m.)
Chloroform water . . . . . 55 cc. (15 dr.)

One-half two hours before and one-half at bedtime.

It is said that in cases of excessive mental activity in study or business, hydrobromic acid has the same beneficial influence as the bromids, and without their evils.

In *hypochondriac* insomnia the following prescription is recommended when the blood tension is low:

Ergotin . . . . . .065 gm. (1 gr.)
Extract of nux vomica . . . . . .03 gm. (½ gr.)
P. digitalis . . . . . .065 gm. (1 gr.)

One pill three times a day.

For the same condition dormiol may be given at bedtime.

In the insomnia of *hysteria*, Macfarlane specially recommends paraldehyd, monobromid of camphor, amylene hydrate and sulfonal. But for the same condition, ammonium valerianate, bromipin, hedonal, veronal, and chloralamid have also strong advocates. It is said that chloral tends to increase the hysteria. In *violent hysteria*, hyoscin used hypodermically is the most effective agent. In cases of *paralysis* with insomnia, hedonal is well endorsed.

For the insomnia of *worry*, Macfarlane recommends spirits of turpentine, .9 gm. (15 m.), in capsules on retiring; but sulfonal, urethane, paraldehyd and hypnone have all been prescribed with good effect for the same condition. Macfarlane also recommends one of the following prescriptions taken in the daytime.

Tincture of quinin . . . . . 30 cc. (1 oz.)
Solution of strychnin hydrochlorate . . . . . 3.75 cc. (1 dr.)
Solution of sodium arseniate . . 1.9 cc. to 3.75 cc. (½ dr. to 1 dr.)
Infusion of serpentary, sufficient to make . . . . . 175 cc. (6 oz.)

Take 15 cc. (½ oz.) three times a day after meals;

Or,

Zinc phosphid . . . . . 6 mg. to .03 gm. (1/10 gr. to ½ gr.)
Quinin sulfate . . . . . .06 gm. (1 gr.)
Extract of nux vomica . . . . .03 gm. (½ gr.)
Extract of gentian, sufficient to make 1 pill.

One pill after meals three times a day.

Opium may be used with good effect for a short time.

For insomnia with *pain*, Dr. Charles recommends amylene hydrate combined with morphin; neuronal, bromipin, hedonal, heroin, hypnal, croton chloral, and cannabis indicus, have all been found effective in insomnia associated with neuralgia.

In *asthmatic* insomnia, Dr. F. P. Hearder recommends paraldehyd. Dr. W. Mackie, of Elgin, N. B., reports excellent results in doses of 3 cc. to 4 cc. (45 m. to 60 m.). Dr. Peiper specially recommends chloralamid, while hypnone and cannabis indicus may also be of much value.

In *spasms* a bromid with cannabis indicus is generally effective, while in *epilepsy*, Dr. Dana speaks especially well of chloralamid.

In *night epilepsy*, Dr. McCarthy recommends chloretone in 1 gm. (15 gr.) doses at bedtime. Amylene hydrate, bromipin, dormiol and bromotone are also highly recommended for the same condition.

In the insomnia associated with *chorea*, bromotone, bromipin, and cannabis indicus are specially endorsed. Trional and chloral are also well endorsed. Dr. E. A. Lee recommends chloretone as effective in senile chorea.

In the insomnia of *whoopingcough* and *infantile convulsions*, amylene hydrate, bromoform, and bromipin are highly recommended.

In *alcoholic* insomnia, hypnone in .18 cc. (3 m.) doses has been recommended by Dujardin-Beaumetz. Paraldehyd and chloralose are highly spoken of, while 1.3 gm. (20 gr.) of sulfonal in hot milk given every other night is another favorite. During the daytime the following prescription will be of service:

Potassium bicarbonate	15	gm. (½ oz.)
Tincture of nux vomica	9.3	cc. (2½ dr.)
Fowler's solution	1.5	cc. (¼ dr.)
Infusion of cascarilla sufficient to make	175	cc. (6 oz.)

Take 15 cc. (½ oz.) three times a day in water before meals.

For *delirium tremens*, Dr. Krafft-Ebing recommends paraldehyd. Dr. Charles speaks well of amylene hydrate, while chloretone has been more recently urged as the best hypnotic for this condition, with strychnin, strophanthus, caffein, or digitalis as good adjuncts. Methylal, chloralose, hyoscin, or sulfonal with hyoscin have strong supporters. It is said that a favorite bolus in the United States Army is 1.3 gm. (20 gr.) of capsicum.

For the wakefulness from the *opium* or *morphin habit*, dionin is strongly endorsed. It may be taken by the mouth or given hypodermically. In such cases the following prescription will usually be of service:

Fowler's solution	15	cc. (½ oz.)
Solution of strychnin hydrochlorate	3.75	cc. (1 dr.)
Tincture of quinin sufficient to make	60	cc. (2 oz.)

Take 3.75 cc. (1 dr.) before meals.

Birch recommends cannabis indicus. As hypnotics, sulfonal and chloralose will be found serviceable.

For *cocain* insomnia, chloralamid is strongly urged, while for *tobacco* insomnia, strychnin taken during the daytime will usually prove serviceable.

In cases of *melancholia*, Macfarlane recommends morphin with atropin, used hypodermically, or sulfonal, or paraldehyd, or the following prescription:

Camphor	.13 gm. (2 gr.)
Extract cannabis indicus	.03 gm. (½ gr.)
Extract hyoscyamus	.19 gm. (3 gr.)

One pill at bedtime.

In common states of mental depression, 5 mg. to 6 mg. ($\frac{1}{12}$ gr. to $\frac{1}{10}$ gr.) of morphin three times a day, is said to be beneficial. Dr. Rossi advocates chloralose at bedtime. Dr. Charles recommends amylene hydrate, but hedonal, chlorobrom, bromipin and dormiol are also strongly endorsed. It is said that chloral hydrate tends to increase melancholia.

In *dementia*, Mariet and Combemale found 4.6 cc. to 7.5 cc. (75 m. to 2 dr.) of paraldehyd efficient. In *acute dementia*, veronal is highly spoken of.

In *mania*, Bumke got good results from 4.6 cc. to 5.6 cc. (75 m. to 90 m.) of paraldehyd, given in the severest cases of excitement, sleep following in from 3 to 15 minutes, and for the most part, unaccompanied by symptoms. Dr. Clouston regards it as the best hypnotic in such cases. Hyoscin, veronal and trional have also been favorably mentioned.

In *senile* insomnia, Russell Reynolds had good results with extracts of cannabis indicus, given in .016 gm. to .02 gm. ($\frac{1}{4}$ gr. to $\frac{1}{3}$ gr.) doses, but spirits, ale, porter, koumyss, matzoon, and a sea-level humid atmosphere, are recommeded by Folsom. Chloralamid is said to be most effective, while chloretone is also recommended. Hedonal and amylene hydrate are well endorsed. Warm toddy, or milk at bedtime, is serviceable in many cases.

For insomnia, in *acute diseases*, amylene hydrate is strongly recommended, while the following prescription is highly endorsed for the insomnia of *acute infectious* diseases in children:

Chloralamid	1.8	cc. (½ dr.)
Solution of ammonium acetate	22.5	cc. (6 dr.)
Simple syrup	30	cc. (1 oz.)
Water	60	cc. (2 oz.)

For a child aged 3, give a teaspoonful every four or five hours.

In *Bright's disease*, chloral hydrate is recommended by Lauder Brunton when there exists high vascular tension. Dr. Charles states that in a case of Bright's disease with hypertrophy of the heart, in which chloral hydrate had produced alarming symptoms, croton chloral had proved most serviceable. He also recommends sulfonal. Shoemaker recommends paraldehyd in Bright's disease. Veronal and strontium bromid are also well endorsed.

In *diabetes* sulfonal is said to diminish the quantity of the urine, the sugar, and the thirst, as well as promote sleep.

In *respiratory* affections, Shoemaker says that paraldehyd is excellent. Lermette speaks highly of chloralamid in *pulmonary tuberculosis*. Sulfonal is said to diminish greatly the night-sweats of pulmonary tuberculosis, while Dr. Sacaze, of Montpellier, France, claims the same results from chloralose. Hypnal, hedonal, and veronal are also well spoken of in this connection. Heroin is useful to allay cough. In pulmonary affections it appears that opiates are liable to produce dangerous engorgement.

In *disorders of digestion*, Dr. German Sée says that hypnotics are of little or no utility. For many of these cases he prescribes 2 gm. (½ dr.) doses of sodium bichlorate in a glass of hot water on retiring. He also found naphthalin of considerable value in such cases. Peiper recommends chloralamid in stomach affections which are not accompanied by much pain. Shoemaker has found cannabis indicus to give excellent results in painful affections of the stomach and bowels, and in uterine and ovarian diseases. Broadbent thinks that the most frequent cause of sleeplessness is indigestion with *flatulence*, and which produces its worst effects when we are not conscious of its existence, and is common in old age. He advises a tumblerful of hot water at bedtime, or some glycerin with turpentine. The hop pillow is useful in many cases.

In the *nightmare* of children, which is commonly due to some stomach or intestinal disturbance, sodium bicarbonate and rhubarb is frequently of service. Ringer recommends giving a weak child a cold bath by placing it before a warm fire with its feet in warm water and allowing cold water to run from its head all over it.

In *heart* and *vascular* affections, Shoemaker has frequently prescribed with good effects, 20 drop doses of paraldehyd every hour or two with 2 cc. to 8 cc. (½ dr. to 2 dr.) at bedtime. He has in this way obtained marked relief of the restlessness and irritability, as well as of the insomnia. Folsom also recommends paraldehyd in heart and vascular troubles, especially if there is high vascular tension or diminished vasomotor control. Mountain air is also

beneficial in such cases, while in anemic cases he has found a sea-level and humid atmosphere to be beneficial. If tone of the vessels is lost, strychnin and digitalis will be of benefit. Anemic subjects can usually be assured a good night's rest by the hypodermic injection of 6 mg. to 12 mg. ($\frac{1}{10}$ gr. to $\frac{1}{5}$ gr.) of morphin with atropin. If the pulse tension is high Broadbent thinks chloral good, and, if low, paraldehyd. He thinks morphin and hyoscyamus also useful. Dr. Chambard of Bergon highly endorses chloralose for the insomnia of cardiovascular affections. Lermette recommends chloralamid in heart and vascular affections. Neuronal, veronal, amylene hydrate and strontium bromid are also valuable. As nitrogenous waste contributes to high arterial tension and sleeplessness, .065 gm. (1 gr.) of calomel twice a week will be of service. Bromipin is said to be especially valuable in cardiac palpitation. Broadbent advises for patients suffering from *sluggish circulation* a little hot, strong, beef tea or hot milk on going to bed and standing in hot water if the feet are cold. In *plethoric* cases Macfarlane recommends 2 cc. (30 m.) of spirits of turpentine at bedtime. In anemic and feeble persons the "drip-sheet" is commended, while in many cases of heart lesion, camphor monobromate has proved of marked service. For the insomnia due to *rigid arteries*, Lauder Brunton specially recommends potassium iodid and massage. For *high vascular tension*, he recommends blue pill and magnesium sulfate, while for the same condition Broadbent states that a grain of calomel will often induce sleep long before it acts on the bowels.

DEFLECTION OF THE NASAL SEPTUM IN CHILDREN.

BY

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of Philadelphia.

Deflection of the nasal septum, in children, to a degree sufficient to cause occlusion of the nares, is one of the less frequent causes for mouth breathing. Yet, when it exists, the resulting stenosis of the anterior nares blocks the nasal passages almost as completely as does hypertrophy of the adenoid tissues; while the deformity of the jaws and bad alignment of the teeth are quite as liable to develop, as from the presence of the growth in the posterior nares. Indeed, the two conditions are, at times, associated in the same individual, complicated, even, by the presence of hypertrophied tonsils. The removal of the overgrown lymphoid tissue, in such cases, will not give the result sought for, unless the stenosis of the anterior nares can be relieved. In most of the cases within my experience, the fauces and nasopharynx have been free from obstructing growths, and the lesions there have been those peculiar to mouth-breathing alone; the mucous membrane showing the alterations which group themselves under the general term sclerosis.

The deforming influences of the deflected septum upon the development of the face, mouth, nostrils, and the muscles whose proper development and balance have so much to do with facial expression is very striking. There is a constant effort on the part of the patient to open the stenosed naris by action of the muscles, the elevator of the ala of the nose and upper lip. This causes a grimace, that cannot but deform the most attractive countenance, giving a sneering, sinister expression, which can become a fixed one; stamping an ugliness, there, even more pronounced than that caused by strabismic eyes. The effects of pressure are shown, also, in reflex irritation outside of the nares, notably in the eye of the occluded side. Pressure upon the nasal nerve produces sensations of pain in the area supplied by the infratrochlear nerve. The ganglionic and ciliary branches of the nasal nerve, itself a branch of the ophthalmic nerve, uniting with the ophthalmic ganglion of the sympathetic, and supplying the ciliary body, may induce a series of symptoms in the eye, that could simulate or complicate eyestrain, but would require removal of the nasal cause before relief could be expected. The nerve reflexes through Meckel's ganglion are so well recognized that they require mention only in passing.

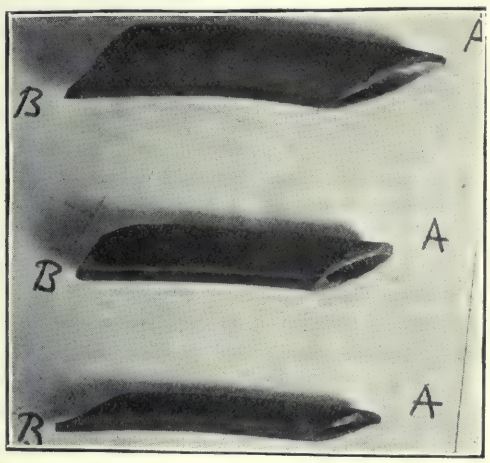
Efforts have been made to account for deflected septums, in children, by explanations that have a science-like complexity, but which do not account for the condition any more reasonably than the less complicated, but more common sense view, that the lesion results from congenital malformation and from traumatism. Congenital malformation is the less frequent cause. It is most evident in dolichocephalic skulls. It is manifested by an irregularity of development rather than by actual deformity at birth. In the narrow, elongated skulls, the nasal passages will be found to be so contracted, that very little room exists for a deflection of the septum that does not cause contact and pressure between the convexity of the bends and the outer nasal walls. The palate in such skulls is gothic-arched, and the alveolus of the upper jaw, its lateral arms brought near together, projects its anterior segment forward in the form of a wedge. So, comes a crowding of the teeth, rendered even worse by the large size of the upper incisors, as found, especially, in the English and Scotch peoples. The upper thrust of the gothic-shaped palatal arch and the downward pressure of the developing cranial floor exert themselves to bend the septum into a letter S-like deflection, in order to adapt it to the contracted space. Indeed, the septum is thus too large for the space it must occupy, and is forced into folds and bends in the lines of least resistance. Such skulls and noses are found among certain races, and, markedly, among members of certain families for many generations; so, the septal deflection can be looked upon as a congenital malformation. The other and more frequent cause for septal deflections is traumatism. As the development of the nose is not complete until about the twelfth year of life, it is exposed from birth, and during all its formative period, to an endless series of accidents and disasters. Indeed, the circumstances of birth itself may, in some cases, constitute the traumatism; in deliveries requiring the use of forceps or other instruments, or in which version is needed. Later, in child life, come the frequent falls on the face during infancy, and the injuries from the games, sports, and battles of childhood, in which the nose suffers from the

disadvantage of its exposed position. With the three elements of its structure still ununited, it is remarkable that serious fractures and displacements of the septum are not more frequent.

The most serious injury is that which crushes downward, from above, and backward, from in front, giving a sharp, angular, vertical fracture and a horizontal deflection, as well. Such an injury expends its force on the anterior third of the septum, the greatest deflection being on the plane of the outer edge of the nasal process of the superior maxilla, above the maxillary crest, called, also, the anterior nasal spine. This is the very entrance to the nares; its narrowest part. The angle of the vertical fracture is driven against the edge of the nasal process of the superior maxilla, or, anterior to this edge, and the anterior fragment of the fractured bridge is bent sharply across the entrance of the nostril. The columnar cartilage, displaced at its base, is thrust out from the median line, and projects across the vestibule of the other nostril, seldom closing it entirely, but narrowing its caliber. Beyond the occluding angle of fracture, even in the naris having the convexity of the displaced bridge, there will be usually a fair degree of space, but the angle itself blocks the passage completely.

Another form of deflection is horizontal in character, the projecting point of the angle being formed along the junction of the vomer with the triangular cartilage and perpendicular plate of the ethmoid. Thus, the projection is low down, near the floor of the naris, anteriorly, but ascends in the line of the vomerine margin, as it extends into the interior of the nasal chamber. When turgescent, the lower turbinated body of the nasal passage occluded by the angle, swells around the angle, so that the latter appears to be buried in the swollen mass, or, as a result of continuous pressure, there is a depressed groove formed, into which the projecting angle has fitted itself, while the lower turbinate swells out into the greatly narrowed space above and below the angle. In both these forms of septal deflection, the verticohorizontal and the simple angular, the fibers of tissue forming the septum are continuous on the side of the concavity of the deflection. On the convex side, however, there has been a break in the continuity of the fibers. In short, the deformity is a "green stick" fracture. At the line of such fracture, the hyperplasia of tissue, bone, and cartilage, developed for its repair, produces a thickening, appearing as an ecchondrosis or exostosis; more frequently as both combined. In the verticohorizontal fracture, this thickening, at the extreme crest of the deflection, is quite anterior, and about on the level of the margin of the nasal process of the superior maxilla. In the simple angular deflection it is seen extending inward and upward and backward, along the vomerine margin.

A third form of deflection produces a rounded bulging of the anterior part of the septum, chiefly cartilaginous, or a straight line, vertically, descending to the floor of the vestibule and extreme anterior naris. In the latter case, the curve, which always exists, is scarcely apparent, being below the soft tissue of the floor of the nose, and to the corresponding side of the anterior nasal spine. In this third form of deflection, there is seldom any thickening of tissue along the sides of the septum, such thickening occurring only over the anterior nasal spine. When it exists in this location, it is caused, probably, as a result of detachment of the septum, and the resulting hyperplasia from this traumatism. Associated with all these forms of deflection, is the well-known tendency of the lower turbinated body, of the nonoccluded naris, to swell into the concavity of the deflection of the septum, thus greatly narrowing the nasal passage that would naturally be the free and open one. This engorgement of the erectile tissue may result from derangement of vasomotor balance, caused by the constant pressure and stenosis within the occluded nasal passage. Irritation of Meckel's ganglion, through pressure on the nasopalatine, and other branches of the fifth, acting reflexly on the local vasomotor system, possibly through the vidian nerve and carotid plexus, may account for this turgescence of the erectile tissue. Both lower turbinates are turgescent, but the condition is seen most readily in that of the side having the concavity of the septal bend. The swelling may take the form of a



Sections of rubber tubing, used as splints for the septum after resection operations. A, anterior end; B, posterior end.

true hypertrophy, and be constant. More frequently it is due to a chronic, passive congestion, or venous stasis.

The forms assumed by the septum, as a result of any cause producing deflection, are the same in children as in adults. In children, however, the degree of organized hyperplasia and ossification at the lines of fracture, is less marked than in mature life. The tissues yield more readily and are more plastic. In removing projecting angles and thickenings, the knife can be used in place of the saw more generally than is the case in similar operations upon adults.

It would seem that the best time to correct septal deflections would be in childhood; yet, at this period, the lesion may not be observed, is ignored, or its correction is deferred, until the full development of the nose is completed. It is slightly more difficult to replace the deflected septum in a child than in an adult. With the latter, cocain is an efficient anesthetic; the parts are well in view, and the nose is sufficiently large to permit easy manipulation. With a child, all this is reversed—small nostrils, difficulty of manipulation, and the necessity of using a general anesthetic. Then, too, there is

the belief that replacement will be more secure and permanent after the parts involved have become fixed and developed. A circumstance, too, that works to the disadvantage of the child, is that, after an injury of the nose, the septal deflection is seldom recognized. Parents are advised to wait until the swelling goes down, or the general surgeon applies the conventional fracture dressing. This can, in no possible way, relieve a deflected septum. It is applied across the nasal bones, and is plastered down on the face, pressing on the septum, if at all, in a way rather to increase, than to relieve, any deflection.

I would advocate the prompt and careful examination of a child's nose after an injury, even if it should be necessary to give a general anesthetic. Any bend of the septum can be replaced readily at this time without waiting for the dreaded swelling to "go down." If the operator's little finger cannot be introduced into the narrowed nostril, and the septum pushed into place, a dressing forceps wrapped with sterile gauze, can be used to accomplish this result. A piece of rubber drainage-tube, large enough to fit firmly into the naris, should be cut to a piece about 1½ in. to 2 in. in length. Both ends of the tubing should be cut obliquely, the end for the anterior of the nostril being trimmed to a rounded point and having slightly concave edges. The idea is to insert the tube into the nostril, so that the projecting point of the anterior end, coming forward over the triangular cartilage, will fit snugly up into the hollow at the extreme end of the nose. This anchors the tube in place. The oblique cut at the posterior end of the tube, is to remove unnecessary substance, render the introduction easier, and lessen pressure against the middle turbinated body. For this reason, the point projects from the lower side of the tube, while the anterior point projects from the upper side. Sometimes, to obtain sufficient pressure, it is necessary to stuff the tube with iodoform gauze, although this is not always needed. I find it well, in some cases, to place a tube of similar shape and size, usually smaller, in the other nostril, as well as in that into which the deflected septum projected. This aids in supporting the septum, and is of especial use when the injury causes a vertical, as well as a horizontal bend. Cold dressings of gauze, wet with sterile water, are placed over the external nose and neighboring part of face, while conditions demand such treatment. Any of the external supports for use, after displacement of the nasal bones, can be used even with better effect while the tube supports the septum.

Attention is called to this treatment of acute fractures, because I have found the same kind of tubing a very efficient splint for the septum after any of the methods used for resection. For this operation I have found either the buttonhole method, sometimes known as the Watson-Gleason operation, or the Harrison Allen operation to be the most satisfactory. The special form of operation must depend upon the character of the deformity. No one method can be used for all cases. The rubber tubing makes a secure support, which, at the same time, is sufficiently soft to adapt itself to the tissues; never causes erosions, and can be cleansed easily. It makes an excellent protection for any wound that it covers; allows, unless stuffed with gauze, free washing through it into the naris, and does not interfere with respiration. It is, of course, occluded, when the gauze stuffing is used; but this need not be continued for more than four or five days, after which the tube can be left open. The patient is soon taught to remove, wash, and replace it. I have found it a most satisfactory dressing, and prefer it to the hard rubber or metal tubes, made especially for the resection operations. A good splint, but of much softer texture than the ordinary rubber drainage-tube, is Goodwillie's nasal intubation tube. This must be cut to fit the naris into which it is to be placed, but it is so flexible and soft that it is always necessary to pack it with antiseptic gauze. When properly used, it is a comfortable and effective dressing. In cases in which the lower turbinated body of the non-occluded side, that having the concavity of the deflected septum, is persistently engorged, it is well to reduce it by electrocautery incision before the resection operation is performed. When the wound has healed, this side of the nose will not be occluded by the replacement of the septum. The engorgement or hypertrophy of the turbinated bodies is less commonly found in children than in adults. Only occasionally a case presents itself requiring this treatment preparatory to the resection operation. I believe that traumatism is the most frequent cause for septal deflections in children, and that, when this is the case, the resulting deformity should be corrected as soon as possible after its production. I believe, also, that in cases of deflection of long standing and unknown origin, it is unnecessary to defer the operation of resection and replacement until the development of the nose is completed. The operation upon children is attended with certain difficulties, which do not exist, or exist to a less degree, in the case of adults. In this paper I have outlined some impressions and some methods of work, which are the outcome of my personal experience. The technic described is simple and effective. It is not my intention to imply that other methods are inferior in efficiency.

Railroad Car Sanitation.—The Kansas State Board of Health has authorized Dr. S. Jay Crumbie, its secretary, to endeavor to secure the cooperation of other States west of the Mississippi river in securing legislation for uniform railroad car sanitation.

A remarkable surgical case has been reported to Surgeon-General Rixey, of the Navy, by Passed Assistant Surgeon John H. Iden, assisted by Assistant Surgeons L. H. Wheeler and J. L. Belknap. The patient was accidentally shot in the abdomen. On examination of the small intestines, 19 perforations were found, beside a number of wounds of the mesentery. At one place there were five perforations in about four inches, necessitating resection. End-to-end anastomosis was done and some of the perforations were closed by pursestring sutures. The operation lasted about two and a half hours, and at the completion there was no perceptible pulse, but faint heart sounds were heard with the stethoscope. The patient, however, reacted well to the hot intravenous saline infusion. Fifty-one days after the operation he was sent on duty perfectly well. At his own request he was permitted to do light work in the hospital kitchen for ten days previous to discharge. The patient was under the anesthetic for fully three hours.

MISCELLANY

THE NEW CURE FOR TUBERCULOSIS.

PROF. BEHRING'S ADDRESS BEFORE THE INTERNATIONAL CONGRESS.

In the course of the last two years, I have been able to recognize with certainty the existence of a curative principle completely different from the antitoxic principle which I described fifteen years ago.

This new curative principle plays the essential part in the immunizing action of my "bovovaccine," which for four years has given proof of its efficacy in the strife against bovine tuberculosis in agricultural practice.

The principle depends (for its activity) upon the impregnation of the living cells of the organism by a substance proceeding from the virus of tuberculosis, and which I designate TC.

When the TC has become an integral part of the cells of the organism of the animals treated by it, and has been metamorphosed by these cells, I designate it by the formula TX.

In the bacillus of tuberculosis the TX, or more correctly the TC, preexists, as an agent endowed with a great number of extraordinary properties. It fulfils, in the bacillus, the function of formative substance, and it also possesses fermentative (and especially catalytic) properties.

This agent is able to fix other substances, by contact, in a selective manner (a property which has been called "adsorbtion"), and, moreover, in certain conditions, it possesses assimilative properties. In a word, it represents the quasi "living principle" of the bacilli.

In my judgment, in the process of immunizing bovine animals against tuberculosis, the TC of the bacilli is freed from accidental substances, and exerts a symbiotic action in the interior of the organic cells, and especially upon the cellular elements which have their origin in the germinal centers of the lymphatic tissue. The presence of the TC is the cause, on the one hand, of hypersensitiveness to the tuberculin of Koch, and, on the other, of the protective reaction against tuberculosis.

The road has been long by which, after having overcome many obstacles, I have arrived at the above indicated conception of the nature of antituberculous immunization. I could never have attained to this connection of a cellular as distinguished from a humoral immunity had it not been for an intimate knowledge of the researches of Metchnikoff upon phagocytosis.

It would be necessary for me to occupy the time of the congress for several hours if I endeavored to lay before you the details of the proofs of the exactitude of my conception. I have partly set them forth in the first part of a book which will be entitled, "Problèmes modernes phtisiogénétiques et phtisiothérapeutiques éclairés par l'Histoire." Some passages from the first fasciculus of this book appeared in "Tuberculosis" for September, 1905.

On the present occasion I will only endeavor to describe the nature and mode of action of the new therapeutic method which has arisen from my scientific studies of tuberculosis.

This new method is, I believe, calculated to protect men threatened with tuberculosis against hurtful consequences of tuberculous infection. I esteem it a great honor to be able to place before the general assembly of the Paris congress a short communication upon "a method of contending against tuberculosis by a new remedy."

* * * * *

I will assume a knowledge of my method of vaccination against the tuberculosis of bovine animals. Without my insisting upon the point, it will be admitted that I have considered all the possibilities of the application of this procedure for the purpose of combating tuberculosis in men. My experience has led me to a definite determination to abstain from introducing into the human body for any therapeutic purpose, living tubercle bacilli.

Hence in my hands, the antituberculous treatment of mankind has commenced with discovery of the remedy which I am about to describe.

After the sketch, given above, of the mode of immunization against tuberculosis, it will be intelligible, without further details, that I have applied myself, without rest or cessation, to spare the organism the work, often long and dangerous, of the elaboration of the TC. I have succeeded by experiments in glass vessels. I have substituted for the active immunization, to use the phrase of Ehrlich, a passive immunization. I can assure you that I have seldom in my life experienced greater pleasure than during the days, the weeks, the months in which the casual link which unites vaccination to immunity has become manifest to me with an ever-increasing clearness, thanks to the reiterated observation, of innumerable experiments upon animals; one enigma after another has been solved, even to the nature and the mode of action of antidiphtheric serum.

Condensing into a few words the results of my labors, I may say that in order to free the TC from substances which hinder its therapeutic action, it is necessary to distinguish three groups of bacillary substances:

(1) A substance soluble only in pure water, and which possesses a fermentative and catalytic action. From this substance soluble in water are derived the poisonous elements of Koch's tuberculin. This substance has all the qualities, chromophilous, physical, and chemic, of the velutin described by our Marbourg botanist, Arthur Meyer, I name it TV.

In order to give an idea of the toxic potency of TV, I may say that 1 gm. of it, in a dry state, is more powerful than a liter of Koch's tuberculin.

(2) A globulinous substance, soluble only with a neutral salt (as in a solution of sodium chlorid of 10 parts in the 100). I have named this substance TGL; and it also is poisonous after the manner of Koch's tuberculin.

(3) Many nonpoisonous substances only soluble in alcohol, ether, chloroform, etc.

The tubercle bacillus having been freed from these three groups of substances, there remains only a body which I have designated "restbacillus."

This restbacillus still possesses the form and staining qualities of the tubercle bacillus. By means of suitable preparation it may be so modified as to become an amorphous substance directly absorbable by the lymphatic cells of the guineapig, rabbit, sheep, goat, bovine animals, and horses.

The amorphous substance is elaborated and changed by the lymphatic cells of these different animals, and these cells become oxyphilous or eosinophilous. Contemporaneously with the changes in the cells under the influence of the TC, the state of immunity of the organism is developed.

It is a fundamental fact that the TC, a substance not reproducible, nevertheless possesses the power of giving origin to tubercle. The tubercle thus produced does not undergo caseation, and never softens. It corresponds exactly to the granulation tuberculeuse of Laennec. In certain conditions the TC can also produce the infiltration grise and the infiltration gélatiniform of Laennec.

By experiments upon different mammals I have been able to satisfy myself that the TC, preexisting as I have said in the tubercle bacilli, can be elaborated in glass vessels in such a manner as to yield a remedy which can be used without danger in human therapeutics. The therapeutic portion of my book, which should appear in the coming year, will not be published until the efficacy and the safety of my new remedy have been shown by clinicians better versed than myself in the knowledge of the individual varieties of pulmonary tuberculosis and in their prognosis.

Moreover, it seems to me necessary that other savants, working in other laboratories, should test the therapeutic action of my remedy upon animals and should establish the fact that there has not been known until now a therapeutic agent of equal value.

You are aware that so far the tuberculin of Koch and his new tuberculin (TR), the serum of Maragliano, that of Marmorek, and many other preparations described as being specific have had, on the testimony of their inventors, some preventive or curative efficacy; but you also know that other observers have not afterward been able to obtain from them equally good results, especially upon the guineapig.

I hope to be more fortunate, and that the savants to whom, after my return to Marbourg, I shall intrust my remedy for experimental purposes will obtain in their laboratories, therapeutic results as good as, and even better than those which I have obtained myself.

I beg of you not to forget that my communication of today curiously recalls that which I made in 1890 on a "new remedy for diphtheria." My conviction of the the great importance of that discovery has been confirmed over the whole world in the course of 15 years in the most striking manner.

But after my communication not less than four years passed away before practitioners acquired confidence. Perhaps I should have had to wait still longer for the recognition of the exactitude and the importance of my scientific assertions had not my great friend M. Emile Roux arisen at Budapest to combat with me diphtheria, the "slayer of infants."

How long a time will elapse before the discovery and the utilization of my new remedy against tuberculosis will receive the public consecration which will establish its practical value? I cannot tell. Many factors may intervene; my own pleasure in work and my activity, my skill as a tactician and my good fortune. May she give me a companion in the strife of the prowess of Roux, having the same conquering force and the same disinterestedness above suspicion, and then I hope that the next congress on tuberculosis will take note of a considerable progress accomplished in the strife against tuberculosis in mankind.

Alcoholic Medicines and the Internal Revenue Tax.—In contesting Commissioner Yerkes' recent ruling classing alcoholic proprietary medicines as liquors, the manufacturers of these nostrums have much more at stake than the mere taxes required of rectifiers and wholesale and retail liquor dealers. Probably the federal taxation would be trivial compared with the losses incurred through public exposure of the amount of alcohol in these various concoctions. The simple fact is that these manufacturers have done some of their most thriving trade among people who had not the faintest idea that they were consuming the equivalent of raw whisky. If this were not so, why should the Massachusetts Board of Health have found nearly a dozen "tonics" containing from 6% to 40% of alcohol labeled "strictly nonalcoholic," and recommended for the treatment of inebriates? What will be the effect on the purchaser of a federal liquor tax certificate posted behind the patent medicine counter? Some of the States have, at various times, taken action along the line of that of Commissioner Yerkes.—[*New York Evening Post.*]

Hospital Corps Duty at Recruiting Stations.—An order will shortly appear from the War Department assigning them 35 privates of the first class of the hospital corps to duty at as many recruiting stations throughout the country, to vaccinate the recruits and attend them when special treatment is needed for slight ailments. The first step has been taken in giving lessons in vaccination to the hospital corps privates.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 28, 1905. [VOL. XLV, No. 18.]

1. Modern Problems of Nutrition.—Professor von Noorden takes up the metabolism of energy and states that the daily food must have certain caloric values if the weight of the body shall neither increase nor diminish. With the increase of muscular work the amount of energy consumed increases in proportion. Children require a relatively high, and old people a relatively low exchange of energy. Von Noorden emphasizes the necessity for further extended observations of the personal equation in this matter in order to provide a clear "mathematical" insight into the condition now designated by the term individuality. He referred to the experiments of Rubner and Pflüger, which tend to show that when the food contains an excessive quantity of proteids the energy exchange rises considerably above the average. He mentions briefly several experiments made by himself and his assistants, and states that among other things one important fact has been established, viz., that increase in energy exchange follows the administration of thyroid gland substance. He discusses metabolism energy in people who are run down by chronic disease or by insufficient nourishment and the energy exchange in fevers and in diabetes mellitus. The exact form in which nitrogen is retained in the body is still entirely unknown and that a knowledge of this would throw some light on the changes which molecules of albumin undergo in the body.

2. Coccidioidal Granuloma.—W. Ophüls. See *American Medicine*, Vol. X, No. 13, p. 513.

3. The Ocular Origin of "Migraine."—George M. Gould. See *American Medicine*, Vol. X, No. 14, p. 559.

4. Respiratory Movements of the Bronchi.—Incited by observations in patients of active movements during operations, E. F. Ingals has investigated the subject experimentally on animals and in the literature. He finds that there is a regular respiratory movement of the bronchi during respiration, most marked in the larger tubes in young animals, and gives clinical observations bearing on the action of the bronchial muscles in the production of the physical signs and their modifications, supplementing these by reports of experiments on dogs. He thinks the action of remedies may be profitably studied through the bronchoscope on the living animal, and refers to the statements and findings of Einthoven and of Dixon and Brodie bearing on this point. His studies are not completed.

5. A Case of Imperforate Rectum with Absence of the Anus.—Edward H. Small. See *American Medicine*, Vol. X, No. 13, p. 514.

6. The Psychoses of Heart Disease.—William House. See *American Medicine*, Vol. X, No. 11, p. 431.

7. Defects of Will from a Medical Standpoint.—Howell T. Pershing. See *American Medicine*, Vol. X, No. 4, p. 137.

8. A Study of Perforation in Typhoid Fever.—Richard H. Harte. See *American Medicine*, Vol. X, No. 6, p. 220.

9. Delayed Union and Ununited Fractures.—Caspar W. Sharples. See *American Medicine*, Vol. X, No. 11, p. 429.

10. A Philippine Fever.—Two cases of a somewhat temporary febrile affection suggesting typhoid or malaria and the discovery of a peculiar organism associated with it are reported by H. D. Bloombergh and J. Morgan Coffin. The fever was accompanied with general malaise and in one of the cases with marked muscular pains. It started with chills, but sweats were lacking. The organism was found in the red blood cells. It is a motile hemocytozoon, approximately 2.5 microns

long, 1 micron broad, unpigmented, and refractive like the malarial parasite. Its movements are of two kinds, the first depending on its rotation on one or other of its two axes and the other an independent movement from one position to another within the cell. The motion ceased after several hours' observation and in specimens kept over night a few narrow ring shaped bodies were found. This parasite was probably first described by Assistant Surgeon H. M. Smith, United States Army, and the reason it has not been more generally recognized in the peculiar transient fever that occurs in some portions of the Philippines without the presence of the malarial parasite is its small number in the blood. Smith's cases were reported under the head of estivo-malarial fever, though he remarks on the peculiarities of the organism and its possible distinctness.

Boston Medical and Surgical Journal.

October 26, 1905. [Vol. CLIII, No. 17.]

1. The Organization of a Department of Clinical Medicine.—R. C. Cabot and E. A. Locke emphasize the need (1) of greater diversity in methods of teaching corresponding to different aspects of the study and different stages in the student's development; (2) of more drill in keeping records; (3) of a broader training in the use of literature; (4) of more section work; (5) of wider use of pictures in teaching; (6) of an increase in independent work; (7) of an adequate supervision, correlation, and criticism of the teaching; (8) of examinations on the ability to practise medicine rather than to write or talk it. [H.M.]

2. End-results of Surgery for Exophthalmic Goiter.—T. W. Huntington. See *American Medicine*, Vol. X, No. 6, p. 222.

3. Treatment of Neurasthenia by Intermolecular Baths of Polarized Ether.—W. Rollins describes the apparatus for the bath, which consists of a hollow magnet made in three sections, within which slides a cushioned framework, on which the patient reclines. These sections are wound with coils of wire. With a suitable interrupter the strength and duration of the treatment can be regulated. [H.M.]

4. Mercurokataphoresis in Diseases of Women.—F. B. Carleton describes the treatment advocated by Massey. For the negative pole he uses a large abdominal electrode and introduces in the vagina an egg-shaped copper electrode coated with mercury and rendered aseptic before each treatment. The patient should also use an antiseptic douche. From 25 ma. to 75 ma. may be used, the current being turned on gradually and continued from 2 to 6 minutes. The treatments are never painful and need not cause even discomfort. Occasionally there is some prostration the following day or leukorrhea may be temporarily increased. The oxychlorid of mercury produced is carried directly into the diseased parts, and beside, the patient gets the sedative, stimulating, and tonic effect of the electricity. It is curative in a large percentage of pelvic diseases and it better prepares the patient for operation should the latter prove necessary. [H.M.]

Medical Record.

October 28, 1905. [Vol. 68, No. 18.]

1. Cause and Treatment of Perineal Abscess and Periurethral Suppurations above the Triangular Ligament.—Samuel Alexander, lays stress on the origin in certain cases from infections extending into the glands of Littré, the glands of Cowper, the accessory glands found in the bulb of the corpus spongiosum, and the glands of the prostate. The accepted view is that perineal abscess is due to a microbic invasion from the urethra (1) through the glands connected with the bulbous, membranous or prostatic urethra, from which it extends into the perineal tissues; (2) possibly through small fissures in the mucous membrane of the urethra; (3) possibly as the result of a more or less extensive mechanical rupture of the urethra from external or internal violence. Infiltration of urine may play a part in the infection, or may be absent. The essential cause of perineal abscess is the action of some pathogenic microbe, but contributing and exciting causes are external injuries, such as falls or blows, and especially the unskilful or ill-advised use of urethral injections and irrigations, and rough and unnecessary instrumentations. Perineal suppurations of urethral origin cannot be efficiently treated except by operation.

2. The Indications for Operating in Acute Mastoiditis.—Philip D. Kerrison. See *American Medicine*, Vol. X, No. 16, p. 640.

3. Care of Convalescents from the Medical Standpoint.—Lee K. Frankel says that in hospital work and in private practice among the lower classes, it is impossible for economic reasons to keep the patients under treatment until they are fully restored to health and strength, and in this way a large class of "half-cured" people is developed. These are in a condition of lowered vital resistance, so that they easily fall a prey to serious illnesses. The remedy lies in the establishment of suitable convalescent homes, which shall not be like hospitals, but shall resemble as nearly as possible the normal home. For this purpose the country is most suitable, and where land is cheap, such institutions should be built on the cottage plan. At the same time, the patient's family must be provided for in his absence, and such benevolent work should be taken up by the State. This would be the best prophylactic against disease of all sorts.

4. The Treatment of Typhoid Fever.—D. E. English says that if the patient is seen before the end of the first week, he gives 10 gr. to 20 gr. or even 30 gr. of calomel, followed in eight hours by a half ounce of magnesium sulfate. If more than seven days have elapsed since the initial chill, a smaller dose of calomel, together with aloin, podophyllin and bicarbonate of sodium is given. The diet consists of beef juice, and egg albumen water; milk and toast being avoided as particularly harmful. The special medicinal treatment is by means of carbolated camphor, consisting of three parts of gum camphor to one part of crystallized carbolic acid liquefied by heat. The dose is 10 to 12 drops in capsules, at first every two hours and later less often as the fever declines, the abdominal symptoms improve or cardiac depression appears.

New York Medical Journal.

October 21, 1905. [Vol. lxxxii, No. 17.]

4. Akromegaly Associated with Symptoms of Myxedema.—Charles Lyman Greene. See *American Medicine*, Vol. IX, No. 25, p. 1017.

Medical News.

October 28, 1905. [Vol. 87, No. 18.]

2. The Gopher: A Possible Substitute for the Guineapig.—S. W. Hewetson reports an experiment proving the susceptibility of the gopher to tuberculosis. This places in the hands of those in the gopher belt an additional aid in the diagnosis of obscure cases, whether renal, pulmonary, or glandular. Hewetson's injections were made subcutaneously. To obtain quicker results they might be made in larger amounts directly into the peritoneal cavity. A certain percentage in the latter case, however, would probably die from acute septic conditions. [H.M.]

4. Diagnosis and Treatment of Anemia.—H. Brooks defines anemia as a condition of the blood, characterized by deficiency in the total or relative amount of

hemoglobin, or it may be a condition of the body resulting from an insufficient absorption from the blood of nourishment for the proper support and oxygenation of the body tissues. There are cases in which no discoverable defect in the blood can be found. What we now consider a normal blood, may be deficient in the most important of chemic requisites. Some individuals require fewer corpuscles and less hemoglobin than others of the same body-weight, just as some persons thrive best on what would be insufficient diet for others. There are families in which anemic states are undoubtedly inherited. For correct consideration, we must apply both clinical and laboratory investigations. Occupation and history should be thoroughly gone into. Menorrhagia may be either a cause or a symptom. Pale and lusterless skin and mucosa are not invariably characteristic of anemia. The color of the ear is more reliable than that of the cheeks. Ophthalmoscopic findings are often of considerable import. The pulse is commonly soft and compressible. Occasionally the tension is high, as in nephritic conditions. The gastrointestinal condition should be investigated. In women, the relief of constipation is one of the most evident steps toward cure. Examination of the central nervous organs may also yield important data. A complete blood-examination can be made in 30 to 60 minutes. This the writer discusses at length, as also the classification of the anemias. Treatment must be based on study of the particular case. Greater results can be expected from hygiene than from drugs alone. [H.M.]

5. Gastric Dilation.—A. G. Hurdman discusses dilation from stenosis, dividing the stages of the affection into (1) ulcus pylori or compression, etc.; (2) cicatrix; (3) hypersecretion; (4) gastrosuccorrhea; (5) stagnation; (6) dilation. Ordinarily, rational treatment brings about disappearance of the dilation, so that only stenosis remains. This may cause a recurrence. Authors who insist on "atonic" dilation use the term for what we call atony or gastroptosis. The question the author considers is whether a dilation with stagnation can result from muscular weakness. Postmortem invariably shows obstruction, except in acute cases following shock, intoxications, or severe indigestion. In the proposition that enfeebled motility causes hypersecretion, and this in turn pyloric spasm, obstruction is admitted. No gradual transition of atony into ectasia has been observed. Atony is a symptom of general muscular and nervous relaxation; dilation is a purely local lesion. If this were not true, the forced feeding cure could not be used in atony, for fear of causing a dilation. [H.M.]

6. Adenoids.—J. A. Donovan states that adenoids may occur at any age. He discusses the symptoms at length. In any child having repeated colds, running nose, ear, or bronchial symptoms, careful throat examination should be made. In every case in which adenoids are suspected of producing trouble, they should be removed immediately, if the general condition does not contraindicate. A general anesthetic is unnecessary and dangerous. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
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EDITORIAL COMMENT

The cause of akromegaly is the subject of a paper by Dr. Dean D. Lewis in the May Bulletin of the Johns Hopkins Hospital. Though the disease is comparatively rare, its literature is somewhat voluminous. The interest taken in this condition is well placed because it may lead to some discoveries as to the causes of abnormal growths in general. When it was found some years ago that the pituitary body was enlarged in this condition, it was supposed that the cause was discovered and that this body was an organ regulating growth, its disease in early life causing gigantism, but after adult age was reached causing akromegaly or perhaps muscular hypertrophy alone. Doubt was cast upon this theory by the discovery of cases in which the hypophysis was normal, and of still other cases in which it was diseased or even destroyed without producing akromegaly. Other and older theories were then reinstated for discussion. The disease was supposed to be due to some abnormality of the nervous system, or a mere anomaly of growth and not pathologic at all, or due to a persistent thymus, a diseased thyroid or arrest of development of the sexual organs with diversion of vitality to the extremities—all somewhat fanciful yet based upon symptoms more or less common to all cases. Lewis, after investigating a case, supports the theory of Benda, that the condition is due to an excessive activity of the hypophysis as indicated by hypertrophy and hyperplasia of the chromophile cells, and that death may occur long before there are gross lesions of the gland. The numerous pathologic conditions found in the gland are then merely secondary. Nevertheless the subject is still uncertain, as it is not known why this excessive activity should occur. The ultimate cause then is still to be found. The coincidence of quite a variety of other abnormalities would point to some defect of instability of the nervous system, as originally suggested by Magendie and von Recklinghausen, and in such a condition almost any set of cells may get beyond control. Though it seems to be proved that the immediate cause of this abnormal growth is found in the hypophysis, it is not at all unlikely that in grouping it with allied states, we may be compelled to resort to some indefinite congenital condition of instability—the much overburdened and misunderstood "degeneration."

REVIEW OF LITERATURE

Etiology and Pathology of Gastric Ulcer.—Joseph McFarland[1] says the formation of gastric ulcer requires the cooperation of two factors, the corrosive gastric juice and a local loss of resisting power in the tissues. The gastric juice can be dismissed as no more than an incidental factor in the production of the lesion, the essential cause being the lost resisting power of the tissue. This must be local, and depend upon some condition operating upon a circumscribed area of the tissue. Since experimental, operative, and accidental lesions of the stomach heal so kindly in most cases, it seems improbable that trauma is the cause. It must, therefore, be nutritional and vascular; whether the vascular disturbance depends upon traumatic injuries of minute vessels resulting from over-distention, pressure, embolism, thrombosis, infection, intoxication or defective innervation, remains to be determined. It is not improbable that all these have to do with various cases. Regarding the relation of gastric ulcer to anemia, the fact of their frequent association is all that is certainly known. Which is primary, is doubtful. [A.G.E.]

Preliminary Communication on the Treatment of Arteriosclerosis.—E. Hirschfeld[2] has employed hot baths for two and a half years. The causes of arteriosclerosis are advancing age, blood poisons, and habitual over-pressure. The bath lowers pressure by unloading

[1] Medicine, June, 1905.
[2] Australasian Medical Gazette, July 20, 1905.

the internal organs and increasing the vascularization of the skin. The effect is not purely derivative, but also irritative, hence in the neurasthenic may increase instead of relieving insomnia. The hot bath increases combustion, the temperature rising 1° or 2° for about two hours after a bath at 104° lasting 10 minutes. It also increases the elimination of waste through a gentle perspiration, especially if the patient is sent to bed. The hot bath bleeds the patient into the skin, and by its systematic employment establishes an increased vascular habit of the skin. It should be prescribed with as much exactness as a dose of morphin. One may begin with 102° if the patient is not above 60; in women 100° is safer. The time should not be less than ten minutes. It must be used with caution if the heart is not vigorous. A rule that covers many cases is that where digitalis is contraindicated the bath is likely to do good; where digitalis is indicated, the hot bath should be given with caution, or be left alone. [H.M.]

Infective Purpura.—S. R. Schofield[1] reports the case of a woman who was suddenly seized with severe headache, general pains, high fever, and rapid pulse. A few small petechial extravasations were noticed around the knees and gradually increased in size and distribution, affecting the visible mucous membranes as well as the skin. There were no internal hemorrhages, however. The purpura reached its height in 36 hours, when the patient was in a prostrated condition. About the fifth day the mucous membranes began to slough, and were followed by the purpuric areas of the skin, leaving suppurating ulcers. These were at their worst at the end of a month, when they began to granulate, and were healed at the end of three months. The course of the disease was marked by irregular temperature, frequent rigors, albuminuria, and cardiac complications. The patient finally recovered. The case evidently belonged to the class of "infective purpura," but the source of infection remains unknown. The treatment consisted of quinin, intramuscular injections of 5% solutions of carbolic acid, and tonics. [B.K.]

Diagnosis of Thoracic Aneurysm by the Röntgen Rays.—G. H. Orton[2] refers to the great difficulty of diagnosis by the ordinary methods, while with the röntgen rays a mistake by a competent observer is rare. For a thorough examination the ordinary anterior and posterior examinations alone are not sufficient, but four successive examinations should be made—namely, the anterior, posterior, left lateral, and, above all, the right lateral oblique. He describes the picture in the different positions. It is only in exceptional cases that complications mask the aortic shadow. He recalls, as pointed out by Walsham, that in aneurysm the heart comes to lie much more transversely, the right side being apparently pushed down by the aneurysm above. [H.M.]

Current Theories Regarding the Causation of Arteriosclerosis.—J. M. Cowan,[3] from a consideration of some 60 papers upon this subject, says the following facts seem to be established: Arterial damage may result from many and varied causes. Continued high blood-pressure invariably, in time, affects the vessels, and this is one of the most important causes of widespread disease. High blood-pressure may be secondary to renal lesions or may originate without any renal flaw. It is in the latter case the result of alimentary wrongdoing. Excess, relative or positive, of the foodsuffs or of alcohol, intestinal fermentation, or putrefaction, hepatic, pancreatic, or gastrointestinal insufficiency may thus all be the initial fault. The arteries may be damaged in various intoxications, the metallic poisons (lead, mercury, and others) comprise one group, and the bacterial toxins (rheumatism, enteric fever) another. Bacteria themselves may be found in early lesions. Syphilis is a frequent cause of local lesions. Severe continued physical exertion, however it may act, is probably also a causal factor. In these statements, arteriosclerosis is used in its widest and most literal sense, "a hardening of the arteries." [A.G.E.]

[1] The Lancet, September 23, 1905.
[2] Archives of the Röntgen Ray, August, 1905.
[3] The Practitioner, August, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Diffuse Carcinoma of the Stomach.—E. W. H. Groves[1] reports two cases of this infrequent type of cancer of the stomach. The first, occurring in a man of 51, showed the extreme phase of the growth, the entire stomach wall being infiltrated by the spheroidal-cell tumor. The disease began insidiously and lasted about 13 months. The only real stomach cavity was at the cardiac end of the organ, where the growth was not quite so thick. The muscle coat was greatly thickened, at some points 1.3 cm. (½ in.) thick. No ulcers were found on the mucosa. The second case occurred in a woman of 27 and is reported as a very early case of diffuse carcinoma, the growth involving only the pyloric end of the stomach; the character of the tumor showed it to be essentially the type of the other. The patient died of pyloric obstruction and the organ was so little changed externally that one could have readily overlooked the growth at operation. This danger suggests the propriety of excising a bit of the pylorus in cases of gastro-enterostomy for pyloric obstruction due to a doubtful condition. [A.G.E.]

Cystic Ureteritis.—A case is described by Eugenia Simelew,[2] who concludes: 1. Chronic catarrhal processes affecting the ureteric mucosa, determine the disease, which merits a place of some importance in the field of pathology. 2. The cysts originate in the crypts of von Brunn, and, so far as at present known, there is no agent of infection responsible for the induration and sacculation. 3. Epithelium lines the sac. 4. These cysts may become conglomerate, giving rise to multiple formations. 5. The structures of von Brunn are not present in all individuals. 6. Other etiologic elements, such as causes of diminution of the lumen of the ureter, are to be taken into account. The author adds a list of 27 references. [T.H.E.]

Resuscitation by Subdiaphragmatic Transperitoneal Massage of the Heart.—H. M. W. Gray[3] reports the case of a woman with marked laryngeal obstruction, in whom a rapid tracheotomy was performed on account of asphyxia. Artificial respiration was then practised without effect, the heart having stopped beating. The abdomen was then opened with a penknife and the heart was seized through the diaphragm. It was felt to be perfectly flaccid, and compressions were performed at the rate of 70 to 90 per minute. At the end of four minutes it gradually began to contract again, and was soon beating at the rate of 90 a minute. The artificial respiration having been kept up, the patient soon began to breathe spontaneously. The artificial means were then stopped, and the patient lived for a couple of hours. After death the cause of obstruction was found to be a carcinoma of the larynx. The author also relates another instance where the heart stopped during an abdominal operation, but was immediately started by two or three squeezes through the diaphragm, the patient making a good recovery. [B.K.]

Final Results in the Röntgen-ray Treatment of Cancer, Including Sarcoma.—W. R. Coley[4] states that results have proved that röntgen rays exert a powerful influence on cancer cells of all varieties, but most

[1] The Practitioner, August, 1905.
[2] Il Policlinico (Rome), August Surgical Section, 1905.
[3] The Lancet, August 19, 1905.
[4] Annals of Surgery, August, 1905.

marked in cutaneous cancer. In some cases, chiefly in superficial epithelioma, the entire tumor may disappear, probably by reason of fatty degeneration of the tumor cells, with subsequent absorption. In a much smaller number of cases of deep-seated tumors, chiefly cancer of the breast and glandular sarcoma, tumors have disappeared under prolonged röntgen-ray treatment. In nearly every one of these cases, however, traced to final result, there has been a local or general return of the disease within a few months to two years. In view of this practically constant tendency to early recurrence, furthermore, in the absence of any reported cases well beyond three years, the method should never be used except in inoperable cases, or as a prophylactic after operation, as a possible though not yet proved means of avoiding recurrence. The use of the röntgen ray as a preoperative measure in other than cutaneous cancer is contraindicated because the agent has not yet proved curative, and because of serious risks of extension to inaccessible glands, etc., during the period required for trial. [H.M.]

Aid for Rapid and Exact Suturing.—O. Bernhard[1] has devised an instrument, which he finds of great service in producing an exact skin suture quickly, as well as when suturing deeper structures. He calls it a "wound clamp"; it resembles Tiemann's bullet forceps. The ends curve inward and are sharp; the tips cross; the handles lock. The instruments are applied at distances of 1 in. to 1½ in. to the wound edges, bringing them in close apposition; the sutures can then be applied very easily and accurately. A folding in of the epidermal surface is impossible with these forceps. The deep layers of a wound can be sutured with it as readily as the skin. The instrument can also be employed for elevating the abdominal wall during the operation. [E.L.]

A Peculiar Case of Cerebral Concussion.—Noehte[2] relates the case of a man who fell, striking his head. For several days he was totally unconscious, a typic picture of cerebral concussion. As he recovered consciousness, the following symptoms were observed and came to dominate the picture: Disturbances of motion, consisting chiefly of incoordination of both upper and lower extremities, weakness of the right half of the body, diplopia, contraction of the visual fields, disturbances of smell and taste, disturbances of speech and of memory for recent occurrences, inability to remember names, while things learned at school were remembered quite well, difficulty to recognize pictures of any kind, readily fatigued, work performed is not up to standard for a long time, good natured, but childish behavior, etc. Improvement was very slow, total recovery not being complete until several months later. The great violence evidently produced a lesion in the cortex near the central sulcus, affecting also the pyramidal tracts. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

The Treatment of Acute Peritonitis.—K. G. Lennander[3] advises an early operation, if possible, before intestinal paralysis has set in. An early diagnosis is also important. The cause of the acute peritonitis should be removed at every operation. If intestinal paralysis has intervened, either enterotomy or typhlostomy and enterostomy (Witzel's method) should be performed, and in the desperate cases resection of .5 cm. to 2 cm. of the paralyzed intestine should be done. When the peritonitis is caused by appendicitis, and the cecum and ileum are paralyzed, Witzel's fistula should be made in the cecum, or the cecal wall should be placed in the wound so that later a Witzel fistula can be made in the event of paralysis of the bowels following the operation. Irrigation with saline solutions is advisable in recent purulent peritonitis around the mesentery of the small intestine. Acutely inflamed peritoneal regions should be drained. Lennander's practice is to inject artificial serum into a vein when the whole small intestine is extruded from the wound. The after-treatment consists in irrigation of the rectum, colon, and stomach, and if necessary, enterostomies are performed. The author has used eserin with good results in cases of intestinal paresis. The loss of liquid sustained during the early stages of the disease should be combated by the administration of 1,200 cc. to 2,000 cc. in 24 hours, preferably by the rectum or through a Witzel fistula. Glucose and alcohol may be administered by the rectum. No other food should be given by the rectum, but peptonized foods may be administered through the fistula. In some cases the patients may be fed subcutaneously. One hundred to 200 gm. of olive oil, 160 gm. of glucose, and 40 gm. of alcohol may be administered subcutaneously in 24 hours. In purulent peritonitis the possibility of the development of adhesions and sharp bends in the intestine should be considered, and for this reason it is important not to give food too early by the mouth, especially indigestible food. The patient should take care to have the bowels moved regularly, and not to eat indigestible food. [J.H.W.R.]

Röntgen Treatment of Leukemia.—Stursberg[1] reports the case of a man of 31, suffering with leukemia. Both spleen and liver were very large; he had 240,000 leukocytes. He was treated with röntgen rays for 11 weeks. The length of the sittings varied from 5 to 20 minutes, the strength current varied from 4 to 6 amperes, the volts from 80 to 120, the tube distance from 35 cm. to 25 cm.; a hard tube was used. At first only the spleen was treated, later also the thighs. The leukocytes dropped to 134,000, the spleen was not influenced, the red corpuscles diminished in number, the general health deteriorated, he had constant fever and frequent chills; he developed pain in the abdomen, splenic tenderness, peritoneal friction, and later, edema; in other words, he became gradually worse. The author sees nothing peculiar in this failure; the cause of the leukemia has never been influenced by the röntgen rays and the only manner in which improvement has been produced is by increasing the destruction of the leukocytes; when the destruction of the leukocytes can be increased over the production, an improvement of the blood picture is observed. In grave cases this is impossible, and the increase of leukocytes continues, due to intense disease of the hematopoietic organs. The röntgen rays in these cases, by causing increased destruction of the tissues, produce a deterioration of the patient; toxic leukemic products or fermentation intoxication are produced. [E.L.]

Treatment of Strychnin Poisoning and Tetanus by Spinal Anesthesia.—It is well known that the convulsions of strychnin poisoning and tetanus are markedly related to afferent impressions, a moderate sensory stimulus giving rise to the most violent motor discharges. A. E. Russell[2] suggests that if afferent impressions could be prevented from reaching the spinal cord, the spasms might be prevented or diminished. The production of anesthesia by the spinal injection of cocain is due to a paralysis of the posterior roots and their immediate connections. Experiments in animals showed the author that this method of treatment might be attended with success in man. The author reports one case of tetanus so treated with most beneficial results. He suggests the use of eucain instead of cocain, on account of the poisonous qualities of the latter drug. [B.K.]

[1] Zentralblatt für Chirurgie, 1905, xxx, No. 26, 689.
[2] Deutsche Militærærztliche Zeitung, 1905, xxxiv, 167.
[3] Edinburgh Medical Journal, September, 1905, p. 237.

[1] Münchener medicinische Wochenschrift, 1905, lii, 623.
[2] The Lancet, September 23, 1905.

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Medical Heroes.—We have little sympathy with the systematic and trusteed rewarding of heroes; this is principally because the plan would seem to discourage the condition of mind out of which true heroism arises, smudge that which does exist, and also because the finest heroisms are almost impossible to discover; moreover, if discovered, the true hero would not accept reward. There is no heroism more admirable than that often exemplified by physicians, the superb illustration being that of Lazear. But no day passes in which members of our profession, in every community, fail to verify the truth. It is, indeed, so common, and is such an integral part of our duty and life, that we are scarcely conscious of the fact when it comes to our notice. There are no medical discoveries and advances made that do not cost health, much good life, and even the lives of the men who bring them about. Surgeons are maimed or crippled every day, and practitioners braving infection find themselves its victims. Even the röntgen rays have their martyrs. One instance has lately come to our notice—that of a wellknown investigator, Dr. Weigel, of Rochester, N. Y., who has resumed the practice of orthopedic surgery after great suffering, and loss of his hands. The bravery with which he has met adversity, and the ingenuity with which he has conquered it, should encourage any of his colleagues similarly misfortuned. His experience suggests the strange fact that so far as we know, no worthy book exists to teach the multitude of devices and methods possible in conquering the disabilities and the results of disease, accidents, and amputations.

The origin of variations has never been satisfactorily explained and as a consequence there have been numerous attacks upon Darwin's law of selection. It has been repeatedly shown that this law does not account for the origin of the variations which are selected as the fittest and to this extent is inadequate to explain evolution. Yet it is perhaps safe to say that all biologists accept the law, and indeed it is the foundation of all the modern theories of organic evolution. They differ merely as to their explanations of the causes of variations and whether change in species is due to the selection of minute differences all the time, or of marked differences or mutations occasionally. That is, present discussions are not upon the survival of the fittest, but upon their origin. Given the variations, their survival, if fittest, is an inevitable consequence. The general trend of opinion seems to be in the direction of considering that all differences are due to environmental causes which may make the variations more or less fit for survival, or even more perfect than is necessary. There are numerous writers, nevertheless, who hold that variations are due to some inherent power of the organism and are wholly independent of the environment. We have called attention to Prof. Morgan's[1] article, in which he recognizes the value of Mendel's law of hybrids and its confirmation by deVries.

Luther Burbank's wonderful results in breeding new varieties of plants were believed to have placed the matter of the origin of species in a different light; indeed, one writer in the *Century Magazine* for April boldly states that these results disprove the theories of deVries and show that Mendel's law is overthrown. This article is quite remarkable, in view of the fact that deVries,[2] himself, after a visit to Burbank, has announced that there was nothing new to be learned from the Californian's methods or results. He states that Burbank works on long-established lines of crossing different varieties or species and selecting the favorable results. They throw no light whatever upon the origin of the variations. He has not created a single new character, but merely combines by crossing the characters he finds already existing in nature, and he searches the world for plants which have the characters he wants.

[1] Popular Science Monthly, May, 1905.
[2] Popular Science Monthly, August, 1905.

His results are successful and marked merely because, in selecting the variations of any character he wishes to emphasize, he deals with huge numbers. By having a hundred thousand specimens from which to select he has, by the law of probability, a hundred more chances of obtaining the desired variation than he who uses a thousand specimens. He possesses marked ability in running quickly over his specimens and discovering the new varieties which may have appeared. He thus accomplishes in a few seasons what usually takes a life time. He has overthrown no laws, but merely shows what the law of selection can do. He does not know what causes these variations, and, as a rule, after breeding up a variety, he cannot repeat it should accident destroy his specimens. He breeds new varieties exactly as we breed race horses—selecting for breeding those which have the best variations for his purpose. His work is based on the law of selection or survival of the fittest. He crosses varieties merely to get hybrids with the proper combination of characters, and yet never knows what the hybrids will be like. The origin of species is as much a puzzle as ever. It has been said that Burbank is to apply these methods to breed up a better type of man, but as he sometimes saves but one specimen in a hundred thousand, destroying all the rest because they do not happen to have the extraordinary variation possessed by the one, it is quite evident that these writers do not know what he is really doing. Nature must therefore weed out the human race the way she desires; and originate more favorable varieties of man in the way she has always done it.

Quackery in the army is still possible, as an officer is presumed to have the right to call into forts to attend him any one he pleases—osteopaths or Christian scientists—and if the case is not one that is contagious, they are to continue in charge, unless the commanding officer, a layman, thinks the interests of the service demand that the surgeon take charge of the treatment. This is the only exception one can take to what is otherwise an excellent order. It would seem the part of wisdom to trust the surgeon himself to decide such matters. He is selected with the greatest care after a very severe examination, which rejects so many candidates that even our medical colleges sometimes feel sore over the failure of their candidates. Then he is repeatedly examined as to professional, physical and moral fitness to eliminate the unfit. Surely the War Department can afford to trust the survivors of this system, and to forbid any civilian practice in reservations or camps, except by specialists, to assist the surgeon in special cases. We believe the Japanese take that view of the matter. Of course, we may be wrong, and there may be military reasons which compel the War Department to permit its officers and soldiers to call in whom they please, but to an outsider, it seems as though an army can take a lesson from every successful civilian who manages great affairs. He selects capable experts, pays them well, holds them responsible, and doesn't dare to interfere with them. We doubt whether any railroad would be successful if its directors called in outside engineers and ignored their own. Only a small mind bothers with the details which should be attended to by his subordinates, and he is always a failure, like a few generals of this type whom history mentions. We trust that the administration can find time to give attention to all these matters of reorganization.

Prizes for yearling babies is the latest effort of the great modern crusade to induce mothers to keep their infants alive. The high mortality rates of children less than a year old have appealed to many a philanthropist and many have been the efforts to stop the slaughter. Mr. Benjamin Broadbent, the mayor of Huddersfield, England, had found that the deaths were almost wholly due to the ignorance of poor mothers who had not sufficient breast milk of their own. It was necessary to enlighten them, but unfortunately the report of the births would not be filed until the damage had been done and often the reports of the birth and death of a child were made at the same time. First of all a shilling was paid to the person who first notified the authorities of a birth within 48 hours of its occurrence—a plan which was quite successful, for some one was always ready to run for that shilling. Immediately the house would be visited by a "lady health visitor," generally a trained nurse who had an eye out for all unhygienic surroundings—a system of sanitary inspection which is becoming quite common in England, women being far more efficient than men for such sanitary work. The visitor would then correct such faults as she found, give advice as to the child, and leave cards on which were printed rules for guarding the life and health of the baby, together with the ominous warning, "for every baby fed on its mother's milk who dies before the age of 3 months, 15 babies die who have been fed by other means." Over the signature of the mayor was a promise to pay a sovereign to the child's parents or guardians, "on production of proof that the said child has reached the age of 12 months." The experiment is being watched with the keenest interest, not only from motives of humanity, but from the more far-seeing effort to check the alleged physical degeneracy which is said to be an increasing British danger. It is asserted that

the poor physiques now so common in England are due to the damage inflicted in childhood by poor food and unhygienic surroundings, and generally during the first year of life. There has been no change in climate to account for the change in men and it is confidently asserted that if they eliminate the harmful factors of crowded modern life the men will develop as their ancestors of old. It is a question of the environment and not heredity.

American infant mortality is probably just as great as in English towns, and baby prizes can well be considered as a possible remedy, coupled as it would be with such plans as the Straus milk stations which of themselves have done wonders. The whole trend of all these plans is to get back to nature by abandoning the awful modern conditions in which the poor are compelled to live. It might be true that in time a type will be evolved which will be able to thrive, just as the Chinese coolies seem to thrive while crowded in darkness and filth, but the process is too expensive in lives and might destroy types which are more useful in other ways. The very decadence of lactation to which we have already referred and which is apparently at the basis of the modern mortality, may of itself be a result of poor physique and be remedied if the next generation or two are properly reared. Indeed there are such numerous possibilities of good in all such sanitary crusades that we can recommend them to all of our organizations from the D. A. R. to the W. C. T. U. Instead of dilating upon the need of universal suffrage and the dangers of open work stockings, we hope that our good friends, and best friends—the ladies—will take up this proposal of prizes for human yearlings. The great outcry against a symptom of a social disease, such as drunkenness, for instance, is not logical unless we at the same time dig down to remove one of the causes—bad food and bad rearing in the first year of life. We heartily commend the plan and will watch its progress with sympathetic interest.

The large birthrate of French Canadians is receiving comment on account of the recent repeal of the law which in the Province of Quebec, gave 100 acres of forest land to each man who had 12 children. The desire to be more populous has led the French Canadian government into several schemes, mostly to facilitate immigration, although, curiously enough, the flow of population has long been out of Canada into the United States, as though the north were overpopulated. It was this exodus which alarmed the Quebec authorities, who thereupon revived their traditional policy to stimulate the birthrate by rewarding a large family, actuated no doubt, by a desire to make this part of Canada solidly French. It has been learned that the land grant was of no use to the father of such a large family, as he was anchored to his own farm and could not break a new one in the wilderness. The grants were consequently sold to lumber companies at ridiculously small rates and the exodus of the younger element continues. It is now openly stated that it is no longer possible to support these large families. It was an easy matter formerly, for a large farm could be divided among the children, but the later subdivisions have made the farms too small. Migrations were necessary, and the easiest way was toward the south, to get employment in the factories. A large birthrate, then, is no longer of use to Canada, and is, indeed, rapidly diminishing. It is also stated that the deathrate among the children has been inordinate, because it is not possible nowadays to give the proper care and attention to the infants, so that no matter what the number born it will never be possible to rear as many in one family as formerly. It is now recognized that Canada will not suffer from population if the present reduction of the birthrate does continue—her emigration will be less. Indeed, it is also recognized that density of population depends solely upon ability to make a living, and the only way to increase it is to stimulate the productivity of a country—the present Canadian policy. He who makes two blades of grass grow where one grew before, does more than he who brings infants into the world but cannot feed them.

Fleas as disease carriers have been investigated though with unsatisfactory results. Dr. C. F. Baker,[1] of Santiago de las Vegas, Cuba, makes an appeal for further work along this line. He states that all the discussions, pro and con, relative to the transmission of plague by fleas, have had scarcely any basis, in fact—so little foundation, indeed, that it is surprising that the suggestion should have evoked such acrimony. Some papers on the subject have not even mentioned the species of flea suspected, and in other cases it is now thought that the insect investigated does not trouble man at all. It is said that some of the adverse findings in the case of plague were probably due to the fact that in the cases selected, the bacilli may not have been in the blood, but in the glands. The Indian Plague Commission simply reported that there was no evidence one way or the other. Recently it has been suggested that owing to the deep-seated position of the bacillus of leprosy, that organism can be transmitted only by blood-sucking or parasitic insects. From the frequency with which the common itch is found in the leprous, it has been suggested that the acarus is the culprit, but more accusations are made

[1] Science, September 15, 1905.

against the flea. In each case the insect is looked upon as a simple carrier, and not as an intermediary host as in the case of malaria, filaria, trypanosomiasis and yellow fever. As leprosy is said to be increasing in the United States, and as plague is likely to visit us at any time, Baker points out the utmost necessity of a sytematic investigation of the fleas, to determine their geographic distribution, and the species infesting the various animals, and particularly to determine which ones will attack man. Reasoning from analogy alone it is justifiable at least to hold the flea under suspicion. It is so common in many animals that it must be a means of transmitting numerous parasites. It is hoped that there will be a generous response to Baker's request for specimens with data as to locality and host from every part of the world, to be sent either to him or to Dr. L. O. Howard, the government entomologist in Washington. Until this preliminary work is done, it is not possible to do much in the way of learning what this insect can do. There are possibilities of valuable findings in spite of the present somewhat negative evidence.

Journalistic Jealousies and Reviews of Books.—"Can one be amused and disgusted at the same time?" is a question psychologists have argued over not a little. Those who take the negative side in the debate never studied the review columns of medical journals. In the first place the absence of reviews of the books of certain authors shows the splendid magnanimity and high sense of duty of the editor who thus punishes physicians —authors who do not contribute to his columns, or who have "shown him up" in some medical society meeting, outwitted him in private practice, etc. And what remarkable things are often the reviews or nonreviews of the books or articles of one rival editor by another! The editor who writes books or articles under his own name is surely a very foolish or a very brave man! Then the lay publisher of typical commercial medical journals must also have his commands obeyed. Sometimes he will not allow a certain rival's book to be reviewed at all, or if touched, oh, with such a touch! The poor author who closes a contract for publishing his book with one publisher instead of with another must "look out for it" by and by. For all of these reasons and more some writers parcel their articles out to different medical journals, and their books to various publishing houses, in order to give "hostages to fortune," and at least avert the wrath that might come if they were less astute. In other words, the review columns of some modern medical journals are often of no genuine value whatever as indicating the value or valuelessness of a book or contribution.

"I want my books and articles to be well received in England, I do not care for Germany, the fatherland of medical science and progress, because I am not seeking entrance to that country, and beside the Germans do not buy books. They also have been so foolish in a few years as to spell their words phonetically, and to simplify and shorten up their language tremendously. But 'dear old England' is not so silly and lawbreaking, and her academic degrees, and her social blessings, and her reception of American books are conditioned upon spelling *gynecology*, *edema*, and *tumor* in a sweet antique fashion—*gynœcology*, *œdema*, and *tumour*." Thus muses the American author who is cunning, and whose Americanism is of the quality described. Transplanted English publishers also, of course, are more desirous of keeping up this feeling than the would-be-introduced. Not recently an internationally hyphenated publishing house issued a volume from its presses ("made in America") which was worthy of a high place as typical crank literature. Its matter was equal to its manner, and hardly a proper English (or American) sentence was to be found in its hundreds of pages, but it was true to English, not Shakesperian or Miltonic, methods of spelling, and "conservatism," that other name, frequently, for prejudice and self-interest, greeted it with warm praise. "I want to run over to England next summer" will find a way out of all difficulties, English or American, "and I don't care for these plebeian Americans!"

Irritant Properties of Plants.—An article recently published in *Cosmos* (Paris) calls renewed attention to the very important, though frequently overlooked irritating action of poisonous, as well as some otherwise innocuous plants. The peculiar irritant action on the mucous membrane of the nose, caused by the pollen of a number of plants, is now well known and generally acknowledged. Of plants having a more specific local action, the nettle and wild clematis are probably best known in Europe, while in this country we are all more or less familiar with the painful and distressing erysipelatoid inflammation frequently produced by poison ivy (*Rhus toxicodendron*) and a number of other species of the genus *Rhus*. It is not, however, generally known that there are a large number and quite a variety of otherwise wellknown harmless plants that may cause distressing, and at times, painful local manifestations, usually simulating a chronic eczema. Among plants having this property, the writer of the article referred to mentions primroses, particularly the China primrose, chrysanthemums, and arbor vitæ. While it is true that cases of poisoning by these comparatively harmless plants are

exceptional, or at least rare, the fact that they do occur is well worth noting. It is also worth remembering that the majority of these affections are self-limited, and that the most satisfactory method of relieving them is to discover and remove the cause. The direct cause of many of the purely local lesions, in addition to a peculiar predisposition on the part of the afflicted individual, may be found in the irritating principles exuded by many species of plants. This irritant matter, even after the appearance of an eruption, may frequently be removed with alcohol or other suitable solvents, thus shortening the duration as well as preventing the spread of the affection.

Apothecaries and Patent Medicines.—To show what may be done by an apothecary who sees in the patent medicine he sells something beside the profit he reaps therefrom, we quote from a letter recently received from a Canadian druggist. He refers to a move of the patent medicine manufacturers to prevent price cutting, and incidently to suppress what they denominate substitution:

At first sight the proposition was a perfectly equitable one, but on close examination I found that anyone who signed it would be under the necessity of passing out any nostrum asked for without comment. Now, when anyone comes in and asks me for a bottle of these swindles, I always give them what they ask for, but usually with my opinion of the fraud thrown in. In certain cases it is useless to do this, as it has no effect. I am thankful to say, however, that I have been instrumental in killing the sale of some hundreds of bottles of these frauds. Another vile swindle I am "down on" is the advertised tuberculosis cure. I believe that this one county contributes $10,000 a year to the maintenance of those two harpies, ——— and ———. I keep a small stock of the ——— "remedies," and dispense them under protest. ———'s literature is so infernally offensive to the medical profession, that both my competitor and I have black-listed the goods, and will have none of them.

This sentiment from a druggist is unusual, and hence the more commendable. That the apothecary has the legal right to sell his customers that for which they ask cannot be denied; his opportunity for enlightening the public in regard to nostrums is not so thoroughly appreciated.

Dedication of New Hospital.—The Philanthropic Hospital, recently chartered by the New York State Board of Charities, was dedicated at Williamsburg last week. On account of the increase in population in that quarter of the city, the need of a hospital became evident last spring. In accident cases, it was necessary to convey patients a distance of four miles. Among those interested in the Philanthropic Hospital is Louis Mann, the actor. He is a director of the institution, and organized a benefit concert for it last spring, from which $1,000 was realized.

AMERICAN NEWS AND NOTES

GENERAL.

Yellow Fever Kept out of Mexico.—No yellow fever cases now exist in Mexico. The immunity is due to strict precautionary measures adopted by the Superior Board of Health.

The Journal of Biological Chemistry, Vol. i, No. 1, published in October, is designed for the prompt publication of original investigations of a chemic nature in biologic sciences. It is issued at intervals determined by the amount of material which accumulates. At least six numbers will be published yearly and will constitute a volume, each volume to contain between five and six hundred pages. No more than two volumes will be issued in one year. The editors are Prof. J. J. Abel, Baltimore, Md., and Prof. C. A. Herter, New York City.

Venereal Disease in the Army.—The war department has issued the following general order: "Any soldier who becomes disqualified for service by reason of venereal disease, except in the rare event of the disease being contracted without fault on the part of the soldier, will be regarded as having become disqualified for service physically or in character through his own misconduct, and will be discharged on surgeon's certificate of disability in the usual manner, but a commander ordering discharge in such a case will direct that the discharge be without honor. Medical officers should, however, bear in mind that these diseases are often amenable to treatment, and should not certify good soldiers for discharge from the service until due effort has been made to remove the disability by proper treatment."

Personal.—Prof. John C. Hemmeter will, on Wednesday, November 15, the twentieth anniversary of his doctorate, be presented with an oil portrait of himself. Each of the 95 subscribers will receive an autographed photograph of the painting. Surgeon-General Walter Wyman, United States Marine-Hospital Service will speak for the subscribers, and an address will be made by Dr. Warner Holt, of Washington.—A banquet in honor of Dr. Nicholas Senn will be given by the medical department of the Columbus laboratories at Chicago today. More than 700 physicians are expected to attend, 200 of whom will come from other cities. Among the speakers will be George R. Peck, Dr. J. A. Witherspoon, Nashville, Tenn.; Dr. W. J. Mayo, Rochester, Minn.; Dr. Jacob Lang, Milwaukee, Wis., and Dr. J. D. Bryant, New York. Dr. Bryant will be presented with a medallion.—Another medical officer of the army has resigned from the service. This week the resignation of Lieutenant James F. Edwards, assistant surgeon, on duty at Fort Leavenworth, Kan., was accepted to permit that officer to engage in civilian practice. There are now 22 vacancies in the junior grade of the medical department. The resignation of Dr. Edwards and the prospective resignation of another officer of the corps will create 24 vacancies.

EASTERN STATES.

A New Attempt to Prohibit Vivisection.—There will be introduced into the Massachusetts Legislature this winter an "Act to Prohibit All Experiments under Any Circumstances and for Any Purpose Whatsoever, with or without an Anesthetic, upon Dogs and Cats."

For Protection of Public against Quacks.—The medical specialists in diseases of the eye and ear in Maine have formed an association for mutual benefit and for mutual protection against legislation looking to the licensing of uneducated medical men of any sort to treat diseases of the eye. Dr. Norton, of Lewiston, is presi-

dent for 1905–06. The meetings are to be held quarterly at the larger cities in the State. An interesting and unique feature of the meetings will be the invited presence of medical practitioners who are not specialists. It has been thought that the mutual relations of physicians and specialists would in this way be kept on a higher level ethically.

Boston Mortality Report.—The number of deaths reported to the Board of Health for the week is 190, as against 176 the corresponding week last year, showing an increase of 14 deaths, and making the deathrate for the week 15.77. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 35 cases, no deaths; scarlatina, 33 cases, no deaths; typhoid fever, 12 cases, 3 deaths; measles, 73 cases, 1 death; tuberculosis, 40 cases, 22 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 21, whoopingcough none, heart disease 22, bronchitis 5, marasmus 11. There were 12 deaths from violent causes. The number of children who died under 1 year was 40, under 5 years 53, persons over 60 years 44, deaths in public institutions 54.

NEW YORK AND VICINITY.

Harvey Society.—The third lecture in the course was given by Professor F. G. Novy, of the University of Michigan, at the New York Academy of Medicine, on November 4.

Tuberculosis Home Cost Approved.—The New York board of aldermen has approved an appropriation of $800,000 for the Staten Island tuberculosis hospital, and one of $115,000 for municipal lodging houses.

Tuberculosis Hospital.—The Board of Estimate, of New York, has appropriated $800,000 toward the construction of the tuberculosis hospital at Staten Island, and bound itself to appropriate the balance of the $2,000,000 needed to carry out the plans in detail. Charities Commissioner Tully explained the needs of the institution. He is building it in units, and it will be a year or more before all the appropriation can be used.

A school for backward boys has been opened on New York's lower East Side. Some time ago it was stated that 40% of New York's school children were dull and backward. This school is for the instruction of children who have never had a "fair show"—children intimate with abuse and strangers to kindness—juvenile "under dogs." The new school, it is believed, marks the beginning of an epoch in which truancy will decrease and juvenile crime will be checked, if not eliminated.

Diphtheria Epidemic Closes Four Schools.—Four schools in the borough of Queens were closed last week because of a diphtheria epidemic in Woodhaven and Union Course. According to Dr. John Moore, assistant sanitary superintendent, some of the local doctors have been very lax in their duties, and as a result hundreds of children attending school have been exposed to the infection. The four schools closed will not be opened until they have been thoroughly cleansed, disinfected, and fumigated. Five deaths and 17 cases of diphtheria have been reported in the infected districts. There were 1,200 children in the four schools which have been closed.

Consolidation of Charity Journals.—*Charities*, of New York, and *The Commons*, of Chicago, merged, beginning with the first issue for November. The combined weekly journal will be more or less of a cooperative undertaking among those who know conditions first hand and are shouldering such movements as housing and child labor reform, the prevention of tuberculosis, and the social utilization of public schools. The editorship will be in the hands of Edward T. Devine, of New York, and Graham Taylor, of Chicago. To develop the educational work along national lines, a publication committee has been appointed, with Robert W. de Forest, former Tenement House Commissioner of New York, as chairman; and including Jane Addams and Margaret Dreier Robins, of Chicago; Jacob A. Riis, Frank Tucker, and Robert S. Brewster, of New York; Daniel C. Gilman, Baltimore; Robert Treat Paine, Arthur F. Estabrook, Joseph Lee, and John F. Moors, of Boston; Simon N. Patten, Philadelphia; and S. W. Woodward, Washington.

PHILADELPHIA, PENNSYLVANIA, ETC.

Malpractitioner Convicted.—"Dr." J. H. King, of Philadelphia, was convicted last week of criminal malpractice and sentenced to three years in the Eastern Penitentiary.

Chinese Sailors Have Beriberi.—Eight out of the 56 Chinamen composing the crew of the British steamer Knight of St. George, now at Philadelphia discharging a cargo of sugar from Java, were taken to the Marine Hospital, at the State Quarantine Station at Marcus Hook, suffering from beriberi.

Doctor Seriously Accused.—Dr. T. B. Williams, of Philadelphia, is charged with having performed a criminal operation on a young woman, who is said to be in a serious condition in a hospital. The authorities have not made her name public. The physician was held in $500 bail for further examination.

SOUTHERN STATES.

The Citizens' Yellow Fever Fund.—The report of the accountant and auditor of the citizens' yellow fever fund committee showed a balance of $44,710.04 on hand, with some debts yet to be settled. It is thought there will remain after the payment of these debts $25,000 available for use in erection of the proposed Isolation Hospital. A very handsome sum, and perhaps the largest balance ever left over after so long, so energetic and so successful a campaign.

The Yellow Fever Situation.—The fever situation at New Orleans continues its rapid improvement, the cases under treatment now being reduced to 17. The raising of the Alabama quarantine is said to depend upon conditions at Moss Point and Scranton, between New Orleans and Mobile. At Pensacola, Fla., the fever situation shows steady improvement, which is due to fumigation and scientific work on the part of the State health officials. The fumigation will continue despite opposition and court proceedings. There have been 538 cases so far, including three new ones. The deaths aggregate 77, the number of cases discharged 397, and under treatment 64.

WESTERN STATES.

Surgeon Stricken at Operation.—While performing a serious operation in the Michael Rees Hospital, Dr. J. W. Oswald, of Chicago, was stricken with paralysis. The operating knife dropped suddenly from his hand. It is not expected that he will recover. He is 42.

FOREIGN NEWS AND NOTES

GENERAL.

Suspected Bubonic Plague.—The British steamer Ashmore, from La Plata, which arrived at Hamburg, October 25, had a case of suspected bubonic plague on board. The vessel has been disinfected throughout by carbonic oxid gas, a new process of the port authorities. The rats and everything alive were destroyed. No fresh cases have occurred among the crew.

OBITUARIES.

Frank K. Owen, aged 64, of Ypsilanti, Mich., October 14, from heart disease, at St. Mary's Hospital, Detroit. He was graduated from the University of Michigan, department of medicine and surgery, Ann Arbor, in 1872. He was health officer of his home city, was a veteran of the Civil war, and served as surgeon of the Thirty-first Michigan Infantry, U. S. V., in the Spanish-American war.

G. W. Larrick, aged 53, November 6, at his home in Middletown, Va. He was graduated from the University of Maryland School of Medicine, Baltimore, in 1878. For a number of years he was a member of the board of visitors to the Western State Hospital, at Staunton, Va.; member of the Frederick County Board of Health, and physician to the Baltimore and Ohio Railroad.

Abram Hugh Moss, aged 62, October 12, from heart disease, at his home in San Bernardino, Cal. He was graduated from Tulane University of Louisiana, medical department, New Orleans, in 1879, and practised for many years in Lake Charles, La. He was a member of the Louisiana State Medical Society and the American Medical Association.

Frederick T. Zabriskie, aged 34, November 5, at the home of his father in New York City. He was graduated from the College of Physicians and Surgeons, New York City, in 1895. He served on the staffs of St. Luke's Hospital, the Post-Graduate, and the Polyclinic Hospitals, and of the House of Mercy, of Pittsfield, Mass.

Orrin Peak, aged 79, October 8, at his home in Oak Park, Ill. He was graduated from the University of Michigan, department of medicine and surgery, Ann Arbor, in 1854. He served as surgeon of the Twentieth Wisconsin Volunteer Infantry during the Civil war.

W. H. Walthall, aged 70, October 18, from paralysis, at his home in Roanoke, Va. He was graduated from the Medical College of Virginia, Richmond, in 1861. During the Civil war he served as surgeon of the Confederate service.

George Johnson, aged 73, October 25, at his home in Frederick, Md. He was graduated from the University of Pennsylvania, department of medicine, in 1854. A member of the Medical and Chirurgical Faculty of Maryland.

John O. Dawson, aged 57, October 18, from angina pectoris, suddenly, at his home in Lincoln, Neb. He was graduated from Rush Medical College, Chicago, in 1879. He was a member of the American Medical Association.

Max Urivitz, aged 55, October 2, from cerebral hemorrhage, at his home in Houston, Texas. He was graduated from Tulane University of Louisiana, medical department, New Orleans, in 1881.

George Kalb, October 3, suddenly, at the home of his parents in Catonsville, Md. He was graduated from the University of Maryland School of Medicine, Baltimore, in 1902.

W. R. Burke, aged 64, of Empire, Mich., October 30, suddenly, from heart disease, at Cedar, Mich. He was one of the oldest practitioners of Michigan.

Edward Fennell, November 5, committed suicide at his home in Readlyn, Iowa.

FOREIGN.—**Robert Somerville,** aged 69, October 15, at his home in Galashiels, Scotland. He was graduated from Edinburgh in 1859. He was actively engaged in all public improvements in his city, especially with the establishment of a free library and a cottage hospital, in which he wished to have a department for the treatment of tuberculosis. He was factory surgeon and medical officer to the postoffice.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended November 4, 1905:

LE WALD, First Lieutenant LEON T., assistant surgeon, now in Manila, is relieved from further duty at Camp Hartshorne, Samar, and will proceed to Borongan, Samar, for duty, relieving First Lieutenant George H. R. Gosman, assistant surgeon, who will proceed to his proper station, Camp Downes, Leyte, for duty.

IVES, Major FRANCIS J., surgeon, is relieved from duty at Zamboanga, Mindanao, and will proceed to Camp Stotsenburg, Pampanga, for duty.

WOLFE, Captain EDWIN P., assistant surgeon, is relieved from duty at Camp Overton, Mindanao, and will proceed to Cuartel de Espana, for duty, relieving Captain Louis T. Hess, assistant surgeon.

IVES, Major FRANCIS J., surgeon, will proceed to Camp Stotsenburg, Pampanga, P. I.

EWING, Major CHARLES B., surgeon, will proceed to Jolo, P. I., for duty.

SABIN, WALLACE E., contract surgeon, now at Fort William McKinley, Rizal, will proceed to Guinayangan, Tayabas, for duty, relieving Contract Surgeon Frank E. Artaud, who will proceed to Fort William McKinley, Rizal, for duty.

BROWN, First Lieutenant ORVILLE G., assistant surgeon, is relieved from duty at Camp Keithley, Mindanao, and will proceed to Manila, reporting at Division Hospital for duty.

Captains Charles E. B. Flagg, William F. Lewis, First Lieutenants Charles Y. Brownlee, Edward M. Talbott, John A. Clark, Jacob M. Coffin, James D. Fife, Edwin D. Kilbourne, Jay W. Grissinger, William A. Powell will be relieved from duty in the Philippines Division, November 15, and will proceed on the transport to sail from Manila on that date to San Francisco, Cal., where they will report by telegraph to the military secretary of the army for instruction.

POWELL, First Lieutenant WILLIAM A., assistant surgeon, is granted leave for one month and ten days, with permission to visit China and Japan, effective about October 15. Lieutenant Powell is authorized to await at Nagasaki, Japan, the arrival of the transport scheduled to sail about November 15.

CHIDESTER, First Lieutenant WALTER C., assistant surgeon, granted leave for ten days, from November 15. At the expiration of the leave Assistant Surgeon Chidester will report to Lieutenant-Colonel George H. Torney, D. S. G., president of the examining board at the Army General Hospital, Presidio of San Francisco, Cal., in compliance with orders.

RAYMOND, Major THOMAS U., surgeon, granted leave for two months.

JONES, GEORGE H., contract surgeon, granted leave for two months on surgeon's certificate, to take effect upon the expiration of his present leave.

ROBBINS, Captain CHANDLER P., assistant surgeon, granted leave for one month and ten days, from about November 8.

WILLIAMS, First Lieutenant ALLIE W., assistant surgeon, granted leave for one month and ten days, from November 10.

CROSBY, Major WILLIAM D., surgeon, leave for two months is granted, to take effect upon his being relieved from duty in the Philippines Division, and he is authorized to visit Japan.

KEEFER, Major FRANK R., surgeon, so much of orders of October 10 as direct to proceed to San Francisco, Cal., on the transport to sail from Manila, P. I., about February 15, are amended so as to direct him to proceed accordingly on the transport to sail from Manila about January 15.

DUTCHER, Captain BASIL H., assistant surgeon, granted leave to include December 29.

COWPER, First Lieutenant HAROLD W., assistant surgeon, leave on surgeon's certificate granted September 27, is extended one month on surgeon's certificate.

HESS, Captain LOUIS T., assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Lawton for duty.

COLLINS, Captain CHRISTOPHER C., assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Walla Walla for duty.

PYLES, First Lieutenant WILL L., assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Jefferson Barracks for duty.

RAFFERTY, Major OGDEN, surgeon, is granted leave for two months, to take effect upon his being relieved from duty at Fort Monroe.

LAMBERT, First Lieutenant SAMUEL E., assistant surgeon, is granted leave for three months, to take effect upon his being relieved from duty in the Philippines Division, with permission to return to the United States via Europe.

MORSE, First Lieutenant CHARLES F., assistant surgeon, is granted leave for three months, to take effect upon his being relieved from duty in the Philippines Division, with permission to return to the United States via Europe.

So much of orders of October 14, W. D., as direct Captain Basil H. Dutcher, assistant surgeon, to take the transport to sail from San Francisco, Cal., about December 5, are amended so as to direct that officer to take the transport to sail from San Francisco to Manila, P. I., about January 5.

Changes in the Medical Corps of the U. S. Navy for the week ended November 4, 1905:

HUNTINGTON, E. O., surgeon, detached from the Navy Department and ordered home to wait orders—October 28.

CAMPBELL, R. A., acting assistant surgeon, detached from duty with Naval Recruiting Party No. 5, November 13, and ordered to the naval recruiting rendezvous, Cincinnati, Ohio—October 28.

ANGENY, G. L., surgeon, commissioned surgeon, with rank of lieutenant commander, from April 24, 1905—November 1.

MUNSON, F. M., assistant surgeon, ordered to the Lancaster—November 2.

Changes in the Public Health and Marine-Hospital Service for the week ended November 1, 1905:

CARMICHAEL, D. A., surgeon, granted leave of absence for seventeen days from November 14, 1905—October 31, 1905.

WASDIN, E., surgeon, to rejoin station at Memphis, Tenn.—October 31, 1905.

MAGRUDER, G. M., surgeon, to appear before a board for physical examination, November 11, 1905, under the provisions of paragraph 50 of the regulations—October 28, 1905.

GUITERAS, G. M., surgeon, to rejoin station at Cairo, Ill.—October 27, 1905.

GARDNER, C. H., passed assistant surgeon, granted leave of absence for one month from November 1, 1905—October 26, 1905.

WICKES, H. W., passed assistant surgeon, granted extension of leave of absence for two days from October 28, 1905—October 28, 1905.

GREENE, J. B., passed assistant surgeon, to rejoin station at Fort Stanton, N. M.—October 30, 1905.

LAVINDER, C. H., passed assistant surgeon, to rejoin station at Stapleton, N. Y.—October 27, 1905.

LAVINDER, C. H., passed assistant surgeon, granted leave of absence for four days en route from New Orleans to New York—October 28, 1905.

LAVINDER, C. H., passed assistant surgeon, to report at Bureau en route to New York—November 1, 1905.

MCMULLEN, JOHN, passed assistant surgeon, to proceed to New Orleans, La., and report to Surgeon J. H. White for special temporary duty—October 23, 1905.

MCMULLEN, JOHN, passed assistant surgeon, to rejoin station at Ellis Island, N. Y.—October 30, 1905.

FRICKS, L. D., passed assistant surgeon, relieved from duty at Castries, St. Lucia, and directed to proceed to New York, N. Y., reporting arrival by wire—October 27, 1905.

GLOVER, M. W., passed assistant surgeon, leave of absence granted him for three days from October 15, 1905, amended to read two days only—October 27, 1905.

WARD, W. K., assistant surgeon, relieved from duty at Bridgetown, Barbadoes, and directed to proceed to New York, N. Y., reporting arrival by wire—October 27, 1905.

COLLINS, GEORGE L., assistant surgeon, granted leave of absence for sixteen days from October 31, 1905—November 1, 1905.

EBERT, H. G., assistant surgeon, to rejoin station at Fort Stanton, N. M.—October 30, 1905.

SMITH, F. C., assistant surgeon, to rejoin station at Detroit, Mich.—October 30, 1905.

STEGER, E. M., assistant surgeon, to rejoin station at Philadelphia, Pa.—October 30, 1905.

ASHFORD, F. A., assistant surgeon, to rejoin station at Ellis Island, N. Y., reporting at Bureau enroute—October 30, 1905.

MCKEON, F. H., assistant surgeon, to rejoin station in New Orleans—October 30, 1905.

FROST, W. H., assistant surgeon, to rejoin station in Baltimore, Md.—October 30, 1905.

MULLAN, E. H., assistant surgeon, to rejoin station at Ellis Island, N. Y.—October 30, 1905.

GUTHRIE, M. C., assistant surgeon, to proceed to Cape Fear Quarantine Station, reporting to the medical officer in command for duty—October 30, 1905.

DUKE, B. F., acting assistant surgeon, granted fourteen days' leave of absence, on account of sickness, from October 7, 1905—October 28, 1905.

RICE, W. E., acting assistant surgeon, granted leave of absence for seven days—November 1, 1905.

SAFFORD, M. V., acting assistant surgeon, granted two days' leave of absence under paragraph 210 of the regulations.

WALKER, R. T., acting assistant surgeon, granted leave of absence for five days from November 13, 1905—October 31, 1905.

MASON, M. R., pharmacist, granted leave of absence for seven days from October 25, 1905.

GIBSON, F. L., pharmacist, to rejoin station at San Francisco, Cal., upon completion of duty at Lewis & Clark Exposition, at Portland, Ore.—October 26, 1905.

MORRIS, G. H., pharmacist, to rejoin station at St. Louis, Mo.—October 30, 1905.

STERNS, C. O., pharmacist, to proceed to Boston, Mass., and report to the medical officer in command for duty and assignment to quarters—October 26, 1905.

Appointment.

C. O. Sterns appointed pharmacist of the third class, Public Health and Marine-Hospital Service—October 19, 1905.

Board Convened.

A board of officers was convened to meet at Angel Island, Cal., November 11, 1905, to determine the physical condition of Surgeon G. M. Magruder, under provisions of paragraph 50 of the regulations; Passed Assistant Surgeon H. S. Cumming, chairman; Passed Assistant Surgeon F. E. Trotter, recorder—October 28, 1905.

SOCIETY REPORTS

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 767.*]

The Pollution of Shellfish.—GEORGE A. SOPER, Ph.D. (New York City), stated that the fact that typhoid fever may be caused by eating oysters and other shellfish which have been growing immersed in sewage-polluted water, although well-established, is not known as generally as the importance of the subject warrants. The shellfish industries on the American coast are enormous in extent and value. In some places grave sanitary evils occur. With little exception there is no sanitary supervision over any part of the business of collecting, handling, and selling the shellfish. Extensive reforms should be initiated if the public is to be protected against the transmission of typhoid and other enteric diseases which are now disseminated in this way and the interests of the fishermen and others engaged in the shellfish industry are not to be unnecessarily jeopardized. The nature of these reforms is not a matter of question so much as the method of bringing them about. The remedy proposed is a careful study of the conditions and a wide publication of the principles upon which the corrective measures must be based and applied.

Sanitary Analysis Versus Sanitary Inspection.—R. B. DOLE (United States Geological Survey, Washington, D. C.) said the object of the paper is to draw more general attention to the value of sanitary survey in regions where the potability of water is in question. The writer endeavors to show that detailed local information generally determines the potability of water better than the data afforded by present analytic methods; that therefore Boards of Health should discontinue the examination of samples of water, except those collected in their own study of specific water problems; that funds for water investigation may profitably be expended in the collection of data regarding the natural conditions and industrial and municipal developments which aid in the consideration of water-supply problems. Analytic results and other illustrative material are quoted from a recent investigation of surface waters in Minnesota, conducted jointly by the United States Geological Survey and the Minnesota State Board of Health.

Copper Sulfate in Public Water-supplies.—H. W. CLARK (Boston) dealt with some aspects of the use of copper sulfate in public water-supplies. Experiments to test the bactericidal action of copper were made at the Lawrence Experiment Station. Comparing the action of other metals with copper, he finds that the bacteria increase more and decrease slower when in contact with copper than when in contact with tin, lead, zinc, iron or aluminum. The effectiveness of the metals in destroying *B. coli* appears to be zinc, iron, copper, tin, aluminum, and lead, in the order named, with tin and aluminum ranking copper in one experiment.

President's Address.—F. F. WESBROOK (Minneapolis, Minn.) said that in America two causes are operative in rendering it difficult to protect the health of the public, one of which is the lack of real knowledge on the part of the public in regard to the scientific truths which underlie the conservation of its chiefest asset, namely, its health, and the other is a tendency in the preservation of individual freedom to lose sight of our obligations to respect the rights and privileges of others who may be less assertive. President Wesbrook discussed a number of things in his address, which was replete with excellent suggestions looking toward the expansion and betterment of the association. The older method of securing experience by experimentation on the public should be superseded by requiring preliminary special training at universities and by Boards of Health, so that while retaining for the good of the public, the service of those already trained and competent, they may be reinforced, and, when necessary, succeeded by those who have received such special training. Knowledge of the clinical manifestations of disease is important, but often much more than clinical experience and ability is essential. While in scarlet fever, smallpox, and certain of the infectious diseases it is nearly always possible to diagnosticate the condition present, and by so doing protect others from infection, there are a number of diseases in which clinical observation alone proves utterly insufficient. As illustrating this he mentioned diphtheria. The policy of the association should be to anticipate demands for special work and special information along the lines which are closely applicable to public health, and care must be taken that with so many societies the members do not lose interest, because they have failed to provide a place and a stimulus for workers in all lines which directly affect the work of the association.

Experiments on the Storage of Typhoid Infected Water in Canteens.—EARL B. PHELPS (Boston, Mass.), drew the following conclusions: In practically all the experiments a number of typhoid organisms lived through the 24 hours. Studies on the progressive killing of the organisms showed it to be rapid at first, decreasing rapidly toward the end of the period. The indications are that the surviving organisms are hardy, and would not be entirely killed by a much longer exposure. The efficiency of the canteen falls off rapidly when in continuous use, even with a comparatively soft water. The value of the canteen in actual practice would, therefore, be conditioned upon its being frequently cleaned, preferably with oxalic acid, a practice which would doubtless be neglected in actual field or camp service. The value of the canteen as a disinfecting agent is seriously affected by clay in the water, and is practically destroyed by the use of waters high in alkaline carbonates.

Pathology and Pathogenesis of Smallpox.—W. T. COUNCILMAN (Boston) presented a general consideration of the pathology and pathogenesis of this disease. He discussed the cause, mode of infection, mode of production of exanthems, immunity, secondary infections, and concluded with an experimental study of smallpox in monkeys. This paper has appeared in full in *American Medicine* (October 21, 1905).

[*To be continued.*]

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 766.*]

Retroperitoneal Teratoma.—C. M. NICHOLSON (St. Louis, Mo.) described a teratoma of the abdominal cavity, remarkable not only because of its rare occurrence, rapid growth, and total absence of symptoms until three weeks before death, but because with its substance had been found a chorionepithelioma. The tumor weighed a little less than two pounds. It was right-angled and lobulated, the lobules being smooth and extending in different directions. On cutting, the tumor was soft, the anterior inferior extremity being partially cystic. Some of the cysts were as large as a hazelnut. The remainder of the growth appeared solid. The outer surface of the tumor was covered with a distinct fibrous capsule. Paraffin section of the Zenker-fixed tissue showed a very complicated mass. Portions of organs were found corresponding in embryonic origin to all the germinal layers. Skin, cutaneous organs, central nerv-

ous system, peripheral nerves, represented the epiblast. Mucous glands, tubes, cysts with epithelial lining, were indicative of the hypoblast. Bone, cartilage, fibrous tissue, constituted the mesoblastic structure. The author considered at length the different theories that have been advanced in the past to account for the origin of teratomas.

Some of the Fallacies in the Clinical Diagnosis of Gonorrhea.—G. FRANK LYDSTON (Chicago) discussed some of the more dangerous of the fallacies in the diagnosis of this disease, with especial reference to prognosis as regards the infectiousness of a given individual to other and healthy persons with whom he or she might come in sexual contact. He considered, first, the possibility of excluding infectiousness in the case of a woman under suspicion, or who is known to have had gonorrhea. That the most dangerous type of infection of the female is that in which the external manifestations of the disease are absent, or wanting, is coming to be well understood by both gynecologic and genitourinary specialists. The explanation of the relatively great danger of infection of others by such subjects, is not so thoroughly understood as it should be. Gonorrheal urethritis in the female, when it has assumed the chronic form, may present no secretion whatever upon external examination. There may be little or no vaginal, cervical or uterine discharge, and even such as there is, might, upon examination, fail to disclose the microorganisms of gonorrhea. A swab or probe passed into the urethra may return perfectly clean. Notwithstanding this apparent lack of infection in the urethra, the mucous glands may be involved, and under the influence of sexual excitement and the mechanical effect of coitus, the physiologic hypersecretion may convey to the meatus, gonococci in abundance. The result is sufficiently obvious. The author presented clinical facts, which would seem to make it impossible for a physician to say in a given case that a woman is free from infection. This is one of the strongest arguments against regulation and medical inspection of prostitutes in the judgment of the author. He entertains serious objections to the medical profession constituting itself an assurance society for the protection and promulgation of the social evil, but aside from this scruple there remains the fact that no reliable system of inspection or examination can be devised. He is firmly convinced that in many cases of infection of healthy women by a latent gonorrhea of the husband, mixed infection is responsible, and the resulting pathologic condition in the female is nonspecific. Its being nonspecific, however, does not preclude the possibility of its becoming very serious. We have no tests at the present time which will enable us to give a positive opinion of the infectiousness of a given case of suspected latent gonorrhea. As already suggested, the clinical history in many cases is more important than the laboratory study of the case, and a careful combination of both methods of study is always essential. The physician should be as chary of assuming responsibility in advising a gonorrheic in the matter of matrimony as he should be in advising syphilitics under similar circumstances.

Irritation of the Bladder.—A. RAVOGLI (Cincinnati, Ohio) stated that in many abnormal conditions of the genitourinary organs, and also of the urine itself, this affection comes on as a symptom in the form of frequent micturition. This symptom can be produced by a number of intravesical and extravesical affections. Urination is so increased that it seems the bladder cannot tolerate the presence of urine. In some cases it occurs in the daytime only, in other cases at night, and in severe cases often in the day as well as in the night. The intervals between urination may be two hours, but in some cases the patient urinates every quarter of an hour, or even every five minutes. The patient loses sleep, wastes away, and is scarcely able to attend to his occupation. In reference to the causes, the urine may be the cause of irritation on account of its quantity or its quality. It may be too concentrated, contain urates, phosphates, sugar, etc., which maintains or keeps up irritation of the bladder. The bladder itself may be the cause on account of a hyperemic condition. This hyperemia may be the result of vesical or of extravesical troubles, phimosis, urethritis, prostatitis, neoplasms, pericystitis, vulvitis, nephrolithiasis, etc. In other cases it is a pure neurosis, the consequence of epilepsy, hysteria, eclampsia, etc. Since the urethroscope and the cystoscope have been in use, cases of irritation of the bladder without pathologic condition have greatly diminished, and in most of them there has been found either granulations or hyperemia of the mucous membrane. There are two kinds of irritation of the bladder, one of which is a local neurosis, and the other which results from pathologic alterations of the bladder or of the urethra. The detection of the causes will assist materially in selecting appropriate treatment.

Prostatectomy.—W. D. HAINES (Cincinnati, Ohio) said that two cases, aged respectively 42 and 59, with small indurated prostate with obstruction, occurring in his practice, did well after perineal section and the removal of the prostate gland, in that the catheter was abandoned and a troublesome cystitis relieved. One of the cases suffered incontinence for a period of three months after operation, and the cure was complete, as residual urine was found in both cases, and this despite easy bladder access by the sound or catheter. The author condemns the use of metallic instruments in prostatics for diagnostic purposes, or for the relief of urinary retention, as the danger of perforation and infection far outweighs the meager information or temporary relief thus obtained. One can hope for complete cure in 30% of the cases submitted to prostatectomy, namely, release from catheter bondage, relief from bladder complications and restoration of urinary function. In his experience with perineal prostatectomy, 7 cases have been functionally cured, 9 show residual urine, some of whom have had attacks of cystitis and dribbling, and 5 of these are suffering from incontinence six months to a year and a half after operation. Two cases required secondary operation, one for stone, and one for perineal fistula, making a total of 16 cases with ages ranging from 42 to 79 years without mortality. While these results are far from ideal, the unfavorable physical condition present in the majority of them will, in a measure, militate against criticism as to the final outcome of this series.

[*To be continued.*]

AMERICAN RÖNTGEN RAY SOCIETY.

Sixth Annual Meeting, Held in Baltimore, Md., September 28 to 30, 1905.

Study of Stomach and Intestines.—HENRY HULST (Grand Rapids, Mich.) spoke of the value of the röntgen ray in the diagnosis of diseases of the stomach and intestines, especially in dilation and dislocation of the stomach. These organs may be inflated, but inflation is often painful, dangerous, and inadequate. The best method is to give an ounce of bismuth in a pint of milk, or bread and milk, or potato soup. Then two exposures are made, one in the erect and one in the recumbent posture. If the first radiograph was made at noon, a second is taken at 6 o'clock, nothing having been taken into the stomach in the meantime. Thus it is possible to ascertain the size, position, and functional capacity of the stomach. If a good picture of the colon is not obtained in this way, 3 ounces of bismuth may be injected per rectum. It is essential to have the patient at rest. There must be no breathing, and as little peristalsis as possible. If the subject is very fat, it may be necessary to intensify the screen. This is not particularly objectionable with a 16-inch coil, a Wehnelt inter-

rupter, and a strong tube placed 20 inches from the skin surface. A plate can easily be made under these circumstances in a medium-sized subject in a second; without the intensifying screen, in 3 seconds. Ordinarily he has found it better to make the exposure at 20 inches in 10 seconds without intensifying screens. Good apparatus and a fair degree of skill are sufficient to secure fairly satisfactory results. The diaphragm is quite indispensable.

Skeletal Development.—P. M. HICKEY (Detroit, Mich.), showed slides demonstrating the bony development of the elbow-joint, and emphasized the importance of comparing the injured with the uninjured joint before attempting to make a diagnosis of fracture because the crevices in a developing joint may easily be mistaken for fracture when it really does not exist.

Discussion.—GORDON C. BURDICK (Chicago) was able to demonstrate absence of fracture in 15 cases where it was supposed to exist. J. RUDIS-JICINSKY (Cedar Rapids, Ia.), said that the anatomy of joints as given in textbooks should be revised to agree with the röntgen-ray findings as demonstrated by Hickey. M. I. WILBERT (Philadelphia) emphasized the necessity of radiographing an injured joint laterally and anteroposteriorly in order to get an exact picture of the joint, and of comparing the injured with the uninjured joint. HENRY PANCOAST (Philadelphia) said that fractures of the head of the radius are far more common than is usually supposed, although only a few cases are recorded in the literature. He has had 20 cases. K. DUNHAM (Cincinnati) has found it very advantageous to take stereopticon skiagraphs of injured joints as well as the ordinary skiagraph. GEORGE H. STOVER (Denver, Colo.) always makes an anterior and posterior exposure of the joint and a stereoscopic picture, because it gives a better idea of the relative anatomy of the joint than can be obtained in any other way. M. K. KASSABIAN (Philadelphia) makes use of a small device, an acute angle splint, which is placed on the inside of the joint, the tube being on the olecranon side.

Interpretation of Lung Negatives.—GEO. E. PFAHLER (Philadelphia) said that in order to study the lungs satisfactorily the negative must be made while these organs are at rest. A careful physical examination should precede the röntgen examination to enable the radiographer to make a correct interpretation of shadows. The greatest field of usefulness of the röntgen ray in lung diseases is in the study of tuberculosis. Beside assisting in making a diagnosis, it is a most valuable and correct method of recording the lesion at the various stages of the disease. The plate is placed behind the patient, and a second plate in front of the patient, so as to give proper value to lesions lying near the surface and to recognize any thickening of the pleura. The patient is placed in the recumbent posture, except when a pleural effusion is suspected, when the patient is placed in the sitting posture. The tube is placed at a distance of 18 in. to 20 in. from the plate. The time of exposure will vary with the time that the patient can hold his breath. This time should be determined by testing the patient several times before attempting to make an exposure.

Discussion.—HENRY HULST (Grand Rapids, Mich.) has found that macroscopic lesions of the lungs show very well, also old lesions, but not recent lesions. He never exposes a chest for more than a second in order to get the detail of soft tissues. When lesions are present that the röntgen ray can record, the diagnosis is positive. A negative diagnosis is only of relative value. It does not exclude the existence of tuberculosis. M. K. KASSABIAN (Philadelphia) said that by means of stereoscopic pictures it is possible to distinguish consolidation from pleural thickening and from cavitation. It is better to take the picture with the patient lying on the side, and not on the back.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

LOCOMOTOR ATAXIA, FOLLOWING CHOLELITHIASIS, IN WHICH THE GASTRIC CRISES SIMULATED BILIARY COLIC.

BY

PHILIP A. SHEAFF, M.D.,

of Philadelphia.

To the Editor of American Medicine:—The following case history may be of interest to some of the readers of *American Medicine*. It illustrates the importance of carefully working up our cases, and not laying too much stress on statements made by the patient; and teaches a moral regarding the injudicious administration of morphin.

Late one afternoon I was consulted by a man, apparently in great pain; his expression was anxious, and he was vigorously rubbing the epigastric region. He stated he was having an attack of gallstone colic, and that his physician had said to tell whoever attended him to administer .03 gm. (½ gr.) of morphin at once. He assured me that he had had that amount before and could readily tolerate it. Questioning elicited that he had passed several calculi about nine months before; he had never been jaundiced; and the pains did not radiate to the right shoulder. He had never observed blood in his urine. He seemed in such agony that I accepted his statements and prepared to administer the morphin. He requested me to allow him to inhale a few whiffs of chloroform before using the hypodermic syringe. This I did, and he then asked to go to the closet. Upon his return he stated that he had vomited, and experienced some relief. However, this did not last, for the pain soon became intensified and he asked me to make a hypodermic injection over the seat of the pain. This seemed so suspicious that I made a hasty examination of his right arm below the elbow, thinking that perhaps he was addicted to the use of the needle. This examination proved negative,[1] and I proceeded to expose the hypochondriac region, noticing as I did so an adhesive plaster over the region of the liver in the right axillary line, and an eczematous eruption over the lower region of the sternum, which he said was due to a röntgen-ray burn. I now administered .02 gm. (⅓ gr.) of morphin and .6 mg. ($\frac{1}{150}$ gr.) of atropin sulfate, hypodermically, and relief from the intense agony ensued.

Two days later, at 2.45 a.m., the patient returned, suffering intensely. Under the same treatment previously employed he obtained relief. At this visit I noticed that his left pupil was larger than the right. Later, on the same day, I discovered that the left pupil was considerably larger than the right, and the left upper lid drooped slightly. Neither pupil responded to light stimulation. The knee-jerks were apparently absent. Station and gait were good.

As a result of this superficial examination, I told him I was somewhat doubtful as to his present attacks being due to gallstones, and set a date for making a thorough examination. The patient did not come at the time specified, but about a week later he made his appearance, suffering from a mild attack. During this seizure he vomited about a teacupful of bile-stained mucus, and also urinated. Examination of the urine showed amount voided, 1½ oz.; color, clear dark amber, but when brought in contact with nitric acid on filter paper,

[1] Subsequently, I discovered that the patient was a morphin habitue, who took advantage of the gallstone theory, when coming under the observation of a new physician, in order to obtain morphin.

a slight violet color, changing to brown, was produced;[1] acid in reaction; specific gravity, 1,026; no sugar; a heavy ring of albumin was present; urea, .018. After centrifugalization, the microscope revealed the presence of numerous finely granular tube casts. I obtained the following history:

H. R. T., aged 32, white, married; was born in New York, and is a horseman by occupation.

Station: With shoes and stockings on and eyes closed, normal. With shoes and stockings removed and eyes closed, a slight abnormal sway is present.

Gait: With shoes and stockings on and eyes open, normal. With eyes closed feet are separated somewhat and gait is slightly ataxic. With shoes and stockings removed and eyes closed, gait is perceptibly ataxic. Slight incoordination is present when touching the tip of the nose, the eyes being closed.

Knee-jerks are absent on both sides, also by Jendrassik's method of reinforcement; tendo-achilles jerk absent on both sides; no spasticity; no ankle-clonus; no Babinski sign or paradoxic flexor reflex present; no paralysis of lower extremities. A pin prick gives rise to pain over both legs and feet, and the sensation is rather promptly experienced, but is not as distinct over the left foot as it is over the right.

The sense of distinguishing heat and cold is at times reversed over both legs and feet, but the reversal of temperature sense is most marked over the inner side of the left calf. The patient has not noticed any weakness of the lower extremities, except during the last few days, during which time he has been doing considerable walking, and has felt somewhat tired. The ground feels solid under his feet, and he has never experienced any difficulty in going up or down stairs. In getting up at night he has never felt as if he would fall.

There is no tremor of the tongue, which is protruded in the median line, and is of normal appearance. There is no tremor of the fingers of the outstretched hands. His memory is good, and pronunciation distinct.

The pupils are unequal, the left one being about twice the size of the right. Neither contract to light, but both respond to accommodation. When the right pupil is exposed quickly to light it dilates slightly. Vision of right eye 15/15, and of the left eye 15/20. Unfortunately an ophthalmoscopic examination was not obtained. There is slight ptosis of the left lid. He has never seen double, and the external ocular muscles are apparently normal. The conjunctivas are normal in appearance.

There is apparently no anesthesia of the trunk or arms. Over the lower region of the sternum there is an area the size of the palm of the hand, made up of scar tissue, eczematous in character, with dilated capillaries here and there, said to be the result of a röntgen-ray burn. Examination of heart and lungs negative, with the exception of slight accentuation of the second sound. There is no tenderness over the gallbladder or epigastric region. Examination of abdomen, negative. Appetite is good. He sleeps well. Bowels are regular, except for the last few days, when they have been somewhat loose, and of a golden yellow color. When the desire to urinate becomes manifest, he must perform the act at once. For the last year his sexual power has not been so vigorous as formerly, and after the act is performed he feels exhausted.

General nutrition is fair, although musculature is flabby and not very well developed, and he has lost considerable weight in the last two years. At times there is some edema about the ankles, which is not manifest at present.

[1] This was suggestive of bile, but later the patient admitted that he was then taking some tablets another physician had prescribed for him in a neighboring city. These tablets, on analysis, proved to be potassium iodid, thus giving fallacy to the supposed faint reaction for bile.

Past History.—During childhood he suffered from measles, mumps, and whoopingcough. Denies having had gonorrhea, but he contracted a chancre at 19, for which he was promptly treated, receiving a series of 40 mercurial inunctions, followed by "drops," of which he took 10 three times a day in milk. This medicine was gradually increased until he reached a total of 225 drops daily, when he says pimples would break out on his face and body and he would suffer from headache. The dose was then reduced and then gradually advanced again. This method of treatment was continued for a period of a year, when he was regarded as practically well. From then on he was in good health up to the age of 29, when he was treated for acute gastritis. After this attack he remained well for a period of four months, when another attack, similar to the first, but of much greater severity in regard to pain, made its appearance, and his physician suspected gallstones. At this time his stools were lighter in color than normal and in contemplation of operation he was subjected to röntgen-ray examination, but no calculi were found. However, he says that about nine months ago he passed several gallstones, which were recovered from the feces. (This statement has been denied by a member of his family, who said he used the gallstone story to obtain morphin.)

For the last year and a half he has had ptosis of the left lid, but he says it does not droop as much as formerly. This condition was accompanied by dilation of the left pupil.

He has noticed for the last six months that his vision has not been so acute. For the last month he has had, at times, a constricted sensation about the waist.

Family History.—Parents are living and well. He has no brothers or sisters, was married when 21. Within the first year after marriage, his wife had a miscarriage, which occurred about the fourth month. The second pregnancy resulted in a miscarriage at seven months, and followed the first by about one and a half years. His wife is living and well, and they have three healthy children, aged 9, 7½, and 5½ respectively.

The Musical Heart Case.—J. M. Patton, Chicago, gives an account of the wellknown musical heart case so familiar to medical clinics and mentioned in the lay press of late years. The special peculiarity was a distinct musical note occurring with the cardiac systolic and heard all over the precordial area with varying intensity, but plainest from the second rib to the fifth interspace along the left parasternal line. The diagnosis made when first seen was double aortic and double mitral lesions with the musical notes originating in the left ventricle and probably due to some abnormal condition of the chordæ tendinæ. The patient was observed by Patton at intervals for twelve years. The musical sound disappeared during the last few months of life. The autopsy bore out the diagnosis and Patton considers it probable that the musical sound was attributable to the thickened chordæ tendinæ, which were found broken and floating loosely in the ventricular cavity. This, he thinks, will account for the sudden disappearance of the murmur during life. The greater tension on these cords during systole, which would be the result of their thickening, might easily produce in cords of such length the high-pitched and sustained musical note that was heard. If musical notes require, as here assumed, the rapid vibration of some organized structures of the heart, we must admit they have a different prognosis and a much more serious import than ordinary blowing murmurs. Patton has observed them several times before the fatal termination of severe endocarditis. He, therefore, thinks this case illustrates the fact that they indicate a more serious involvement of cardiac tissues than do the ordinary murmurs.—[*Journal of the American Medical Association.*]

ORIGINAL ARTICLES

NOTES ON ANESTHETICS, WITH SPECIAL REFERENCE TO SCOPOLAMIN-MORPHIN ANESTHESIA.*

BY

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of Philadelphia.

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No more important problem has ever occupied the attention of surgeons than the relief of pain during an operation. While there is abundant evidence that this question received the attention of the early surgeons, no practical result was obtained until the demonstration of the anesthetic properties of ether in 1846, and of chloroform in the following year.

Although both of these anesthetics were speedily adopted in surgical practice, and while they gave satisfaction in a general way, the search for something better was not, nor has it yet been abandoned. The literature of almost every year since the dates mentioned, contains the suggestions of new methods and new substances for producing surgical narcosis. During all this period ether and chloroform separately, or in their combinations, remained, as they are to day, the two anesthetics almost exclusively employed in surgery. That they are not universally satisfactory will be admitted by every surgeon. Cases are met in which, for some reason, they cannot properly be administered.

Among the many recent suggestions to meet some of these are local anesthesia induced by cocain and allied drugs, nitrous oxid, and spinal anesthesia.

A satisfactory anesthetic should meet the following requirements: 1. It must be safe. No drug could be considered for a moment if its use subjected the patient to a greater danger than the condition for which it was administered. 2. It should cause complete anesthesia. 3. It should be as free as possible from unpleasant effects.

Without discussing details, it may be asserted that no substance, known at present, meets all of these conditions, nor is it probable that one will ever be discovered. It may be accepted as a fact that the anesthetic state, however caused, always borders on the danger line, and its induction requires the closest attention and the employment of every known safeguard.

In considering the relative safety of an anesthetic we must take into account not only the immediate effects, but also the remote results. The former are, I believe, fully appreciated. The latter, I fear are seldom suspected. Doubtless many more deaths following operations are due to the late results of the narcotic employed than are surmised.

We know that ether is unsafe in certain pulmonary and bronchial affections, and that pneumonia sometimes follows its administration. Chloroform is generally considered a dangerous anesthetic, and is avoided as much as possible. Both ether and chloroform act as irritants on the kidneys, and both are dangerous in proportion to the length of time and the amount administered. The effect of ether on the kidneys has been studied recently by Pringle, Maunsell and Pringle.[1] They found that during ether anesthesia not only is the amount of urine reduced (in some cases as low as 3.6% of normal), but the excretion of the nitrogenous constituents is diminished to such an extent as to amount to practical suppression. This condition of inactivity of the renal epithelium appears to increase, the longer the anesthetic is continued. They very properly state that such an inhibition of renal activity must exercise a most injurious effect on the general metabolism and condition of the patient.

Recent researches show that aciduria, acid intoxication, and fatty degeneration of internal organs may result from inhalation of chloroform, and possibly also, in rare cases, of ether.[2]

Enough has been said, I think, to indicate the desirability of adding to our present resources for the production of surgical anesthesia. The most recent suggestion for this purpose is the use of scopolamin. This drug is official in the last pharmacopeia under the name of scopolaminæ hydrobromidum, and is defined as "the hydrobromid of an alkaloid obtained from plants of the solanaceæ; chemically identical with hyoscin hydrobromid."

"In the British pharmacopeia, scopolamin hydrobromid is used as a synonym for hyoscin hydrobromid; in the German pharmacopeia only the name scopolaminum hydrobromicum is retained."

Although a great deal of confusion seems to exist on the subject, as the three principal pharmacopeias are in accord, it is clear, I think, that the drugs heretofore called scopolamin and hyoscin should, at present, be considered as identical, chemically, and I shall use the terms as synonymous.

The divergent views of different authorities have been heretofore the chief difficulty. Some have considered that scopolamin was merely an impure hyoscin; and others, that hyoscin was a mixture of scopolamin with other substances. There are those who believe that neither is a single alkaloid, but a complex body. As there was no standard, we may assume that each manufacturer probably sold, under the respective names, that which met his conception of the two drugs.

Scopolamin was discovered by Schmidt, of Marburg, in 1890, in scopola, a plant named after Scopoli, an Austrian naturalist.

In the last edition of his therapeutics, H. C. Wood states that the dominant physiologic action of hyoscin is upon the cerebral cortex, producing sleep, often accompanied by a low muttering delirium. It is also a centric depressant of respiration, and depresses, though somewhat feebly, the whole motor cord. Its influence upon the circulation is very slight. In cases of severe kidney disease, it would seem to be a safer hypnotic than morphin, and as it has no sedative influence upon the heart, it may be used when the feeble condition of that viscus forbids chloral.

As a hypnotic, the alkaloid lends itself very well to combinations, intensifying greatly the influence of morphin, chloral, trional, and other drugs of this class.

The dose is given as 0.4 mg. to 0.8 mg. ($\frac{1}{150}$ gr. to

* Read at the meeting of the Philadelphia County Medical Society, held October 25, 1905.

$\frac{1}{80}$ gr.) Although 1 mg. ($\frac{1}{50}$ gr.) is said to have caused alarming symptoms, H. C. Wood states that no fatal case of poisoning is on record. Costons advises 1.3 mg. to 3 mg. ($\frac{1}{50}$ gr. to $\frac{1}{20}$ gr.) as a curative agent in cases of acute insanity; and Balagapol actually gave .01 gm. ($\frac{1}{6}$ gr.) hypodermically to a patient with violent acute mania. The patient became deadly pale, the conjunctivas insensitive, the breathing stertorous and difficult, and the limbs were spasmodically contracted. Recovery followed, however, without any treatment but hypodermic injections of ether, and by the end of a week the patient was well of the insanity.

H. A. Hutchinson took .016 gm. ($\frac{1}{4}$ gr.) of a "very impure hyoscin." A quiet coma and entire muscular relaxation, lasting 11 hours, were the only symptoms.

Attention is directed to the statement that .01 gm. ($\frac{1}{6}$ gr.) of hyoscin in a case caused "spasmodic contraction of the limbs," while in another, .016 gm. ($\frac{1}{4}$ gr.) induced a quiet coma and "entire muscular relaxation." It is evident that the two specimens of hyoscin were of very different composition. Bartholow[3] states that scopolamin "tends to cause death by paralysis of respiration," hence when large doses of this drug are used, the breathing should be carefully observed.

In the event of a toxic dose of scopolamin, the proper remedies would be the diffusible stimulants (Shoemaker).

Scopolamin has been employed as a mydriatic in ophthalmic practice for the past 15 years, and under the name of hyoscin, it was used as a hypnotic and sedative prior to that time.

It was first employed as a general anesthetic in surgery in 1900, by Schneiderlin, who had been using it as a hypnotic in the insane wards. He conceived the idea of combining it with morphin for operations on these patients, many of whom violently resisted the administration of chloroform and ether. The experiment seems to have been successful, but after a brief period, the method was apparently discontinued, and was revived in Germany two years ago in surgical and obstetric practice. Its use was introduced into France last year, and it has since been placed on trial in this country.

Administration and Dose.—As an anesthetic in surgery, scopolamin is always combined with morphin, and reference to "scopolamin anesthesia" should be understood to mean this combination. The hydrobromid of scopolamin appears to have been universally employed. Any of the salts of morphin may be used. The hydrobromid is preferred by some, but the sulfate seems to answer equally well. Both drugs are administered hypodermically, and they may be given in the same injection. It is desirable to have the solutions or tablets separate, however, in order that the dose of each may be varied to suit the case. If solutions are used, it is imperative that they be freshly made. This is one of the two essentials to success. Scopolamin solution should not be used after having been made more than from three to seven days. The second essential is a reliable preparation.

One or more injections are given, according to the views of the surgeon, and the requirements of the case. Some prefer to give a single moderate dose as an adjuvant to one of the usual forms of anesthesia, while others give larger doses in an effort to induce complete insensibility, without the aid of any other narcotic. Inasmuch as the susceptibility of different individuals to both of these substances varies greatly, it is unquestionably advisable to first give a moderate dose, and repeat it once or twice if necessary, as the circumstances warrant. In repeating the doses, it may be found that the proportions should be varied, if the constitutional effects of one drug or the other predominate to a marked degree.

Schneiderlin, who originated the method, gives the following technic: The patient is tested with a preliminary dose of .8 mg. ($\frac{1}{80}$ gr.) to 1 mg. ($\frac{1}{65}$ gr.) scopolamin, and then 2 cg. ($\frac{1}{3}$ gr.) of morphin, preferably on separate days. The susceptibility of the individual having been determined, he then administers, an hour and a half before operation, .8 mg. ($\frac{1}{80}$ gr.) to 1.3 mg. ($\frac{1}{50}$ gr.) of scopolamin, and 2 mg. ($\frac{1}{3}$ gr.) to 3 cg. ($\frac{1}{2}$ gr.) morphin. If 15 minutes before operation, the narcosis is not sufficiently profound, an additional dose, 0.2 mg. ($\frac{1}{325}$ gr.) to .4 mg. ($\frac{1}{160}$ gr.) of the former and .5 cg. ($\frac{1}{12}$ gr.) to 1 cg. ($\frac{1}{6}$ gr.) of the latter is given. In emergency work it is necessary to proceed at once, without the preliminary test.

Israel employed .8 mg. ($\frac{1}{80}$ gr.) of scopolamin, and 2 cg. ($\frac{1}{3}$ gr.) of morphin, two hours before operation. Dirk gave .5 mg. ($\frac{1}{125}$ gr.) scopolamin, with 1.5 cg. ($\frac{1}{4}$ gr.) morphin, two hours before operation, and an hour later a second injection of the same amount of scopolamin, with 1 cg. ($\frac{1}{6}$ gr.) of morphin. Bloch injected 1.3 mg. ($\frac{1}{50}$ gr.) of scopolamin, and 1.3 cg. ($\frac{1}{5}$ gr.) of morphin hydrobromid, four hours, two hours, and one hour, before operating. Terrier used 1 mg. ($\frac{1}{64}$ gr.) and 1 cg. ($\frac{1}{6}$ gr.), respectively, in the same way. Ziffer used .5 mg. ($\frac{1}{125}$ gr.) scopolamin, with 1 cg. ($\frac{1}{6}$ gr.) of morphin dissolved in 1 cc. of water. He gives the first injection $2\frac{1}{4}$ hours before operation; the second, $1\frac{1}{4}$ hours; and the third, 15 minutes before operation.

In his early experience Korff gave an injection of scopolamin, 0.0013 gm. ($\frac{1}{50}$ gr.), and morphin, 0.025 gm. ($\frac{5}{12}$ gr.), two hours before operation, and administered chloroform or ether, if necessary. He subsequently changed this to 0.001 gm. scopolamin and 0.025 gm. morphin, given in 3 injections, $2\frac{1}{2}$, $1\frac{1}{2}$, and $\frac{1}{2}$ hour before operation.

While I have seen no unfavorable symptoms result from the use of scopolamin, I am at present inclined to give small doses, e. g., 0.6 mg. ($\frac{1}{100}$ gr.), with 0.01 gm. ($\frac{1}{6}$ gr.) of morphin to an adult, and repeat them, if needed, rather than use one large dose.

Advantages.—Among these are the tranquil state of the patient, the absence of anxiety or fright, the entire freedom of mucus from the air passages, the absence of vomiting; it may be given upon a full stomach; the patient sleeps for some time after the operation, awaking as from a natural sleep, except that there may be some confusion of ideas; the pain and discomfort for some hours after operation are less than after ether and chloroform; and food may be taken as soon as desired. It is said to raise the blood-pressure, and hence to diminish the tendency to shock. In successful cases the anesthetizer may be dispensed with. The contrast between the calm and quiet condition of the patient narcotized

with scopolamin, and the restlessness, struggling, retching, and vomiting observed when ether is unskilfully administered, is decidedly favorable to the former. Korff says it is free from danger to the heart or lungs, while no disturbances on the part of the kidneys, liver, or digestive tract have been observed. It may be employed in conjunction with either local or general anesthetics, and this, I believe, will be its most important function. When used in addition to ether or chloroform, the perfect relaxation of the patient and the absence of vomiting and respiratory troubles make this combination especially satisfactory. In military and naval practice, the small bulk and portability of the drugs constitute a strong recommendation.

Disadvantages.—As one or two hours, or even more, must elapse after the administration of the scopolamin before the anesthesia is complete, this method is not available in emergency work if it is intended to displace ether entirely. When the narcosis is profound, unconsciousness may last several hours, during which time it is absolutely impossible to awaken the patient.

All persons are not equally susceptible to the drug, and hence it entirely fails in some cases. As a matter of fact, I believe the real trouble is not a question of the susceptibility of the individual as much as that of securing a uniform and reliable preparation. Every one who has employed hyoscin frequently must have been impressed with the uncertainty of its action, which can be explained only upon the theory of variation in different samples of the drug. Further, some experience is required to so adjust the doses of the two substances to the particular individual that the narcosis shall be both safe and complete. Some patients are excited and restless under its influence. The respiration must be watched during the period of narcosis. It is unsafe to leave the patient unattended during this time.

Indications.—The use of the scopolamin-morphin mixture to produce surgical anesthesia is of such recent origin that its true value remains to be determined. In general, it may be said that in the absence of contraindications, it may be given in any case in which it is desired to produce insensibility to pain, but in which absolute muscular relaxation and quiet during the operation are not necessary. If complete relaxation is required at any stage, a few inhalations of either chloroform or ether will secure this result. It has been observed in a number of instances, however, that patients who move unduly during the operation, become quiet and remain so if the operative procedures be suspended for a few moments and then proceeded with more gently. In this way the aid of inhalation anesthesia may frequently be dispensed with.

Its special usefulness appears to be as an adjuvant to ether or chloroform, and in those cases in which these anesthetics are contraindicated, namely, cachexia, arteriosclerosis, nephritis, fatty heart, or other myocardial change, anemia, diabetes, etc., in advanced age, and in all long operations, in order to reduce the quantity of ether required.

Contraindications.—According to H. C. Wood, hyoscin is strongly contraindicated in cases of acute disease of the throat, interfering with respiration or deglutition. Therefore, it should not be employed in cases of tonsillitis, angina, laryngitis, and similar conditions.

This form of narcosis is not suitable for operations involving the mouth or air passages. On account of the prolonged unconsciousness, the patient would require careful watching for several hours to insure against choking from the collection of blood, or even if the ability to swallow remained, it is undesirable to have the person swallow so much blood or other fluid.

Theoretically, it would be very dangerous in cases in which there is a tendency to edema of the lungs. All anesthetics are to be avoided if at all possible in such conditions, but especially those that reduce the force and frequency of the respirations, such as scopolamin and morphin.

As the narcosis lasts five or six hours, it is not appropriate for slight cases, or for those individuals who are so placed that they cannot be watched during this period.

Korff does not employ it in patients under 16 or over 60, but otherwise uses it without hesitation. Ernst believes it is contraindicated in aged persons, and in renal disease. Personally, I am unable to conceive of any valid reason for these restrictions, if other unfavorable conditions are absent. The usual contraindications to morphin would prevail in this connection as under other circumstances.

Scopolamin dilates the capillary vessels, hence a greater amount of oozing may be expected after its use, so that operations in regions where it is difficult to control hemorrhage should not be done under its influence. This objection may be found to be theoretical rather than real, as it was observed in but one of my cases, and was then not troublesome. Old and toothless subjects may be in danger of suffocation during the profound sleep, and hence should be watched carefully.

This form of anesthesia is said by Blos not to be successful in hysteric and neurasthenic patients. This is, however, directly opposed to my personal experience, as well as the known physiologic action of the drugs. The two most successful cases in my list were those of exceedingly nervous individuals, and one was distinctly hysteric, as was affirmed by her physician, Dr. Woodruff, and also by Dr. Fussell and Dr. Mellersh, who had attended her professionally.

Ziffer claims that there are no contraindications to the use of scopolamin-morphin anesthesia, but says if three or four injections do not cause narcosis, ether or chloroform should be given.

The administration of scopolamin and morphin, before ether or chloroform anesthesia, relieves the patient of the fear usually felt, and diminishes, or even abolishes, the period of excitement usually observed. It also favors muscular relaxation, and hastens the period of surgical narcosis. The patient remains in a deep sleep for several hours after the operation. Complete rest is therefore assured, and in most cases vomiting is avoided. This is a very important consideration in many conditions.

As an adjuvant to ether or chloroform, .6 mg. ($\frac{1}{100}$ gr.) scopolamin and 1 cg. ($\frac{1}{6}$ gr.) morphin, a half hour before administering the anesthetic, are recommended by Kochmann, Palermo and Seelig.

When giving ether or chloroform after this form of anesthesia, it must be remembered that the pupil cannot be relied upon as a guide. It may be contracted by the morphin, dilated by the scopolamin, or fixed between these two extremes.

Terrier states that ether should not be employed in conjunction with scopolamin, as it causes congestion of the pulmonary apparatus, which, in conjunction with the vasodilation induced by the scopolamin, increases the danger of pulmonary congestion and edema of the lungs. Following this advice, chloroform was used in my first cases, but ether has been employed by a number of surgeons, and was substituted later, with results apparently equally satisfactory. Safety depends, I believe, upon using merely enough of the drugs employed to produce the necessary degree of anesthesia.

Blos reports 105 cases from the Carlsruhe clinic. In the majority, he states the method proved ideal. It failed in 29 instances, and in two-thirds of them, ether had to be administered to complete the operation. Respiratory disturbances were noted in 9 of 70 cases in which the scopolamin-morphin was used alone. Four were very slight, and may be disregarded. In the others the condition improved after massage applied to the heart, artificial respiration, or clearing the throat. One patient, the subject of advanced pulmonary disease, nephritis, and heart weakness, died. In 12 of 99 cases the patients vomited once or twice.

Israel found the anesthesia satisfactory without using chloroform or ether. Dirk reports 11.1% successful; Ziffer, 21.8%; and Bloch, 25%.

Korff reports 200 cases without an accident of a serious nature. He thinks there is no danger to the heart or lungs from this method. He has never observed disturbances of the kidneys, liver, or digestive tract.

Ries has used this form of narcosis 72 times for 92 operations, covering a wide range of surgical procedures. Three patients died, none probably, the author says, on account of the anesthesia.

Seelig's experience includes 65 cases, chiefly major operations, in which the scopolamin-morphin was used merely as an adjuvant to ether. He says the narcoses were exceptionally smooth, but one patient vomiting on the table; 77% did not vomit at all; and of the remainder, a third vomited only a little clear mucus. Nausea was present in but two cases, and vomiting did not occur earlier than two hours after operation. It lessened the quantity of ether required—about 4 oz. per hour being sufficient.

Stolz reports 465 patients, of which number it was necessary to complete the narcosis by inhalation of an anesthetic 309 times. Three patients died; one exhibited profound and nine slight asphyxia; while heart weakness was frequently observed.

Zahradnicky reports 232 cases in which a satisfactory degree of anesthesia was obtained in 100, while in the other 132 he was obliged to administer ether or chloroform. There was one death attributed to the scopolamin-morphin. He advises against this method of anesthesia.

Flateau reports 30 cases; Witzel, 3; Wild, 7; Grevsen, 69; Hartog, 143; Volkmann, 20; Bloch, 300; Dirk, 260; Israel, 332; Ziffer, 64; Terrier, 26; Bonheim, 70; Wiesinger, 200; Semon, 52; Norris, 10; Wood, 15; a total of 2,740 cases.

Rys reports a death after the use of scopolamin-morphin. The patient was a boy of 15, who was operated upon for lymphomas of the neck. He received within an hour 0.001 gm. ($\frac{1}{60}$ gr.) scopolamin and 0.05 gm. ($\frac{5}{6}$ gr.) of morphin subcutaneously, in two portions, and inhaled during the operation 5 gm. of chloroform. He died 21 hours after the first injection without having regained consciousness, the limbs being in a state of tonic contraction. The autopsy revealed marked mydriasis, endocarditis, and adhesive pleurisy.

A writer in *La Semaine Médicale*, January 11, 1905, has collected reports of 12 deaths after the use of scopolamin-morphin; briefly, these are as follows:

Wild is said to have employed it successfully in seven cases in Professor König's Hospital in Altona; but in the next case, a child of 18, operated on for empyema of the maxillary sinus, an accident of such a serious nature occurred that he abandoned its use entirely. I infer that this patient died, although it is not so stated.

Blos, in von Beck's service, Carlsruhe, lost 1 case of 105 in which he used this anesthetic. The writer referred to says this death was certainly attributable to the anesthetic. The patient was a man of 50, with advanced pulmonary tuberculosis, cardiac degeneration, tuberculous enteritis, albuminuria, and sacro-pelvic caries. The operation consisted in resection of the tuberosity of the left ischium, its ascending ramus, and part of the sacrum. The patient died six hours after the operation in a state of progressive weakness. I am unable to imagine the line of reasoning that would lead any one to ascribe this death to the scopolamin-morphin.

Professor Witzel, Bonn, reported three cases in 1902. Of these, one had a very protracted convalescence, and one (an old prostatic, with infected urine) died. The attitude of this mysterious writer is shown by the remark: "No one could truly say that death was not due to the anesthetic." Witzel is quoted by Terrier and Desjardins as stating that the anesthetic might perhaps be incriminated in a slight degree, but the death was more likely due to the septic condition present at the time of operation.

Flateau, Nuremberg, had 1 death in 30 cases. This was in a woman of 52, supposed to be in good health, who had a uterine polyp, which was removed after incising the cervix. Four and a half hours after operation tracheal rales suddenly developed, the pulse became rapid, weak, and intermittent, and the respiration assumed the Cheyne-Stokes type. Pulmonary edema developed, and death occurred seven hours after operation. This description leads one irresistibly to the suspicion that the death was due to pulmonary embolism, and if so, is merely an illustration of one of the "calamities of surgery," and was in no sense due to the scopolamin.

Three deaths occurred in Dirk's series of 260 cases. The ages of these patients were 69, 63 and 66. Terrier and Desjardins comment on these, saying that two had general purulent peritonitis, while the condition of the third was desperate at the time of operation.

Professor Israel referred to three deaths in 332 cases.

One was a young subject who had anuria for eight hours and died. It seems that this patient was *in extremis* at the time of operation, during which 40 gm. of ether had been given by inhalation. The other two exhibited marked excitement, and died in coma, one two days, the other three days after operation.

Ziffer reports three deaths in 64 cases, all occurring in the subjects of advanced cancerous disease. The deaths occurred five hours, two days, and five days respectively, after operation.

My attention was first directed to the use of scopolamin as a general anesthetic by Dr. Henry Norris, who introduced it at the University Hospital.

I have employed it in 15 cases, brief notes of which follow :

CASE I.—Mrs. A., aged 55, suffering from carcinoma of the left breast, was kindly sent to me by Dr. John C. Hirst. She received 1 mg. ($\frac{1}{64}$ gr.) scopolamin and 0.01 gm. ($\frac{1}{6}$ gr.) morphin at 10 a.m., and the same amount at 11 a.m. She fell asleep after the first dose, and the second caused a deep sleep, from which she could not be easily aroused. Her respirations fell to six per minute for a short time. The pupils were contracted, and there was divergent strabismus.

Operation, at 1.30 p.m., consisted of the complete removal of the breast, the sternal portion of the pectoralis major, and a clean dissection of the axilla. During the skin incision, she moved the corresponding arm and the lower extremities slightly, but remained absolutely quiet throughout the balance of the operation. She awoke, three and a fourth hours after operation, in a confused mental condition, from which she gradually recovered. Convalescence was perfect, the wound healing *per primam* throughout.

CASE II.—Mrs. B., aged 44, referred to me by Dr. David Mackey, of Louisville, for carcinoma of the left breast, with distinct enlargement of the axillary glands.

The same dose as in the preceding case was given at 10.30 a.m., and 12 noon. The face in this case was considerably flushed.

Operation at 1.30. Although the narcosis seemed profound, the patient moved enough to be troublesome, and a very small quantity of chloroform was administered. Reaction was perfect; consciousness fully restored three hours after operation. She had no recollection of any of the incidents after the first injection. Primary union followed.

CASE III.—Grace H., aged 9, admitted to the University Hospital for mastoid suppuration. Scopolamin, 0.3 mg. ($\frac{1}{192}$ gr.), morphin 3 mg. ($\frac{1}{18}$ gr.) at 9.30 and again at 11.15. After the first injection her face was flushed, and her pulse rose from 110 to 160 a half hour after injection; it dropped to 140, and rose again after the second injection to 152, but soon came down to 132; respirations, 16. She was drowsy, but restless. At 1 p.m. 0.3 mg. ($\frac{1}{192}$ gr.) scopolamin alone was given. No effect could be noted from this dose.

Operation 1.30. During the operation she required restraint, and even screamed whenever the knife or curet was used, and yet I felt sure from her actions that she was not really conscious of any pain. The narcosis lasted four hours. The most careful questioning after operation proved that she had no appreciation of any part of the operation.

CASE IV.—John W., aged 39, necrosis of tibia. University Hospital. He was given 1 mg. ($\frac{1}{64}$ gr.) scopolamin, and 0.01 gm. ($\frac{1}{6}$ gr.) morphin at 10, 11, 12, and 1 o'clock, without any apparent effect.

Operation at 1.30. Nitrous oxid-ether anesthesia.

CASE V.—Patsie S., aged 28, reamputation of thigh. St. Timothy's Hospital. Scopolamin, 1 mg. ($\frac{1}{64}$ gr.) and 0.01 gm. ($\frac{1}{6}$ gr.) morphin at 10, 11, and 12 o'clock.

Operation at 2 p.m. The patient was drowsy, but not at all anesthetic. Ether was given. The result in this case was negative.

CASE VI.—Kate B., aged 33. St. Timothy's Hospital. The same doses as above were given at 10, 11, and 12 o'clock. Amputation of the cervix uteri for hypertrophy at 1.40 p.m. The patient was awake but apathetic, and responded indifferently to questions. The anesthesia was complete, however, no additional anesthetic being required throughout the operation. She slept four to five hours after operation; no vomiting; no pain was felt during the operation.

CASE VII.—Mary L., aged 47; fracture of patella; St. Timothy's Hospital; received the same doses as the preceding patient, at 8.30, 9.30, and 10.30.

Operation, 11.40 a. m. The incision was made and the fragments prepared for drilling without any additional anesthetic, although the patient moved frequently. As perfect quiet was desirable at that point, ether was administered. She had no recollection of the operation. Healing by primary union followed.

CASE VIII.—Charles P., aged 40; St. Timothy's Hospital. The same doses were given at 8.30, 9.30, and 10.30. Internal urethrotomy was performed at 12.30. He was so restless that it was necessary to administer chloroform. There was no recollection of pain.

CASE IX.—Thomas R., aged 25; St. Timothy's Hospital. Received the above dose at 9 and 10 a. m. He was very somnolent, but awoke when moved. The abscess was opened and cureted. Although he moved slightly, he had no recollection of pain He slept twelve hours after operation.

CASE X.—William G., colored, aged 94; Philadelphia Hospital; received 1 mg. ($\frac{1}{64}$ gr.) scopolamin and 0.016 gm. ($\frac{1}{4}$ gr.) morphin at 11 a. m. and 1 p. m. Suprapubic prostatectomy at 2 p. m. The patient was very somnolent and insensitive, so that no additional anesthetic was required. The enlargement of the prostate was found to be due chiefly to two abscesses. The enucleation was difficult on account of the inflammatory exudation. The patient remained dull after operation, and died the following day.

It is a matter of doubt whether the anesthetic or the shock of the operation contributed to the fatal result.

The large doses of morphin were given by mistake, but 0.01 gm. ($\frac{1}{6}$ gr.) having been ordered.

CASE XI.—James W., aged 74, Philadelphia Hospital, received 1 mg. ($\frac{1}{64}$ gr.) scopolamin, and 0.01 gm. ($\frac{1}{6}$ gr.) morphin at 11, 12, and 1 o'clock. Suprapubic prostatectomy at 2 p. m. Patient somnolent, but the abdominal muscles were so rigid that it was necessary to give chloroform in small quantities. The enucleation of the prostate was accomplished only with the greatest difficulty; no proper capsule could be found. I felt justified in making a diagnosis of malignant disease from this condition. The convalescence was satisfactory. The microscopic diagnosis of the mass removed was scirrhous carcinoma.

CASE XII.—Mrs. B., aged 37, was seen in consultation with Dr. J. S. Woodruff, during an acute attack of appendicitis. Operation was advised. She was admitted to a private room in St. Timothy's Hospital. Scopolamin anesthesia was used in this case at the suggestion of Dr. Woodruff, who kindly consented to superintend its administration. At 10.15 a.m., 0.6 mg. ($\frac{1}{100}$ gr.) of scopolamin and 0.016 gm. ($\frac{1}{4}$ gr.) of morphin were given, and at 11 a.m. a second dose of 0.6 mg. ($\frac{1}{100}$ gr.) of scopolamin and 0.01 gm. ($\frac{1}{6}$ gr.) of morphin. This was followed immediately by an enema, consisting of $\frac{1}{2}$ oz. each of whisky, compound spirits of ether, and elixir valerianate of ammonia, in 6 oz. of water. The anesthesia was completed by an injection, at 11.30 a.m., of 0.6 mg. ($\frac{1}{100}$ gr.) of scopolamin and 4 mg. ($\frac{1}{15}$ gr.) of morphin. Upon my arrival at the hospital, at 11.45 a.m., the patient presented the appearance of a person in a deep sleep, and was fully narcotized. She was

transferred to the operating-room, and the appendix was removed, without giving any other anesthetic. The muscles were fully relaxed and the anesthesia perfect. The patient awoke three and a half hours after the operation, without any suspicion that it had been performed. There was no nausea or other untoward symptom. No anesthetic could have been more satisfactory than the scopolamin-morphin was in this case. The convalescence was rapid and satisfactory in every way.

CASE XIII.—George S., aged 32; colored. Abdominal section for intestinal obstruction following operation for strangulated hernia. He was given three doses each of 0.6 mg. ($\frac{1}{100}$ gr.) scopolamin and 0.01 gm. ($\frac{1}{6}$ gr.) morphin, without any apparent effect. Ether was therefore given for the operation. He took the anesthetic exceedingly well. There was no trouble of any kind during the entire operation. This is in marked contrast with our experience at the previous operation, when the ether was taken very badly. The patient stopped breathing, and artificial respiration had to be resorted to, and, of course, all operative procedures suspended during efforts to restore respiration. Both the anesthetist and the surgeon were annoyed throughout the entire period of the operation by the unsatisfactory anesthesia. In the latter instance neither had the slightest trouble or apprehension from first to last. Although I have called this case a failure, so far as the narcotic effects of the scopolamin are concerned, it proved exceedingly useful apparently in aiding in the ether anesthesia.

CASE XIV.—Mrs. L., aged 67, received 0.6 mg. ($\frac{1}{100}$ gr.) scopolamin at 10.20 and 11 a.m. Amputation of toe at 11.15. The patient apparently felt the incision, and to assure myself on the point, I asked her if this was the case. Although she was a little dull, she answered "yes," very positively. A little chloroform, 2.5 cc. (40 m.) was given, and the operation completed. She slept three hours after the operation, when she became very much excited and noisy. These symptoms were controlled by 2 gm. (30 gr.) of bromid. Although a little chloroform was given in this case, I consider it a successful example of scopolamin anesthesia, because sensation was fully abolished after the operation was concluded. The drug had not been given at the proper time on account of an unavoidable occurrence.

CASE XV.—Miss W., aged 30, cyst of left breast. The patient received 0.6 mg. ($\frac{1}{100}$ gr.) scopolamin and 0.01 gm. ($\frac{1}{6}$ gr.) of morphin at 10.15, 10.40, and 11.10 a.m.

Operation at 11.30. The patient was perfectly anesthetized, the cyst being removed without any evidence of sensation on the part of the patient. Consciousness returned three hours after the operation. Rapid convalescence and prompt healing followed.

In the foregoing cases the anesthesia was complete and satisfactory in eight; it was partial, requiring the administration of a small amount of ether or chloroform in four; and in three it seemed to fail entirely. In the latter, inhalation anesthesia was employed, the usual unpleasant features of which were absent.

No untoward results were observed in any of the cases, with the exception noted in Case XIV. In this instance there was a brief period of active delirium.

The result of my personal experience with scopolamin-morphin anesthesia and a brief study of the subject may be epitomized as follows:

1. It is capable, in many cases, of producing a satisfactory surgical narcosis lasting several hours.

2. When successful, the patient avoids the anxiety or even alarm often felt before taking ether, and the nausea, vomiting, and depression following its administration.

3. If it should partly or wholly fail to anesthetize the patient, the surgeon may use ether or chloroform, with the assurance that the effect will be more prompt and satisfactory than when either is administered alone.

4. When used in conjunction with ether or chloroform, it has been especially satisfactory. The time required to induce anesthesia was lessened, relaxation promoted, the secretion of mucus in the respiratory tract prevented, and what is very important, the quantity of anesthetic required was greatly reduced. For this purpose, a single dose may be given half an hour before operation.

5. To induce full anesthesia in the average healthy adult, I recommend 0.0006 gm. ($\frac{1}{100}$ gr.) scopolamin and 0.01 gm. ($\frac{1}{6}$ gr.) morphin, to be given hypodermically two or two and a half hours before operation, and a second similar dose an hour later. If the anesthesia is not sufficiently complete half an hour before operation, a third dose may be given. This may be the same as the two previous doses, or may consist of either drug alone, or of scopolamin in conjunction with apomorphin, according to the special indications present. The doses should be considerably reduced in children, feeble patients, and in advanced age.

6. None of my patients remembered feeling any pain, or any other detail of the operation, although in some instances they gave evidences of the presence of sensation at the time.

7. Its use is contraindicated in acute affections of the pharynx and larynx; operations involving the mouth or air passages; edema of the lungs, and in cases in which capillary hemorrhage may be a troublesome factor.

8. A few deaths have been ascribed to this anesthetic, whether justly or not, may be questioned. However, as both scopolamin and morphin are powerful drugs, prudence demands that they be used with caution.

9. In addition to the caution mentioned, the safety and success of the method depend upon having pure and reliable drugs, accurate dosage, and perfectly fresh solutions.

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THE IMPORTANCE OF A STUDY OF NUTRITION.[1]

BY

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When I was honored by your president with an invitation to open this symposium by a few introductory remarks I gladly accepted, because of the opportunity it afforded for making a plea for the broader and more thorough study, along scientific lines, of the subject of nutrition. Such a plea as I desire to make is the more difficult because of the more or less prevalent feeling that there is nothing important to be gained by a further study of this subject, especially along dietetic lines, yet

[1] Read at the New York Academy of Medicine, October 9, as an introductory to a Symposium on Nutrition.

we are told by nearly all medical writers—and there is every reason to believe in the truth of the statement—that the majority of the diseases of mankind is due to disturbances of nutrition, to perversions of metabolism. This being so, we certainly need as full and complete knowledge as it is possible to obtain of all the varied processes of nutrition, in all their details, that we may be able to correct those deviations from the normal which we characterize as disease.

We all accept with unquestioning faith the stereotyped statements of our textbooks that bodily health, strength, longevity, and ability to do a maximum amount of work, either mental or physical, all depend upon the maintenance of a proper condition of nutrition, but I fancy we have a very vague idea of what constitutes a proper condition of nutrition, and it would sometimes seem as if there was, in many quarters at least, very little disposition to ascertain. Observation points to the widespread use of methods and treatment that tend to temporary alleviation rather than the radical cure of disease by bringing back the body to a normal state of nutrition. Prevention is better than cure, and we may well query whether, with a proper understanding of the true laws of nutrition, of the real needs of the body for food, with a clear conception of the processes of digestion, secretion, absorption, peristalsis, circulation, and excretion, we should not be in a better condition to combat disease than we now are. Diseases of all kinds are still rampant, and the deathrate among the young and middle-aged remains excessively high. There is certainly room for improvement, and why may we not look for gain in dealing with disease by studying more carefully and exhaustively all the facts bearing upon the nutrition of the healthy man? There is still undiscovered territory, we do not by any means know it all as yet, and I venture the opinion that when we hold in our grasp the key to an understanding of normal nutrition many forms of disease will be checked and held in abeyance through intelligent application of scientific knowledge.

There can be no exaggeration in emphasizing the importance of the daily diet in the maintenance of health, in the establishment of a proper and normal condition of nutrition. That the fact has been and is well recognized in a way, is, I think, quite clear from the various discussions, theories and views advanced by notable writers and thinkers from the days of ancient Rome to the present time, and it might be added that the numerous and varied fads of the present day in matters of diet all testify to the still unsettled condition of the public mind on this important subject. Further, the physiologist and the practising physician likewise show a noticeable lack of agreement as to what constitutes a proper diet under normal conditions of life, to say nothing of the requirements in cases of disease.

I sometimes fancy we overlook or underestimate both the direct and indirect influence of the quality and quantity of the daily food upon many of the physiologic processes of the body. We readily comprehend and see daily illustrations of the effect produced upon digestion by the taking of inordinate quantities of food, or distinctly improper kinds of food, but these are merely superficial effects obvious even to the casual observer. We likewise have a fairly clear understanding of the relationship between uric acid production and purin-containing foods, and with this knowledge at our disposal we are able to modify the production and excretion of this significant metabolic product by the choice of a proper dietary. No one needs to be told of the connection between carbohydrate feeding and the production of sugar as in diabetes. These and many other illustrations might be cited as showing the obvious physiologic relationship between certain forms of diet and specific conditions of disease. Less readily discernible, however, and of more or less uncertain significance, are the secondary results of intemperance in diet, the effects of an excess of this or that article of food, and the equally important effects of a deficiency in some one or more dietary substances. Who can tell or even venture to prophesy the effects of an excess of carbonaceous intake upon the circulation, and the indirect effects of an excess of circulating carbonaceous matter? This latter condition, described by Francis Hare as "hyperpyremia," *i. e.*, "an exaggeration of the high carbon contents of the blood," is not necessarily a pathologic condition, since "the capacities for dealing with carbonaceous material in a physiologic manner, vary within wide limits with the individual and with his environment." Hence, it follows that "hyperpyremia is a relative term and has no necessary connection with an absolute excess of eating and drinking" (Hare). Absolute or relative variations in the carbon content of the blood, however, are unquestionably responsible for many derangements, or the beginnings of derangements, which are truly nothing more than the outward manifestation of disturbances of the normal nutritional balance or rhythm, and for which dietetic errors are, in part at least, responsible. Who can tell with any degree of precision the exact effects of an excess of proteid food upon the functions of the liver and the kidneys? The effect of an accumulation of nitrogenous waste products upon the nervous system? Or the effect of different types and admixtures of foods upon the growth of the young? And yet these are all questions that call for definite answers, and with a full and complete knowledge of the laws of nutrition the answers might be forthcoming.

I trust I shall not be considered as rash or presumptuous when I say that in my judgment two at least of the dread diseases of mankind, viz., cancer and tuberculosis, are quite possibly connected with a disturbance of nutrition, in which perhaps the predisposing causes are to be found in excess of nutritive material in general in the blood, or to a disturbance in the balance of nutritive materials in the circulating medium, or possibly in the tissues themselves. There is nothing original in this statement, though I have come to my own opinion through independent reasoning and observation. I find, indeed, many physicians of experience making similar statements. Allow me to quote Dr. Rabagliati, of Bradford, England:

"The reason why cancer is incurable, or is nearly always uncured, is this: In cancer, or before the cancerous state appears, before the cancerous exudation is thrown out, the blood has been for a long time overloaded with nutritive material in excess of its requirements for the nutrition of the body. Too much chyle

has been finding its way into the blood from the food. And generally, also, the very fact that the food and chyle are in excess has led to indigestion, the chyle being emptied into the blood, and that for a long period of time, in an imperfectly assimilated form. It is an accident that the source of the chyle has been an excess of such carboniferous foods as bread, potatoes, puddings, porridges, cakes, and sugar. The principle is that too much foodstuff has found its way into the blood; it might have been from any sort of food."

Let me quote further from the same author:

"Then, after perhaps an attack of rheumatism, the significance of which occurs to no one, the blood finding itself loaded with nutritive material in excess, is troubled with its burden, so to say, and proceeds to throw it off in the form of an overgrowth of epithelial tissue, or in the form of an exudation into epithelial tissue. There are abundant supplies in the blood when the process of throwing out the exudation begins; and as fast as the cancerous exudation is thrown out, or as fast as the epithelial overgrowth occurs, more and more pabulum is carried by the blood to feed the newgrowth, especially as the advice generally given to such patients is that they should keep on eating in order to keep their strength up. Even without free and full feeding there are already too abundant stores in the blood, but by the process of oversupply these are still further increased. Consequently, from these overabundant supplies, too often maintained in this way, the cancerous overgrowth grows and grows, while the patient wastes and wastes."

Now, I would not for a moment be considered as voicing these views as something settled and fixed, but I bring them forward simply as a possibility which I believe is well worthy of careful consideration and study.

In this connection, reference may be made to the exceedingly interesting results recently obtained by Professor Moore,[1] in which he calls attention to the absence of hydrochloric acid in the gastric contents in malignant disease of organs other than the stomach. In sarcoma, for example, there are plainly changes in the composition of the blood, associated with a diminished number of hydrogen ions, thus accounting for the absence of acid in the gastric contents. Truly, such observations only emphasize the important relationship between nutritive changes, involving possibly both organic and inorganic constituents, and the appearance of abnormal processes.

Again, in tuberculosis, while we all recognize the importance of fresh air, there is, I think, great uncertainty—certainly in the minds of many people—as to the character and extent of the diet best adapted for combating this disease. There is surely a reaction going on against the altogether too prevalent fashion of overfeeding in this disease. In a book published this present year by Dr. Burton-Fanning, of England, on "The Open-air Treatment of Pulmonary Tuberculosis," I find under the head of "diet" the following statements: "I do not like the term overfeeding," says Dr. Burton-Fanning, "which correctly described, perhaps, the indiscriminate stuffing which was once in vogue, but does not apply to more recent teaching on the subject of food in the treatment of pulmonary tuberculosis. Overfeeding was certainly capable of doing harm to the stomach, heart, and other organs. In some cases, moreover, the increased weight actually impaired the general health, and impeded the development of reparative changes in the lungs. Our object in the dietetic treatment of pulmonary tuberculosis is to bring the patient's nutrition up to a standard which is judged to be consistent with the highest level of general health, and at the same time to improve digestion and assimilation."

As another writer has expressed it, "there is a great tendency to an overaccumulation of reserve material in the blood; and from the blood, that reserve material is very apt to be built up into tissue, which therefore is liable to undergo hypertrophy or overgrowth. In other words, it is easy, in enriching the blood by food, to overenrich it; to cause, through oversupply of food material, too much chyle and other material to enter the blood."

In the causation of cancer and in the treatment of tuberculosis there is, I think, no question that nutritive conditions play a very important part, and what I wish to emphasize is the desirability of more thorough and scientific study of the influence of quality and quantity of the daily dietary upon the causation and treatment of these diseases. Further, I would use these two forms of disease as illustrations of a general principle, which I believe is worthy of careful consideration, namely, that in the preservation of the health of the body, in maintaining the normal resistance of the individual to the incursions of disease germs, we must recognize the necessity of keeping the body in the proper state of nutrition. At the same time, we must admit a lack of definite knowledge as to what constitutes a proper nutrition of the body.

My own observations in this direction, however, continued now over several years, lead me to believe that there is much of value to be learned in a study of the minimal quantities of food required to maintain health and strength. The real needs of the body for food are unquestionably very much below the amounts ordinarily consumed, and this being true, one may well ask the question, does not this excess of food, for which the body has no true physiologic need, in the long run imperil the health of the individual, diminish the ordinary powers of resistance, and so pave the way for various forms of disordered nutrition, which we speak of as disease?

[1] The Lancet, 1905, 1120-1124.

DISTINCTIVE FEATURES OF ANIMAL AND VEGETABLE DIETARIES.[1]

BY

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Until very recent years the advocacy of unique dietary régimes, such as are involved in vegetarianism, or in the preponderating use of animal foods, has been based upon considerations scarcely to be termed physiologic. It has been the sentimental rather than the scientific aspects of the controversy—vegetable versus animal foods, which have attracted attention in broader circles. The demand that man should adapt his dietetic

[1] Read as a part of the symposium on "Nutrition" before the Medical Society of Greater New York at the New York Academy of Medicine, October 9, 1905.

habits to more natural conditions, that is, that he should attempt to adjust the opportunities of nature to his physiologic needs has often been presented in attractive phraseology. After all, man is not simply an animal, and custom has forced profound changes in his ways. Thanks to the progress of investigation in the domain of food chemistry and nutrition, we are today better prepared to consider the relative merits of animal and vegetable foods in the light of experimental evidence. Let us review briefly some of the claims in the controversy irrespective of other than physiologic and chemic points of view.

There is no little divergence of opinion, even among orthodox writers on diet, with respect to the proportion of animal foods which should be admitted into the daily diet. Inasmuch as even the vegetarians readily permit the use of the eggs and milk of animals, the question at issue essentially involves the physiologic value of meat and its products. It must, I think, readily be admitted that man can nourish himself on an exclusive vegetarian régime, and the discussion is thus restricted to the relative advantages of the different systems.

The ready digestibility of the meat proteids and the consequent availability of flesh products has always been contrasted with that of the proteids in plant materials. It is undoubtedly true that a considerably larger proportion of the vegetable proteids is lost to the organism in the ordinary forms of vegetable diet. Thus, it has been found that the digestibility and availability of the nutrients in different typic dietaries compare as follows:

Animal foods: Proteids, 97%; fats, 95%; carbohydrates, 98%. Vegetable foods: Proteids, 84%; fats, 90%; carbohydrates, 97%. Mixed diet: Proteids, 92%; fats, 95%; carbohydrates, 97%. (Storrs Report, 1899, p. 86.)

The important fact which is usually overlooked in a consideration of such data is that the vegetable proteids, *per se*, are as a rule not less digestible than those from animal sources. This statement is quite justified by the more recent experimental investigations. The poorer utilization ordinarily recorded is attributable to the form in which the nutrients are present; in other words, to the peculiar texture of the crude material. The proteids are packed away and enveloped in cellulose or other difficultly digestible material, or they are permeated with fats, as in some of the nuts; or again, the food materials are compressed into dense masses only slowly penetrated by the digestive solvents of the alimentary tract. The importance of these mechanical factors is well illustrated by an experiment with oat proteids in our laboratory. Coarse oatmeal cooked less than five minutes permitted a relatively poor utilization of the proteids. When the cooking was prolonged and the cereal well disintegrated, some improvement was noted. The isolated and purified oat proteids, however, were well utilized; and similar experience has been reported with edestin and "roborat," commercial proteid preparations of plant origin.

The physician of today should be in a position to accept, at correct value, certain familiar fallacies which are still widely current with respect to food products. One class of these fallacies rests upon the untenable assumption that the chemic composition of a foodstuff is an adequate index to its nutritive value. This may be essentially misleading when either proteids or fats or carbohydrates are exhibited in a form which the digestive apparatus cannot satisfactorily appropriate. Current notions with respect to various types of bread are characteristic of this. It is true, for example, that the whole kernel of wheat is proportionately richer in proteids than the decorticated portions. But the cortical parts of the grain are so tough and impregnated with indigestible materials that the proteids, though abundant there, fail to become dissolved in good measure. A considerable loss of proteid thus arises when such food material is ingested. In roller-process flour, on the other hand, the chemically good, but dietetically undesirable parts, have been eliminated in the process of manufacture. As a result, the actual food value of the nutrients therein is decidedly enhanced. Bread made from grades of wheat flour containing the bran, is less digestible than that made from flour in which the coarser material has been removed in milling. Numerous digestion trials on man, both in this country and in Europe, have given evidence of this. Figures compiled from a large number of experiments show that in digestibility the breads compare somewhat as follows: Utilization of proteids and carbohydrates: White bread, proteids, 88%; carbohydrates, 98%. Entire wheat bread, proteids, 82%; carbohydrates, 94%. Graham bread, proteids, 76%; carbohydrates, 90%.

The essential improvements which the modern innovations in the form of prepared cereal foods have introduced, relate to their cooking and their palatability. This is particularly true of the oat-products. The extravagant claims on the packages are no guarantee of extraordinary food value, though the product may be wholesome and nutritious; and the "malted" or so-called "predigested" preparations, as a rule, show no advantages beyond those accomplished by thorough cooking. Well-baked white bread is utilized even better than most of the ready-to-eat preparations.

In making such references to the relatively poor utilization of bread prepared from coarser grades of flour, it is not intended to impugn their value from the clinical standpoint, or to overlook the stimulating action which the indigestible ingredients may exert upon the motor functions of the intestine. We need, however, to draw a distinction here between physiologic action and nutritive value.

The deficiency of ordinary vegetable dietaries in proteids has long been the subject of criticism by the opponents of the vegetarian regimen. In considering this with impartial judgment, we may perhaps more properly speak of a paucity than of a real deficiency of proteids in the vegetarian dietary, if we accept the evidence afforded by the researches of Professor Chittenden and of Dr. Folin regarding the actual proteid needs of the body. And, furthermore, it is well to bear in mind the recent progress in the production of palatable plant products, which are decidedly rich in proteids and are at present available in considerable variety and attractive form. This applies in particular to nuts and nut foods, some of which approach meat in composition. For ex-

ample: Cooked meat contains 25% proteids; peanut butter, 29%; almonds (edible portion), 21%; walnuts (edible portion), 27%; pignolias (edible portion), 34%.

With extract of beef imitated by purin-containing "yeast extracts," and with nut meats competing with flesh products, it must be admitted that the qualitative distinctions between animal and vegetable dietaries are becoming far less marked than they were in former years. The vegetarian advocates, profiting by scientific criticism, with the additional encouragement derived from the widespread abuse of meat eating, have enriched our dietaries in various directions.

A German clinician has remarked that meat is unquestionably the most dangerous of all foodstuffs, in that it can be consumed in excess to a degree not possible with other foods. It is doubtless true that the gormand is distinctively a meat-eating individual, and that the tendency to excessive drinking is usually associated with such dietetic extravagances. Let us not, however, condemn the animal dietary fundamentally because of these dangers. Employed in moderation, it is not so profoundly different from any other adequate dietary; and there is to recommend it, a high degree of digestibility and palatability. The modern researches on the physiology of digestion have taught us the significance of the taste of food in promoting the adequate supply of the digestive juices. I have noticed that many of the most popular recent vegetarian food preparations strikingly imitate the meat flavors, and doubtless not without telling physiologic effects. An instinctive craving for the normal stimulants to digestion is thereby satisfied. A bland diet is distinctly unphysiologic, and the explanation of this fact is no longer to be sought by empiric methods alone.

There is another feature which deserves notice in a review of the distinguishing characteristics of animal and vegetable dietaries from the standpoint of the physiologic chemist. We are accustomed to speak somewhat too generally of the proteids, fats, or carbohydrates of our diet. Physiologic experience has taught us to differentiate more adequately the individual types which make up each of these great groups of nutrients. The nucleoproteids, for example, may experience a specifically different transformation in the nutritive exchanges from that of the simpler proteids. Here we are brought into contact with the subject of purin metabolism and its bearing upon the production of the compounds of the uric acid group and their fate in the organism. The prominent sources of the nucleoproteids are found in the animal kingdom; and in seeking a purin-free diet the physician properly turns to the vegetable foods, in addition to milk and eggs. To me, it seems probable that the success attending the adoption of purin-free dietaries, like those recommended by Dr. Haig, is attributable as much to the abstemiousness which they induce as to the absence of the "uric acid precursors." I doubt whether anyone would be prepared to maintain that the actual nutrients of cereals or fruits or nuts are in themselves more nutritious than those derived from animal sources.

If I have seemed to set forth with undue emphasis some of the virtues of the vegetarian régime, it has been done in the hope of eradicating some of the unfair prejudices which are still maintained even in educated circles. Vegetarianism undoubtedly has its place in ameliorating various functional disorders, without laying claim to any mysterious properties. In the treatment of obesity, certain forms of neuralgia of unknown origin, and of gout, for example, the strict diet has rendered effective aid in many instances. In the field of dietetic therapy, radical changes of diet frequently supply essential factors, or eliminate deleterious ones in most welcome and unsuspected ways. But the exclusive system has no adequate justification. In the subject under discussion, I can scarcely improve on the statements with which Dr. Luther V. Bell, many years ago, summarized his conclusions regarding "the diet which will insure the greatest probable health to the laborer in the climate of New England." In the Boylston Prize Essay of 1833, a paper which may still be read with interest, he wrote:

1. A diet of both animal and vegetable food is adapted to the condition of the New England laborer. 2. No grand errors exist in his present system of diet, and no radical change is demanded to insure a greater amount of health and strength, though many minor, but still important errors exist. 3. The proportion of animal food usually customary is too great, and a considerable reduction would be expedient and advantageous, though it is impracticable to make a precise statement of the extent to which this is required, which must depend upon circumstances, as amount of labor performed, climate, season, bodily constitution, habits of life, etc. A general statement of this fact can alone be made. 4. The amount of food in general, customarily used, is more than is necessary for the maximum of health and strength, though a more specific statement of this abuse is also impossible. It must be left for each individual to attempt to reduce his quantity of food to that point at which he finds his mental and bodily powers most energetic. In searching for this point, the New Englander may be almost certain that he must look for it in descending ratio. 5. The great principle in regulating diet is to regard quantity rather than kind.

THE PATHOLOGY AND ETIOLOGY OF HUMAN VACCINIA.[1]

BY

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The results of the studies made during the last three years in Boston and in Cleveland on variola and of those of Tyzzer in Boston on vaccinia of the calf and rabbit have rendered it important that vaccinia in man should be carefully studied in the same manner.

Last fall, in association with Dr. Perkins, and through the kindness and interest of several assistants and students, I had the opportunity of making the observations which form the basis of this paper.[2]

Material and Methods.—Thirty men were vaccinated in the usual way on their left arms in three places at the

[1] Read before the General Session of the American Public Health Association, Boston, September 27, 1905.

[2] This paper is an abstract of an article on the "Etiology and Pathology of Vaccinia," to appear in the Journal of Medical Research, Vol. xiv, No. 1, November, 1905.

same time. Twelve men showed successful vaccinations, and from these, 23 pieces of skin were excised at various periods from 48 to 168 hours after vaccination. In each case one vaccination area was left undisturbed for observation and for immunity. As further controls, skin was taken for study from three unsuccessful vaccinations. The skin was fixed in Zenker's fluid and in paraffin and sections were stained by a variety of methods, eosin and methylene-blue and Borrel's stain giving the best results. In no case were there complications or other untoward results.

Pathology.—In general, it may be said that the skin lesions of vaccinia closely resemble those of variola, but are more rapid and severe, owing probably to the presence of a larger amount of virus present in a given area as well as the manner by which the virus reaches the skin.

Contrary to the common belief and teaching, the formation of the vesicle and the destruction of the epidermis are almost complete in 48 hours after vaccination. At this period, the earliest at which this material was excised, the sections show usually a single vesicle, composed of a reticular mesh work of coarser and finer strands of hyaline fibrinoid material which is formed from degenerated epithelial cells. The meshes or spaces of the reticulum contain fluid and finely granular material with but few cells. The lesion is cup shaped, and not fan shaped like the variolous lesion.

The earliest changes of the epidermis consist of swelling and reticular degeneration of the epithelial cells. Many cells are completely hyaline, while others show larger and smaller hyaline droplets. The invasion of one epithelial cell by another, as is seen so commonly in vaccinia of the rabbit's cornea, is often seen. Nuclear degeneration is conspicuous and takes several forms: (1) Swelling with increased prominence of the reticulum; (2) massing of the chromatin in the center and along the nuclear rim; and (3) wrinkling and retraction of the nuclear rim.

Later changes comprise condensation and shrivelling of the nucleus, followed by nuclear fragmentation and the dispersion of particles of nuclear dust in the cytoplasm and intercellular spaces. All the above-described changes are to be seen at the lateral margins and at the base of the lesions. At the base from one to three or four rows of epithelial cells in various stages of degeneration are to be seen. Comparatively few blood cells have invaded the 48-hour lesion. The changes in the corium are intense. They consist of edema, hemorrhage, and leukocytic infiltration of the tissue, with swelling and proliferation of the endothelium of the blood and lymph vessels. These changes are much more marked than in the corresponding stage of variola. They are responsible for the marked inflammatory characters of the vaccine lesion. As will be seen, they persist for a long time, even after healing is well under way.

In the 70 and 72-hour lesion all the epithelial cells below the horny layer have disappeared or are necrotic. The spaces of the reticulum are smoother and the strands are coarser. In the middle and deeper parts of the vesicle, fibrin and leukocytes are prominent. The leukocytes are of the large and small mononuclear and eosinophile types. On each side of the original vesicle there are early secondary vesicles, analogous to those present at the margins of the advancing variola vesicle. In these the process repeats itself, and a good opportunity is afforded for studying the earliest changes in the epithelium, which are found to be identical with those occurring at the beginning of the 48-hour lesion.

The edema and cellular infiltration and endothelial cell proliferation are more intense than in the 48-hour lesion. From 72 hours on, the chief changes are: (1) Condensation of the reticulum into a dense hyaline material containing broken-down leukocytes; (2) further necrosis of the epithelial cells at the margin of the lesion; (3) persistence of the edema and vesicular changes in the corium; (4) regeneration of the epidermis and the throwing off of the crust or scab.

In the 96-hour lesion the reticulum of the original vesicle is quite dense, and the secondary vesicles present the same appearances noted in the 48-hour lesion. Apparently no third crop of vesicles forms.

In sections of skin excised 120 hours after vaccination the reticulum and exudate form a dense homogeneous mass of deeply-staining hyaline material containing necrotic leukocytes. This mass forms the scab or crust. The flattened epidermis projects under its margins in a slanting line. The bottom of the lesion is distinctly narrowed. The cells of the projecting epidermis show numerous mitotic figures. The inflammatory changes in the corium are still active.

The 168-hour or seventh-day lesion presents the same characteristics as the last, but the projection of the epidermis beneath the scab is still more marked. The inflammatory changes in the corium are still in evidence. The scab or crust is evidently separated from the underlying exposed corium when the renewal of the epidermis is complete. This must take some time.

Etiology of Vaccinia.—In the several hundred sections studied, no bacteria were found. There was complete absence of any evidence of pyogenic cocci. Structures corresponding to the primary cytoplasmic stage of *Cytoryctes variolæ* as described by Councilman, Magrath, and Brinckerhoff, Calkins, and Howard and Perkins in the early stages of variola, and by Tyzzer in vaccinia of the calf and rabbit were found. These bodies were found in only the 48-hour and 72-hour lesions. There was complete absence of the secondary cytoplasmic and the intranuclear stages of *Cytoryctes variolæ*. Hence our observations on this point are in complete agreement with those of Tyzzer on vaccinia in the calf and rabbit.

Interpretation of the Lesions of the Human Skin in Vaccinia.—The process is very rapid, vesiculation being almost complete in 48 hours after vaccination. The current belief, based upon clinical observations, that vesiculation begins on the fourth day, is erroneous, for at this time the degenerative changes in the epidermis are at an end, the vesicle filled with leukocytes, the reticulum condensed, scab formation has begun, and the lesion is a well-established pustule. Within 48 hours after inoculation upon the surface of the skin, most of the epithelial cells of the affected area are destroyed, and the corium shows well-marked inflammatory

changes. The changes in the skin in vaccinia and in variola are very much the same, but those of the former are much more intense. This is probably to be explained by the greater number of organisms introduced at vaccination, and by the larger areas of skin affected. There are various differences in the course of the two diseases. In variola, the vascular changes precede those of the epidermis, while the opposite obtains in vaccinia.

In variola, in which the infectious agent reaches the skin by means of the bloodvessels, the epithelial changes spread outward; in vaccinia, downward toward the papillas. This difference in the manner in which the virus reaches the skin accounts for the cup-shaped lesion of vaccinia and the fan-shaped lesion of variola. The degenerative changes in the epithelium and the manner of reticulum and vesicle formation are identical in the two lesions. In both, these degenerations occur in cells which contain parasites and in those which do not. In both, there is evidence that the degenerative and inflammatory changes are due to the action of one or more soluble toxins, which act in many ways like the diphtheria toxin. It would appear also that the process of immunity production is intimately associated with the setting free of this poison in the lesion, for the edema and other inflammatory changes persist long after the process in the epidermis has ceased to extend.

In view of the foregoing, we venture to offer the following hypothetic suggestions to explain the lesions of vaccinia. The organisms introduced into the epidermis invade the epithelial cells between the horny and malpighian layers. The invaded cells undergo various degenerations leading to necrosis and reticulum formation under the influence of the parasites which they harbor. With the segmentation of the first crop of parasites and the escape from the infected cells of the resulting gemmules, a soluble toxin is discharged into the lesion. Some of the gemmules invade neighboring cells (autoinfection) and secondary vesicles are produced. The toxin causes the widespread degenerations, especially the hyaline and the hyaline fibrinoid changes leading to necrosis, as well as the proliferative activities of the epithelium, according to the concentration in which it reaches the affected cells. The rapidity and extent of the lesions of the epidermis are thus explained. The toxin exerts also a powerful and prolonged effect upon the blood and lymph vessels, resulting in congestion, edema, and cellular exudation and proliferation. With the formation of the secondary vesicles, local immunity is apparently established, for a second local autoinfection rarely occurs. Reparative processes in the epidermis are well established in the 120-hour lesion. It would appear that the asexual cycle (primary cytoplasmic stage) of *Cytoryctes variolæ* is completed ordinarily in less than 48 hours. The process of immunity production probably continues for several days after the formation of the vesicle.

CONCLUSIONS.

1. In human vaccinia vesiculation is well established by the end of the second day.

2. The changes in the epidermis correspond closely to those of variola, but are more severe and rapidly destructive of epithelium. The changes in the corium are much more intense and persistent in vaccina than in variola.

3. As was to be expected from the work of Tyzzer in vaccinia in the calf and rabbit, the primary cytoplasmic and not the secondary cytoplasmic and the intranuclear stages of *Cytoryctes variolæ* occur in human vaccina. This and the intensity of lesion (owing probably to the greater number of organisms introduced in vaccination) mark the main differences between variola and vaccinia.

4. Granted that the groups of cytoplasmic and intranuclear bodies described by Councilman and his coworkers, by Calkins, and by Howard and Perkins in the skin lesions of variola and vaccinia are parasites causing these diseases, it seems that certain lower animals have the property of inhibiting the development of the sexual cycle, but permit that of the asexual cycle, which is pathogenic for both man and these animals, and gives rise to an immunity in man which protects against both cycles.

A CLINICAL STUDY OF THE FREEZING-POINT OF BLOOD AND URINE IN VARIOUS DISEASES.

BY

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During the past three years I had excellent opportunities for studying the molecular concentration, or freezing-point, of the blood and urine in many of the surgical diseases of the kidney and urinary tract.

Most of these cases occurred in the service of Dr. Bevan, at the Presbyterian Hospital, but outside sources were also utilized in order to obtain as much material as possible for my work.

The results of my observations will be presented in tabulated form:

I. TUBERCULOSIS OF THE KIDNEY.

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.
1	1,200	1,013	—0.94	—0 56
2	1,260	1,023	—1.84	—0 56
3	1,600	1,010	—1.26	—0 56
4	2,300	1,012	—0.70	—0 58
5	800	1,020	—1.62	—0.54
6	1,400	1,012	—0.92	—0.63

The blood being of normal concentration in Cases 1, 2, and 3, a primary nephrectomy was performed. All three patients made an uneventful recovery and were able to leave the hospital at the end of three weeks.

In Case 4, the patient was in such a critical condition, the urine containing albumin, blood, and casts and the blood freezing below normal (—0.58° C.), that it was thought unsafe to do a nephrectomy at this time, so the kidney was simply drained through a lumbar incision.

After a somewhat tedious convalescence the patient recovered sufficiently to return to his home at the end of six weeks. Here he was placed under the best hygienic surroundings, given plenty of good nutritious food, and a tonic three times daily. His condition improved so

much that he was able to return for his second operation, a nephrectomy, at the end of three months.

Examination of his urine still showed the presence of a small amount of albumin and a few casts. The freezing-point of the blood was now within the normal limits, so the operation was performed by Dr. Bevan and the patient made a good recovery, being able to leave the hospital in four weeks.

In this case we had tuberculosis of the left kidney with abscess formation, and a mild degree of nephritis on the right side, as shown by the constant presence of albumin and casts in the urine.

The right kidney, although slightly diseased, was fully competent to carry on its work normally, as shown by the normal freezing-point of the blood and the freedom from all symptoms of nephritis up to the present time.

In Case 5, the patient had a bilateral tuberculosis of the kidneys and was in such an emaciated condition that operation was out of the question. Beside tuberculosis of both kidneys, she had a focus in the apex of her right lung. She grew rapidly worse and died from a general tuberculosis. Autopsy confirmed our diagnosis. The absence of molecular concentration of the blood in this case was no doubt due to her severe anemia, as we know this condition always causes an elevation of the freezing-point.

In Case 6 the patient also had a bilateral tuberculosis, which had advanced to such a degree as to make operative interference unsafe. The right kidney was enlarged to the size of a fetal head and the left was distinctly palpable as a nodular mass, the size of a man's fist. Tubercle bacilli, blood, and pus were present in the urine obtained from each kidney, and the freezing-point of the urine from the right kidney was higher than that from the left, showing the disease farther advanced on that side. The freezing-point of the blood was much reduced (—0.63° C.), showing increased molecular concentration.

According to Kümmel, Rumpel, and others, it is absolutely unsafe to operate when the blood freezes at —0.60° C. or lower. For this and other reasons, operation was advised against and the patient placed under the best hygienic surroundings; outdoor air, good food, and tonics being recommended. Although the patient is fairly comfortable when at rest, the disease is progressing slowly, and no doubt will soon terminate fatally.

The question of operative interference in bilateral tuberculosis of the kidney is still an open one, because we have no means of determining absolutely, beforehand, what the result will be.

We have learned from past experience that there may be extensive involvement of both organs, and still their combined action be sufficient to prevent development of uremic symptoms. Just so soon as we attempt to remove one organ, or even drain it, we find the other is unable to carry on its work successfully, and we have a fatal termination. By the use of the phloridzin injection, we have learned that the merest trace of normal parenchyma in a diseased kidney is still able to convert this substance into glucose, showing that the organ is still functionally active and perhaps necessary to insure proper elimination.

If, by segregation or ureteral catheterization, we find that one kidney is doing all the work and the blood shows no increased concentration (below —0.58° C.), then, of course, the diseased organ should be removed as soon as possible, because it is not only useless, but absolutely harmful to the individual.

In these days of rapid advancement in renal surgery, plastic operations have been done with astonishing results, even if both kidneys are diseased. Cryoscopy, when properly done in this class of cases, seems of considerable value, indicating, as it does, the safety of operation, so long as one kidney is functionating normally, even if it is the seat of disease.

II. NEPHROLITHIASIS (KIDNEY STONE).

Eight cases were studied with the following result:

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.
1	1,000	1,016	—1 25	—0.56
2	1,560	1,023	—1 84	—0 56
3	1.280	1.018	—1 54	—0 55
4	1,200	1,013	—0.76	—0.57
5	860	1,021	—1.61	—0.56
6	1,800	1,020	—1 59	—0.56
7	1,100	1,023	—1.82	—0.56
8	1,500	1,014	—1 34	—0 56

Here we see practically no changes in the blood, and in only one case was there a marked change in the character of the urine. This patient suffered from hydronephrosis, and later, it was learned that the ureter was completely obstructed as well. After operation, albumin and casts appeared in the urine, indicating the presence of nephritis.

In Cases 1, 2, 3, 5 and 7, operation was successfully performed and the stones removed. The patients all made a speedy recovery and left the hospital in from two to four weeks.

In Case 4, there was an obstruction in the ureter causing hydronephrosis, which was found to have almost completely destroyed the kidney, so the sac was removed. The patient made a rapid recovery and the blood returned to normal, although a little albumin was present in the urine for a long time after operation.

In Case 6, the patient refused operation and went home. In Case 8, the patient had pus in the urine when admitted to the hospital, and, in addition, blood and albumin appeared after a severe attack of renal colic. He decided to wait awhile before submitting to an operation and has not been seen since. The röntgen ray showed the presence of a large stone in this case. There was no concentration of the blood during the attack of colic, as has been found by other observers during this period.

In this series, cryoscopy was of value, if only in a negative way, indicating that operation could safely be done, because the blood was normal in its concentration and freezing-point. In Case 4 it showed, also, a deficient elimination as indicated by a freezing-point of —0.76° C. for the urine, and —0.57° C. for the blood.

One case of stone in the ureter was studied, during the attack of colic, etc. Neither the blood nor the urine showed any abnormal condition. Although the urine was obtained by ureteral catheterization, no marked difference was noted in the secretion of the two kidneys.

III. HYDRONEPHROSIS.

Five cases came under observation, with the following results:

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.
1	1,200	1,013	—0.76	—0.57
2	1,500	1.014	—1.36	—0.56
3	800	1,024	—1.57	—0 57
4	1,600	1,012	—1.08	—0.56
5	1,060	1,020	—1.36	—0.53

Case 1 has already been considered in the preceding list. In Cases 2 and 3, stones were found to be the cause of obstruction. Case 4 was due to tuberculosis of the bladder obstructing the ureteral orifice. In Case 5 carcinoma of the prostate was found to be the direct cause. The patient was an old man, greatly emaciated and very anemic, which accounts for the extremely high freezing-point of the blood in this case.

Four of these patients made a good recovery, showing the other kidney was functionating normally.

Case 5 was hopeless when admitted to the ward, and the operation was done solely to relieve pain. Although the blood in this case was less concentrated than normal, we cannot say that cryoscopy was misleading, because the extreme anemia present was sufficient to account for this condition. Autopsy showed a large, ulcerating carcinoma of the prostate, extending into the bladder, involving the base and greater part of the body, occluding the right ureteral opening. Anterior to the bladder was a burrowing abscess, extending laterally to the right.

IV. PYONEPHROSIS.

Four cases of pyonephrosis proper were studied, and three cases of perinephric abscess, probably caused by extension from the kidney.

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.
1	1.260	1,012	—0 86	—0.57
2	1 400	1,020	—1.32	—0 55
3	1,100	1,018	—1.20	—0 56
4	400	1,024	—1 70	—0 68
5	640	1,018	—1 32	—0.60
6	900	1,012	—1.00	—0.58
7	1,080	1,017	—1.04	—0.57

Nephrectomy was the operation of choice in Cases 1 and 2, because the other kidney was secreting practically normal urine, and the blood showed no unusual concentration. Both patients made a good recovery, although Case 1 had a little trouble for a few days.

In Cases 3, 5 and 6, simple drainage was resorted to, on account of the local condition found at operation. In Case 3, a secondary nephrectomy was done several weeks later with good results. In Case 5, the patient left the hospital as soon as he was able to be moved, and has not been heard from since. In Case 6, the patient was seen only once, but at last report was doing fairly well. In Case 4, the patient died the second day in the hospital from sepsis. Autopsy showed abscess of the kidney, which had ruptured, forming subphrenic abscess and general peritonitis. In Case 7, the patient was removed by friends from the county hospital, and no more has been heard from him. Pus in the urine, tumor, edema, and pus withdrawn with needle, were the grounds for diagnosis.

In this group, cryoscopy was of considerable value, as it indicated to us that operative intervention was safe in those cases in which the patients submitted to operation, and indicated the gravity of the condition in the fatal case. The blood and urine returned to normal in every case after operation, showing that the remaining kidney was performing its function normally.

V. PYELONEPHRITIS.

Although not a surgical condition in a strict sense, it really belongs in this class. Three cases were studied:

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.
1	*400	1,021	—0.56	—0.58
2	1,000	1,007	—0.46	—0.57
3	540	1,020	—0.95	—0.56

In Case 1, the patient was seen only a few hours before death, and a catheterized specimen was all that could be obtained. Here we see the blood more concentrated than the urine, as indicated by the freezing-point. Autopsy showed general sepsis, multiple abscesses, in both kidneys; ulcerative endocarditis, foci of suppuration in the liver and spleen.

In Case 2, the patient had pus and albumin in the urine, tenderness over both kidneys, pelvic peritonitis, following septic abortion, and staphylococci and streptococci were found in the blood cultures. Patient was taken home to die. No autopsy.

Case 3 developed after cystitis, due to catheterization, for an enlarged prostate. Patient was seen only twice, and the termination of the disease is not known.

VI. TUMORS OF THE KIDNEY.

Six cases of hypernephroma, three of sarcoma and one of cystic kidney, were studied.

Case.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.	Type of tumor.
1	1,200	1,014	—1.46	—0 57	Hypernephroma.
2	1,100	1,012	—1 14	—0.56	"
3	1,450	1,022	—1.56	—0.57	"
4	1,300	1.024	—1.47	—0.55	"
5	1,160	1.011	—1 32	—0.57	"
6	1,400	1 012	—1.29	—0 56	"
7	1,480	1.017	—1.18	—0 56	Sarcoma.
8	1,900	1 008	—0 54	—0.55	"
9	1,400	1 012	—1 31	—0 56	"
10	1,200	1,014	—0.98	—0.56	Cystic kidney.

Operation was performed successfully in all of these cases except Case 6, which was found to be inoperable on account of extensive involvement of the mesentery and transverse colon. The patient stood the exploratory operation very well and was able to leave the hospital in two weeks. The diseased kidney was removed in every other case successfully and the patients all made a good recovery from the operation. In one case metastatic growths soon appeared, which eventually caused death.

In this series cryoscopic examination of the blood and urine proved valuable, showing the other kidney to be able to carry on the work successfully, both before and after operation.

VII. Tumors of the Prostate.

Five cases were examined; two of carcinoma; two of hypertrophy in old men; one of abscess, which had ruptured into the bladder, when the examination was made.

The results may be tabulated as follows:

Case.	Catheter specimens—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.	Nature of tumor.
1	720	1,014	—0 68	—0.75	Carcinoma.
2	400	1,020	—1 04	—0.73	"
3	500	1,017	—1.27	—0.57	Hypertrophy.
4	480	1,020	—1 40	—0 56	"
5	150	1,030	—1 28	—0.56	Abscess.

In Case 1, operation had been performed when the cryoscopic examination of the blood and urine was made. Although evidences of nephritis were present, the retention was relieved by perineal incision with the hope of improving his condition by establishing drainage. Had a careful cryoscopic examination of the blood been made in this case before operation, it no doubt would have shown the hopelessness of such procedure even more strongly than did the local condition found at operation. This patient died two days later with all the symptoms of uremia.

In Case 2 operation was done, an attempt made to remove the prostate, but without success, on account of the extension of cancerous tissue to the surrounding parts. This patient also died a few days after operation at the county hospital. Autopsy revealed an ascending pyelonephritis, not very far advanced, but evidently enough damage had been done to disturb the renal function.

The other two patients were operated upon successfully and made a good recovery, without any renal symptoms. The patient with abscess of the prostate, after a lingering illness, was able to go home, where he died six weeks later from an attack of lobar pneumonia.

Two cases of exstrophy of the bladder were studied carefully, in order to determine the amount and character of the urine secreted by each kidney. The ureteral catheters could be introduced with ease, causing no discomfort to the patient at all.

In one case the left kidney constantly secreted more urine than the right. It was of a higher specific gravity and a lower freezing-point at every examination, showing that the left kidney was doing more work than the right. The urine was entirely normal, containing no albumin nor casts. In Case B., the patient, aged 12, there was no constant variation. Sometimes it was the same in every particular, sometimes the left, sometimes the right being the more active. The blood was normal in both of these cases (—0.56° C.).

VIII. Abdominal Tumors, Not of Renal Origin.

In this list are included cases of uterine fibroids, ovarian cysts, dermoid cysts, sarcoma of the ovary, carcinoma of the uterus, stomach, and liver, carcinoma of the peritoneum and general tuberculosis of the abdominal organs. In no case was there a marked disturbance of the freezing-point of the blood or urine; never lower than —0.57° C.

It may be safely said that abdominal tumors do not disturb the molecular concentration of the blood or urine, unless they exert direct pressure upon the renal vessels, causing a disturbance of function. If it were caused by an increased intraabdominal pressure, we should have some evidence of it in marked ascites, tympanites or intestinal obstruction, which was not the case in my series.

In two cases of retrocecal abscess there was a reduction in the freezing-point of the blood to —0.57° C., which disappeared soon after the operation for drainage. Just how this is to be explained I do not know, unless the inflammatory process extended upward far enough to affect the renal function, by causing pressure upon the vessels.

In addition to this series of surgical diseases of the kidneys and urinary tract, I studied the freezing-point of the blood and urine in many other diseases, especially typhoid, pneumonia, the anemias, and the constitutional diseases in which we have to deal with faulty metabolism, as diabetes mellitus, gout, cancerous cachexia, etc.

Typhoid Fever.

Case.	Age.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine—° C.	Freezing-point of blood—° C.	Week.	Remarks.
1	42	1,020	1,021	—2.13	—0.56	Fourth.	Recovery.
2	30	1,100	1,020	—1 76	—0.57	Second.	"
3	32	1,400	1.018	—1.92	—0 54	"	"
4	21	1,000	1,019	—1 62	—0.57	Third.	"
5	9	800	1,018	—1.72	- 0.53	Second.	"
6	26	1,150	1,016	—1 54	—0 55	First.	"
7	28	1,600	1,012	—1.38	—0 54	Third.	"
8	10	700	1,013	—1.28	—0 66	Fifth.	"
9	10	900	1,016	—1.34	- 0 66	Seventh.	"
10	28	1,800	1,017	—0 87	—0.61	Third.	Hemorrhage; recovery.
11	30	900	1,026	—1.86	—0.53	Second.	Recovery.
12	26	1,400	1 018	—1.36	- 0 54	Fourth.	"
13	30	1,350	1,015	—1 42	—0 58	Third.	Perforation; died.
14	38	1,040	1,026	—1 85	—0 55	"	Recovery.
15	30	1,400	1,018	—1 53	—0 53	Second.	"
16	22	800	1,022	—2.09	—0 53	First.	"
17	20	960	1.020	—1 80	—0.55	Fourth.	"
18	35	1,400	1.018	—1.32	- 0.56	Second.	"
19	42	1,200	1,020	—1.63	—0.54	Third.	"
20	16	600	1 022	—1 64	—0.57	Second.	"
21	26	1,240	1.014	—1.50	—0 57	"	Relapse; recovery.
22	26	1,010	1,018	—1.62	—0 57	Sixth.	Recovery.
23	27	1.200	1,014	—1.50	—0 57	Third.	"
24	19	1,450	1,018	—1.61	—0.55	Fifth.	"
25	22	1,100	1,023	—1.78	—0.57	Second.	"
26	23	1,000	1,019	—1 64	—0.56	Fourth.	Toxemia; died.
27	42	1,400	1,012	—1.32	—0 56	Second.	Recovery.
28	14	800	1,013	—1.22	—0 56	Fifth.	"

Twenty-six cases of typhoid and two of paratyphoid were examined. Blood cultures and the agglutination test verified the diagnosis in every case.

Analyzing this list, we find that in 16 cases the freezing-point of the blood was within the normal physiologic limits, —0.55° C. to —0.57° C.; in 8 cases it was above the normal, —0.53° C. to —0.54° C.; in only 4 was it below the normal, —0.58° C. to —0.66° C. In Case 13, having a freezing-point of —0.58° C., the patient died of perforation, and in Case 26, —0.56° C., the patient died of toxemia in the fourth week.

These results do not coincide with those of Waldvogel, who found that those cases having a freezing-point of the blood within the normal limits usually terminated fatally, while those having a low freezing-point usually ended in recovery.

I cannot account for the extremely low freezing-point in Cases 8, 9, and 10, as there was absolutely nothing

MISCELLANEOUS CASES.

Disease.	Amount in 24 hours—cc.	Specific gravity.	Freezing-point of urine.	Freezing-point of blood.	Remarks.
Abscess of liver	1,160	1,024	—1.62	—0.60	Jaundice present.
" "	1,020	1,023	—1.60	—0.56	No jaundice, died.
Abscess lung	1,240	1,017	—0.93	—0.58	Cyanotic, operated.
" "	1,800	1,016	—0.83	—0.56	Subphrenic also, died.
" psoas	1,600	1,027	—2.03	—0.56	Tuberculosis.
Actinomycosis	1,100	1,028	—1.68	—0.57	Pulmonary abscess.
Adenitis	1,600	1,021	—1.42	—0.56	Cervical.
"	1,810	1,026	—1.82	—0.56	General.
Alcoholism	1,300	1,014	—1.34	—0.57	Acute delirium tremens.
Anuria				—0.78	Patient died, uremia.
"				—0.65	Following operation.
Amebic dys.	1,450	1,015	—1.51	—0.57	Recovery.
Aortic an.	700	1,022	—1.24	—0.56	Autopsy confirmed.
Asthma	475	1,028	—2.01	—0.57	Aortic insufficiency.
Appendicitis	1,400	1,014	—1.19	—0.56	Chronic recurred.
"	1,100	1,023	—1.67	—0.57	Acute abscess.
"	840	1,026	—1.84	—0.55	" "
Burn	3,000	1,008	—0.86	—0.56	Very extensive.
"	2,600	1,009	—0.94	—0.54	Same, greater.
Bulbar paralysis	1,900	1,013	—0.97	—0.56	Died.
Brain tumor	1,650	1,016	—1.42	—0.56	Died, autopsy.
" "	1,000	1,010	—1.03	—0.56	Left hospital.
Cerebral hem.	1,200	1,028	—1.87	—0.56	Hemiplegia.
" "	350	1,030	—2.09	—0.56	Recovery partial.
" "	1,600	1,014	—1.32	—0.56	Later in process.
" "	1,160	1,014	—1.38	—0.56	Extradural operation.
Carc. of stom.	600	1,024	—1.86	—0.54	Recurrent hemorrhage.
" "	1,270	1,022	—1.49	—0.55	Operated.
" "	1,100	1,021	—1.57	—0.54	Extreme anemia.
" "	900	1,025	—1.64	—0.55	" " "
" "	820	1,020	—1.52	—0.56	Hemorrhage moderate.
" pancreas	1,400	1,028	—1.69	—0.57	Icterus severe.
" prostate	Dr.	1,026	—1.80	—0.73	Ascending p'elonep'ritis, uremia.
" "	1,100	1,014	—1.16	—0.56	Operated, recovery.
" liver	1,400	1,019	—1.38	—0.56	Slight icterus.
" breast	1,200	1,018	—1.26	—0.55	Cachexia.
Carbuncle	1,600	1,014	—1.32	—0.56	Sugar in urine.
Conus lesion	1,000	1,016	—1.14	—0.56	Cystitis severe.
" "	450	1,020	—1.38	—0.56	Involuntaries.
Cholecystitis	1,800	1,019	—1.46	—0.56	Drained.
"	1,070	1,024	—1.82	—0.59	Posttyphoid.
"	1,200	1,020	—1.74	—0.56	Stone, operated.
Cholelithiasis	1,400	1,015	—1.62	—0.56	Operated.
"	1,300	1,019	—1.60	—0.56	"
"	800	1,026	—1.87	—0.58	Severe icterus.
Cystitis	1,560	1,012	—1.23	—0.56	Cystoscopic +
"	1,400	1,019	—1.26	—0.56	Acute.
"	850	1,021	—1.61	—0.57	Retention of urine.
"	860	1,024	—1.81	—0.56	Stone?
"	1,760	1,008	—1.14	—0.56	Acute.
"	1,600	1,017	—1.56	—0.56	Chronic.
"	1,200	1,014	—1.31	—0.56	"
"	1,000	1,016	—1.45	—0.56	"
Cirrhosis of liver	1,850	1,010	—1.13	—0.56	Atrophic.
" "	1,000	1,024	—1.75	—0.55	"
" "	800	1,028	—1.87	—0.56	"
" "	1,400	1,020	—1.72	—0.57	Biliary.
Diarrhea	840	1,020	—1.67	—0.56	Gastroenteritis.
Dysentery	960	1,028	—1.84	—0.56	Amebic.
Diabetes mel.	4,100	1,025	—1.49	—0.55	4.75% sugar, young.
" "	2,100	1,028	—1.31	—0.55	4 % " "
" "	2,620	1,019	—0.84	—0.57	1 % " old.
" "	1,800	1,035	—1.80	—0.59	4 5 % " "
" "	2,400	1,026	—1.63	—0.60	4 % " "
" "	2,800	1,032	—1.98	—0.78	4 25% " young.
" "	800	1,021	—1.43	—0.57	3 % " "
" "	2,030	1,028	—1.96	—0.57	3 5 % " "
" "	1,800	1,024	—1.45	—0.59	3.75% " "
" "	1,500	1,031	—1.85	—0.61	6 % " coma.
" "	1,200	1,028	—1.43	—0.57	4.1 % " young.
" "	2,500	1,035	—2.07	—0.60	7 % " partial coma.
" "	200	1,038	—2.14	—0.59	7 % " c'mplete "
" insip.	3,500	1,004	—0.60	—0.56	Following shock.
" "	4,000	1,006	—0.48	—0.56	Young adult, injury.
Empyema	270	1,040	—2.50	—0.57	Cyanosis, operated.
"	860	1,018	—1.85	—0.56	Tuberculous, died.
Emphysema	1,600	1,014	—0.93	—0.57	Chronic bronchitis.
"	1,400	1,016	—0.94	—0.57	Marked cyanosis.
"	1,100	1,019	—1.27	—0.56	Senility.
Fract. of femur	1,800	1,018	—1.32	—0.57	Extreme shock.
Gastritis	1,200	1,022	—1.50	—0.56	Alcoholic.
"	850	1,023	—1.72	—0.56	Chronic.
Gastric ulcer	1,050	1,012	—1.16	—0.56	"
" "	1,200	1,014	—1.27	—0.54	Active hemorrhage.
" "	1,000	1,016	—1.38	—0.56	First week.
Gastrectasis	900	1,010	—0.98	—0.56	Pyloric obstruction.
Gangrene	410	1,022	—0.51	—0.62	Chr. nephritis, end'card.
"	2,200	1,024	—1.84	—0.56	Diabetic.
Gout	1,300	1,021	—1.46	—0.56	Acute attack.
Hysteria	3,500	1,006	—0.63	—0.56	Polyuria.
"	3,100	1,012	—0.68	—0.56	"
"	2,000	1,016	—1.35	—0.56	"
Icterus	1,200	1,026	—1.65	—0.58	Catarrhal, acute.
"	800	1,025	—1.70	—0.57	" "
"	1,450	1,022	—1.46	—0.56	" "
"	1,000	1,030	—1.76	—0.56	" "
"	860	1,026	—1.70	—0.58	Biliary cirrhosis.
"	1,200	1,023	—1.69	—0.60	Sup. cholangitis, sepsis.
"	1,800	1,012	—1.01	—0.52	Obstructive jaundice, hemor. from bowels.
Icterus	1,160	1,026	—1.54	—0.51	Severe hemorrhage from bowels.
"	1,050	1,024	—1.62	—0.60	Liver abscess, sepsis.
"	900	1,026	—1.82	—0.54	Carcinoma of pancreas.
"	1,600	1,016	—1.43	—0.56	" " pylorus.
"	800	1,029	—1.63	—0.54	" " liver.
"	1,200	1,026	—1.42	—0.56	" " "
Leukemia	1,600	1,021	—1.56	—0.56	Splenomedullary.
"	1,280	1,019	—1.54	—0.55	"
"	800	1,021	—1.43	—0.56	Lymphatic type.
"	460	1,024	—1.48	—0.55	Acute lymphatic type.
"	1,400	1,014	—1.23	—0.56	Lymphatic type.
Lumbago	1,040	1,026	—1.84	—0.56	
Myelitis	1,200	1,017	—1.32	—0.56	Acute.
Myasthenia	1,600	1,012	—1.19	—0.56	Myasth. gravis.
Mult. sclerosis	1,200	1,014	—1.32	—0.56	Died, autopsy.
Meningitis	600	1,010	—1.60	—0.56	Epidemic cerebrospinal.
"	1,500	1,012	—1.46	—0.56	" "
"	700	1,021	—1.62	—0.56	Tuberculous.
Neuritis	1,800	1,014	—1.70	—0.56	Multiple.
"	1,650	1,017	—1.46	—0.56	Lead multiple.
"	950	1,012	—1.27	—0.56	Diphtheric.
Neurasthenia	1,500	1,014	—1.32	—0.56	Female.
"	1,600	1,015	—1.46	—0.56	"
"	1,480	1,013	—1.51	—0.56	Male.
Osteomyelitis	1,300	1,019	—1.65	—0.56	Acute, drained.
Pernicious an.	650	1,019	—1.25	—0.54	1,268,000 reds.
" "	1,200	1,011	—0.69	—0.52	920,000 "
" "	1,500	1,017	—0.72	—0.51	1,224,000 "
" "	1,100	1,017	—1.07	—0.52	1,076,000 "
" "	1,260	1,012	—0.96	—0.53	2,050,000 "
" "	1,150	1,020	—1.50	—0.54	1,640,000 "
" "	800	1,026	—1.56	—0.53	875,000 "
" "	1,200	1,018	—1.32	—0.54	1,264,000 "
" "	1,000	1,013	—1.06	—0.55	1,963,000 "
Pregnancy	2,000	1,019	—1.47	—0.53	During labor.
"	2,600	1,017	—1.17	—0.54	First stages of labor.
"	1,350	1,018	—1.26	—0.52	Eighth month.
"	1,850	1,010	—1.02	—0.54	Ninth month.
"	1,700	1,020	—1.29	—0.55	During labor.
Pneumonia	1,200	1,021	—1.45	—0.55	After crisis.
"	1,800	1,014	—1.20	—0.56	" "
"	1,400	1,018	—1.56	—0.57	" "
"	1,460	1,018	—1.32	—0.57	" "
"	900	1,023	—1.48	—0.57	" "
"	270	1,012	—1.02	—0.68	During cyanosis ++
"	930	1,022	—1.41	—0.57	Before crisis.
"	1,060	1,025	—1.62	—0.56	" "
"	500	1,020	—1.26	—0.55	" "
"	600	1,026	—1.67	—0.56	" "
"	700	1,025	—1.38	—0.56	" "
"	960	1,018	—1.36	—0.49	" "
Pneum. Lobular	1,040	1,014	—1.23	—0.56	Second week.
" "	1,600	1,010	—1.20	—0.56	First "
Pleurisy	2,000	1,019	—1.46	—0.56	Acute dry.
"	1,220	1,013	—1.32	—0.56	Serofibrinous.
"	1,100	1,026	—2.13	—0.57	Serous effusion.
"	1,250	1,017	—1.56	—0.56	" "
"	1,100	1,016	—1.42	—0.56	" "
"	1,600	1,014	—1.27	—0.57	Cyanosis and effusion.
Purpura	1,000	1,028	—1.64	—0.54	Hæmorrhagica.
"	1,400	1,017	—1.32	—0.56	Acute articular rheum.
"	1,600	1,009	—0.64	—0.56	Chronic interstitial neph.
Pyelitis	1,760	1,020	—1.46	—0.56	Colon bacillus.
"	1,620	1,016	—1.33	—0.56	Typhoid "
Rheumatism	950	1,025	—1.47	—0.56	Acute articular.
"	1,500	1,018	—1.10	—0.56	" "
"	1,400	1,020	—1.40	—0.56	Chronic.
Rheum. arthritis	1,300	1,012	—1.28	—0.56	Glands enlarged.
Sciatica	1,600	1,015	—1.37	—0.56	Acute cold.
"	1,350	1,022	—1.51	—0.56	" "
Sec. anemia	420	1,030	—1.84	—0.52	Severe hemorrhage.
" "	1,200	1,011	—1.04	—0.50	" "
" "	470	1,032	—1.49	—0.55	Lead intoxication.
" "	800	1,020	—1.34	—0.55	" "
" "	675	1,019	—1.40	—0.54	Hem. foll. t. b. c.
" "	820	1,020	—1.26	—0.56	" " "
" "	1,000	1,028	—1.57	—0.55	Hem. from bowel.
" "	1,400	1,017	—1.42	—0.51	Tuberc. of hip, sepsis.
" "	1,100	1,027	—2.14	—0.56	Pneumonia, lobular.
Splenic anemia	1,400	1,021	—1.86	—0.56	2,448,000 reds.
" "	1,200	1,017	—1.63	—0.57	2,608,000 "
" "	800	1,027	—1.50	—0.56	2,890,000 "
" "	960	1,022	—1.52	—0.58	1,940,000 "
" "	1,560	1,016	—1.24	—0.56	3,264,000 "
Syphilis	580	1,023	—1.53	—0.56	Secondaries.
"	1,800	1,011	—1.34	—0.55	Tert. advanced.
"	1,000	1,028	—2.08	—0.55	Cerebral type.
"	1,675	1,016	—1.44	—0.56	" "
"	1,040	1,023	—1.91	—0.56	Rupial form.
Syringomyelia	960	1,014	—1.32	—0.56	Far advanced.
"	1,240	1,023	—1.49	—0.56	Blad. and rect. disturb.
Tuberculosis	670	1,025	—1.72	—0.56	Pulmonary.
"	1,040	1,016	—1.34	—0.56	"
"	610	1,030	—1.47	—0.55	"
"	2,000	1,010	—1.16	—0.56	"
Tabes dorsalis	1,300	1,027	—1.87	—0.56	Early in disease.
" "	1,120	1,005	—0.76	—0.56	" "
" "	410	1,030	—2.10	—0.55	Paralytic stage.
Urticaria	1,080	1,017	—1.45	—0.56	Very extensive.

unusual about these cases. Neither can I account for the high freezing-point in eight cases, as the anemia in these cases was not much more severe than in some, showing normal figures.

I fully agree with von Korànyi and Rumpel, who say that there is nothing characteristic about the concentration of the blood in typhoid, it being the same as in other acute infectious fevers.

The foregoing list includes such a great variety of diseases that only the more important, and those presenting unusual findings will be considered further.

Anuria.—Two cases were studied—one, following an acute hemorrhagic nephritis; another, following an operation for drainage of a large pelvic abscess. Both patients died in less than 48 hours. Autopsy in the case of pelvic abscess showed an extending peritonitis and an acute granular degeneration of the kidney parenchyma, very severe in degree.

Cancerous Cachexia.—These cases usually show a decreased molecular concentration of the blood, unless there is extensive involvement of the liver or kidneys, causing a disturbance of function in these organs. The anemia seems to be the chief factor in causing the hypotonic condition of the blood.

Cystitis and Pyelitis.—Eight cases of cystitis and two of pyelitis failed to show any change in the freezing-point of the blood or urine. This coincides with the findings of Lindemann, Korànyi, and others.

Diabetes Mellitus.—This being a disease accompanied by marked changes in tissue metabolism, one would expect to find a disturbance in the molecular concentration of the blood and urine. Such changes are found, especially in the type of diabetes classed as "severe" by recent writers. The freezing-point of both the blood and urine is lower than normal in this class of patients, but there does not appear to be any constant relationship between the percentage of sugar and the freezing-point of the urine, as claimed by some recent writers. In seven cases we find a freezing-point of the blood lower than normal, varying from —0.59° C. to —0.73° C. In three cases the patients were in deep coma, and in the fourth became comatose the following day. All of these patients have died since the examination was made, while most of the patients having a freezing-point within the normal limits are still living and in fair health. Whether or not cryoscopy will aid us in making a prognosis in this class of cases remains to be seen. Further investigation may prove interesting and instructive. At the present time we are not justified in forming an opinion. I do not believe it possible or practical to estimate the amount of sugar eliminated by means of cryoscopic examination of the urine, as has been attempted by certain writers on this subject, because so many other substances are increased as well, which cause certain changes in this secretion.

Diabetes insipidus and hysteric polyuria show no changes in the blood, but show similar changes in the concentration of the urine, this being less than normal in both.

Icterus.—In four cases the freezing-point of the blood was lower than normal, in five it was within the limits, and in four it was higher than normal.

Acute catarrhal jaundice, biliary cirrhosis, and acute infections of the biliary tract seem to cause an increased molecular concentration of the blood, as pointed out by Ogston and others. In two of my cases the freezing-point was unusually high, which is explained by the severe hemorrhages which occurred before examination.

Anemia.—In pernicious and severe secondary anemia from any cause, we always have an elevation in the freezing-point of the blood, due to the hydremic state in these diseases. In splenic anemia we sometimes have a freezing-point lower than normal, especially in those cases having great splenic enlargement. This, no doubt, is due to the pressure upon the renal vessels, causing a disturbance of function in these organs. This condition was not found in splenomedullary leukemia, although the spleen was enormously enlarged in some cases.

Pregnancy.—In the few cases examined the freezing-point of the blood was above the normal, indicating hydremic state.

Pleurisy did not cause any disturbance in the concentration of the blood or urine, even if large exudates were present.

Pneumonia.—In only two of the 14 cases examined was there any marked change in the molecular concentration of the blood. One of these patients was moribund, very cyanotic, just having his crisis when the examination was made. This blood showed a freezing-point of —0.68° C. The patient died in a few hours. The other, a young man, very anemic and in poor physical condition, showed a freezing-point of —0.49° C. before crisis. No change after. He made a good recovery, although convalescence was extremely tedious.

There does not seem to be any marked difference in the freezing-point of the blood before or after the crisis, judging from the results obtained in this small series of cases. Some writers have noticed that there is a difference, but the results are not constant.

Syphilis.—The blood and urine in only five cases have been examined. The blood shows no changes in its concentration, even if large doses of iodids are given. The urine increases both in specific gravity and in concentration, as shown by a low freezing-point (—2.08° C. in one case).

Tuberculosis.—Nothing abnormal found in the few cases examined, even if the patients were quite cyanotic. The anemia frequently present is usually sufficient to overbalance any changes caused by insufficient oxidation of the blood.

Extensive Burns.—Only two subjects were examined. The urine in both was increased in amount and had a high freezing-point. The blood of one was normal, the other froze at —0.54° C.

During the course of this work I had frequent opportunities for comparing the freezing-point of blood with that of other body fluids, as pleural effusions, ascitic fluid, hydrocele, amniotic, and cerebrospinal fluid, bile and milk. The results will be presented in the following table.

In these cases, it is seen that pleural effusions, due to inflammatory processes, have a freezing-point slightly

higher than that of the blood from the same individual. Fluid in a case of hydrothorax and in one of empyema, shows a freezing-point lower than the blood. Pericardial fluid freezes at the same point in two cases, and slightly higher in one. Ascitic fluid freezes lower than

TRANSUDATES, EXUDATES, AND OTHER BODY FLUIDS.

Nature of fluid.	Specific gravity.	Freezing-point of urine—°C.	Freezing-point of blood—°C.	Disease.
Pleuritic effusion.	1.016	—0 55	—0 56	Pneumonia; lobar.
" "	1,018	—0.55	—0.55	" "
" "	1,018	—0 54	—0.56	Tuberculosis.
" "	1 020	—0.55	—0.56	"
" "	1,016	—0.55	—0.56	"
" "	1,018	—0 64	—0.56	Valvular heart disease.
" "	1.030	—0 60	—0.58	Empyema; cyanosis.
Pericardial "	1,018	—0 55	—0 56	Pericarditis.
" "	1,016	—0 56	—0.56	"
" "	1,012	—0 56	—0.56	Hydropericardium.
Ascitic fluid.	1 024	—0.60	—0.56	Cirrhosis of liver.
" "	1,020	—0 57	—0.56	" " "
" "	1,018	—0 58	—0.56	Tuberculous peritonitis.
" "	1,013	—0.62	—0.56	Organic heart disease.
" "	1,035	—0 65	—0.58	General peritonitis.
Hydrocele fluid.	1,016	—0.56	—0 56	Tuberculosis.
Cerebrospinal fluid.	1,018	—0 62	—0.58	Uremic coma.
" "	1,016	—0.64	—0.68	" "
" "	1,020	—0.64	—0.64	" "
" "	1.014	—0.56	—0 56	Tuberculous meningitis.
" "	1,017	—0.56	—0.56	Epidemic meningitis.
" "	.....	—0.56	—0 56	" "
Bile from duct.	1.008	—0.55	—0.52	Stone in common duct.
" " "	1.010	—0 55	—0.54	" " " "
" " bladder.	1,010	—0.56	—0.56	Gallstones in bladder.
Amniotic fluid.	1.012	—0 54	—0 54	Normal labor.
" "	1.012	—0 55	—0 56	" "
Human milk.	1,028	—0 57	—0 55	Subject normal.

blood in all the cases examined. The cerebrospinal fluid of inflammatory origin freezes at the same figure as the blood in the three cases examined.

In the uremic cases, it was lower than that of the blood in one case, and higher in two. In explanation, it may be said that venesection and transfusion with salt solution had been done in the first case before obtaining the cerebrospinal fluid.

In the second, both the cerebrospinal fluid and blood were obtained before transfusion.

In Case 3, the blood was withdrawn from the arm while subcutaneous transfusion was being done, and the spinal puncture made nearly 30 minutes later.

Bile.—This was obtained from the common duct by means of a siphon drainage-tube in Cases 1 and 2, while in Case 3, it was discharged from a tube in the gallbladder, after the removal of stones. Patients 1 and 2 both suffered from severe hemorrhage during operation. In Case 3, being simply a gallbladder drainage, the patient lost very little blood. This may account for the difference in the freezing-point of the blood in these three cases.

The amniotic fluid and milk were obtained from normal subjects, and the results coincide with those of Veit, Winters and others, who have given this part of the subject more attention.

These results have little or no value to the clinician, but are quite interesting to the physiologist.

Various fluids obtained from cysts were also examined, but present no uniformity as compared with the blood, so they may be omitted without further comment.

This completes the work as far as I have been able to carry it out at the present time. I have made no effort at detailed explanation on purely theoretic grounds, as has been attempted so frequently, but have contented myself with a simple statement of facts as I found them.

The subject of cryoscopy is a very interesting one, and when employed with a thorough understanding of its limitations and possibilities, may be of considerable value to both the physician and surgeon as a diagnostic and prognostic aid in certain conditions.

No doubt some of the European writers have been too enthusiastic in the past, which has led us to expect too much from this simple procedure, but when cryoscopy is used in conjunction with the other methods of renal diagnosis, it has a certain value which cannot safely be ignored.

Rovsing, J. Israel, and others are inclined to disregard cryoscopic examinations and cite cases in which operation has been successfully performed, although contraindicated by the low freezing-point of the blood. Kümmel, Rumpel, Casper, and Richter, and other equally good men have the greatest faith in it, especially when used in connection with ureteral catheterization, phloridzin injections, and a careful chemic and microscopic examination of the urine.

Too much has already been written on this phase of the subject, so I shall refrain from any unnecessary repetitions.

Before closing, I wish to express my sincere thanks to Dr. Frank Billings, whose generosity and encouragement have made this work possible; to Drs. Bevan, Herrick, Robison, and Sippy for the use of their material in the hospital; and last, but not least, to the internes of the Presbyterian Hospital, who have assisted me in every way possible in obtaining specimens and material for the work.

VALUE OF PARALDEHYD IN THE TREATMENT OF INSOMNIA.

BY

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HYPNOTICS—PARALDEHYD.

Paraldehyd $(C_2H_4O)^3$ is a polymeric form of ethylic aldehyd, with a specific gravity of 0.998 and a boiling temperature between 123° F. and 125° F. It is obtained by treating ordinary aldehyd (CH_3CHO) at a medium temperature with a strong mineral acid (Binz). It has an unpleasant pungent odor resembling prussic acid, and renders the breath disagreeable for a day or so afterward, while its odor is also imparted to the urine. When mixed with water it floats near the surface in large oily drops, 4 gm. (1 dr.) of it dissolves in 30 cc. (8 dr.) of water.

Physiologic Action.—Cappelli and Brugia studied its effects on two men who had the tops of their skulls open.[1] They could observe a slight shrinking of the volume of the brain, and noted with Mosso's sphygmograph, first a diminution and then a considerable increase of volume in the forearm. The pulse is a little slower, the respiration deeper, but less frequent. The reflex excitability is somewhat lessened. According to Kraepelin, of Munich, the reflexes are not much altered during sleep, while

frequency of pulse is diminished and respiration is deeper and quicker.

Dr. Gordon, of Aberdeen, did not find any evidence of lowered tension, while Clouston, of Edinburgh, noticed no effect after an ounce of the drug had been given. He believes it tends to strengthen the heart's action. It is said by Frohner to cause destruction of the red blood-corpuscles in some animals, while, according to Kobert,[2] it has a slightly dilating effect on the arterioles of animals. Brunke[4] is of the opinion that it does not affect the brain at all and that its influence upon other organs is so slight that diseases of the heart, bloodvessels, respiratory organs, alimentary canal, kidneys and bladder, do not constitute any contraindication. Leech[5] says it seems to be quite devoid of danger.

Effects upon Digestion.—Cramer[9] states that amylolytic changes due to the saliva are not affected by paraldehyd, but that gastric digestion is slowed. Dr. Gordon,[10] of Aberdeen University, states that while diarrhea frequently follows paraldehyd, the drug does not seem to interfere with digestion because of its peptone-forming power. He also states that in both large and small doses it distinctly accelerates the digestion of fibrin, while putrefaction was prevented by large quantities of paraldehyd and was delayed by the smaller. According to the same observer,[11] paraldehyd in weak solutions had a distinctly retarding influence of four to eight minutes on the converting influence of pancreatic fluid upon starch into maltose and dextrin, and that when 5 m. were added to 60 cc. of mucilage of starch, retardation was complete in the presence of 75 cc. of pancreatic solution.

Effects of Large Doses.—According to H. C. Wood,[3] Gordon, Coudray, and Quinquad have found that very large doses lower the arterial pressure, and lessen the heart's force, while Henocque found they reduced hemoglobin and produced methemoglobin.

According to Dr. Ireland,[1] Krafft-Ebing mentions a man who took for a year about 2.27 gm. (35 gr.) every day, the result being trembling and muscular weakness and dulness of feeling. Dr. Mackenzie[1] refers to a woman who, by mistake, swallowed 100 gm. (3 oz.). She slept for 34 hours, the pulse rose to 120, the respirations from 40 to 60. Probst[1] observed a patient with myelitis who took 50 gm. of the drug. He slept for 20 hours and then recovered. The same observer describes a lady who had for several years been given to the misuse of paraldehyd, which she took not only to cause sleep, but for its soothing effect during the day. Having taken 150 gm. in 36 hours, she fell into a faint and torpid state, but did not sleep. She groaned and stuttered and made senseless remarks; her face was livid and she had nausea and vomiting. She felt at once drowsy and excited. She lay in bed without sleeping for five days. On the seventh day, after a long sleep, she recovered. Probst also refers to two other cases in which it produced delirium with hallucinations, and sleeplessness for several days, ending in recovery after a long sleep.[1]

I knew of a man who, one night, on retiring earlier than usual, took 16 gm. (½ oz.) from a bottle which contained a full half pound of paraldehyd. He awoke the second morning afterward to find the bottle empty, although he had no recollection of having taken more from it than the one dose of 16 gm. (½ oz.), and his room was locked from the time he retired until after he awoke, about 32 hours having elapsed. He had naturally a vigorous constitution, but from time to time he suffered from insomnia, which he could usually anticipate by the unyielding condition of his heart-beat after he had retired to bed for a short time. On the extraordinary occasion referred to here, he awakened mentally clear, and although depressed in his feelings and with a slight tendency to stagger, he attended his usual business throughout the day following. The facts that he had several times previously performed complicated acts unconsciously, and, that also that for several weeks previously he had been in the habit of taking the drug almost every night in doses ranging from 4 gm. to 30 gm. (1 dr. to 1 oz.) with good results, together with the circumstance that no one else could reach the bottle containing the paraldehyd, make it more than probable that he had automatically taken repeated doses of the drug until the bottle was emptied. This is the largest amount of paraldehyd taken within 32 hours, followed by recovery, which is now recorded, so far as I know.

Hypnotic Value.—Paraldehyd was recommended by V. Cervello, of Palermo, as a hypnotic, in 1883. Tuke's Dictionary of Psychological Medicine states that Morselli, Krafft-Ebing, Keraval and Nerkam, S. A. K. Strahan, and Clouston, and many others, speak in the highest terms of it as a hypnotic. Clouston sometimes advances the dose to 12 gm. or 16 gm. (3 dr. or 4 dr.). One asylum patient received with benefit 40 gm. (10 dr.) every night. Sleep generally obtains in from five to 20 minutes.

According to Dr. Ireland,[1] Dr. Probst, of the Vienna Asylum, has used it on a great scale, and regards it as the least harmful of all the hypnotics in use, and although quantities much greater than ordinary were sometimes given, there was no instance of poisoning.

Dr. T. C. Charles,[12] of St. Thomas' Hospital Medical School, London, says paraldehyd is a most excellent hypnotic. It acts promptly and safely, and is not cumulative in its action. It appears to strengthen the heart's action and diminish the frequency of the pulse. He had given it to one patient for seven months with the greatest advantage.

Kraepelin, of Munich, gave paraldehyd in doses of 1 gm. to 3 gm., and obtained satisfactory results in paralysis in 60% of the cases, and in melancholia of great anxiety he obtained good results in 70% of the cases. In cases in which there was much excitement he did not find it of much value, evidently because the dose was too small.

Dr. B. D. Evans[15] states, after several years' trial, that paraldehyd is a valuable and reliable hypnotic. "It may be relied upon to give to a patient with almost any form of insomnia, from four to six hours of refreshing sleep when administered in doses of from 4 gm. to 8 gm. (1 dr. to 2 dr.) mixed in equal parts of whisky and syrup of orange peel. In the sleeplessness of chronic alcoholism, alcoholic mania, delirium tremens, and of chronic disturbances, this drug has no superior as a

hypnotic. In many of the acute forms of insanity it acts very gratefully, but occasionally fails. It does not disturb the appetite, and does not depress the heart's action."

Brunke[8] has given as much as 24 gm. a day, and says that its protracted use is unaccompanied by any bad effects; 85% of his patients slept from 9 p. m. to 6 a. m. without requiring a second dose, and sleep ensues in from 3 to 15 minutes after ingestion.

Dr. W. Mackie,[13] of Elgin, N. B., tried it in spasmodic asthma in 12 cases with uniformly successful results. It rapidly relieved the distressing spasm and promoted sleep. He usually gave it in 2 gm. (½ dr.) doses every hour or half-hour until relief was obtained.

Shoemaker[14] states that in pulmonary tuberculosis, with persistent insomnia, paraldehyd in 2.5 cc. (40 m.) doses, usually produces 12 hours' sleep. It is particularly useful in wakefulness, associated with mental disturbances; also, in hysteria, mania, melancholia, and in general paralysis of the insane. In some instances tolerance is soon established. It may give rise to indigestion and diarrhea, but its use is not followed by headache and depression. He also states that Cervello found that by the addition of .26 gm. to .52 gm. (4 gr. to 8 gr.) of caffein to 30 or 45 drops of paraldehyd at night, in cases of edema, ascites, and pleuritic effusion, the amount of urine was greatly increased.

Untoward Effects.—Dr. F. A. Elkins,[6] of the Edinburgh Asylum, records the case of a man of 65, who had taken paraldehyd for two and a half years. When admitted to the asylum, he had been taking a pound a week, and got but little more than a half hour's sleep at a time. He was then anemic, greatly emaciated, tremulous, restless, with an unsteady gait, and looked very anxious. His heart acted feebly, intermittently, and irregularly. After a few days, sulfonal was substituted, with apparent good results. He was discharged well in three months.

Dr. G. Reigold,[7] of Berlin, reports a case of delirium tremens, attributed to paraldehyd, which he presented at a clinic in Frieburg.

Dr. Brunke,[8] of the Psychiatric Clinic of Frieburg, states that a few isolated cases are on record in which neuropathic individuals have taken from 30 gm. to 60 gm. a day for months, resulting in the symptom-complex of alcoholic delirium. He also remarks that as much as 105 gm. has been taken without any untoward effect. However, in a number of cases, epileptic convulsions have apparently been caused by large doses of the drug.

Modes of Administration.—Dr. Needham says that the unpleasant taste of paraldehyd is largely overcome by combining it with fluid extract of licorice. Dr. Gordon recommends syrup of lemons, while Dr. Shoemaker recommends the following mixture:

Paraldehyd	16 gm. (½ oz.)
Oil of gaultheria	10 to 20 drops
Powder of acacia	8 gm. (2 dr.)
Syrup of wild cherry, sufficient to make	120 cc. (4 oz.)

One-half to one tablespoonful, in water, every hour or two.

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[10] Gordon: British Medical Journal, July 18, 1891, p. 115.
[11] Gordon: Quoted by Ephemeris of Materia Medica, etc., January, 1894, p. 1514.
[12] Charles: British Medical Journal, November 2, 1889, p. 978.
[13] Quoted by Ephemeris of Materia Medica, etc., January 1894, p. 1514.
[14] J. V. Shoemaker: Materia Medica and Therapeutics, Vol. ii, 1893.
[15] Evans: Quoted by Ephemeris of Materia Medica, etc., January, 1896, p. 1721.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 4, 1905. [VOL. XLV, NO. 19.]

1. The Pathology of Intestinal Amebiasis.—Paul G. Woolley and W. E. Musgrave. See *American Medicine*, Vol X, No. 9, p. 345.

2. The Corroding Process of the Ovum in Its Implantation in the Fallopian Tube, a Source of Hemorrhage in Tubal Pregnancy.—J. Riddle Goffe. See *American Medicine*, Vol. X, No. 5, p. 177.

3. Extrauterine Pregnancy: Cases of Unusual Type.—J. H. Carstens. See *American Medicine*, Vol. X, No. 5, p. 177.

4. Recent Advances in the Physiology of Human Nutrition.—Frank Billings. See *American Medicine*, Vol. X, No. 10, p. 388.

5. Methods, Value, and Limitations of the Knowledge of the Gastric Contents.—George Dock. See *American Medicine*, Vol. X, No. 11, p. 429.

6. Certain Nongastric Diseases with Gastric Symptoms.—J. H. Musser. See *American Medicine*, Vol. X, No. 11, p. 429.

7. Food Stagnation from All Causes.—Charles G. Stockton. See *American Medicine*, Vol. X, No. 12, p. 472.

8. Heart Gummas.—F. GOLDFRANK reports a case of gummas of the heart and kidneys in which autopsy was performed at the pathologic institute of the University of Prague. The patient, a woman, died suddenly. Beside extensive gummatous deposits in the left kidney, there was a very large growth nearly filling up the left ventricle and encroaching on the cavities of the left auricle and the right ventricle as well. The pathologic findings were typic gummas, as they are found elsewhere in the body, and while the presence of a large number of Langhan's giant-cells, as in this case, has been claimed by some to be against a diagnosis of syphilis, no other diagnosis was possible. The history revealed syphilis of over eight years' duration and "heart disease" for at least a year. The patient has been rejected for life insurance on this account, but there had apparenly been no symptoms of the condition appreciable by her or those about her. There is no doubt that this disease of the heart was the cause of the sudden death. Goldfrank compares the case with others of heart syphilis, and recapitulates some of the facts and conclusions of Stockman, who studied and analyzed 56 cases.

9. Gonorrhea in the Female. Its Diagnosis, Frequency and Influence in the Production of Sterility and of Grave Lesions of the Pelvic Organs.—L. H. Dunning. See *American Medicine*, Vol. X, No. 7, p. 260.

Boston Medical and Surgical Journal.

November 2, 1905. [Vol. CLIII, No. 18.]

1. Relation of Animal Life to Human Diseases.—T. Smith groups associated diseases in three divisions: 1. Diseases common to man and animals. 2. Human diseases accidentally carried by animals or animal products. 3. Diseases resulting from a complex and

intimate relation between man and some insect on the one hand, and some microscopic parasite of both on the other. Diseases common to man and animals are: 1. Those occasionally transmitted from animals to man, as glanders, anthrax, rabies, trichinosis, etc. 2. Those belonging to both, as bubonic plague and those from certain tapeworms. There are no strictly human infectious diseases which are transmitted to animals spontaneously. The scarcity of diseases common to both, is due to the gap between man and the domestic animals. There is a closer relationship between man and the ape. Human diseases carried by animals or animal products are due to incomplete sanitary progress. Transmission by milk is due to uncleanliness. It is insects which make the tropics forbidden territory. Tuberculosis flourishes where bovine tuberculosis is almost unknown, as in Japan. Some association of the glanders bacillus with septic organisms in the discharges of the horse, may explain occasional human infection. Methods of diagnosis should determine whether glanders bacilli are being discharged or not. Workmen in factories should be protected from anthrax by supervision of products from infected countries. Outbreaks of meat poisoning are due to bacteria related to the hog cholera or enteritidis groups. [H.M.]

2. Pyloric Stenosis in an Infant.—J. L. Morse and F. T. Murphy report a case which emphasizes these facts: The symptoms may vary much from those of absolute pyloric obstruction, and they do not necessarily begin at birth. The meconium-like character of the dejections may be of great diagnostic importance. In complete or nearly complete obstruction, operation seems to offer the only hope of recovery and must be done before the infant has become reduced by starvation. [H.M.]

3. Separation of the Criminal Class from Other Insane.—C. A. Drew feels forced to the conclusion that the demand for a classification based on the individual's technical status under the law, is not transitory. The elasticity of Massachusetts' laws, with the discretion left to the courts and the State Board of Insanity, is to the credit of those who framed the laws and has not and is not likely to work injustice to anyone. [H.M.]

4. Active Treatment of Muscular Rheumatism.—B. B. Cates has been impressed with the fact that nearly all subjects of muscular rheumatism have torpid livers, are often heavy eaters, chew their food improperly, and are sluggish in thought and action. Proper treatment lies in the regulation of diet, together with exercise of the muscles involved. He prefers Indian clubs to dumb bells. The muscles should be exercised in a gentle, natural way, without being thrown into a state of clonic contraction. Exercise should be followed by a cold plunge and friction. Care of the teeth is important as regards digestion. [H.M.]

Medical Record.

November 4, 1905. [Vol. 68, No. 19.]

1. Antepartum Measurement of the Fetal Head.—W. S. Stone describes as follows his method of measuring the fetal head through the abdominal walls: The patient is placed in the ordinary dorsal position for an abdominal examination, and the examiner, standing by the side and placing the lower end of the patient's body, first carefully palpates and makes out the position of the head. If it is already engaged in the pelvis, it will not be practicable to measure it, but in such cases it naturally is unnecessary. The occipital and frontal poles are then grasped between the two hands, and an assistant places from below the ends of the pelvimeter between the terminal phalanges of the middle and ring fingers of the examiner, pushing them firmly inward, as the examiner directs. It is essential that the ends of the pelvimeter go between these fingers, because in palpation one naturally places the middle or longest finger nearest the two poles from which the measurements are to be taken. If placed in front of the middle finger, the pelvimeter will slide forward and the measurement will be inaccurate. An assistant or nurse is necessary in order to obtain the best results, in order that the examiner's fingers may be entirely free to accurately locate the fetal parts. A table is given showing the results obtained before and after delivery in 41 cases measured in this way. In 28 instances the postpartum measurement of the occipitofrontal diameter agreed exactly with the measurements made through the abdominal walls before labor; in 11 there was an error of 0.25 cm.; in 2 of 0.50 cm. In another table the average amount to be deducted from each occipitofrontal diameter in order to obtain the biparietal diameter is given. The method is said to be of the greatest utility in determining the nature of the obstetric operation to be practised, and also in determining early in pregnancy whether or not to wait for full term.

2. Carcinoma of the Intestinal Tract.—James P. Tuttle discusses the symptoms and indications for treatment of cancer of the intestine, these symptoms and indications varying according to the portion of the digestive tract occupied by the neoplasm. The various segments of the alimentary tract, in the order of frequency with which they are attacked by cancer, are: Stomach, rectum, sigmoid, cecum and ascending colon, transverse and descending colon, vermiform appendix, duodenum, ileum, and jejunum. The character of the neoplasm found in the intestinal tract includes cylindric epithelioma, adenocarcinoma, medullary carcinoma, scirrhus and colloid cancer, and sarcoma of the round, spindle, and mixed-cell varieties; of these the adenocarcinoma is the most frequent; it occurs in the rectum, large intestine, and duodenum, wherever glandular tissue exists. Pure epithelioma is rare except at the anus. The prognosis of cancer of the intestinal tract without surgical interference is absolutely hopeless. The fact, however, that metastasis and glandular involvement are later in this area than in any other portion of the body renders surgical interference more hopeful here than elsewhere.

3. The Quick Curative Treatment of Gonorrhea.—Frederick A. Lyons reports a series of 400 cases of acute gonorrhea treated by the quick curative method during the last 10 years, in 384 of which, that is, 95% of them, the disease was cured in six days, and in about 80%, in 24 hours. This method was published by him 10 years ago, and consists of injections into the urethra of 1.5 dr. of solution of silver nitrate, at first in 4% strength, later in 2% and 1% strength. In most cases a single injection was sufficient. It produced little pain, and after it the gonococci had disappeared from the secretion. If they were still found, the injection was repeated. When not cured by three injections the treatment was not continued. The method depends for its effect on the fact that early in the disease the gonococci lie entirely upon the outer layer of epithelial cells, multiplying on them, destroying their vitality, and causing them to exfoliate. The exfoliation of the epithelium caused by the silver nitrate only quickens the exfoliation produced by the disease and destroys the gonococci and does no harm.

4. Treatment of Joint Stiffness by Means of Gradual Rectification Combined with Massage.—Gustaf Norström describes the application of massage as a means of facilitating the reduction of joint stiffness by manipulation. Stiffness of joints may be caused by traumatism, by rheumatism and gout, or by chronic inflammation due to tuberculosis. Cases of traumatic ankylosis are readily amenable to treatment, though difficult cases occur in which the false ankylosis has followed periarticular fractures. Those of the olecranon are especially serious, as the mobility of the joint may be entirely destroyed by exuberant callus, which it is impos-

sible to remove. He does not believe that in practical work true ankylosis ever follows immobilization, though joint stiffness may be observed. False ankylosis of rheumatic origin presents numerous varieties. They are all the more obstinate if the process is an old one, and if the attacks have been frequent. These are, however, not unfavorable cases for treatment. When there are no synechias or productions of new connective tissue, and the pathologic changes are entirely confined to the periarticular fibrous tissue, the tendons, and the fleshy parts of the muscles, rectification combined with massage gives results that could not be obtained either by forced extension or by forced flexion alone. In false ankylosis, due to gout or following hyperplastic granular synovitis, the condition is not favorable for treatment. In tuberculous lesions interference is not contraindicated if there is reason to suppose that the bacilli have disappeared.

5. Essential Anemia and Diagnostic Differentiation.—Willson O. Bridges reports four cases, giving a detailed description of each. The first patient was a man, aged 40, who died of acute lymphatic leukemia. He had general glandular enlargement, the liver and spleen being palpable, but not much enlarged. The next patient was a man aged 40, who presented great enlargement of the spleen, and the blood picture of splenomyelogenous leukemia. Treatment with the röntgen rays effected temporary improvement. The third patient was a man aged 65, who died of splenic anemia with atrophic cirrhosis of the liver. The author suggests the possibility of Banti's disease in this case. The last patient was a man aged 45, with pernicious anemia. The paper closes with some observations on the diagnosis of the anemias in general.

7. Acute Pancreatitis.—John G. Sheldon suggests that the following points be made the subjects of discussion by writers on acute pancreatitis: 1. The presence of glycerin in the urine, which Cammidge and Robson claim is characteristic of pancreatic disease. 2. Regarding the infectious or mechanical nature of the process in the early stages of the disease. 3. The significance of the condition of the gallbladder. Sheldon has found it distended and very tense in three out of four cases of acute pancreatitis operated on or observed at autopsy, and did a cholecystotomy in a supposed instance of acute pancreatitis 12 hours after the onset of symptoms, the case terminating in recovery.

New York Medical Journal.

October 28, 1905. [Vol. lxxxii, No. 18.]

1. Tuberculous Peritonitis.—Samuel Lloyd says that he does not consider it worth while to operate upon any patient who already has a marked pulmonary tuberculosis, or who is suffering from multiple tuberculous foci, giving evidence of general tuberculosis. On the other hand he believes that in miliary tuberculous peritonitis great benefit will result from operation which should be performed as soon as a diagnosis can be made. The fluid should be evacuated and the abdominal cavity washed out with hydrogen peroxid, which he says undoubtedly attacks the small tuberculous foci, and possibly renders them inert. In chronic cases and ulcerating tuberculosis, we are much more apt to operate under a mistaken diagnosis. They are frequently sacculated, and may be taken for almost any pathologic condition found in the abdominal cavity and giving rise to a tumor. Operation, therefore, depends largely upon the location of the focus and extension of the disease. In chronic fibrotuberculosis he does not believe that surgical interference is advisable. [C.A.O.]

2. Uterine Myofibromas and Visceral Degeneration.—H. J. Boldt calls attention to some of the various pathologic conditions of the heart, bloodvessels, and kidneys frequently associated with myofibromatous tumors of the uterus; the effects which frequent and profuse hemorrhages produce manifest themselves in fatty degeneration and brown atrophy of the heart muscle. The mechanical changes in the heart, like dilation and hypertrophy, have a position subordinate to the myocardial changes. The practical deduction to be made is that persons who are the subjects of myomas should be especially well fed, and take sufficient exercise during the intervals of bleeding and menstruation. They should eat plenty of meat, and have such diet and exercise as will have a tendency to reduce the adipose tissue, and increase the muscular tone. Such patients should be advised to have the tumor removed, cardiac and renal changes, unless hopelessly advanced, being an indication, rather than a contraindication, for their removal, because it also seems that patients who have myomas succumb more readily to cardiac insufficiency if attacked by an intercurrent disease. Treatment should be directed to the heart before an operation if myocarditic symptoms are present. Intravenous infusion should be employed at the beginning of the operation if the hemoglobin is materially reduced. After the operation, such patients should also receive treatment of the heart, to act against the formation of thrombosis. [C.A.O.]

3. Cardiac Disease and Uterine Fibromas.—C. G. Cumston calls attention to the frequency with which large pelvic tumors, especially fibroids, are accompanied by cardiac disease. The following are the causes which are especially considered as conducive to cardiac lesions. Hemorrhages, which occur in fibroids; menorrhagia in the first place, and then metrorrhagia have been accredited with having this result. By their abundance, long duration, and frequent repetition they finally become the cause of great weakness, and the heart being badly nourished, finally degenerates. The prognosis of uterine fibroid complicated with cardiac disease varies according to the manifestations observed in the heart. The author believes the myocardium, according to the amount of pathologic change it has undergone, will guide the surgical conduct. [C.A.O.]

4. Displacements of the Uterus.—E. W. Pinkham describes a method of transplantation of the round ligaments for the correction of backward displacements of the uterus. A curved transverse incision is made and the round ligaments exposed. The abdomen is then opened in the median line, adhesions broken up, if any exist, and the uterus replaced. At the level desired on the abdominal wall on either side of the median incision a sharp forceps is pushed through the structures obliquely and the ligaments pulled through the wall. They are now anchored to the fascia, leaving the requisite length to hold the uterus in its normal position. The free ends of the round ligaments are united. [C.A.O.]

5. Hodgkin's Disease.—D. L. Edsall reports an interesting case in a boy of 12. The child's tissues were wholly free from gross or microscopic evidences of tuberculosis. The general anasarca that occurred in the case is of interest because of the absence, both clinically and postmortem, of evident cause for it, beyond the pressure of the generally enlarged glands. The feature of chief interest was the nonfatty, milky effusion that was twice withdrawn from the left pleural cavity, and that was found in this cavity postmortem. [C.A.O.]

Medical News.

November 4, 1905. [Vol. 87, No. 19.]

1. Treatment of General Peritonitis.—A. J. McCosh believes the majority of cases best treated by operation, but in many cases operation diminishes the chances for recovery. Undoubted cases recover without operation. Rapidity, gentleness, and removal of the cause are the most important features of the successful operation. Irrigation with saline solution is generally recommended. All chemicals and mechanical irritants

are to be avoided. Drainage should be provided, but the drains should be smooth, nonadhesive, and of small diameter. The cigaret drain is preferred. Enterostomy is not advocated. Gauze packing is injurious. Fowler's position after operation is most advantageous. [H.M.]

3. Digestibility of Evaporated Cream.—T. Mojounier states the protein of evaporated cream digests a little more rapidly with artificial gastric juice than does that of raw, pasteurized, or boiled milk. The precipitate is flaky, while that of raw milk is more lumpy. It is almost entirely soluble in artificial gastric juice. In an experiment a child was found to digest evaporated cream more completely than a man, only 3.31% of the solid matter remaining, while Forster found 6.4% of the milk solids of a nursing child to be undigested. The butter fat and milk sugar were both very completely digested and assimilated by the two subjects. The child digested nearly 18% more of the mineral matter than the man. A child requires more because its bones are developing. The fuel value of evaporated cream is almost entirely available. The child used 97.25%, and the man 94.59%. The health of both subjects was normal. The child gained about a pound a week and relished its diet. The man lost weight, but gained in protein. It is an economic diet because its nutrients are practically all available. [H.M.]

4. Duodenal Ulcer.—F. K. Cooke states that the frequency of duodenal to gastric ulcers is greater than statistics show and both are often associated. They are ten times more frequent in the first than in the second part of the duodenum. They are usually solitary but may be multiple. The most frequent seat is the upper part of the anterior wall. They are more frequent in males and may occur at any age. Germans and English people suffer from them oftener than Americans. Indoor life predisposes to them. A large percentage is preceded by disturbances of digestion. Arteriosclerosis, endocarditis, nephritis, chlorosis, and syphilis also predispose; burns are the most generally accepted factor in their production. Possibly in burns toxic substances are absorbed which are destructive to the antibody in the epithelial cells which protects these from self-digestion. Disproportion between the composition of the blood and gastric juice may cause either gastric or duodenal ulcer by diminishing these antibodies. Sometimes there are no symptoms until perforation occurs. Pain may be slight or intense, radiating downward, upward, or to the sides, and appearing several hours after the meal. Tenderness is along a continuation of the parasternal line, 2 cm. below the gallbladder. Hemorrhage occurs in a third of nonperforating ulcers. With perforation into the general peritoneal cavity there is collapse and fatal peritonitis; if into the lesser peritoneal cavity posteriorly there may be a subphrenic abscess. Treatment of the ulcer is absolute rest, restricted diet, alkalies. If there is no improvement operation is indicated. [H.M.]

6. Extravisceral Rubber Ligature in Gastroenterostomy.—R. C. Coffey describes the operation as follows: A circular button is cut down to the submucous connective tissue of the stomach, using great care not to injure the submucous plexus of vessels. The muscle fibers contract, leaving a wide circular groove. The intestinal button is made oblong, parallel with the axis of the intestine. The button is grasped with wide forceps or the fingers, a thread is laid across one side of the wound, and a rubber band of the size of No. 14 braided silk is cut in two, making of it a thread instead of a band; the mucous membrane is pulled out as far as possible, and the rubber band is wound around the mucosa, including the thread, which is to tie the rubber. Ten or twenty turns should be made. The string is tied around the rubber to prevent slipping. The edges of the wounds are joined by a continuous suture, which is illustrated, as are the other steps of the operation. No clamps are used and no opening is made into stomach or intestine during operation, thus avoiding infection. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN
NORMAN B. GWYN
HELEN MURPHY
A. O. J. KELLY
BERNARD KOHN

EDITORIAL COMMENT

A Case of Apparent Death.—A striking instance of the difficulty of absolute diagnosis of death was reported in recent English newspapers. The facts were revealed at an inquest held on the previous day at Brighton. An infant of 9 days had been delicate from birth. A doctor was then sent for, who prescribed for the child and left. When he repeated his visit later in the day he pronounced that the little patient was dead. The coroner's officer, who called soon afterward to make arrangements for the removal of the body to the mortuary, observed that the baby had a somewhat fresh color for a corpse. This induced him to feel the body all over, which he observed to be still warm. Under the influence of the manipulation the child opened its eyes and held up its hands. At the suggestion of the officer, hot water and brandy were procured and administered. It was then 4 p.m., and the child continued to live till 10.30 a.m. on the following day. In giving evidence at the inquest, the doctor stated that at the time when he pronounced life to be extinct he had been watching it for 20 minutes, during which there was no sign of attempt at breathing, and no perceptible sign of life discoverable in any other direction. Another physician, who was called in evidence, was asked if the child could have lived for 20 minutes after the signs of life had ceased to be discernible. He replied that the heart could not have stopped beating for 20 minutes. If it had actually ceased for even two minutes it would not start again under any circumstances. The coroner and jury expressed the opinion that the physician who had attended the child, and expressed the opinion of death, had made "an unfortunate mistake." That the mistake was an unfortunate one must be admitted, but leniency is demanded in such cases, owing to the difficulties of diagnosis. This occurrence is a warning of a danger which lies in the pathway of every medical practitioner.

REVIEW OF LITERATURE

Hypertrophic Pulmonary Osteoarthropathy.—D. G. Hall[1] reports two cases in which were manifested all the distinctive features described by Marie. In this disease there is symmetric enlargement of the hands and feet, the different parts not being enlarged in the same proportion. There is subperiosteal thickening of the shafts of the bones, effusion into the joints, and hypertrophy of the soft tissues of the terminal segments of the digits. There is enlargement of the lower ends of the long bones at the wrist and ankle, sometimes in the knee and elbow, hip and shoulder. Spinal curvature is common, usually secondary to lung changes. Pain and tenderness are variable. There is no tendency to pus formation or disintegration. There is excessive perspiration. Muscular wasting is not marked. The diagnosis rests on the above characteristics and the primary lung disease. Marie considered the lesions due to toxins developed in the lungs. There is, however, strong evidence that these toxins may be produced elsewhere. Wynn suggests alimentary autointoxication as the common factor. In the majority of cases the primary dis-

[1] Edinburgh Medical Journal, August, 1905.

ease throws increased strain on the heart. The resulting sluggishness of the circulation is greatest in the extremities, hence the toxins have here their most prolonged action. This seems the most rational explanation of the pathology; it is thus intimately connected with the clubbing of congenital heart disease. This, however, does not explain all cases. Treatment must be directed to the primary disease. [H.M.]

Hydrocephalus and Posterior Basic Meningitis.—O. Hildesheim,[1] in the effort to elucidate certain obscure points in the etiology of hydrocephalus, has investigated 128 cases. He regards the close connection which exists between hydrocephalus and posterior basic meningitis as significant, not only for the light it throws upon the etiology of the former condition, but also because it demonstrates the fact that many cases of posterior basic meningitis show very few signs or symptoms, and that a very mild form of the disease is by no means rare. Hildesheim cites numerous cases, with comment thereon, to show: 1. That current views on the etiology of hydrocephalus rest on insufficient authority; hitherto, cases beginning in the first months of life have been grouped with those present at birth. 2. Some of the undoubted cases of congenital hydrocephalus are due to meningitis. 3. As Still says, "hydrocephalus is so frequent a result of posterior basic meningitis, it may also be considered a symptom." 4. In older children, posterior basic meningitis sometimes leaves sequels which are probably the signs of what may be called concealed hydrocephalus, that is, hydrocephalus without appreciable enlargement of the head. 5. In the majority of cases of hydrocephalus, enlargement of the head begins at the age when posterior basic meningitis is most common. [A.G.E.]

Acute Illness Following Antityphoid Inoculation.—The inoculation of antityphoid vaccine for the prevention of typhoid fever has always been declared harmless. W. J. Lindsay,[2] however, reports a case in which it was followed by an acute febrile attack. The patient, who was on his way to the army in South Africa, was in perfect health when the inoculation was performed. The following day he began to complain of headache, with loss of energy and appetite. The symptoms increased in severity, until on the third day he was quite ill, with a temperature of 103.4°. At the site of inoculation there was nothing more than redness, with some tenderness and slight swelling. The symptoms continued to be rather severe for four or five days, when they gradually declined. They consisted principally of intense frontal headache, great prostration, fever, heavily coated tongue, anorexia, constipation, and insomnia. There was no enlargement of the spleen or lymphatic glands, no cough, and no eruption. The pulse was weak and rapid. The temperature fell below normal on the fourteenth day, and convalescence was protracted. The most reasonable conclusion is that the case was one of toxin poisoning following antityphoid inoculation. The author says that cases of severe reaction, lasting several days, are not uncommon, and he is sceptical as to the prophylactic efficiency of the procedure. [B.K.]

Tuberculosis in the Lymph-nodes and during Childhood.—F. Harbitz[3] studied extensively the frequency in localization and the modes of dissemination of tuberculosis, especially with reference to its occurrence in the lymph-nodes, and during childhood. Primary tuberculosis of the lymph-nodes, he claims, is quite frequent in adults. Tuberculosis may be frequently primary in the abdomen, and especially in the cervical nodes. It is not seldom found generally distributed, and often extends from place to place over a number of years, and finally attacks the lymph-node system. Pulmonary tuberculosis may be secondary in adults, the primary focus being in the other organs, and the infection occurring by way of the blood. He emphasizes the fact that primary infection may occur through the digestive tract, and throat, and more stress must be laid upon this than has formerly been done. He believes that it must be admitted that a tuberculous infection in children, as well as in adults, is associated with local changes in the corresponding lymph-nodes, and that extensive dissemination of the process may take place to the different systems of organs rapidly and readily through the vascular system, the local trouble being at the same time inconspicuous. This paper represents a very valuable study and is well worth a careful perusal. [J.H.W.R.]

[1] The Practitioner, August and September, 1905.
[2] The Lancet, September 16, 1905.
[3] Journal of Infectious Diseases, March 1, 1905, p. 143.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

The Hernias of Children.—E. M. Corner[1] asserts that childhood is the time when an operation has the best chance of curing a hernia. The two great factors in producing hernias in children are congenital malformation and gastrointestinal fermentation with the production of gas. As to the part played by phimosis, Corner says the prepuce is a much maligned structure, and the operation of circumcision in this connection one which raises false hopes. The truss made of a skein of wool cannot cure hernia by producing adhesions, and the great danger of the spring truss on a child is that it will interfere with the development of the testicle; upon the latter point Corner lays considerable stress. The following treatment is suggested: Treat with dieting, rest in bed if necessary, a light truss, gray powder or the like, all hernias up to the age of 4 or 5 years. This age limit is arbitrary, as each person must be considered. Exceptions are made of large, uncontrollable, irreducible, and incarcerated and strangulated hernias. At the age of 4 years, or thereabouts all hernias of children should be submitted to operation, unless there are special circumstances. Instead of ligating the neck of the sac, Corner inserts a pursestring suture to occlude the opening. [A.G.E.]

Parotitis Due to the Pneumococcus.—S. Hastings and W. T. Hillier[2] report a case of swelling of the right side of the face, found to be due to inflammation of the parotid gland. On examining the mouth, the teeth were found to be much decayed, and there was reddening and swelling of the right salivary papilla. Two days later the left parotid began to swell, but in five days from the onset all symptoms had disappeared from both glands. Bacteriologic examination of the saliva from the right gland showed a pure culture of the pneumococcus, possessing little virulence. The treatment consisted of a 1 to 2,000 mercuric chlorid mouth wash, and hot fomentations. [B.K.]

Morphin-scopolamin Anesthesia.—M. Kochmann[3] concludes that it is not advisable to inject the morphin-scopolamin mixture for purposes of inducing a deep general anesthesia, because of the grave dangers associated with large doses of scopolamin; it is permissible however in hospitals to inject small amounts of this mixture a short time before beginning a general inhalation anesthesia, and for the latter either ether or chloroform may be used. It is especially serviceable where ether is to be employed, as scopolamin prevents the patient's nervousness, shortens the stage of excitement, facilitates the inhalation, diminishes the amount of the anesthetic necessary, suppresses salivary secretion, prevents inhalation pneumonia and produces long sleep

[1] International Clinics, Vol. ii. Fifteenth Series, 1905.
[2] The Lancet, August 12, 1905.
[3] Münchener medicinische Wochenschrift, 1905, lii, 810.

with analgesia after the operation. The method is not yet applicable for general practice. Especial caution is in order, where the patients suffer either from cardiac or renal diseases, as much smaller doses are fatal with such patients, than with others having perfectly normal organs. [E.L.]

Patellar Fracture Treated by Wiring.—C. M. Moullin[1] reports the results of his experience in 40 cases of patellar fracture, treated in the past 11 years. In the first 28 cases the subcutaneous method of wiring was tried, Barker's operation being the only one found at all satisfactory. When the röntgen rays came into vogue, however, it was found that the apposition was far from being what it ought to be. The last 12 cases have, therefore, been treated by the open method, with bone union resulting in all but one, and a saving of time and inconvenience to the patient. The joint is opened on the third or fourth day after the accident, the blood clots are turned out, the fragments drilled and brought into exact apposition by a single stout silver wire, the ends of which are twisted, cut short, and buried. The fascias and skin are then sutured without drainage. After the third or fourth day, passive and active movements are begun, and the patient can start to walk by the end of the third week. [B.K.]

Surgical Treatment of Chronic Bright's Disease.—A. Marcy, Jr.,[2] divides chronic nephritis into three stages, and gives the symptoms of each. Up to the present no medical treatment has been known to cure a case, although the disease may have seemed to be arrested for a time. Albumin and casts are only a part of the symptom-complex. If all symptoms do not disappear speedily under medical treatment, operation should be resorted to early. Edebohls' operation will not cure every case, especially when used as a last resort, as it is by many at present. The only way to recognize the disease in the earlier stages in order to give patients the benefit of the operation is by systematic and frequent urinalyses. There may be no albumin or casts, but there will be some departure from the normal. [H.M.]

Differentiation between Appendicitis and Serocystic Ovaritis.—Julio Ortiz Cano[3] says that in the diagnosing of appendicitis, the adnexa in cases of female patients must always be considered, and when the patient is on the table, it does no harm, and leads at times to a surprise, on the part of the surgeon, if the state of the ovaries is noticed. Cases are given in which the appendix was found normal on opening the abdomen, but the ovary and adjoining tissue showed extensive involvement. Conclusions: 1. It is not always possible, in the female, to determine before operation a correct differential. 2. It is well to practise making a median incision in these cases, so that the laparotomy will be suitable for that structure which may be affected. [T.H.E.]

Aneurysm of the Abdominal Aorta Treated with Silver Wire.—In C. A. Griffith's[4] patient there was a history of sudden exertion, followed by the occurrence of pain in the back and left side, also in the epigastrium, especially after taking food. On examination a pulsating tumor was found in the epigastrium on the left side of the middle line, with a distinct bruit. Operation was decided upon, the abdomen opened and a saccular aneurysm of the abdominal aorta disclosed. A small area was enclosed in a pursestring suture and a trocar and canula introduced. Fine silver wire was introduced through the canula, and a constant current of electricity was sent through it. The wire was left in the aneurysmal sac, and the pursestring suture was drawn tight. The patient suffered greatly from shock and died a few hours after the operation. At autopsy the sac was found to be filled with a dark clot and coiled wire, a loop of which extended into the aorta. The termination of the case is not encouraging, but the cases reported by others lead to the hope that a cure is becoming possible by this means. [B.K.]

[1] The Lancet, September 23, 1905.
[2] Journal of the Medical Society of New Jersey, August, 1905.
[3] Revista de Medicina y Cirugia de la Habana, August 25, 1905.
[4] The Lancet, August 12, 1905.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Röntgen Ray and Cancer.—R. H. Vose and W. C. Howe[1] employed this method in 120 cases. From this study they claim that cutaneous cancer thus treated may cause a degeneration which, however, is not histologicly distinguishable from degeneration from other causes. Endarteritis is the one vascular change observed, and the new blood formation is that which would occur in the process of repair elsewhere. The elastic tissue is increased. They believe that the röntgen ray only cures by destruction and exfoliation, and therefore its value is limited to superficial cases. The destructive process is slow and superficial. The surgical removal of chronic superficial epidermoid cancers is preferable to the long, tedious treatment by röntgen ray. As the röntgen ray is nonselective, it cannot be used in sufficient strength to affect anything but the shallowest tumors without causing such a serious burn to the surrounding tissues as to make it improbable that such a burn would ever heal. [J.H.W.R.]

Injections of Corrosive Sublimate in Scarlatina.—This is recommended on the authority of D'Andrea,[2] of Milan, Italy. The bichlorid is employed in frequent doses of from 0.002 gm. to 0.004 gm., and proves to be an excellent antithermic. During a recent epidemic of severe cases of scarlet fever, no deaths occurred among patients treated in this manner, although there was considerable mortality among others. It is to be recalled that Baccelli, of Rome, was first to suggest corrosive sublimate injections to control pyrexia, and he has made frequent reports of cases of septic infection controlled thus. The beneficial action of this salt of mercury in renal affections and in cases of exudation and sclerosis will afford some idea of the rationale of the bichlorid hypodermic in the management of scarlatina. [T.H.E.]

Thiosinamin in the Treatment of Urethral Strictures.—E. Remete[3] employed thiosinamin (allyl sulfocarbamid) in 20 cases of urethral stricture of various caliber. He injected 1 gm. (15 gr.) of a 15% alcoholic solution between the skin and the muscles of the back twice weekly; the pain of the injection was combated with cocain injections. In the majority of the cases the method produced a decidedly favorable result, and one which could easily be noted. He did not get, nor did he expect to have an agent which, without other assistance, would dilate the stricture, but he did get a remedy, which softened the stricture so much that gradual dilation was made much easier and cured the patient much quicker. The best results were obtained in strictures of medium caliber. He explains the action by considering thiosinamin a drug, which so improved the heart action as to give the vessels of the scar tissue a better blood supply and thus a tendency to soften. [E.L.]

The Fate of Oil Injected Subcutaneously.—Y. Henderson and E. F. Crofutt[4] injected cotton-seed oil under the skin of dogs and cats, and found that the oil was readily and widely distributed through the subcutaneous spaces. The oil, however, was not transformed in situ to adipose tissue. The tissue reacted to the presence of the oil as to any nonirritating foreign substance.

[1] Journal of Medical Research, January, 1905, p. 167.
[2] Revista de Medicina y Cirugia de la Habana, August 25, 1905.
[3] Centralblatt für die Harn und Sexualorgane, 1905, xvi, 215.
[4] American Journal of Physiology, September, 1905, p. 193.

It did not appear in detectable amount in the blood, lymph, and milk. While the oil is absorbed and finally utilized in metabolism, the process is a very slow one, and hence injections of oil in moderate amounts are practically without nutritive value. [J.H.W.R.]

Injections of Iodogelatin in Tuberculous Peritonitis.—Why this treatment gives good results is a question of the nature of the peritoneal exudate, which A. Sclavo [1] believes to contain certain curative products and that these are thrown into the general circulation. Bail's experiments with guineapigs are quoted. Jovene has tried subcutaneous injection of peritoneal exudate taken from the same patient. Cases are reported in which the iodogelatin injection has produced a marked improvement within short intervals. [T.H.E.]

NERVOUS AND MENTAL DISEASES

J. H. W. RHEIN. ALFRED GORDON.

EDITORIAL COMMENT

The "Brain Foods" of Commerce and Quackery.—Dr. Wallace examines the merits of the special "brain foods" with which the advertising columns of our daily press are so copiously decorated, and utterly rejects their pretentions and the inventors thereof. We are quite with him when he avers that there are none such, "any more than there are foods which are especially beneficial to the heart, the lungs, the kidneys, or any other bodily organ." Of course, every tyro in physiology now knows that every cell of every individual organ selects for itself from the assimilated pabulum, presented by the circulating plasma, the constituents necessary for its continuous repair. Such it can always obtain from any mixed diet which is not actually supplied on the siege-ration scale. Accordingly, patent brain foods are, in their very genesis, fraudulent; a man who is ambitious to expand his powers of thought, may stuff himself with fish and phosphorus till he becomes luminous in the dark—if such a consummation were attainable—and yet remain to the end of his days as incapable of comprehending the first problem in "Euclid" or the last joke in "Fliegende Blätter" as he was on his first birthday.

Cerebral Versus Muscular Gymnastics.—The relative importance of muscular and mental training and development has been recently discussed by Dr. J. Robertson Wallace in the pages of the *Young Man*. His views and criticisms are both entertaining and instructive. His central object is the promulgation of the opinion that if a fraction of the energy which is now expended on the muscular expansion of British youth were devoted to the culture of the cerebral functions of each rising generation, less would be heard of British backwardness in commercial progress. In the words of this writer, "today emphatically the brain's the thing. Victory in any sphere of human contention is no longer necessarily on the side of the big battalions; it is on the side of the brightest if not the biggest brains." On this view he founds his thesis in advocacy of the necessity for those who would succeed in life to bend their energies toward the building of the brain and the culture of its function. He says that brain tissue resembles muscle tissue insofar that "the more it is exercised, the more efficient it becomes," and is careful to indicate the fact—to his mind the central focus of danger in this connection—that "the desire to exercise the latter is almost instinctive, whereas the function of conscious cerebration is to a large extent acquired only with difficulty." Although the caution is necessary, that deplorable results may follow overstrain of either mental or muscular power, it is doubtless true that there is infinitely less danger of the occurrence of the former among the full-blooded youth of his country. And, going back to first principles, it must be at once conceded that the unique possession of continuous thinking power has established the position of *homo sapiens* as "lord of the creation"; although the individual, and even a community, has from time to time been overwhelmed by mere "brute" force. Dr. Wallace goes on to observe that "the apostle of the higher life cannot but lament that men are much more taken up with the condition of their livers than with the state of their brains." It is indeed, unhappily, true that the hepatic hopes and fears of the middle-aged (especially the more prosperous) citizen are usually discussed with a concentration of earnestness which is rarely bestowed upon cerebral capabilities.

The Importance of Rest and Sleep in the Hygiene of the Brain.—Of all the practices connected with cerebral gymnastics, Dr. Wallace thinks that regularity of the observance of the hours of rest and sleep should be accorded the position of foremost importance. And his legislation is not so Procrustean on this as that of most doctrinaires. He very truly observes that some men can do their best mental work late at night and in the small hours of the morning, while others are intellectually far brighter and more vigorous before breakfast. There is really no general law in these matters, except this—that the early riser should regularly rise early, and the late sitter systematically sit late. It is also perfectly true that the amount of sleep necessary for the restoration of the functional capabilities of the brain can be determined only by the personal experience of the owner of the organ. There can be no definite numeric standard; every man must be a law unto himself in this respect. The natural rule for a healthy man to observe is to sleep till he wakes spontaneously, and the true physiologic limit in this regard can only be determined, psychologically, by the healthy brain which has been resting amid strictly hygienic surroundings. When overstimulation, or other form of overexertion is tried, more subsequent rest will be required to restore the lost equilibrium. And although the brain may for a time be driven at a rate of too high pressure, and cheated of its due allowance of sleep, the inevitable consequence of such treatment, if prolonged, is a mental and physical breakdown.

Another Hypnotic Specialist.—Yet another medical expert has donned the surplice of suggestion, ascended the pulpit of hypnotic psychosophy, and enunciated a fresh and encouraging series of texts for the conversion of all to the faith and practice of mental

[1] Il Policlinico (Rome), August 27, 1905.

therapeutics. The path of progress sometimes curves backward upon itself so as to intersect points on the psychologic highway which had been passed thousands of years ago. The following is an encouraging experiment of Bernard Hollander's. It has recently appeared in a paper in the *Occult Review*.

My first experience in private practice was of such practical value that I may be allowed to relate it here. A lady, apparently paralyzed on the left side of her body, as if by a "stroke," consulted me, accompanied by her husband. I could find no organic cause for the affection, but ascertained a history of shock which other physicians had either not inquired into or thought of no importance. I had an interview with the family physician, and not being able to convince him either, I proposed to settle the dispute by hypnotizing the lady. If the paralysis, I explained, is due to shock only, then the patient will be able to use her paralyzed limbs in the hypnotic state; if, on the other hand, the disease is organic, hypnotic suggestion will have no effect. My proposal was accepted, and when hypnotized, not only did the patient walk normally and lift her arm, but by encouraging suggestion she developed such power of resistance in it that her husband had to use force to push the arm down. After a few sittings, with posthypnotic suggestions, the lady recovered control over her limbs completely.

Cases of paralysis of corresponding type in ladies of neuropathic temperament are not uncommon. Dr. Hollander does not make it quite clear as to the intimate nature of "shock." As a hypnotic specialist, he confines his therapeutics to hypnotic suggestion only. His points of contact with scientific pathology and chemistry will probably prove fewer and fewer as his experience lengthens and his practice widens.

REVIEW OF LITERATURE

Experimental Researches upon the Anatomy of Traumatic Degeneration and Regeneration of the Spinal Cord.—Alfred Fickler[1] exposed the spinal cords of animals and penetrated the cord with different sized sounds. The animals were killed after varying lapses of time, and the cord was studied at different levels by the Marchi, Weigert-Pel, Nissl, and alum hematoxylin methods. He claims that transient palsy due to trauma without injury to the vertebras, and without great change in the cord, may occur if there is sufficient support in the muscles, bones, and veins, and fatty substance outside of the dura. Similar symptoms he claims occur in man and animals alike. The spinal paralysis is not due to a concussion of the cord, but to a slight contusion of the cord. The functional palsy and the quick return of power in these cases are due to a fluctuation of the "axoplasmas," and not to a molecular alteration. The lesion of the cord is circumscribed, and is most severe at the site of the contrecoup, and less severe where the trauma occurred. If the site of the contrecoup occurs at the foramen magnum the spinal cord remains intact. In moderate, indirect contusions the "axoplasmas" is involved. A few ganglion cells and nerve fibers are degenerated, especially in coup and contrecoup. In severe indirect contusions there are found also foci of necrosis in the nerve tissue and glia (areas of softening), and exudation of blood and lymph. When the contusion is direct and slight there is marked degeneration of the nerve parenchyma in the direction of the trauma, most marked at the site of the trauma, and between the gray and white substances, involvement of the axoplasmas and degeneration of a few nerve fibers. In severe direct contusions, added to these changes, there are areas of softening and effusion of blood and lymph. In partial or total cross lesion of the cord, tearing and destruction of the cord at the site of the trauma are seen, and in the neighborhood of the lesion there are found the changes above described. There are also found hemorrhages from compression of the pial and central veins. Post-traumatic conditions exist, as lowered vitality of the nerve tissue, exacerbation of latent disease processes, tumor formation in the glia, disturbances of nutrition resulting from thickening and obliteration of the vessels. He also studied the reparatory and regenerative process after spinal trauma. He states that signs of regeneration in nerve fibers appear in focal disease of the cord; in disease in which the process runs a long course, such as in traumatic cases, compression, syringomyelia; and in transverse and disseminated myelitis. Regeneration is confined to fibers, and never occurs in the ganglion cells. It is never seen in column diseases, or in multiple sclerosis. It is essential to the regeneration of nerve fibers that the ganglion cell from which the torn fiber springs is intact. The regenerated nerve fibers are those whose origin is above the site of lesion. The new fibers are first seen to follow the old fibers, though not at the place where they are injured, but in the neighborhood of the ganglion cells. Sträbe claims that regeneration begins a week after the trauma. In 20 days he found regenerated fibers in the posterior roots, and after six weeks, in the scar tissue of the cord. In one of Fickler's experiments the regeneration was apparently completed in eight weeks. The number of fibers which regenerate is never great. The fibers in the Goll and Burdock columns remain unregenerated, while, on the contrary, those of Clark's columns above the lesion are in a condition of regeneration as soon as the conditions are favorable. The sensory fibers do not recover. The centripetal fibers of the spinal ganglion can only join with the central ganglion cells by means of the formation of new fibers if the ganglion cells are conveniently near the focus of disease. The functional results are in no case very important. The degree of regeneration is dependent upon the character of the disease process. A partial restoration of function is seen in traumatic cases, particularly if it is a contusion and not a partial or total transverse lesion. The best chance of a restitution of function in the anterior half of the cord is in compression, in which the central vein usually remains intact. Restitution of function in the posterior roots in compression has not yet been observed, the usual reason of which being caries in which there is an epidural tuberculous proliferation of the spinal ganglions which at the same time becomes destroyed, and thus prevents any regeneration from these ends. [J.H.W.R.]

The Degenerate Ear.—V. Vorobieff[1] studied 325 normal adults, laborers in the Moscow factories; 80 boys and 80 girls between 6 months and 16 years; and 100 insane, born in the department of Moscow, all of whom were of the peasant class. In addition to this he studied 75 Mongolians. The ear shell changes as age advances, not only as to size, but as to the form of its individual parts. These changes are most marked in children, and less marked in the old, and tend to a reproduction of the embryonic form. He believes that the statistics regarding the degenerate ear are based largely on erroneous methods. The measurements of normal and insane ears do not materially differ, excepting that in the insane and degenerate the general tone of the ear shell is lowered, resulting in an increase in the dimensions in length and breadth. The embryonic types of the ear are prevalent among normal subjects, and exist in the insane in about the same proportion. When the ear stands out, it is, on the contrary, of significant meaning. It may be met occasionally in normal subjects, but it is very marked among the degenerate. The structure of the ear cells and skull contribute to this condition. There are certain peculiarities of the ear seldom found among normal subjects, but these are true anomalies. [J.H.W.R.]

[1] Deutsche Zeitschrift für Nervenheilkunde, 1905, Heft 1 and 2, p. 1.

[1] Journal of Mental Pathology, 1905, No. 2, p. 57.

Report of the Committee on the Classification of the Forms of Insanity[1].—This committee consisted of John B. Chapin, N. B. Meredith, D. D. Richardson, and George I. McCleod, and the report was adopted at the meeting of the Association of Superintendents and Trustees of the State and Incorporated Hospitals of Pennsylvania, held at the State Institution of Feebleminded, Polk, Pa., May 23–24, 1905. They recommended that all reports or admission to hospitals and licensed institutions should conform to the following classification: Melancholia, mania, dementia, paresis, toxic insanity, imbecility and epilepsy. In their opinion, these terms cover those forms of mental disease which require detention in the hospital, according to the lunacy laws of the State of Pennsylvania. It has the advantage of being a simple form of nomenclature, and is based upon the recognition of the prominent symptoms appearing in the individual case at the time of the examination. It further has the advantage that all the terms are familiar to the courts, to the medical and legal professions, and are readily understood, from long usage, by the laity. [J.H.W.R.]

Syphilitic Disease of the Nervous System and "Syphilis à Virus Nerveux."—Fr. Fischler[2] studied these questions most elaborately, and cites many cases. He concluded, after a careful analysis of a great deal of material, that there did not exist convincing proof of the existence of lues nervosa, though the indications were such as to make it highly probable that such a condition existed. [J.H.W.R.]

An Experimental Study of Electrocution.—L. P. Robinovitch[3] is firm in her opinion that capital crime will never be eradicated by the infliction of capital punishment. She is especially opposed to the method of electrocution as used in the State of New York, because she claims that: (1) No fixed rules are followed in the application of the electrodes; (2) and that there is always some doubt as to whether life is really extinct after the application of the current when cardiac beats continue, or when neither respiration nor cardiac beats can be registered by the cardiograph. Her experiments show that animals may be resuscitated by rhythmic electric excitation when the same current has been employed that caused death. In her opinion, the statements regarding the extinction of life, made at the time of the electrocutions in New York, while the cardiac beats, radial pulses and respirations still persisted, are arbitrary: (1) Because her laboratory experiments did not support this view; and (2) because there is no mention of an effort at resuscitation having been made. [J.H.W.R.]

Tumor of the Hypothesis and Akromegaly.—J. Kollarits[4] discusses the relationship between tumor of the hypothesis and akromegaly. Marie claimed that, as tumor of the hypothesis was always present in akromegaly, the former was the cause of the latter. Kollarits collected 51 cases from the literature, and cited two cases of his own of tumor of the hypothesis with which akromegaly was not associated. The tables showed that in many cases the patients were comparatively young, and that the disease was of sufficient length to have permitted the development of akromegaly. He cited cases in which the hypothesis was entirely destroyed, and concludes that tumor of the hypothesis is not a fundamental cause of akromegaly, but rather one of the symptoms (Teil symptom). [J.H.W.R.]

Sarcomatous Infiltration of the Spinal Pia.—Stanley Barnes[5] reported two cases of his own and reviewed nine other cases with a view to throwing some light upon the means by which sarcomatous infiltration occurs. He believes that if the growth originates in the caudate nucleus, or elsewhere in the brain, and involves eventually the lining of the ventricular cavities, that the "cerebrospinal fluid may become infected," and metastatic growths may then occur in the lining walls of the lateral third or fourth ventricles; in the basal meninges; in the spinal pia and arachnoid; and finally, in the posterior root ganglions, especially of the cauda equina. He states that the diffuse sarcomatous infiltration of the spinal pia arachnoid, occasionally found postmortem, is probably in all cases the result of a sarcomatous infection of the cerebrospinal fluid, resulting from a primary growth which, somewhere in the nervous system, comes in contact with the stream of the cerebrospinal fluid. The seats of the secondary growths correspond to those selected by tuberculous meningitis after the rupture of a tuberculous brain tumor. [J.H.W.R.]

Paralysis of the Abdominal Muscles in Acute Anteropoliomyelitis in Children.—J. Ibrahim and O. Hermann[1] describe this very rarely noted symptom, and cite four illustrative cases. They were able to collect only five analogous observations from the literature. In the four cases they describe, there was no doubt as to the diagnosis, and in three of them there was a high-grade paralysis in both legs; in one also in the right arm; and only in one case was the paralysis of the extremities either isolated or insignificant. In all the cases there was paralysis of the abdominal muscles, especially the oblique muscles. In two cases both sides were affected, although the paralysis was so much worse on one side as to give the appearance of a unilateral affection. In two of the cases there was some improvement in the abdominal paralysis six years after the onset of the disease, but in one case there was no perceptible difference in the condition after four years. No autopsy was made in any of the cases. [J.H.W.R.]

Infantile Multiple Sclerosis: Familial Sclerotiform Heredosyphilis.—S. Sanctis and G. L. Lucangeli[2] made a careful study of this subject in the laboratory of the School for Backward Children, Rome, Italy. Three cases are reported in detail. They all had in common slight insufficiency of the facial nerve, sluggish deep reflexes, torpid motility, and hypotonia of the lower limbs; strabismus and nystagmus, intention tremor, defective gait, scanning speech, bradylalia, arrest of development of speech, and insufficient mental development. Romberg's sign was present in two of the cases. The gait in one was ataxic; in two, ataxispastic. In the authors' opinion, it cannot be definitely stated that there is such a disease as familial infantile multiple sclerosis, but it may be stated that a sclerotic form of cerebrospinal heredosyphilis exists, and is of frequent occurrence during infancy. It should not be confounded with true multiple sclerosis. The course of the disease and the ophthalmoscopic findings are of the utmost importance in making the diagnosis. An exhaustive bibliography is appended. [J.H.W.R.]

Idiomuscular Hyperexcitability.—Hans Curschmann[3] studied this condition in a large number of healthy individuals and others suffering from tuberculosis, carcinoma, nephritis, diabetes, tabes, progressive paralysis, cerebral and spinal atrophic palsy, and profound icterus. The phenomenon in its typic form consists of the appearance of a circumscribed, cone-shaped tumor, transverse to the long axis of the muscle, upon tapping, or otherwise mechanically irritating the muscle. It is a localized contraction of the muscle. It occurs in man in pathologic emaciation. It sometimes fails, however, in this condition, and in healthy thin individuals,

[1] Albany Medical Annals, August, 1905.
[2] Deutsche Zeitschrift für Nervenheilkunde, 1905, Heft 5 and 6, p. 438.
[3] Journal of Mental Pathology, No. 2, 1905, p. 75.
[4] Deutsche Zeitschrift für Nervenheilkunde, 1904, Heft 1 and 2, p. 88.
[5] Brain, Spring, 1905, p. 30.

[1] Deutsche Zeitschrift für Nervenheilkunde, 1904, Heft 1 and 2.
[2] Journal of Mental Pathology, 1905, Vol. vii, p. 1.
[3] Deutsche Zeitschrift für Nervenheilkunde, 1905, Heft 5–6, p. 361.

especially in women, and children under two, and in uncomplicated senile emaciation. It, and the Schiffs wave (an analogous condition in the cadaver) are not pure symptoms of wasting (abmagerungssymptom), but are the expression of a specific irritability in a muscle. The cause of the phenomena is myelogenous, conditional upon a toxic action upon the contractile substance. The influence of nerve transmissibility upon the appearance of the phenomena cannot be proved. No relation is observed with the tendon reflexes. There is a direct relation with the general muscular irritability. Idiomuscular irritability and the Schiffs wave are directly proportional in their intensity. There is almost always an increase in nerve irritability when the idiomuscular irritability is of a high grade. There is no relation with the vasomotor irritability of the skin (dermographism, urticaria factitia, fugitive erythema) nor with irritability of the erectores pilorum. [J.H.W.R.]

The Differential Diagnosis between Cerebellar Tumors and Chronic Hydrocephalus.—Rudolf Finkelnberg[1] reported a case of chronic hydrocephalus and multiple cavernous angioma, a second case of moderate hydrocephalus and a third case of tumor of the right corpus striatum with the symptom-complex of cerebellar tumor. He claims that the cerebellar gait can be an early symptom of both chronic hydrocephalus and tumor of the central ganglions. The normal relation of the tendon reflexes or a lowering of the same does not exclude chronic hydrocephalus. The absence of the knee-jerks is not characteristic of cerebellar tumor, but can be found also in cerebral tumors. Circumscribed areas of senstiveness to pressure and blows on the skull are found in chronic hydrocephalus, and as localizing symptoms are therefore of little diagnostic value. An intense choked disc upon one side does not point unconditionally to a tumor of the same side. [J.H.W.R.]

Trophic Disturbances from Cerebral Tumor.—A. Goetzl and J. Erdheim[2] report the case of a young man with diabetes mellitus, who gradually developed psychic disturbances in the form of lethargy and anorexia. Trophic disturbances followed, such as the loss of pubic and axillary hair, and finally a bitemporal hemianopsia developed. The bodily temperature fell for a time below normal, complete stupor developed, general weakness became marked, atrophy of the thyroid gland and genitalia followed, and the patient finally died of pneumonia. The clinical diagnosis was tumor in or near the hypophysis cerebri. Autopsy confirmed this in the finding of a carcinoma in this region. The epithelial character of the tumor, and its position, pointed to its origin either from the ependyma or from the glandular part of the hypophysis. The tumor cells, however, in no way resembled those of the latter organ, which organ was found to be somewhat compressed by the growth. Examination of the thyroid gland showed a colloid struma, with a certain amount of atrophy of the thyroid tissue. The atrophy of the testicles was found to be due to a chronic interstitial inflammation. The only symptoms accounted for by the anatomic findings are the hemianopsia and optic atrophy. The moderate compression of the hypophysis and the only partial atrophy of the thyroid cannot be held responsible for the rest of the clinical picture. This may, in part, however, depend upon the relation of the tumor to certain centers in the cerebrum. [B.K.]

Three Cases of Word Blindness, with Remarks.—J. V. Paterson[3] states that in interpreting the results of a given lesion the education, the occupation, and habits of the individual affected must never be lost sight of. The auditory word center and Broca's speech center form the primary couple. The visual word center is subordinate, and the writing center a still later development. In silent thought the counters we commonly use are auditory word images. To what extent the visual image can be used alone is not yet elucidated. In persons accustomed to read much aloud, probably a direct connection is established between the visual word center and Broca's center. The statement that some "visuals" can picture and read off pages of print is misleading. We never see more than short words or the syllables of longer words. The difficulty in spelling words backward shows that we cannot readily picture entire word images. If we suppose that in writing, the image of the letters has to be conjured up, then destruction of the visual word center must cause agraphia. In an "auditive" the stimulus may pass direct from the auditory word center to the graphic center. Cases of word blindness without agraphia are explained by a lesion which cuts off the connection of an intact visual word center with the visual centers in both occipital lobes. Such a lesion is apt to involve also the visual fibers on the left side, and so to cause a right-sided hemianopsia. The writer reports three cases illustrating this condition. [H.M.]

Cyclic Paralysis.—Under the name of "periodic" or "paroxysmal" paralysis rare examples of this disease have been placed on record, since 1885, when Westphal first described it. In the monograph of Oddo and Audibert it has been defined as: A condition not infrequently met with, at times hereditary, characterized by a more or less transient loss of voluntary motility, of limited extent, and accompanied by reduced or lost knee-jerks, with a reversal of electrotonic reaction, but no disturbance of sensation of any psychic complications. Schlesinger and Piazza,[1] in giving a full account of a case occurring in a girl of 24, who has suffered from these attacks on days succeeding holidays or times of excitement, lay some stress on the fact that the attacks have developed since the patient had typhoid fever at the age of 17. Three theories have been advanced: 1. Transient inhibition. 2. Disturbance of muscular growth. 3. Autotoxismus. The second view appeals to the majority of writers. Schlesinger inclines to the third. [T.H.E.]

Congenital Word Blindness and Its Treatment.—C. J. Thomas[2] calculates from his observations as medical officer that 1 in 2,000 of all London elementary school children may be expected to show word-blindness to a considerable degree. Its frequency is greater among the lower classes. It often assumes a family type, and occurs more frequently among boys than girls. It may be associated with an extremely good visual memory for things other than words. The writer reports a number of cases. When the child is otherwise intelligent, the other centers may be brought in to help. In those of dull intelligence scarcely any progress will be made with reading. The visual recognition of Arabic numerals is generally readily acquired. It is probable that the earliest memory of letters is a muscular one. Children should be taught from large signs, should be encouraged to print the letters, and it would be useful if every kindergarten class had large letters carved in wood, which the children could handle. It is because of the power of storing in the visual word center the "ideographs" of words that the English language has ceased to be phonetic. Miss Dale's method of teaching to read ignores in the early stages the visual word images. The child associates the form of the letter with the mechanism for pronouncing its most usual sound. The meaning of the word is arrived at via a motor speed plus auditory memory. A kinesthetic memory must be encouraged. One child by spelling the letters with the lips, another by tracing them with the fingers will arrive

[1] Deutsche Zeitschrift für Nervenheilkunde, Heft 1-2, 1905, p. 135.
[2] Zeitschrift für Heilkunde, Bd. xxvi, Abth. f. Int. Med., Heft 3, p. 372.
[3] Scottish Medical and Surgical Journal, July, 1905.

[1] Il Policlinico (Rome), August 27, 1905.
[2] Ophthalmoscope, August 1, 1905.

at the meaning. In one of these ways an intelligent word blind child may acquire some power of reading, even when the visual word center remains very poorly developed. [H.M.]

Partial Myotonia under the Picture of Occupation Neuroses and Paralyses.—H. Curschmann[1] speaks of a patient of 17 who by occupation is a brush maker, and whose duty it is to hold with his left hand the wooden portion of the brush, while with the right in the writing position, he introduces the bristle and the wire into the corresponding holes. The family of the patient did not possess a history of myotonia nor of nervousness. In this patient there appeared a paresis of the extensors of the hand and of all the extensors and abductors of the thumb, after overwork of the muscles of the hand, and especially the extensor muscles. After the paresis became evident to him and his coworkers, there appeared in the abductors and the adductors of the thumb, spasmodic attacks, induced by each attempt to grasp an object, but never while the hand was at rest; later a similar condition developed in the left thumb. Upon examination, Curschmann found a paralysis and an atrophy of the radial extensors of the right hand, and of the extensors and abductors of the right thumb; in the same hand he found a typic myotonia in a functional sense, with the characteristic mechanical and electric reaction in the opponens pollicis and in the flexor carpi ulnaris. In the left hand there was an evident paresis of the abductor pollicis and a slight paresis of the extensors of the thumb. [J.F.]

Narcolepsy.—S. J. Meyers[2] has seen two cases of this affection, about which little can be gathered from literature. It is characterized by an irresistible tendency to sleep during the day. There may be frequent attacks, with long intermissions, or the attacks may be periodic. It is not to be confused with the drowsiness from optic fatigue, syphilis, diabetes, uremia, brain lesions, etc. It is a true neurosis, dependent on the one hand on functional disturbance, and on the other, on imperfect metabolism and elimination. The sleep is undisturbed, with no deviation in pulse, temperature, nor respiration. One may be stricken with this desire to sleep while in bath, in theater, when riding, conversing, or engaged in the most vital business affairs. Unlike epilepsy, the sleep does not enervate, but leaves the person refreshed. The differentiation from petit mal is often difficult. The treatment must be in accordance with our views as to the causative factors. [H.M.]

Family Tabes Dorsalis.—E. F. Trevelyan[3] reports three cases of tabes occurring in husband, wife, and daughter. The husband showed the first symptoms about 11 years and the wife about 10 years after marriage. The daughter began to suffer from the disease at the age of 36. There were altogether 12 pregnancies, with 9 children born alive; the last half of the family being strikingly worse than the first half. Although it could not be elicited from the history, the author thinks it probable that the husband, at least, had syphilis earlier in life. No evidence of hereditary syphilis could be found in the tabetic daughter. The syphilitic virus was probably transmitted to her, but was only potent for her vulnerable nervous system. Much has been written recently about conjugal tabes, the percentage of syphilis in these cases being given as 90% to 96%. Usually the disease develops first in the husband, and from two to five or ten years later in the wife. The combination tabes in both husband, wife and offspring is quite rare, only one or two instances being reported. There are instances, however, where general paralysis has taken the place of tabes in one or more of the individuals of this group. Cases of tabes in one parent and offspring are quite common, congenital syphilis being the important factor as far as the latter is concerned. The tabetic symptoms usually appear at the age of 5 years or upward, the cases falling into the group of infantile or juvenile tabes. It is not, however, necessary that the patient should bear the usual stigmas of congenital syphilis. [B.K.]

[1] Berliner klinische Wochenscrift, No. 37, 1905.
[2] American Practitioner and News, July, 1905.
[3] The Lancet, September 9, 1905.

Family Tendency to a Morbid Process.—Croner[1] reports two instances, in each of which three brothers developed tabes. In the one group one brother died at the age of 48, the others at 38 and at 58 respectively. The first had suffered from some primary ulcer, but the other two gave a doubtful history; in regard to them, however, a lumbar puncture showed a heavy leukocytosis and lymphocytosis. This accords with a specific diagnosis in the opinion of Croner. After reviewing the second group of three brothers, the writer goes on to discuss the etiology of tabes, and he concludes that tabes is not syphilitic in origin, although syphilis is an indisputable source of its final outbreak. Antispecific treatment is very uncertain in the management of this disease, and there are many cases of tabes which cannot be laid at the door of specific infection. Therefore it must be in some hereditary condition, or in some systemic predetermining cause that tabes takes origin, and the exciting cause is even yet to be fought into the open. This excellent paper is quite in line with modern attempts to enlarge the scientific horizon more particularly in the direction of an understanding of the personal factor in disease. [T.H.E.]

Treatment of Insanity by Sheep's Thyroid Substance.—R. R. Leeper[2] has treated 22 patients with thyroid extract in doses increased from 10 gr. to 60 gr. daily, and continued until reaction occurs. The patients have been kept in bed with pulse and temperature records. These included cases of mania, stupor, and melancholia. Twelve recovered, only one of these requiring readmission later. Some had been insane for years and were regarded as incurable. The thyroid acts by increasing cardiac action with lowered blood-pressure. In but two or three cases was rise of temperature caused by the remedy. All patients lost weight rapidly while under treatment, but regained it afterward. In sheep's thyroid we undoubtedly possess a substance capable of modifying and curing many forms of mental disease. [H.M.]

Incoordination of the Respiratory Muscles in Locomotor Ataxia.—According to M. Faure,[3] incoordination of the respiratory muscles in locomotor ataxia may affect: (1) The elevators or depressors of the chest; (2) the diaphragm; or (3) the intercostals. This incoordination may result in deficient aeration of the blood with its consequences, acute or chronic infection of the respiratory passages, and affections of the abdominal organs, due to diaphragmatic insufficiency. In bad cases, attacks of asphyxia may occur. The mechanism for this incoordination is the same as that for the muscles of the lower extremities. The treatment of this condition consists of methodic exercises, which will bring about great improvement in most cases. [B.K.]

Physicotherapy of Neurasthenia.—J. A. Riviere[4] refers to the dangers of drugging. The most powerful curative means are the cold or Scotch douche, the CO_2 bath, mechanotherapy and massotherapy, kinesitherapy, and vitrotherapy, the principal indications for which he describes. Electrotherapthy occupies the first place for the cure of nervous exhaustion. All the modes of electricity can be utilized, but those acting most energetically on the general condition are high-frequency currents, electrostatic baths, faradization, radiotherapy, thermoluminous baths, hydroelectric baths, etc. All these applications should be watched and dosed like medicines. No fixed treatment can be applied inflexibly. [H.M.]

[1] Il Policlinico (Rome), 1905, fasc. No. 35.
[2] Medical Press and Circular, July 5, 1905.
[3] Journal de Médecine de Paris, September 3, 1905.
[4] Archives of Physiological Therapy, July, 1905.

American Medicine

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The physician as an independent voter was admirably illustrated in the recent elections. Candidates and party managers, bent upon selfish or partisan ends, are prone to forget their duties as regards the health of the people, the laws of sanitation, and professional ideals. It is well therefore that physicians should be among those who call the bosses to account. It is confidently, and we believe correctly, stated, that the alleged mismanagement of State institutions and the action of Governor Herrick in removing Dr. Ohlmacher from the head of the State Hospital for Epileptics at Gallipolis was responsible for a concerted action against his candidacy on the part of the physicians throughout the State. It is said that of the 7,200 physicians in the State no less than 5,000 voted and worked for Pattison against Herrick. In Philadelphia it is well known that the majority of physicians helped to rebuke "the gang" because of the exposure of its mismanagement in the smallpox hospital, the tuberculosis pavilion, the filtration plant, etc., whereby a vast number of deaths and much disease and suffering were and still are permitted. It is not good politics to neglect the health of the people, and it is good politics and good medicine to punish the neglecters. In other words, it is not good politics to scorn the medical profession.

The army canteen question is to be brought up in Congress at the coming session, with a view of removing the prohibition of the sale of beer and light wines. Statistics prepared at the Surgeon-General's office show that before there were any canteens the admissions to sick report for alcoholism were more than 64 per thousand, and that during the first 10 years of the canteen the cases diminished to half their former frequency. Subsequently this decrease continued until the rate was less than 19 and in some posts only 2% of the soldiers suffered from alcoholism, whereas before the canteen was established, 10% was annually treated. Since the anti-canteen law became effective, the low dives around army posts have revived, so that soldiers who were formerly content with a glass or two of beer are now plied with whisky in the ways common with all grog shops. The resulting alcoholism was immediately noticed, for the admission rates began to increase at once and are now already at 28 per thousand and steadily rising. The general officers, in their annual reports, seem to be unanimous in recommending the repeal of the law, as there appears to be no reasonable doubt that the canteen has proved in the past to be a factor working for temperance and health. It is an open secret that the great majority of Congressmen who voted for the prohibitive law knew that it would increase drunkenness, disease and misbehavior, but were afraid of the W. C. T. U. influence which they greatly overestimated. It is a curious illustration of the harm Congressmen will do when under the influence of personal fear.

Extremism in temperance crusades cannot be better illustrated than by the history of the canteen. It is probably safe to say that the medical profession as a body and the vast majority of physicians individually, irrespective of their own views as to the moderate use of alcohol, are heart and soul with all efforts which will end alcoholism. They, more than any other class of men, are brought into daily contact with cases due to excessive indulgence and know its dreadful consequences. It is this intimate knowledge which teaches them that universal abstinence, though desirable, cannot be expected, and that any prohibition forced upon a community with a view of compelling total abstinence creates greater evils of another kind. The clandestine drunkenness caused by alcohol masquerading as tonics and bitters is a case in point, as well as the army experience. The ladies who were responsible for the anticanteen law were justly and properly horrified at the idea of alcoholic beverages being sold on military

reservations, within easy reach of soldiers, some of whom were mere boys, but it was not known that the canteen was deliberately planned to destroy a far greater evil. There is considerable evidence that many of the ladies have finally realized the harm they have ignorantly inflicted upon these boys, and have also realized that in this, as in many other ethical matters, it is a choice between two evils. The opposition to the repeal of the law now seems to be far less vigorous than formerly, and it is likely that Congress will be guided by the advice of the officers who know the most about the matter and who have the welfare of the soldiers deeply at heart. The fact that but 2% of soldiers were treated for alcoholism under the old canteen system speaks volumes for their sobriety. Furthermore, as many of them are total abstainers, we should disabuse our minds of thoughts of any great perils in the canteen, and should also emphasize the fact that the time has long gone by when soldier and drunkard were synonyms—at least in America. The chronics are being constantly eliminated as unfit to be soldiers, and the canteen prevents the creation of chronics.

The report on contract practice in Great Britain, to which we referred in the issue of August 19, must be somewhat startling to those American physicians who are so opposed to this form of practice. Even those who engage in it must be astonished at the enormous extent to which it has spread throughout the United Kingdom. Nevertheless this modern development is merely one form of the cooperation for mutual aid, which is the feature of present-day conditions. In every part of the world, small groups of men are binding themselves into societies for the sole purpose of receiving aid should they meet with sickness or accident. Such forethought is really one of the necessities of existence, and it has taken the form of mutual aid associations very naturally, as each man helps others while ostensibly helping himself. We have noted the enormous development of this form of life insurance by small associations and we should have been prepared for an equal development of similar societies for securing medical aid. The men who meet with the least misfortune assist those who have the most, and society is the gainer. These laws will assist in understanding the conclusions of the committee, which appear, by the way, to be wise and fully sustained by the facts.

Contract practice was said to be necessary in certain districts, where the poor can pay for medical services only by some system of small periodic advances. Otherwise these people do not pay their physician at all, or they receive some pauperizing public aid, generally from the town physician—the two great evils in this country. There does not seem to be any uniformity in the systems now in operation, each one appearing to be a law to itself, though they are of two general classes, according as the physician receives a lump sum consisting of all or a part of the periodic payments, or is paid specified fees per visit or per operation, the former being a long-established system, and the latter recent and exceptional. In the latter case the insured may be permitted to employ his own physician and not the society contractor, but the arrangement does not appear to offer any advantages over that of the beneficial societies, so numerous in this country. When fees are given, they are sometimes graduated according to the distance traveled, but the contractor is not compelled to go further than three miles, as a rule, without extra compensation. The public medical service, such as in the army and navy, is really contract practice forced upon the government because its soldiers and sailors had to be kept in health, and they were usually stationed where civilian physicians could not be hired by the visit. It has evolved into a specialty requiring long years of training for efficiency. Its advantage to the physician is the regularity of income, and its advantage to the government is its economy, for if all the work done were paid for by the visit or operation, the cost would be enormous. Similar employment of physicians by commercial companies, whose employes run extra risks of disease or accident, is very satisfactory as a rule, and demanded by law in some places, the costs being defrayed in various ways, usually by a tax on the wages. The number of physicians thus living on salaries for duties of a public or semipublic nature is yearly increasing, and to them are probably to be added those who will serve private beneficial clubs.

The evils of contract practice are evidently quite numerous. They are not vital defects, and the advantages must far outweigh them or the system would not be growing so vigorously. The administration of the societies and the regulation of fees is under nonmedical control, and the competition among the physicians tends to reduce the fees, which are already inadequate and out of all proportion to the services rendered. When patients are compelled to accept one particular physician, whether they like him or not, the professional relations are sure to suffer. The physician himself has been found to suffer in his relations to his fellows. It has been found that men well able to employ physicians have taken advantage of these societies and violated the understanding upon which the physician has taken the contract. Where the local profession is well organized, either in independent associations or branches of the British Medical

Association, they are able to insist upon representation in the management of the societies. They have limited the beneficiaries to those whose incomes are below a certain maximum, have arranged the fees upon a reasonable basis, defined the services to be rendered, and opened the practice to every physician. In such circumstances contract practice has been very satisfactory, and is really a form of insurance which is bound to extend its sway, but where the physicians are not organized, the condition is deplorable, and they are really neglecting their own interests, that of the patients, and the community as well. Against these evils we must keep up a steady and even zealous opposition, made all the more necessary with us by the vast vogue of quackery and a too poorly organized profession.

Perhaps the evils will correct themselves in time, and as it will be very hard for the American profession to accomplish anything in its present unorganized condition, the matter must, to some extent, work out its own salvation. It has been claimed that the contract physician does not give his best attention to his cases, and that he deteriorates professionally. If this is to be the result, survival of such societies is not likely. Indeed, there is plenty of evidence that the fraternal societies, which pay sick benefits to enable the patient to employ his own physician, are already more vigorous, because more satisfactory. A prosperous man when sick is inclined to buy the best advice he can afford, and will not be bound down to the physician whom others select. In addition, the tie which binds the family physician to his patients, is so great that they turn to him instinctively. These two facts will not permit the system to become universal; nor can it even flourish if it attracts only the class of physicians who are partial failures and willing to work for poor pay. Yet the subject might well be exhaustively investigated in America, for the practice seems to have come to stay. The thought has no doubt occurred to many that it would be cheaper for life insurance companies to enter this business also, and employ the best physicians to keep a policy holder alive as long as possible, instead of allowing him to shorten his own life ignorantly. But if they are to pay as poorly as they pay examiners, they are not likely to help matters.

The evolution of the modern male is giving rise to some foolish speculations in the *Westminster Review* in some articles which are occasioning comment. In the raising of a family, the two parents must divide the work, and the characters evolved for this purpose are not really sexual ones at all, for sometimes one sex is compelled to do what at other times is the work of the other. For this reason, in every stage of culture there are types of man and woman more or less different from those of other stages. In some savage tribes, survival is not possible unless the women do all the drudgery, leaving the men idle—but free to fight intruding enemies at a moment's notice. Hence the men are small, lithe, active and fierce, while the women are big, muscular and slow. There are also male and female characters respectively in some lower species. Primitive civilization thrusts manual labor sometimes on the male and at other times on the female, or on both, so that there is no standard of masculinity and femininity applicable to every culture. At present the male may survive and beget healthy offspring even though he is the antithesis of our big fierce ancestors, forced into perpetual warfare for existence and possessing physical traits no longer needed now that warfare is the business of only a few. A man need not even be the physical protector of his family as society has assumed that duty. Indeed, in some species this is a feminine character. Woman is likewise changing in type since she has been freed of the drudgery once so essential in food production. At present there are an enormous variety of types of men and women all fitted to supply normal germ cells and to take part in raising families, and therefore they are perfectly masculine and feminine. Frail men are no less manly because small. Similarly there will be further changes in the future, and though the standards of masculinity and femininity are undergoing constant evolution by natural selection to keep adjusted to changing methods of rearing families, it is evident that the men to the end of time will always be manly and the women womanly. The dread of masculine traits being absorbed into the feminine or the reverse is groundless. We should be thankful that past types of men and women have disappeared, and we need not worry about the future.

The reason for the origin of sex is easily understood, presuming that rejuvenescence by cell union is necessary. The essential parts of the male and female cells are identical. Femininity is merely the sum total of the devices evolved to feed and protect the new organism, and masculinity is but the total of the devices for supplying a cell to the one which is furnished with food, ready to be used when rejuvenescence occurs. In the lowest multicellular organisms there is no distinction of sex, though the germ cells derived from different organisms unite just as in the higher. Those organisms which have evolved sexuality to rear the young have had an advantage in survival; hence, what are called the primary sexual characters are clearly the results of selection. Secondary sexual characters may be broadly stated as those which aid the male and female to find

each other, for there must be a color, sound or odor, or other sensation to attract one to the other. Yet there is no dividing line between primary and secondary characters, for they have all survived as means to the same end.

The Determination of Sex.—It is evident that though species survived because some individuals evolved male and others female characters, yet we are very much in the dark as to what influences one ovum to develop into a male organism while another takes the opposite course. There is reason to believe that in some species, at least the fertilized ovums are sexless, and that differences in the environment cause them to develop one way or the other. Changes in the food given to certain larvas, for instance, have caused males or females to predominate. Very many theories have been put forth to explain these curious results, but none bear examination. The matter is of considerable importance, now and then, as when a male heir is desired or where domestic animals of one sex are needed for the market. Nature certainly has ways of regulating the proportion of the sexes, and it must be possible to find out what these means are so that laboratory experiments are desirable. So far there is but little upon which the physician can base even an opinion should he be asked for one. In spite of Shenk's sensational and quackish assertions some years ago, there is no evidence that with his dietetic system he was any nearer the solution of the problem than anyone else. It is a very old but unproved theory, that the sex varies with the time elapsing between the discharge of the ovule and its union with the spermatozoid. Every now and then some man rediscovers this theory. There is considerable quackery mixed up with the whole subject, and probably always will be, because there are sure to be 50% of successes no matter what is advised, for that is about the proportion of each sex born every year. Nature herself will attend to the matter for some time yet, and one may well advise patients to leave the matter alone and avoid the quacks.

The reason for sexual union is wholly unknown. The microscope has revealed the nuclear changes which take place in the male and female cells during and after their union, but has not led to any reasonable explanation of why this union is necessary nor why simple fission or budding or parthenogenesis should not continue indefinitely. Some protoplasmic change takes place after a number of divisions of any cell whereby it loses its power to divide. It is believed to be an exhaustion, though the restoration of the power resulting from coalescence with a similar cell is inaptly named rejuvenescence as though the condition were a true senility. There is much evidence that the exhaustion is due to some imperfection of food, and that the defect is remedied by the absorption of another similar cell—a mutual cannibalism. If two cells are about to perish from deficiency of nitrogen in their food for instance, it is evident that survival will be prolonged if they join forces as one cell with a double capital of this particular element. Yet there are serious objections to this hunger or starvation theory of the origin of sexual union, with its mutual cannibalism or autophagy. It reduces senility to a mere matter of defective nutrition.

Sexual Union Prevents Protoplasmic Senility.—No matter what the reason for these unions may be, there is a growing belief that sooner or later, simple division of cells comes to an end in every species, and that death results from what might be called starvation senility unless there is rejuvenescence by coalescence with a similar cell. Certain plants have been reproduced by cuttings for centuries and trees keep on growing for thousands of years if the food supply is proper, but there is probably a senile end, in time, when further divisions are impossible. The matter can never be settled by direct observation of any one line of cells, and we must content ourselves with the general rule that in unicellular organisms these unions do take place. The same law seems to hold in the germ cells of multicellular organisms. The body cells have lost the power of reproduction in proportion to their specialization in other directions, but even those which have retained the power, such as leukocytes, may in the end become senile. The germ cell, as it leaves the ovary, is unable to divide, and though in a few species it may be clinically stimulated to develop, yet this is not a permanent property impressed upon it. In quite a few species the ovule develops asexually for awhile, but sexual union is necessary after a certain number of generations, or after the food has been deficient for awhile. If it were possible for a plant to be perfectly nourished, its cells would, by this theory, never become senile, and never need rejuvenescence by union with another—that is, it would be immortal. It is doubtful if any organism ever can secure such a perfect environment, hence sexual union was evolved to secure protoplasmic immortality.

The Maternal Impression Theory was the subject of a carefully prepared paper read by Dr. E. T. Shelly, of Atchison, Kan., to the Section on Obstetrics, at the last meeting of the American Medical Association. It is a well-recognized fact that the mother can injure the fetus by means of poisons, such as alcohol, toxins, or the metals, circulating in her own blood, but there are

wide differences of opinion as to whether she is able to change the course of development by mere mental impressions. Belief in this power has been found in every race in every part of the world, and has apparently existed for many thousands of years. There is very little likelihood that it will ever disappear, as it seems to be a fixture of the feminine mind, but there is no reason why physicians should teach it, if proved to be untrue, or even baseless. With the revival of learning in the middle ages, European physicians became sceptical, and during the nineteenth century, the profession as a body were disbelievers. Nevertheless, the leading American obstetricians of the nineteenth century were firm believers in the theory, and presented somewhat of a contrast to the European profession. For this reason, about all of our standard textbooks teach that the theory is correct, and there is still a respectable body of followers. Dr. Shelly's paper was evidently written in protest against this attitude of the textbooks, and the discussion it evoked revealed the fact that there were very few present who held to the old idea. The experiments of the last ten years, particularly those of Charles Féré, in France, have shown the possibility of producing almost every kind of deformity in lower animals by mechanical or chemic means, and the general trend of professional opinion now seems to be in the direction of explaining human anomalies by similar causes. It is significant of this change that current medical literature contains very few reports of cases; but dogmatism, for or against either theory, is not as yet justifiable.

BOOK REVIEWS

A Reference Handbook for Nurses.—By AMANDA K. BECK, of the Illinois Training-school for Nurses. Philadelphia and London: W. B. Saunders & Co., 1905.

The 150 pages of this little book are well stocked with information that is valuable for nurses. Being simply an elaboration of a set of notes collected while the writer was in school and attending to private nursing, the contents lack order, but a copious index largely atones for this feature. Some of the brief statements need the elaboration which it is almost impossible to give in a small book, but on the whole, the accuracy is commendable. The direction to use 2 dr. of formalin to preserve a 24-hour specimen of urine should be changed, as this quantity of preservative is at least eight times too great. A second edition, which the book will doubtless reach, should embody a thorough revision of the English employed. The book is durably bound in flexible leather.

First Aid in Illness and Injury Comprised in a Series of Chapters on the Human Machine.—JAMES EVELYN PILCHER, M.D., L.H.D., Capt. Med Dep't., U. S. A. Ninth edition. Revised. Chas. Scribner's Sons, New York, 1905.

In reaching the ninth edition this work has been deservedly rewarded. In the new edition the illustrations have been increased, and the part devoted to the carrying of the disabled enlarged. On the whole, the book is an excellent presentation of the subject. The first few chapters give a simple but fairly comprehensive view of the subject of physiology. The major part of the book treats of the subject of First Aid in a very complete manner. Attention is also given to Hospital Corps Drill and Sanitation. From the reviewer's own experience he can recommend this work as being useful and valuable to those schools where military instruction is given.

A Manual of the Practice of Medicine.—By A. A. STEVENS, M.D. Seventh edition, revised. Philadelphia and London: W. B. Saunders & Co. 1905.

This wellknown and valuable manual has been brought down to date, appearing as a book of 537 pages. It remains one of the best of its class, the author's success as a teacher being mirrored in his writings. On page 258, in the statement that tuberculous infection occurs by direct parental transmission, the word "parental" should be replaced by placental.

A Practical Treatise on Nervous Exhaustion (Neurasthenia); Its Symptoms, Nature, Sequences, Treatment.—By GEORGE W. BEARD, A.M., M.D. Edited by A. D. ROCKER, A.M., M.D. Fifth edition, enlarged. New York: E. B. Treat & Co., 1905.

Nowhere in literature will a clearer or more complete description of the symptoms of neurasthenia be found than in this standard work. This disease is described exhaustively and in a most agreeable manner. Numerous interesting cases are cited illustrating the various symptoms. In Dr. Beard's experience (unfortunately) physicians have frequently been victims of this disease. The treatment of neurasthenia, as suggested by Dr. Beard, is, on the whole, to be commended, although perhaps some more modern ideas should be incorporated. Every practitioner, as well as specialist, should be familiar with this important and valuable book.

Diseases of the Heart and Aorta.—By THOMAS E. SATTERTHWAITE, M.D. New York: E. R. Pelton. Pp., 304.

The author of this volume has collected a number of articles on the heart and bloodvessels which have previously been published by him in various medical journals. These articles have been revised and new chapters have been written. The author's unusual opportunities for observing the clinical and pathologic aspects of these diseases have furnished him with a vast amount of material illustrating the relation of clinical signs to postmortem appearances. Over a hundred cases from his individual records are given at some length. Nauheim methods in chronic heart diseases with American manifestations is a very interesting chapter. Successful practice of this system includes the use of carbonated brine baths, resistance exercises and massage; while the diet and general health of the patient have to be regulated. This method requires the immediate supervision of a physician. The chapters on displacements of the heart and arteriosclerosis are also very instructive. The general practitioner will find this a very useful book.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Postoperative Treatment.—By NATHAN CLARK MORSE, A. B., M.D., Surgeon-in-chief to Emergency Hospital, Eldora, Ia., etc., containing 5 plates and 155 other illustrations. P. Blakiston's Son & Co., Philadelphia, 1905.

Principles of Bacteriology.—By A. C. ABBOTT, M.D., Professor of Hygiene and Bacteriology and Director of Laboratory of Hygiene. Seventh edition, enlarged and thoroughly revised, with 100 illustrations, of which 24 are colored. Lea Brothers & Co., Philadelphia and New York, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

The Journal of Biologic Chemistry has been founded, Vol. I, No. 1 appearing late in October. With Drs. J. J. Abel, of Baltimore, and C. A. Herter, of New York, as editors, its success is assured.

The Future Duty of Physicians.—The case of the Iowa physician who committed suicide because the community in which he settled is so distressingly healthy that no one ever has to call in the doctor, contains an admonition to the medical profession that either the physicians will have to combine to combat present tendencies to live aright and keep well or must henceforth seek to be paid for preventing diseases rather than for curing them.—[*Boston Transcript.*]

Federal quarantine control was favored by all the speakers at the Southern Conference on Quarantine and Immigration. M. J. Sanders, president of the New Orleans Progressive Union, spoke on "Quarantine in Its Commercial Aspects." He strongly favored national control, and uniform regulation during times of epidemics. A paper by William F. Brunner, health and quarantine officer of Savannah, Ga., discussed "Quarantine: Government Control," and advised federal control of quarantine.

Fever Menaces Cuba.—Senator Cullom, of Illinois, chairman of the Committee on Foreign Affairs, has laid before President Roosevelt information received by him from American business men in Cuba to the effect that the sanitary condition of Havana is not what it should be; that nothing has been done to continue the construction of the sewage system planned by American officials, and that an epidemic of yellow fever is imminent. The President, it is understood, will have the matter investigated through the State Department.

Yellow Fever in Havana.—That yellow fever was brought to Havana by mosquitos from New Orleans is the theory generally accepted. It has been learned that some mosquitos made the journey from New Orleans in several cases of electric apparatus, assigned to a firm having offices in the Payeret Theater building. When opened it was noticed that some mosquitos were liberated. The first person to be attacked by yellow fever was a member of an opera company playing at the Payeret theater. Subsequently the disease attacked an electrician employed in the same building.

Insanity among Negroes.—Dr. W. F. Drewry, superintendent of the Central State Hospital, at Petersburg, Va., gives some figures showing the increase of insanity among the negro population. The number of patients sent to the hospital during the year was 170 more than the previous year, showing an increase of about 50%. The number in the hospital was 1,449, or 115 greater than the year before. The smallest number under care at any one time was 1,101 and the largest, 1,305. The number present at the end of the year was 1,181, or 80 over the previous year. The growing prevalence of mental disease among negroes is ascribed by Dr. Drewry to physical conditions and degeneracy, induced by indolent, unhygienic, and immoral modes of life, as well as to the influence of heredity, rather than to mental stress or overwork.

Charitable Bequests.—By the will of **John Inglis,** of New York, the Presbyterian Hospital is bequeathed $1,000; the Presbyterian Board of Home Missions, $1,000; and the Home for Aged Presbyterian Ministers also $1,000.—**Mrs. Marie Elizabeth Brasier,** of Philadelphia, gave the bulk of her estate to Catholic charitable institutions. The most notable bequest is that of $20,000 to the Society of St. Joseph for maintaining and educating poor orphan children. St. Vincent's Home and Maternity Hospital will receive $10,000; the Little Sisters of the Poor are to get $4,000; St. Joseph's Hospital, $10,000, for two free beds; St. Mary's Hospital, $3,000; St. John's Orphan Asylum, $5,000.—**Mrs. Harriet Gilbert,** of Boston, devised $1,000 to the Home for Aged Colored Women, and $1,000 to the Free Hospital for Women.

An Early Patent Medicine Fraud.—According to a correspondent of the New York *Evening Post*, probably the earliest instance of drastic "treatment" of the patent medicine fraud in this country is recorded in "The New England Chronology," Part II, 2 (1754), of the Rev. T. Prince (Arber's English Garner, ii, 577–578):

"March 4 (1631). First Court of Assistants this year, at Boston. Present, Governor, Deputy Governor, Sir R. Saltonstall, Master Ludlow, Captain Endicot, Masters Pynchon, Nowell, Sharp, Coddington, Bradstreet.

"Ordered . . . A man fined £5, for taking upon him to cure a scurvy, by a 'Water' of no value; which he sold at a very dear rate; to be imprisoned till he pay his fine, or give security for it; or else be whipt. And shall be liable to any man's action, of whom he has received money for the said 'Water.'"

Personal.—**Col. John Van R. Hoff,** assistant surgeon-general, who has been with the Russian forces in Manchuria, has returned to Washington.—**Captain B. K. Ashford,** assistant surgeon of the army, who has been for some time on special duty in Porto Rico in connection with the eradication of anemia, has about completed his important work on the island and will probably return to Washington within the next six months and go on duty in that city.—**Dr. Q. C. Smith** has removed to San Diego, Cal., from Austin, Tex.—**First Lieutenant William W. Reno,** assistant surgeon, on duty at Fort Riley, has invented a hypodermic syringe, which is said to be a great improvement over anything of the kind heretofore made. He recently exhibited his invention to the convention of army and navy surgeons at Detroit, and it will probably be adopted for use in the Medical Department.—A silver loving cup was presented to **Dr. H. B. Gessner,** surgeon in charge of the Seventh Ward Marine Hospital headquarters in New Orleans, La., last week by a number of the prominent citizens of the ward who had been instrumental in assisting the health authorities in their work of sanitation.

International Medical Congress.—The committee in charge of the meeting, which will be held in Lisbon from April 19 to 26, 1906, has written asking for the contribution of papers on the following medicolegal subjects, and saying that as yet no titles of communications touching on any of these subjects have been received from this country: The signs of virginity and of defloration in medicolegal relations. Hand marks and finger prints; their medicolegal importance. The medicolegal importance of the carunculæ myrtiformes. The mechanism of death by hanging. The value of bacteriologic examination of vulvovaginal discharges in the determination of venereal contagion. The signs of death by drowning. Ecchymoses in legal medicine. Spontaneous and criminal abortions from a medicolegal point of view. Medicolegal investigation of blood stains. The relations between the seat of cerebral contusions and the point of application of the agent which produced them. Epilepsy in legal medicine. The induction of abortion; when is it permissible? The value of legal medicine in the study of criminal law. The best legislation for the protection of the "medical secret" (the obligation imposed upon physicians to treat as inviolable all information concerning patients obtained while in the discharge of their professional duties). The effects of the civil and penal law toward the newborn living infant. Distinction between the natural openings in the hymen and tears of this membrane. Criminal vulvar copula-

tion. Organization of medicolegal services. Those intending to take part in the discussions of the congress, or to prepare papers for it should inform the Secretary of the American Committee, Ramon Guiteras, New York.

EASTERN STATES.

The Medical School of Harvard University has again raised its standard for entrance by requiring a knowledge of elementary organic chemistry. The full requirements are a certificate that the student has passed in one year's full work in organic chemistry, a certificate that he has passed in qualitative analysis, and a college degree. In spite of the raised qualifications, the department of chemistry shows a large enrollment this year. A new chemic laboratory has been fitted up in Dane Hall, where more than 150 men may be accommodated.

NEW YORK AND VICINITY.

New York Orthopedic Dispensary and Hospital.—Surgeon-in-Chief Russell A. Hibbs will give a course of clinical lectures on orthopedic surgery at the institution on Tuesday and Thursday afternoons, at 4 o'clock, from November 14 to December 19, inclusive. The course will be free to the medical profession and students.

Sale of the Medical News.—Our announcement of the purchase of the *Medical News* by A. R. Elliott, of the Elliott Advertising Agency, and proprietor of the *American Druggist* and the *New York Medical Journal*, is confirmed in the issues of the two mentioned journals for November 11. The arrangement will go into effect January 1, 1906.

Quarantine Restrictions Raised in New York Harbor.—It is announced that the regulation requiring all vessels from southern domestic ports to stop at the quarantine station for examination, has been suspended, except for vessels from New Orleans. These will have to remain in quarantine until officially pronounced free of yellow fever.

Cornell University Medical College.—The registration in the medical college shows a decrease over the best of the previous years. The three advanced classes are somewhat larger than usual, but the first-year class, which hitherto has contained an average of about 130 students, this year has less than 120. Medicine at present does not seem as attractive a calling as business, although 85% of the graduating class last year obtained hospital positions and the hospital graduate has undoubtedly a better chance of success than others.

The Proctor Hospital Building.—The new hospital building, constructed by Mr. and Mrs. Frederick T. Proctor, was turned over (October 18) to the Board of Trustees of St. Luke's Hospital, Utica, fully paid for, and completely furnished and equipped with modern medical and surgical appliances. This is the largest single gift by any one family that we recall in central New York. The building is made of steel, hollow brick and tiles, and is fire-proof throughout. There are two handsome operating-rooms, so arranged that accident cases can be cared for without disturbing the patients who are in the house. It has a capacity of 75 beds, and cost about $250,000.

PHILADELPHIA, PENNSYLVANIA, ETC.

Dentists Must Get Licenses.—The Supreme Court has set aside the verdict of acquittal of Dr. J. Lee Terry, in Trenton, on the charge of practising dentistry without taking out a State license. The State Board of Registration has pushed the case. This is the first blow toward breaking up a practice of dentists coming into New Jersey and avoiding the law.

Information Wanted as to the Practical Lives of the Blind.—Dr. George M. Gould, 1722 Walnut street, Philadelphia, will be grateful for any trustworthy information as to the methods which have been devised by the blind in overcoming their disability or in gaining a livelihood. Accounts of such lives, anecdotes, references to literature, etc., will be appreciated.

Jefferson Medical College Library.—The annual report shows an increase during the year of 321 volumes and 100 pamphlets. The library now contains 3,315 volumes, and 53 current periodicals are regularly received. The total number of books loaned during the year was 11,242, an increase of 579 over the preceding year. The library is primarily for the use of the students of the college, but the privileges of the reading-room are open to any physician of Philadelphia.

The instruction of health officers is undertaken by the Sanitation Correspondence School of Philadelphia, giving a course in sanitary science which thoroughly covers the ground and is endorsed by leading sanitarians and State Boards of Health. With the coming appointment of over 1,000 health officers for boroughs and townships, under the new sanitary laws of Pennsylvania, this matter of instruction becomes one of public importance, particularly in view of the fact that there is thus far little opportunity to obtain such instruction in a manner suited to the needs of those likely to be appointed to fill these positions.

Health of Philadelphia.—An increase of 31 cases of typhoid fever was reported for the week ended November 11 over the previous week, when there were 77. The work of giving West Philadelphia a filtered water-supply sufficient for its needs has been begun, when Director Acker awarded the contract for giving the Belmont water works additional boiler capacity. There were 438 deaths reported to the health authorities that week, which is an increase of 44 over the number for the prior week. The medical inspectors say that with the exception of a gradual rise in the number of diphtheria cases, that the health of the city is generally good. There were 94 cases of diphtheria, or an increase of 29 over the week before.

Typhoid Fever Epidemic among Medical Students.—An epidemic of typhoid fever among students of medical, dental and pharmaceutic colleges of Philadelphia during the last month has claimed as its victims probably 50 of the young men who are studying at these institutions. The number of cases was so large among the men living in the dormitory of the Philadelphia College of Pharmacy, that the building was closed by the Board of Health. At present there are 22 typhoid fever patients in the Medico-Chirurgical Hospital, a majority of them being students from the dental dormitory. In most of these cases the cause was traced to milk provided by a Delaware County dairyman. After an investigation by the Board of Health this man was forbidden to sell his milk in the city.

The Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for a year of the bequest of the late Señor Alvarenga and amounting to about $180, will be made on July 14, 1906, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but must not have been published. They must be typewritten and must be received by the secretary of the College on or before May 1, 1906. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on the outside the motto of the paper and within

the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1905 has been awarded to Dr. D. Chalmers Watson, of Edinburgh, for his essay entitled, "The Importance of Diet, an Experimental Study from a New Standpoint."

SOUTHERN STATES.

To Merge Medical Schools.—Representatives of the University of Virginia and the Medical College of Virginia, in conference last week, appointed a subcommittee to draft a plan whereby the medical department of the university and the medical college can be consolidated. A further conference will be held at a near date to be arranged at the university.

WESTERN STATES.

Warning to Physicians of Colorado.—An ordinance has been passed in Colorado providing that a physician may give a presciption for liquor only in the regular practice of his profession. To give a prescription without making an examination and without a fee, to a man who simply wants liquor, is a violation of the law, and renders the physician liable to a fine of from $100 to $300.

FOREIGN NEWS AND NOTES

GENERAL.

Insurance Treatment of Tuberculosis.—Remarkable success attends the treatment of tuberculosis at the sanatoriums erected in Germany in connection with the imperial workingmen's insurance, of which there are 71. Nearly 88% of the patients are discharged as cured or convalescent.

Tuberculosis Cure Withheld.—Professor Behring was recently asked by Dr. Bernheim for some of his bacillus preparation, mentioned at the recent Tuberculosis Congress, for human experimenting, but Behring declined to supply it, saying the preparation cannot travel without losing efficiency, and that he has commanding reasons for not revealing the method of preparation. Further, the professor deprecated its employment in human experiments before the lapse of a year. Dr. Bernheim has expressed dissatisfaction with Professor Behring's attitude.

Cholera Increases in Russia.—The Public Health and Marine-Hospital Service report says: Official reports from Russia indicate a remarkable increase in the number of cases of cholera in the districts immediately adjoining the Russo-German frontier. Measures taken by the German health authorities seem to have the desired effect. In view of the fact that cholera is increasing in Russia in the provinces adjoining East Prussia and Galicia and in the districts which are drained by the Vistula, constant vigilance will be necessary on the part of the German authorities to prevent reinfection of Prussia.

Sensationalism in Medicine.—As an example of this evil influence in recent years, we need only to recall the tuberculin fiasco in 1890. It would doubtless be rash to place the newest remedy for pulmonary tuberculosis in the category of failures till it has been fully tried and found wanting. The name of the man, to whom medicine owes antidiphtheric serum, is a guarantee of sound work. This makes it all the more deplorable that Professor von Behring should have announced his discovery of a specific for pulmonary tuberculosis in a manner contrary to the best traditions of the medical profession. An instance of commercialism, naked and unashamed, so glaring that it scandalized even the newspapers, is a public dishonor to medicine. We cannot help thinking that German science has caught some of the advertising spirit, now so manifest in some of its professors, from a ruler the breath of whose nostrils is sensationalism. It is well known that it was to gratify this passion that Koch was forced into premature publicity, and it is significant that in connection with Professor von Behring's cryptic communication to the Tuberculosis Congress, stress was laid in quarters apparently inspired, on the fact that he enjoys the confidence and friendship of the German Emperor. It is earnestly to be hoped, in the interest of mankind, that he will be able to make his claims good. But, even if he does this, he can hardly be acquitted of having helped to lower a profession, whose distinctive feature is altruism, to the level of a trade, which reaps its profit from human suffering.—[*The Practitioner.*]

OBITUARIES.

George Benson Dunmire, aged 68, November 2, at his home in Philadelphia. He was graduated from Jefferson Medical College in 1865. During the Civil war he enlisted in the One Hundred and Twenty-fifth Pennsylvania Regiment, with which he served as hospital steward during its nine months' service; he was then appointed first lieutenant in the Forty-sixth Pennsylvania Militia. He was formerly treasurer of the State Medical Society; member of the Philadelphia County Medical Society, Pathological Society, Obstetrical Society of Philadelphia, and of the American Medical Association.

Charles Carroll Shippen, aged 49, November 6, from a complication of diseases, at his home in Baltimore, Md. He was graduated from University of Maryland, school of medicine, in 1879. He devoted the greater part of his time to charitable work, being a member of the board of managers of the Charity Organization Society.

Amourette M. Beecher, aged 83, November 9, at her home in Santa Barbara, Cal. She was prominent as an educator and philanthropist, giving her time and skill, without charge, to suffering womanhood, whose welfare she made her life work. For four years she was head of the Hartford Seminary for Girls.

William F. Forein, aged 34, November 7, from complication of diseases, at his home in Baltimore, Md. He was graduated from Baltimore Medical College in 1899. He devoted his time to the needy, and his loss will be felt in the homes of many for years to come.

Henry Wohlgemuth, November 11, at his home in Springfield, Ill. He was graduated from the Eclectic Medical Institute, Cincinnati, in 1854.

Henry J. Sanders, of Bayou Teche, La., from bronchial pneumonia, at Cincinnati, Ohio.

A. Martin Pierce, aged 53, November 6, at his home in New Bedford, Mass.

Charles Laidlaw, aged 60, November 9, suddenly, in Chicago, Ill.

Percy Smith, November 5, at his home in Los Angeles, Cal.

FOREIGN.—**Alexander Black,** aged 50, October 13, at his home in Edinburgh. He was graduated from the University of Edinburgh, in 1877; subsequently becoming a Fellow in the Royal College of Physicians, Edinburgh. He gave much of his time to the needy poor. For a time he was medical officer of the Royal Public Dispensary, surgeon to the Eye, Ear, and Throat Infirmary, and medical officer to the Original Ragged Industrial School, Leith Walk. **Robert Somerville,** recently, at his home in Galashiels, Scotland. He was graduated from the University of Edinburgh, in 1859. He practised for 40 years, and like many busy men, found time for public work.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended November 11, 1905:

Contract Surgeon PRESTON S. KELLOGG will proceed to his home, Battle Creek, Mich., for annulment of contract.—First Lieutenant WALLACE DEWITT, assistant surgeon, is granted leave for one month, to take effect not later than November 1.—First Lieutenant WILLIAM R. EASTMAN, assistant surgeon, is granted leave for one month, from about October 24.—First Lieutenant WILLIAM P. WOODALL, assistant surgeon, is granted leave for one month, upon surgeon's certificate, to take effect upon his discharge as a patient from the Army General Hospital, Presidio of San Francisco.—So much of orders of October 25, W. D., as relate to Contract Surgeon STEPHEN WYTHE are revoked.—First Lieutenant JAMES F. EDWARDS, assistant surgeon, is granted leave from November 17 to and including December 31.—First Lieutenant JAMES F. EDWARDS' resignation has been accepted, to take effect December 31, 1905.—So much of orders of September 11, W. D., as directs the following-named assistant surgeons to proceed to San Francisco, Cal., and take transport to sail from that place about December 5, 1905, are amended so as to direct them to proceed to San Francisco, Cal., and take transport to sail from that place about November 25 to Manila, P. I.: First Lieutenants WALTER C. CHIDESTER, ROB'T B. GRUBBS, CHARLES R. REYNOLDS, FREDERICK A. DALE, PATRICK H. MCANDREW.—So much of orders of September 11, W. D., as direct First Lieutenant WALLACE DE WITT, assistant surgeon, to take transport to sail from San Francisco, Cal., December 5, are amended so as to direct that officer to proceed to San Francisco, Cal., and take transport to sail from that place about December 15 to Manila, P. I.—So much of orders of September 25, W. D., as relate to First Lieutenants FREDERICK A. DALE and WALTER C. CHIDESTER, assistant surgeons, are amended so as to direct them to report for examination on November 21 instead of on November 28.—The following-named officers are relieved from duty at the stations designated after their respective names, to take effect at such time as will enable them to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place on January 25 for Manila, P. I., where they will report for assignment to duty: Major WILLIAM L. KNEEDLER, surgeon, Fort Rosecrans; Captain HENRY S. GREENLEAF, assistant surgeon, Fort Moultrie.—So much of orders of October 14, W. D., as directs Captain EDWARD R. SCHREINER, assistant surgeon, to proceed to Manila, P. I., on the transport to sail from San Francisco, Cal., about December 5, is amended so as to direct Captain Schreiner to proceed to Manila on the transport to sail from San Francisco on November 25.

Changes in the Medical Corps of the U. S. Navy for the week ended November 11, 1905:

Surgeon C. E. RIGGS, detached from the Dolphin and ordered home to wait orders.—Surgeon L. W. SPRATLING, detached from the naval station, New Orleans, La., and ordered to the navy yard, League Island, Pa., November 15.—Surgeon E. THOMPSON, ordered to the navy yard, Charleston, S. C.—Passed Assistant Surgeon P. E. MCDONALD, detached from the naval dispensary, Washington, D. C., and ordered to the Dolphin.—Passed Assistant Surgeon R. W. PLUMMER, detached from the navy yard, Charleston, S. C., and ordered to the naval recruiting rendezvous, Kansas City, Mo., November 15.—Assistant Surgeon R. E. RIGGS, ordered to the Franklin.—Assistant Surgeon, R. H. MICHAELS, detached from the naval recruiting rendezvous, Kansas City, Mo., and ordered home to wait orders.—Surgeon O. DIEHL, detached from the Baltimore and ordered home to wait orders.—Surgeon R. SPEAR, ordered to the Baltimore.—Surgeon J. C. PRYOR, detached from the naval medical school, Washington, D. C., and ordered to the naval dispensary, Washington, D. C.—Surgeon C. DEW. BROWNELL, ordered to the naval recruiting rendezvous, Providence, R. I.—Surgeon T. W. RICHARDS, ordered to the naval hospital, Norfolk, Va.—Surgeon J. C. THOMPSON, detached from the naval recruiting rendezvous, Providence, R. I., and ordered to the Asiatic Station, via the Lawton, sailing December 1.—Assistant Surgeon J. F. MURPHY, detached from the naval recruiting rendezvous, Buffalo, N. Y., and ordered to Washington, D. C., December 4, for examination for promotion, and then to wait orders.—Assistant Surgeon J. A. GUTHRIE, detached from the navy yard, League Island, Pa., and ordered to the naval recruiting rendezvous, Buffalo, N. Y.

Changes in the Public Health and Marine-Hospital Service for the week ended November 8, 1905:

LAVINDER, C. H., passed assistant surgeon, granted leave of absence for one month from November 6, 1905, November 4, 1905.—MCMULLEN, JOHN, passed assistant surgeon, granted leave of absence for one month from November 7, 1905, November 4, 1905.—CURRIE, D. H., passed assistant surgeon, relieved from special temporary duty in New Orleans and from temporary duty in San Francisco, and directed to proceed to San Francisco Quarantine Station for duty, November 6, 1905.—AMESSE, J. W., passed assistant surgeon, relieved from special temporary duty in New Orleans and from duty in Seattle, Wash., and directed to proceed to Ellis Island, N. Y., reporting to medical officer in command for duty, November 8, 1905.—BERRY, T. D., passed assistant surgeon, granted leave of absence for one month to take effect from date of being relieved in New Orleans, November 2, 1905.—BUCKER, W. C., assistant surgeon, granted leave of absence for seven days, November 7, 1905.—COLLINS, GEO. L., assistant surgeon, leave of absence granted Assistant Surgeon Collins for sixteen days from October 31, 1905, amended to read sixteen days from November 1, 1905.—ASHFORD, F. A., assistant surgeon, granted leave of absence for five days from November 4, 1905, under provisions of paragraph 191, regulations, November 4, 1905.—MULLAN, E. H., assistant surgeon, granted leave of absence for five days from November 2, 1905, November 2, 1905. Granted extension of leave of absence for five days from November 7, 1905, November 3, 1905.—DE VALIN, HUGH, assistant surgeon, relieved from special temporary duty at New Orleans and directed to proceed to Baltimore, Md., reporting to medical officer in command for duty and assignment to quarters, November 7, 1905.—ALEXANDER, E., acting assistant surgeon, granted leave of absence for six days from November 10, 1905, November 4, 1905.—CLEAVES, F. H., acting assistant surgeon, granted leave of absence for five days, beginning November 6, 1905.—GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for two days from November 4, 1905, November 2, 1905.—STEVENSON, J. W., acting assistant surgeon, granted leave of absence for thirty days from November 6, 1905, November 6, 1905.—TAPPAN, J. W., acting assistant surgeon, granted seven days' leave of absence from November 6, 1905, under provisions of paragraph 191, regulations, November 5, 1905.—MCDONALD, JEANNETTE, medical inspector, granted leave of absence for eighteen days from October 25, 1905, November 6, 1905.—STEARNS, W. L., pharmacist, granted three days' leave of absence, effective from date of being relieved, November 3, 1905.—GOODMAN, F. S., pharmacist, granted leave of absence for twenty days from December 12, 1905, November 6, 1905.—THURSTON, N. J., pharmacist, granted leave of absence for fifteen days from November 10, 1905, November 2, 1905.—SPANGLER, L. C., pharmacist, granted

leave of absence for thirty days from November 5, 1905, November 6, 1905.

Board Convened.

A board of officers was convened to meet at the bureau, on call of the chairman, for physical examination of Chief Engineer H. F. Schoenborn, R. C. S. Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon H. McG. Robertson, recorder.

SOCIETY REPORTS

AMERICAN RÖNTGEN RAY SOCIETY.

Sixth Annual Meeting, Held in Baltimore, Md., September 28 to 30, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page* 809.]

Diagnosis of Aneurysms.—FREDERICK H. BAETJER (Baltimore) gave the points in diagnosis between aneurysm and dilation of the aorta. A pulsating shadow which does not disappear between pulsations is always suspicious. By means of the röntgen ray a diagnosis of aneurysm can be made earlier than by any other method, and the treatment can be begun earlier and it can be planned more intelligently; hence the results are better. Before proceeding with the röntgen-ray examination, the patient should be examined carefully to exclude physical deformities of the chest and spine. The patient is then placed with his back to the tube, the tube being placed at the level of the third rib, and from 20 in. to 24 in. from the skin surface. A second picture is made from in front. By means of transverse or slightly transverse illumination it is often possible to tell whether the object seen has its attachment in front or behind. This is especially important in determining whether the aneurysm springs from the ascending or descending portion of the aorta. By making the examination at two different levels, the composite picture is a true one.

Discussion.—P. M. HICKEY (Detroit) has found that the most disastrous results followed the disregard of the röntgen ray diagnosis of aneurysm. When mistaken for tumor, an operation always proves fatal. W. S. NEWCOMET (Philadelphia) advocated fluoroscopy in the diagnosis of aneurysm. By means of the fluoroscope it is possible to see things that the skiagraph will not show. The main thing is to have a fluoroscope large enough to show the entire chest. GEO. E. PFAHLER (Philadelphia) cautioned against exposing the body of both patient and operator needlessly to the röntgen rays when making use of the fluoroscope. HENRY HULST (Grand Rapids, Mich.) never makes an examination of the chest without the use of the fluoroscope, although he did not agree with Newcomet. He considered the plate more accurate than the eye. It shows better detail and shows minute changes that are not visible to the eye; nevertheless in an examination of the lungs the fluoroscope is indispensable. J. RUDISJICINSKY (Cedar Rapids) uses both the plate and the fluoroscope in every case where their use is indicated.

Regulation and Measurement of Therapeutic Dosage of Röntgen Ray.—E. G. WILLIAMS (Richmond, Va.) said that the more superficial the effect desired, the closer the tube should be placed to the skin surface. He has found that about 90 minutes are required to produce an erythema on the surface, with a tube distance of 10 inches, spark gap 4 inches equivalent to the resistance in the secondary circuit, and the milliameter showing three-fourths of a milliampere. The safety limits are about 30% less than the number of minutes required to produce a decided erythema. The law of inverse squares helps in regulating the length of exposure and the distance of the tube from the surface. The closer the part is to the tube, the greater is the difference in the effect on the skin and the parts beneath, and inversely, the farther the part is from the tube, the less is the difference between the effect on the skin and the part beneath. His rule is not to expose in 10 days more than the number of minutes required to produce a dermatitis. He usually gives treatments in series of four to six exposures each, in which the sum total number of minutes equals the number of minutes required to produce the desired effect. The tissue is also affected in proportion to the relative number of cells it contains. To measure and record a dose of the röntgen ray there should be noted the duration of the exposure, the distance of the surface from the platinum disc, the equivalent spark gap and the reading of the milliameter.

Discussion.—M. K. KASSABIAN (Philadelphia) described the means adopted by French and German röntgenologists for determining the dosage of the röntgen ray, such as the use of fluorescent paper and capsules containing a fluorescent substance. His mean of measuring is to keep a certain standard for some kinds of work, and giving an exposure of a definite duration, always noting carefully the action of the ray on the skin. G. P. GIRDWOOD (Montreal) uses varying thicknesses of lead foil to estimate the dosage of the ray. C. LESTER LEONARD (Philadelphia) advised studying the equation of the tube used, as well as the personal equation of both patient and operator, in order to avoid untoward effects.

Technic of Röntgen Treatment of Keloids.—O. SHEPARD BARNUM (Los Angeles, Cal.) advised using a great abundance of rays from a tube of rather high resistance and excited by a large coil. That means good penetration and differentiation. The tube should be at least six inches in diameter, and it must have good penetration and be not lacking in definition. He uses a ray which will show the bones in the hand at 12 feet distance. He said that it is better to have the tube too high than too low. The tube distance should be from 15 in. to 20 in., with an exposure of 15 to 25 minutes on alternate days for 8 to 10 treatments. Then rest 10 days, or until convinced that there is no dermatitis. Then repeat the process until the tumor has disappeared entirely. The treatment should be pushed for 3 to 6 months, and then tapered off, until every vestige of the tumor has disappeared.

Discussion.—HENRY PANCOAST (Philadelphia) advised first excising the tumor with the knife whenever possible, and then treating with the röntgen ray. Boggs and Williams agreed in this.

[*To be continued.*]

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page* 808.]

The Operative Treatment of Tuberculous Joints.—HORACE J. WHITACRE (Cincinnati, Ohio) advocates four kinds of operations for tuberculous joint disease: (1) Osteotomy for the removal of an epiphyseal focus; (2) erasion or arthrectomy of those cases, particularly in the young, where the focus is circumscribed and a fair amount of synovial membrane remains; (3) excision; (4) amputation. Osteotomy for the removal of a focus localized in the epiphyseal end of the bone is a most logical operation. Six patients with rather extensive tuberculosis of the knee were treated by arthrectomy or erasion. In four of these patients a complete cure of the disease, with a useful stiff joint and good position, was obtained. In three a slight amount of motion, giving some assistance in locomotion, was regained. In two cases amputation was subsequently resorted to. These subsequent amputations occurred

in patients who passed from his observation very soon after operation. They undoubtedly represented recurrence in a spot where the dissection was not sufficiently thorough. Excision for a tuberculous joint has been reserved in his practice for those cases in which the bone ends are damaged.

President's Address.—BRANSFORD LEWIS (St. Louis) considered two subjects: 1. Some unrecognized responsibilities of press and State in conserving health. 2. The prophylaxis of the socalled venereal diseases. He called attention to quack medical advertising in newspapers and magazines, and said that news managers provide against discrimination frequently by making unworthy advertisements resemble as closely as possible the regular news material of the paper, or by setting it up as telegraphic matter. He thinks the press is *particeps criminis* in presenting such fraudulent material. There is a widely disseminated and growing belief that matters pertaining to sexual physiology and pathology should be taught in a simple way to the budding youth of both sexes in the course of their regular education, in order to place them in a position to resist the temptations that beset young life, by the clearer understanding that such instruction will afford. He would make use of educational channels of all sorts to spread the information desired in a scientific, dignified, truthful and wholesome manner, and such instruction will be received in the spirit in which it is imparted. It is primarily to the education of the people to which we must look for providing either the required legislation or the belated impulse or self-respect and decency on the part of newspapers in eliminating quack advertisements. Another subject which he considers well worthy of attention, is the determination of practical methods of protecting the people from the far-reaching and disastrous effects of those diseases generally termed venereal, but which are not uncommonly entirely innocent in their development. He referred to gonorrhea, syphilis and chancroid. These diseases prevail to an extent undreamed of by the people and those in control of the public health of the country. He believes nothing is to be accomplished by prolonging a discussion as to the propriety of legal control and the regulation of prostitution. Instead of trying to do what is impossible, to corral and disinfect all prostitutes, he would teach the public the dangers of prostitution, the dangers of the diseases to which it leads, the prevalence of such diseases in daily life, how they are acquired innocently, how they are to be avoided, and the necessity of seeking relief from them as soon as possible when they are acquired. A campaign of education must be the chief reliance, and the medical profession, followed by the ministry, instructors in institutions of learning in general, philanthropists and leaders in public work, will have to be counted on as the purveyors of such education.

The Present Status of the Surgery of the Stomach: Address in Surgery.—W. D. HAGGARD (Nashville, Tenn.). A discussion relative to operation for stomach lesions now is similar to that in regard to appendicitis 12 or 15 years ago. Then only the desperate cases were submitted to operation. It is so now with many stomach cases. This, however, must yield to the logic of results, and in a short time the profession generally will advise early operation as they now well nigh universally do in appendicitis. Improved technic, low mortality, and satisfactory end-results will inevitably do away with the empiric treatment of occult intractable stomach troubles. The typic indication for operative interference is obstruction of the pylorus from an open or cicatrized ulcer causing dilation of the stomach, with stasis of food. The short-circuiting operation of gastroenteric anastomosis finds its ideal indication here, and has given the most beneficent results. It is the *fons et origo* of the present group of drainage operations, as well as other gastric procedures, and is altogether the most perfected and satisfactorily employed operative device. The other complications of ulcer requiring operation were pointed out as: 1. Perforation. 2. Hematemesis of chronic ulcer. Operation is advised in repeated acute hemorrhage or in constantly recurring small hemorrhages. Other indications are found in the following groups of cases: 3. Obscure and persistent stomach troubles, with a long history of dyspepsia, culminating in hemorrhage after it has been controlled by medical means and the patient put in the proper condition for operation. 4. Cases of chronic intractable dyspepsia, even without dilation, which fail to yield to proper medical treatment and are not due to a general visceral ptosis. Aside from malignancy, chronic ulcer and its complications furnish most of the indications and the majority of cases. It is not impossible that the bulk of cases of inveterate dyspepsia is really due to ulcer. That it is found at autopsy so very many more times than it is recognized clinically is a reproach not so much to diagnostic measures as to failure to apply them properly.

[*To be continued.*]

AMERICAN ACADEMY OF MEDICINE.

Thirtieth Annual Meeting, Held in Chicago, November 9 and 10, 1905.

[Specially reported for *American Medicine.*]

Officers Elected.—The following officers were elected for the ensuing year: President, Donly C. Hawley, Burlington, Vt. Vice-presidents, Helen C. Putnam, Providence, R. I.; G. W. McCaskey, Fort Wayne, Ind.; Henry B. Favill, Chicago, Ill.; James T. Searcy, Tuscaloosa, Ala. Secretary-Treasurer, Chas. McIntire, Easton, Pa. Assistant Secretary, Samuel C. Stanton, Chicago. Boston, Mass., was selected as the place for holding the next annual meeting; time, June 2–4, 1906.

The report of the Committee on Laws regulating the practice of medicine was read by the secretary, CHARLES MCINTIRE (Easton, Pa.). The Academy began the study of laws relating to the practice of medicine in 1880, and the report gave some of the results of this 25 years' investigation. Some of the imperfections of the laws were considered: 1. The lack of uniformity in common with most legislation. In time this might be corrected. 2. The relation of vagarious practitioners. Each State, by special legislation, by exemption in general legislation, or by sufferance, permitted certain classes of people to perform the office of a physician without the tests required by the State for doctors in medicine. The report suggested that the general practice acts should recognize this by providing for two classes; one to be known as "Limited Licentiates in Medicine," who would be examined only on the elementary subjects. As these laws were to protect the people, they should not take cognizance of any special system. Each one should have liberty to treat disease after his own sweet will, but only after he had demonstrated to the State officials that he possessed such knowledge of the human brain as the Legislature had decided was necessary for the proper protection of the citizens. 3. Another imperfection of the laws of today was that they do not accept the statement of the medical college as final. This had been thought to have been necessary because some medical schools had been found not to have acted in good faith. The result was a somewhat mechanical statement of requirements. Time would right this, and the future laws would accept a diploma without going behind the returns. 4. Another weakness was the provisions for the transfer of a legal practitioner from one State to another. The report suggested that authority be given to each board to accept the license of another State at its value, and to make

such additional tests as might be required. 5. The laws too frequently failed to protect those who were licensed. They should provide for some official whose duty it was to search out and prosecute the unlicensed and those who were abusing their licenses. The report favored having osteopaths represented on State Medical Examining Boards.

Discussion.—CARL H. VON KLEIN (Chicago) referred to the gradual evolution that was taking place toward higher medical education and said he had always been an earnest advocate of it. America was not behind in this progressive movement. In some medical schools the courses of instruction were equal to those established in foreign countries. There was a four-year course in Germany, a six-year course in Russia, an eight-year course in Italy, and all of these courses were different. In America the courses of instruction were almost equal to those in Austria and Germany, but the preliminary education of medical students had not reached as high a standard in this as it had in foreign countries. LEARTUS CONNOR (Detroit, Mich.) called attention to the origin of medical laws, who originated them, and for what purpose. He said there were two parties involved: (1) The people, and (2) the doctors themselves. Doctors could not enact laws themselves, but they had to join with the people in accomplishing this. Doctors, however, had been the prime factors in establishing these laws, sometimes with a selfish purpose in view, he regretted to say. He thought that if the doctors had looked disinterestedly after the interests of the people first rather than their own interests, there would have been no need for any medical laws. While this was a strong statement, it was absolutely true. Physicians should work for the good of the community first, and for themselves secondarily. There should be a community of interest. With this idea in view, medical laws would be efficient, effective, in proportion to the support they received, and without such support they would be weak and ineffective. B. D. HARRISON (Sault Sainte Marie, Mich.) said he could not agree with the recommendation in the report that osteopaths should be admitted as members of State Medical Examining Boards, and be recognized as a part of the medical profession. Physicians could not afford to recognize a fake profession, such as osteopathy was, which was founded upon a fake condition, and was acknowledged to be such by its followers. It was simply suggestion. Three or four years ago he had occasion to inspect a school of osteopathy, which held out inducements to graduates from all schools of medicine. He asked the Dean many questions, and among them, "Who teaches anatomy in your school? The Dean replied: "Our professor of anatomy is a Rush College graduate." Again, he asked the Dean, "Who are the assistant anatomists?" The reply was, "A Homeopath and an Eclectic." All anatomy, descriptive and applied, was taught in this school by these men. The Supreme Court of Kentucky held that the osteopath was a masseur. It was held by the Supreme Court of another State that osteopathy came within the field of medicine. Physicians had no right in principle to combine with osteopaths and accept them as members of examining boards, nor, in his judgment, had a board any right to have anything whatever to do with osteopaths or with any of the suggestive systems of practice—systems that were founded to "take in" the people. He referred to the Michigan law regarding osteopathy and osteopaths, and said it was only a matter of time when osteopaths would be driven out of that State. He favored letting them alone, as they would work out their own salvation or damnation. He gave the following legal interpretation of qualifications numbers one and two in the report: "If an applicant for the reciprocal endorsement of a certificate of medical registration or license had acquired such certificate or license in another State, territory, district or province of the United States in medical reciprocity with Michigan, under conditions and requirements equivalent at the date of issue to those with which he would have had to comply subsequent to September 22, 1883, in order to have then obtained the legal right to practise medicine and surgery in Michigan, such certificate or license may be recognized and endorsed by this Board as a sufficient qualification for reciprocity under section 3, subdivision third of act 191 of the Public Acts of 1903, provided such applicant shall further comply with the rules and regulations of this Board relative to the recognition and exchange of certificates or licenses between States." R. O. BEARD (Minneapolis, Minn.) believed that if the standard of the medical profession was raised there would not be need for medical legislation half so much as it was needed now. He was not at all sure but that at the present time, in view of the difficulties standing in the way of obtaining effective legislation for the control of the practice of medicine, the action of the State of Massachusetts was to be preferred to the action of the great majority of States in refusing to enact any law. It was a question of the "survival of the fittest," and he thought it would not be very long, after the medical profession had attained that standard of educational and professional fitness, before the bogus colleges would be relegated to the position of barbers, plumbers, etc. The legislative side of the question was more difficult to deal with, as physicians were not as expert and successful in securing the enactment of laws as were others who were past masters in politics. JOHN M. DODSON (Chicago) said, urged by the medical profession, some schools had for several years established and arranged their work so as to prepare young men better for the study of medicine. Some institutions of general learning were now pursuing the plan of supplying courses in chemistry, physics, general biology, and others, human anatomy, especially microscopic anatomy, bacteriology, and embryology.

[*To be continued.*]

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 807.*]

The Pathology and Etiology of Human Vaccinia.—WM. T. HOWARD, Jr. (Cleveland, O.) discussed this subject under three heads. 1. Material and methods. 2. Pathology. 3. Etiology of vaccinia. The paper appeared in *American Medicine*, Vol. x, No. 20, November 11, 1905.

Further Experiments with Vaccine Virus.—W. F. ELGIN (Glenolden, Pa.) discussed this subject under six heads: 1. Dating of commercial vaccine: Experiments are recorded indicating the number of days commercial virus will remain active at various seasons of the year. From these experiments it is noted: (1) That winter vaccine may be expected to remain active for 125 days; (2) that this period shortens as the weather gets warmer; (3) that a temperature above 70° hastens the destruction of virus, so that summer vaccine can only be expected to remain active for a short time. 2. Vaccine in cold storage. This section deals with the preparation of glycerinated virus and its immediate storage at a temperature of from 13° C. to 15° C.; and shows that it not only remains active for a long period at this temperature, but when removed after a storage of several months it will stand practically the same conditions as to change of temperature as that noted in control virus removed from the animal at the time the stored virus is taken from cold storage. This will allow of the

preparation of vaccine during the cold weather, and its storage for summer distribution; so that vaccine plants may close down during the extreme heat. 3. Comparison of bulk vaccine and single vaccinations stored under similar conditions: The experiments detailed under this section are for the purpose of determining whether vaccine prepared in a finished package of single vaccinations deteriorates more rapidly than virus in bulk while stored in cold, as noted in the previous section. The tests indicated that the virus contained in the capillary tubes remains active practically as long as the same virus in bulk, while a slight deterioration is noted in the glycerinated vaccine on points. 4. Comparison of normal vaccine with that taken from the deeper skin layers. These experiments were made to determine the comparative value of the base, or that part of the vesicle remaining after the normal or usual vaccine tissue has been removed. Comparative tests on animals seem to indicate that the "life" of the deeper layer is very nearly, if not quite, the same as that of the normal virus; while the bacteria are decidedly fewer in number, and more restricted in character. 5. Toluol. Attention is called to Carini's experiment in the purification of vaccine virus by means of this substance; and experiments and results noted showing that, when mixed with virus as ordinarily prepared, it destroys the nonspore-forming germ life in from four to six days, without apparently affecting the activity of the virus. If further experiments confirm these findings, it is thought this method will be valuable in the rapid preparation of a germ-free vaccine. 6. Conclusion: Attention is called here to two important questions in connection with the production of vaccine virus, purity and potency. It is shown that up to the present time no sure method has been universally accepted which will accomplish both in virus prepared for general distribution. Attention is called to the fact that many of the laboratories, particularly those under State control in this country and abroad, have practically given up bacteriologic control as a routine procedure. The question that was propounded to this association last year is again emphasized, as to "How far we are justified in clearing vaccine of bacteria at the expense of its potency?"

The Dissemination of Tuberculosis as Affected by Railway Travel.—Charles B. Dudley (Altoona, Pa.) stated that during the past few years the railroads have been called quite sharply to account for their remissness in sanitary matters, and it has seemed advisable to put a little study on the subject, with this idea in mind of finding out exactly how far this criticism is justified. In order to concentrate the study upon something definite, the spread of tuberculosis is chosen as the field. It is obvious that if the spread of tuberculosis is largely due to contact of the healthy with those who are affected, the railroads, under present conditions, can hardly be held responsible, since there is no means by which ticket agents or conductors can be sure as to diagnosis, and to refuse transportation on an erroneous diagnosis, would lead to serious trouble. If, on the other hand, the spread of tuberculosis is largely due to pulverized, dried sputum, the railroads may fairly be regarded as responsible, and be required to take greater precautions. Careful studies seem to indicate that the dangers of infection from dried sputum on cars have been greatly magnified.

A Few Points in Regard to Car Sanitation.—Henry M. Bracken (Minneapolis, Minn.) said that to advance car sanitation, it is not only necessary to improve the methods of car construction, but to instruct railway employes in the proper care of cars. Special duties should be imposed upon them as to ventilation, car cleanliness, etc. Their instructors should be medical men connected with railway companies and familiar with sanitary problems. He pointed out the dangers from spitting upon the floors or furnishings of cars. He discussed car cleaning, and said more attention should be given to this subject. The drinking water for railway cars should be of unquestionable quality, distilled or equally pure, and should be kept out of reach of passengers, except as drawn from the faucet, should be stored in well-cleaned cans or coils, and iced with well-selected ice that has been handled in a cleanly manner. He advocated improvement in the toilet rooms of the day coaches.

The Restriction of Contagious Diseases in Cities.—Charles V. Chapin (superintendent of public health, Providence, R. I.) said that modern municipal sanitary practice was at first based on the filth theory of disease. During the last 25 years it has been largely determined by the recognition of the contagiousness of the infectious diseases. Future practice will be modified by specific knowledge as to the etiology of each disease. The chief sanitary discovery of recent years is that unrecognized foci of infection are the principal factor in the spread of contagious disease. This is bound to modify present methods, rendering them less burdensome. Stringent measures cannot stamp out disease. All that can be hoped for is to limit extension from the recognized cases. This can be done substantially as well by moderate means. No restriction of personal liberty is advisable in influenza, pneumonia, typhoid fever, or cerebrospinal meningitis. In measles and whooping-cough there should be some restriction of school attendance, and the occasional closure of school. In scarlet fever and diphtheria the patient should be isolated for three or four weeks; other children in the family kept from school. Wage earners should rarely be interfered with. The use of cultures to terminate isolation in diphtheria as ordinarily practised is illogical. Hospital facilities are needed only for the poor. Official disinfection does more harm than good. When the above diseases appear for the first time in small places, or rather when rarer diseases appear in large cities, the most energetic measures are called for.

Modification of Present Port Inspection.—A. H. Doty (Health Officer, New York) pointed out the necessity for a change in the present method of quarantine inspection, which will insure a more thorough examination of passengers and crews on incoming vessels. A closer observation for the detection of mild or ambulant cases and recognition that this type of a disease is commonly the cause of outbreaks, the origin of which are unknown, and which are frequently improperly attributed to infection by cargoes, clothing, etc. That while five days may be regarded as the maximum period of incubation of yellow fever, the fact that a person has been five days away from an infected area should not permit him to pass quarantine without having his temperature taken and the use of other means to detect the presence of mild cases. This should also be applied to the examination of those held to complete the period of incubation of other diseases. Furthermore, the possibility of occasional cases having a longer period of incubation than that generally accepted must be remembered, and consideration made of the detention, annoyance, and expense to commerce caused by unnecessary disinfection.

Communicability of Cerebrospinal Meningitis and the Means of Controlling Its Spread.—Wm. H. Park and Chas. Bolduan (New York City) stated in a joint paper on this subject that 1,500 cases of cerebrospinal meningitis occurring in New York City, investigated by Bolduan, revealed the fact that 200 of them were in direct contact with other cases, and that many of these showed evidence of infection from other cases. These 200 represented 88 families. Bacteriologic examinations conducted by Goodwin in the laboratory, revealed that about half the cases of meningitis had abundant meningococci in the nasal cavity during the first two weeks of the disease, and that the nasal cavities of five attendants were badly infected. The conclusion is

drawn that the meningococci are spread by the discharges from the nose and mouth of the sick and those in immediate contact with them.

Method of Securing More Uniform Instruction and Cooperation in Health Work.—There was a symposium on this subject. F. C. ROBINSON (Brunswick, Me.) and W. T. SEDGWICK (Boston) discussed educational cooperation with the general public in public health work. H. C. ERNST (Boston) and J. G. ADAMI (Montreal) spoke of graduate and undergraduate instruction in hygiene in universities and medical colleges. W. D. FROST (Madison) discussed the teaching of hygiene in public schools. S. H. DURGIN (Boston) pointed out the present regulations and laws as to the qualifications and methods of appointment of executive and technical health officers; while H. D. PEASE (Albany) emphasized the importance of sanitary conferences and schools of instruction for health officers.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A STRANGE PARASITE.

BY

WALTER T. BROWN, M.D.,

of Mitchell, Ore.

I have never seen nor read in the medical and entozoic literature at my command anything like the parasite described below. If it really is a parasite, it is certainly the strangest I have ever seen.

On July 15, Mr. F. consulted me concerning his little girl, aged 3, whom he said had worms in her eyes. "In her eyes? Surely you do not mean to say the child has worms in her eyes?" I asked dubiously. "Yes," he replied, "but they do not seem to hurt her—at least she does not cry." Questioning as to how the worms got into the child's eyes resulted so unsatisfactorily that he insisted that I come to his ranch and examine the child for myself. My natural conclusion, before seeing the child, was that she had pin worms, and had scratched the affected parts, afterward rubbing her eye with her fingers, and thus transferring the worms. On my arrival at the ranch, I discovered that my patient was a dirty unkempt child, rather large for her age, and who seemed to be in good condition physically in spite of her uncleanliness. The only thing to be noticed was a slight pallor of the mucous membranes of her lips and eyes. I everted the lid of her right eye, but could see nothing. After allowing her to rest a few moments, I again everted the lid, and with the aid of a small pocket lens, saw two small threadlike worms crawl rapidly across the conjunctiva of the lid and conceal themselves in the folds of that membrane where it joined the eyeball. They were milky white with a black head, and a twelfth inch in length.

The presence of these worms produced no symptoms that I could discover, except at times the eye seemed more watery than normal, but at no time did the secretion of tears exceed the capacity of the nasal duct. I could not detect the slightest irritation of the conjunctiva, nor could I discover any worms in the left eye.

A peculiar characteristic of these worms was that when the lids were in their normal position or closed in sleep, the worms would approach the edge of the lids, barely hiding themselves on the inner side of the lid, until the lids were everted or pulled away from the eyeball, when they would crawl rapidly toward the ball and hide in the folds of the conjunctiva.

Thinking probably the worms might be a species of ascarina, I endeavored to find a host for them, and noticed an old shepherd dog lying in the hall. The parents admitted that the child often played with it, but a careful examination revealed nothing. I also examined some pet sheep near the house with the same result, and I am still unable to account for the presence of the worms.

I am puzzled to know whether they are parasitic. If not, why did they seem so much at home in the conjunctival membrane? Could a nonparasitic worm of that kind live four or five days in the eye? Why did their presence cause no irritation or disturbance? If they were not parasitic, why did they not crawl out of the eye when the child was asleep? Were they the matured worms, or were they the larvas of some insect? How did they get into the child's eye? These are questions to which I have given considerable thought and speculation, but so far they remain unanswered. If anyone has had a similar experience, or can throw any light on the subject, I would be pleased to hear from them.

I dropped one or two drops of a solution of silver nitrate, 0.3 gm. (4 gr.) to 30 cc. (1 oz.) in both eyes, and left instructions that the solution be used in the same way every night and morning. Fearing that some of the worms might pass from the nose to the eyes, or vice versa (though I could find no worms in the nose), as a precaution, I left a mixture of boracic acid and bismuth to be blown in the nostrils. On the evening of the second day from my visit no worms could be seen, nor has any trace of them been seen since.

THE NEW ASIATIC BLOOD FLUKE (SCHISTOSOMA JAPONICUM, KATSURADA, 1904) IN THE PHILIPPINES.

BY

CH. WARDELL STILES, PH.D.,

of Washington, D. C.

Chief of Division of Zoology, Hygienic Laboratory, United States Public Health and Marine-Hospital Service.

In *American Medicine* for May 20, 1905, I called the attention of American physicians to a new blood fluke described by Katsurada and Catto for man in Asia.

Since then it has been my good fortune to examine specimens from two new cases of infection with this worm. One of these patients came from China and the case has recently been published in *American Medicine*, September 30, 1905, by Medical Inspector Henry G. Beyer. The other case occurred in a "native Filipino who had never been out of the islands. He was a 'long time' prisoner in Bilibid prison and died suddenly so that a clinical history was not obtained."

The specimens of eggs in this case were found in sections of the intestine kindly forwarded to me for determination by Dr. Paul G. Woolley, director of the Serum Laboratory, Manila, through whose courtesy I am able to announce this new geographic locality for the worm.

Immediately upon the receipt of the slides, the eggs were compared with specimens which I possess from Catto's case, and the conclusion was reached that they represented one and the same species. Quite recently Dr. Woolley has written to me that he has just visited Japan and has been able to compare the eggs from man in the Philippines with eggs from the cat in Japan, and has concluded "that so far as we were able to determine, the ovums from Manila and those from cats in Japan were identical."

Thus it is clear that in connection with American troops who have seen Philippine service, one more animal parasite must be held in mind, namely, the new Asiatic blood fluke.

For bibliography of and details concerning the parasite, the reader is referred to my article in *American Medicine*, May 20, Vol. ix, No. 20, 1905, 821–823, or to Looss' article in *Centralblatt für Bakteriologie*, etc., Vol. xxxix, No. 3, 1905, 280–285.

ORIGINAL ARTICLES

CLINICAL EXPERIENCES WITH CERTAIN DRUGS IN HEART DISEASE.

BY
THOMAS E. SATTERTHWAITE, M.D.,
of New York.

According to the last United States Census, nearly 70,000 persons of both sexes and of all ages died from heart diseases during the year 1900. Of the nine principal causes of death, as stated by the report, embracing tuberculosis, cancer, cholera infantum, Bright's disease, diphtheria, pneumonia, and heart disease, the returns showed that the latter occupied a third place, both in the country at large and in the socalled registration districts, the proportion being in one case 137, and in the other 149.6 per 1,000 deaths; tuberculosis, the most frequent of all the causes of death, being, according to the same report, 221 and 212.3 per 1,000, and pneumonia 211.8 and 217.6 per 1,000.

It is significant that the decade most prolific in deaths was from 65 to 75. Incidentally, I would mention that heart diseases were the third most frequent causes of death in the medical profession also, affections of the nervous system coming first and genitourinary troubles, curiously enough, second.

For those of us, therefore, who may have just cause for apprehension in this regard, and who have survived the anesthetic dangers of three-score, it may be well to remember that the real strain comes later on, a fact that may serve as a warning for some of us, though it is an encouragement for the younger sufferers.

Leaving this personal matter, however, for the larger one of the general welfare, would it not be well for us to realize that, while tuberculosis and pneumonia have elicited so much of our thoughtful attention and well-directed zeal, heart diseases should logically be the next large topic for us to attack.

Before, however, taking up the special matter of this brief paper, I am going to remind you that while we base the action of all drugs on theory first, then on physiologic action, as derived from experimentation on the lower animals, the crowning test always lies in clinical application, for we do not always find that laboratory work tallies with the clinical, even after we have eliminated all psychic factors. There still remain idiosyncrasies, personal equations, and natural differences between the artificial diseases of animals and those of the human kind, producing divergence in results.

The object of the present paper, however, is to emphasize one side of the question only, viz., the action of certain cardiac drugs, as seen from the clinical side, that is in actual practice. Its value (whatever it may be) lies in its personal character. When such of our members as Shoemaker, Butler, Stevens, and Wilcox have written encyclopedias on these subjects, Abel, Wood and Sollman have treated of them from the laboratory points of view, and Porter and Weber, and Curtin from their clinical experiences, there remains nothing for me to contribute except what I may have gleaned from a personal review of my cases.

The suprarenal capsule is being used more and more in heart diseases. Its active principle, as is now well known, was first discovered by Abel, in 1897, and was named by him epinephrin. In 1901 Takamine called it adrenalin, a name that has adhered.

Apart from its great value as a hemostatic, a matter universally acknowledged, it is probably the most powerful heart stimulant we have, for though it contracts the arterioles, as we all know by observation, it also stimulates the heart. Indeed, Crile tells us that it causes an immediate rise in the blood-pressure, though this action is temporary, passing away as quickly as it comes, unless there is continuous dosage to sustain the initial rise. In Crile's experience, a dying patient was kept alive for some hours by a continuous administration of adrenalin in salt solution, and a human heart that had ceased to beat for nine minutes, was made to beat again for 32 minutes. These facts seem conclusive enough as to the powerful action excited by this drug on heart tissue.

For several years I have been using it under the form of the dried and powdered gland put up in .16 gm. (2½ gr.) capsules. Some of my patients carry these capsules constantly in their pockets. As a rule, a single dose will promptly relieve palpitation or precordial pain. Sometimes I give as much as .81 gm. (12½ gr.) of this powder daily, in divided doses, in threatened heart failure, and occasionally I give it continuously for a couple of weeks at a time.

Lately a good deal has been written about the dangers of the nitrites, nitroglycerin, and the nitrates. There is some truth in such allegations, but on the whole the nitrites and nitrates are fairly safe remedies. According to Crile, nitrites cause a fall in the blood-pressure, but an increase in the strength of the heart, reducing also its frequency. The same may be said of the nitrates. In threatened heart failure I depend more on nitroglycerin than any other remedy, and have never seen it do any harm on these occasions. Doses of 1 mg. ($\frac{1}{60}$ gr.) may be given every five minutes for an hour or two. One of my cardiac patients took as much as 8 mg. ($\frac{1}{8}$ gr.) during an asthmatic attack that lasted about a couple of hours. By that time he was out of danger. But it is well known that very much larger doses have been given without ill effects, after tolerance has been established. At the same time it should be borne in mind that when enormous doses have been taken without obvious ill effects, the preparation may have been inert. Certainly nitroglycerin or the nitrites, in tablet form, are apt to deteriorate with age.

But so far as effects are concerned, they are always evanescent. If, however, nitrites are given in doses sufficient to produce violent throbbing in a patient with arteriosclerosis, they should be suspended.

I also use amyl nitrite internally in doses of 16 mg. ($\frac{1}{4}$ gr.) with .6 mg. ($\frac{1}{100}$ gr.) of nitroglycerin, and have seen this combination save life in heart failure. I use it in combination with menthol 1 mg. ($\frac{1}{60}$ gr.), oleoresin of capsicum .6 mg. ($\frac{1}{100}$ gr.), and castor-oil 10 drops. In this combination capsicum acts as a heart stimulant, and menthol as a stomachic and anodyne. The castor-oil, used as an excipient, modifies the otherwise irritant effects of the capsicum and nitrites.

The modus operandi of the nitrites is identical with that of nitroglycerin, but their action is more enduring. I give sodium nitrite in doses of from .06 gm. to .19 gm. (1 gr. to 3 gr.), perhaps in one or two teaspoonfuls of chloroform water, to prevent gastric irritation, or in half a glass of water, to which 10 to 20 drops of aromatic spirits of ammonia has been added. I have never seen any tumultuous action caused by nitrites. In point of rapidity of action, amyl nitrite stands first of those I have mentioned, nitroglycerin next, then the nitrites, and last of all, the nitrates. These statements will, I think, be generally accepted. Nitrites are useful in angina, high arterial tension, and arteriosclerosis, mainly from the power they have of dilating peripheral vessels.

In very advanced examples of arteriosclerosis, I have had success with erythrol tetranitrate, which is far more lasting in its effects than any nitrites; .03 gm. ($\frac{1}{2}$ gr.) in half a glass of water, not only relieves dyspnea and palpitation promptly in these cases, but maintains its good effects for some hours, often five to six. Some years ago, the hexanitrate of mannitol was advocated in similar cases, but I never succeeded in securing this special form of the nitrate, and I now understand it is not made, owing to its explosive character. In this connection, the suggestions of Lauder-Brunton may prove fruitful. Hearing through a friend that potassium nitrate (saltpeter) had been used with benefit as a vasodilator, he tried it with some success. The dose given was 1.2 gm. (18 gr.) of saltpeter with 1.6 gm. (24 gr.) of sodium bicarbonate in a glass of water. Saltpeter is a feeble but slow vasodilator, but this may be desirable in some cases in which a prolonged, but not very powerful action is required. The saltpeter of commerce, which is said to contain an admixture of the nitrites of sodium and potassium, is preferable to the saltpeter of the pharmacy, according to Lauder-Brunton.

Chloral hydrate meets some favor for relieving the high tension of arteriosclerosis. It reduces the frequency of cardiac action and dilates peripheral vessels, acting on cardiac muscular tissue, and also probably on the cardiac ganglions. I have a medical friend who uses it whenever the tension is disagreeable, but in obtaining relief by this drug it must be harmful to the muscular substance of his heart and ganglions. Possibly in the hypertrophied heart of the sclerotic kidney, it may have a field of usefulness. But as in the case of the opiates in angina, the remedy may prove to be worse than the disease. At any rate the initial dose should not exceed .65 gm. (10 gr.); 2 gm. (30 gr.) has been fatal. It is certainly a dangerous remedy in heart diseases, apart from any habit it may produce.

Iodin is a drug that is gradually but surely gaining in favor. I find it indispensable in the arteriosclerosis of gout, syphilis and old age. Indeed I believe it is preferable to any other medicine for thickened arteries. If the iodids of sodium, potassium, or strontium are not well borne (which often happens, especially in old syphilitics), I give hydriodic acid, or iodin in some other form.

In syphilitic cases a mercurial course should precede the iodids, or certainly form a part of the treatment. The biniodid in 4 mg. ($\frac{1}{16}$ gr.) doses is my favorite in these cases, for internal use, and mercury oleate of 5% to 10% strength for external use.

I commence with five drops of the saturated solution of sodium iodid, and give it in a half glass of water, two or three hours after meals, increasing the dose gradually to 10 drops. In my experience in cardiac syphilis, which, by the way, represents, I believe, as much as 10% of our chronic cases of heart disease, I have not found it necessary to give the enormous doses that are sometimes desirable in cerebral or cerebrospinal syphilis, when 24 gm. (6 dr.) or even more are often borne without discomfort by the patient. Romberg, it is true, begins with .52 gm. (8 gr.) of iodin and gives as much as 1.6 gm. (24 gr.) per day. And in Vienna, in cardiac syphilis, the initial dose is .32 gm. to .52 gm. (5 gr. to 8 gr.), given three times a day, and kept up for 20 days, after which spartein is given for 10 days in doses of from .03 gm. ($\frac{1}{2}$ gr.) to .06 gm. (1 gr.) at the same intervals.

I have found it sufficient thus far to begin with .03 gm. ($\frac{1}{2}$ gr.) of iodin, which is commonly taken in the form of tablets with nuclein in organic combination, or with peptonoids when 4 gm. (1 dr.) represents .03 gm. ($\frac{1}{2}$ gr.) of iodin. This dosage may be gradually increased until .12 gm. (2 gr.) of iodin are taken at a dose. By either of these methods iodin is soon found in the urine. I have not found it necessary to exceed .39 gm. (6 gr.) per day. Iodin, according to my views, is not cumulative, but is a vasodilator, and internal disinfectant, dissolves plastic matter, and often reduces (temporarily at least) the volume of newgrowths. Theoretically, then, it is an ideal drug for vascular thickening caused by systemic poisons. No doubt it permeates all the tissues of the body. It also appears to act favorably on the heart itself, in myocardial diseases, and especially in chronic aortic endocarditis.

There can be no objection to Caton's method of giving iodin in acute benign endocarditis. Even in the malignant form it offers possibilities, and is worthy of a serious trial. It may be remembered that Caton some years ago reported that of 39 patients with acute endocarditis, 29 left the hospital with normal heart sounds, while in 13 similar cases, the patients being treated by ordinary methods, 12 left with bruits. Neither mercurials nor iodids are contraindicated in any form of acute endocarditis, so that in this direction the field is open for further inquiry. Among other preparations of iodin that I use are the iodids of arsenic in .6 mg. ($\frac{1}{100}$ gr.) doses, which I give for months at a time, alternating every two weeks with some other form of iodin. For prolonged use I am apt to give iron iodid in .06 gm. (1 gr.) doses. Iodids are useful in relieving cardiac pain, when it is not due to dilation.

Arsenic is a drug on which much reliance may be placed, especially in the heart diseases of old people, when heart failure is not threatened. It is readily absorbed, and even in minute doses appears to improve both circulation and respiration. In large doses, however, I am inclined to think it is a circulatory depressant. But in doses of from .3 mg. to .6 mg. ($\frac{1}{200}$ gr. to $\frac{1}{100}$ gr.) it relieves dyspnea, palpitation and edema, to

some extent, and regulates the pulse. I find it soothing, more particularly in the arteriosclerosis of the aged, and in the restlessness of aortic regurgitation.

Balfour and Bramwell have claimed that it benefits angina and myocardial diseases, and I am inclined to think their praise of it is well deserved. I give it usually for a couple of weeks at a stretch. Occasionally it produces a headache, or gastric disturbance, but such occurrences are extremely rare. If they occur, the preparation should be suspended for a while.

Strychnin continues to maintain its character as a reliable heart stimulant and deservedly so, but it should be used with discretion. It certainly, I think, stimulates the respiratory and vasomotor centers, and also the heart itself. But it is slowly absorbed and slowly eliminated, though its effects are durable even if they are somewhat cumulative. It is slow in passing the kidneys, especially in the aged. But it is *not* soothing in the larger doses. In fact, if the dose exceeds 1 mg. ($\frac{1}{60}$ gr.) it is apt to produce nervousness and insomnia. Success with strychnin lies, I believe, in not increasing the dose beyond this point, as a rule; and in not continuing the drug more than two weeks. Strychnin is, of course, useless in heart failure, in which prompt action is needed. In fact, in these cases, if pushed, it may bring on a fatal cardiac contraction. In cardiac cases it should never be permitted to produce its characteristic physiologic effects. On this point I quite agree with the known views of my friend Dr. R. A. Curtin, as publicly expressed a few years ago.

There is no doubt to my mind that cactus is a good heart regulator. It does not increase the force of the heart's action, like digitalis, strophanthus, or even adrenalin, but it strengthens it to some extent, and quiets irregularity, so that it may be classed as a mild cardiac stimulant and regulator. It has no cumulative action, and does not disturb the stomach, and may be continued for a long period safely. I give it in .06 cc. (1 m.) doses, chiefly as a succedaneum for strychnin.

As strophanthus is being better understood it is coming more and more to the front. It has a distinct field as a cardiac rather than an arterial compressor. Acting in a few hours, it accomplishes its physiologic results more quickly than digitalis, though more slowly than the nitrites. But the action of strophanthus lasts several days, though it is not cumulative, or at most only slightly so. And yet it may truly be said that thus far strophanthus has not proved so reliable as the nitrites or digitalis. This uncertainty of action, however, may eventually be overcome by closer attention to the pharmaceutic preparation of the drug. Usually the glucosid strophanthin is reliable, in my experience. In combination strophanthus shows off to special advantage, as in the DaCosta pill, which contains, as is well known, tincture of digitalis, .13 cc. (2 m.); tincture of strophanthus, .13 cc. (2 m.); tincture of belladonna, .02 cc. ($\frac{1}{4}$ m.); and nitroglycerin, .6 mg. ($\frac{1}{100}$ gr.). Belladonna is a heart stimulant in that it stimulates the accelerators, balancing in a measure the tendency of digitalis to reduce cardiac frequency. Strophanthus I use sometimes in heart failure to prolong the action of the nitrites. It modifies the pulse within an hour, and in four to five hours produces its full physiologic effect. Even if used in .3 mg. to .6 mg. ($\frac{1}{200}$ gr. to $\frac{1}{100}$ gr.) doses, strophanthin soon relieves dyspnea and precordial distress. Sometimes I use the tincture, beginning with a dose of .18 cc. (3 m.). In these small amounts I have never seen it produce nausea or gastrointestinal disturbance. It is a good alternative for digitalis. In the DaCosta pill it sustains the action of the nitrites until digitalis comes into play.

While convallaria, the lily of the valley, is being set aside, the broom top, or scoparius, is coming more and more into favor, under the form of spartein or its sulfate. Under it the pulse becomes less frequent and in about an hour arterial tension is found to be increased, and the increase will be maintained for some hours, or even for some days after the remedy has been stopped. Though spartein is not so powerful a diuretic as digitalis, it is more prompt, and, according to Shoemaker, increases the elimination of urea and the amount of the urine. I have used it satisfactorily both in heart weakness and in cardiac dropsy. In the one instance, doses of 3 mg. to 16 mg. ($\frac{1}{20}$ gr. to $\frac{1}{4}$ gr.) have proved sufficient; in the latter, as much as .06 gm. to .12 gm. (1 gr. to 2 gr.) may be necessary. In my experience, it is well borne. In fact, I have never seen any ill effects from it.

Apocynum cannabinum, or Canadian hemp, has some of the properties of digitalis; but, in addition, is both a diuretic and laxative, so that it is useful in cardiac and renal dropsy. In small doses it acts upon the circulation much like strophanthus. In moderate doses it appears to contract the heart and increase arterial tension. In large doses it is an emetic. Two active principles are obtained, one apocynin and the other apocynein. As yet it is uncertain which of these latter produces emesis and which diuresis. According to Pawinski,[1] of Warsaw, in doses of 10 to 15 drops of the fluid extract, it reduces pulse frequency and causes arrhythmia to disappear, but the action of apocynin is not so prolonged as digitalis, and to obtain its characteristic effects it should be given at short intervals. Its friends claim that at times it is a powerful diuretic, acting in two to three hours after 10 drops have been taken, and after a few drops this action is maintained. In a recent case of pulmonary edema, however, in my own practice, 10-drop doses of the fluid extract were followed by improvement in the respiration and it had also a quieting effect, but the amount of urine was not increased. Previous to the use of the drug, however, the amount had been 60 ounces. In another instance it was ineffective.

Apocynum, for some reason or other, is a drug that occasionally acts with remarkable vigor, and again is inert. Why?

I place great reliance on camphor. In small doses it is certainly a diffusible stimulant, improving the circulation and relieving arterial pressure, but it is also an antispasmodic and sedative. In threatened heart failure, if the nitrites fail, ammonium carbonate or oxygen, hypodermics of camphor in sterilized oil, may properly be used. Three-hundredths gram ($\frac{1}{2}$ gr.) to .13 gm. (2 gr.) may be dissolved in sterilized olive oil and injected hypodermically in divided doses, but apart from this use of camphor, the monobromate is a most useful prepara-

[1] Nouveaux Remedès, 1904, 20, p. 120.

tion for palpitation, especially the nocturnal form, and in cardiac neuroses. I give it in .06 gm. (1 gr.) doses. It acts in a few minutes. The dose may be repeated at intervals of two to three hours. I use it frequently.

Digitalis is always a subject open for discussion. While it has long been thought that sudden death has *occasionally* been caused by it, in ordinary doses (owing to its cumulative effect), it has been claimed more recently that hallucinations, delirium, and even convulsions, are caused by full doses, and that it may also bring about an alarming fall of the pulse.

But Hall, of Washington, after reviewing this matter and a study of Duroziez's 20 cases, concludes with him, "if my interpretation is just, which I do not undertake to affirm, moderate doses of the drug have produced death." Crile has also found when an experimental animal was treated with digitalis, during shock, he did not live so long as when digitalis was not given, while if the drug was pushed, heart failure would result. Now, however, that we are on the alert to ward off such dangers by combining with the digitalis the nitrites, its most dangerous feature is eliminated; but, owing to the slow action of digitalis, it is useless to give it in heart failure for emergency purposes. So far as the heart and vessels are concerned, it probably does best when the latter are flaccid, and just enough arterial pressure is produced by the drug to restore normal tension. If the effect of the dose, whatever its amount, is to produce too much tension, by so much is the work of the heart unnecessarily increased.

In order to be sure this drug has produced a good effect, a previously rapid pulse should be made less frequent, steadier, and firmer, causing also an improvement in the capillary circulation, which is the end in view. On the other hand, if in the course of administering digitalis the pulse gets to be irregular, the respiration embarrassed and unusual nervous phenomena appear, we may be sure not only the digitalis is doing no good, but positive harm. If a diuretic effect is accomplished, it should be indicated by an increase in the amount of urine on the second day.

But digitalis should form no part of the regular treatment in acute valvular diseases, in the fat heart, in fatty degeneration, in advanced arteriosclerosis or aortic diseases, or in cardiac neuroses. It is therefore apparent its use is prohibited in a large number of cardiac affections. In any form of mitral disease that is not compensated or in failing compensation from any cause, and in cardiac dropsy, it is useful up to the point of restoring normal tension, after which its action is detrimental, except so far as to aid in diuresis. Its field is in low, never in high tension. It is true Crile's experiments do not altogether tally with our ordinary clinical experiences, for in experimental animals he found the rise in blood-pressure commenced in half a minute, while the action of the heart was increased in force but reduced in frequency. And yet, in his animals there were many idiosyncrasies. He found that in excessive doses digitalis produced in them arrhythmia, convulsions and even sudden death. Perhaps one reason for the difference between the results of physiologic experimentation and clinical experience lies in the fact that in animals the drug is always administered hypodermically, while in the human kind it is chiefly given by the mouth.

In this connection the most important of recent events, so far as digitalis is concerned, is the manufacture of physiologically tested, that is assayed tinctures by our American pharmaceutists.

Circulatory depressants, such as antimony, veratrum, pulsatilla, hydrocyanic acid, and hellebore, are practically out of date. One of this group, however, is useful. It is aconite, if given in small doses; .06 cc. to .12 cc. (1 m. or 2 m.) are soothing, for the pulse becomes less frequent and the blood-pressure is lowered. Aconite is particularly useful in cardiac neuroses, and in these small doses is a perfectly safe drug. I have had no experience with ergot as a cardiac remedy.

The limits of this paper have permitted me only to discuss clinical experiences with a small number of drugs. There are others of which we should know more. Adonis vernalis and erythrophleum, or the sassy bark, have virtues that are now known to us through the laboratory experiments and clinical experiences of Wilcox, who has done much to define their bounds of utility.

But more work of this kind should be done. We need to know more of the specific qualities of the cretaegus and apocynum, and how and when to employ them. In fact, we are very much in need of a more comprehensive list of pharmaceutic preparations to be used in cardiac exigencies.

Perhaps these remarks may serve as a stimulus for more extended researches in this field.

ALCOHOL AS A REMEDY IN DISEASE.[1]

BY

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All physicians who graduated from 20 to 30 years ago, inquire, with more than usual interest, how far modern science has confirmed or disapproved the value of alcohol as a remedy. The recent graduates hear very little about alcohol in disease in the lecture-room, hence the question has less interest. Thirty years ago, and even down to more recent times, all the leading authorities classed alcohol among the most valuable of stimulants and tonics, and supported their claims by many exhaustive studies until it appeared that its therapeutic power was established beyond question. Yet today, all this teaching and literature are passing away, not being sustained or supported by modern research. Physicians who use spirits today in fevers and respiratory diseases, and combine it as a tonic in all forms of exhaustion and debility, fail to get the same results which were claimed by the earlier medical authorities. Many years ago, a wellknown physician reported the free use of alcohol in an epidemic of diphtheria, and congratulated himself on the low mortality, which he claimed was due to this drug. Last year, this same physician reported a large number of similar cases treated without spirits, and the difference in mortality was over 15% less.

[1] Read before the Connecticut State Medical Society, at Hartford, Conn., May 25, 1905.

The moralists have urged for over a century that alcohol is dangerous, both as a medicine and beverage. The physicians have assumed that this is true only in a narrow sense, and that its good effects as a remedy in disease exceed that of its dangers as a beverage. The physiologist who sought to determine its effects on vitality and its stimulating property, giving new force to the organism, found the most divergent results. These were explained as due to the quantity and quality of alcohol used. In small doses, it was claimed to be a tonic and stimulant, while in larger doses, it depressed and lowered vitality. This theory is believed by many clinicians, although modern research has failed to confirm it, but has indicated the action of alcohol to be that of an anesthetic and narcotic.

During the last ten years, experiments in the laboratory and hospital ward of the effects of alcohol on the organism have produced such a variety of negative opinions that it is very evident the subject is still not clearly understood.

A few years ago Professor Kraepelin, of Heidelberg, undertook to measure the physiologic action of alcohol on the senses and the functional activities of the body. He concluded from many thousand experiments and measurements with instruments of precision on the body, both before and after spirits were used, that alcohol in any form was anesthetic and narcotic. This opened up a new realm of investigation and explained the phenomena more fully.

The work of Atwater attracted much attention at the time, but was finally found to be only a new statement of an old theory, which, while containing some truth, was doubtful and misleading. His own statement at the last expressed this clearly, that though alcohol might be a food, it is a very dangerous one and should not be used for this purpose.

The studies of Kraepelin showing the depressing action of spirits and its narcotic properties to cover up pain and discomfort, fully confirm the work of Richardson and others who, a few years ago, announced that alcohol must be considered a narcotic, and any medicinal action it had was entirely due to this power. From this point of view some very interesting questions of the action of alcohol as a drug have been raised and are still the subject of discussion. The clinical researches of the older physicians, with the good results, are now explained by the modern physician as due to this anesthetic and narcotic action. This kind of medication, like that from the use of opium, covers up the symptoms of pain and discomfort at the peril of injury to the metabolism and vitality of the body. Some very interesting studies have been made by clinical comparisons of large numbers of patients treated with and without spirits, for the purpose of showing its action as a therapeutic agent.

The late Dr. N. S. Davis, of Chicago, pointed out a very significant connection between the mortality and the amount of spirits consumed in 18 different hospitals in this country. From his tables, in every instance, it appeared that where the amount of alcohol used per capita was large, the mortality was increased. Thus a high mortality seemed to follow where a large amount of spirits was consumed, and a low deathrate when the amount was diminished.

The London Temperance Hospital, established for over 25 years and receiving the same class of patients as other hospitals of that city, has not used any alcohol in the treatment of its patients for this period. The mortality has been from 6% to 10% lower than that of any other London hospital.

Within the last few years, alcohol has become less and less popular as a drug in public hospitals, and where used, has been chiefly for external applications, as a bath in fevers. Formerly alcohol was thought to be very useful as a tonic for worn out elderly persons. This theory is rapidly passing away. Nearly all the old peoples' homes and hospitals for the aged have abandoned spirits as a tonic. While medical literature still contains references to its value as a drug, its use is advised very timidly, and with so many qualifications as to leave much doubt concerning its real value.

It seems to be a settled conviction that alcohol used medicinally or as a beverage, is depressive and lowers vitality, lessening the oxygen carrying properties of the blood-corpuscles and increasing the waste of the system. Several authorities urge with great positiveness that the use of alcohol favors the growth of toxins and bacterial products in the body, by its disturbing action on nutrition. These and other general facts are recognized as true, but the question in dispute is: Do they occur as effects from large or small doses of spirits both in health and in disease, or are they peculiar in certain constitutions following the excessive use of spirits?

A few years ago the French Academy of Medicine through its committee made an exhaustive report on the action of different kinds of alcohol in the body, showing a wide variation in effects and peculiar properties. They proved that alcohol from different substances, had different effects and peculiar toxic properties on different parts of the body. This supported the claim that the bad effects of alcohol were due to adulteration. In reality, it proved that the common adulterations, such as water and bitter substances are perfectly harmless, and that the real injury came from alcohol distilled from various substances and the chemical changes which these combinations produced (principally of ethers), were the sources of the real dangers.

Recently these facts have been strongly confirmed by researches and studies of the effects of wood alcohol. Within the last few years the manufacture and consumption of this form of alcohol has attained enormous proportions, far beyond the legitimate demands in the arts and sciences. Its acridity and irritating qualities have been overcome to such an extent that in all probability it is used in the place of other kinds of alcohol both as a beverage and drug. Its special properties seem to be on the sensory nerves, particularly that of sight, and some very remarkable cases of blindness have been reported which were clearly due to this cause.

A recent teacher of therapeutics utters this caution: "Whenever you use alcohol in any form, be sure that it is not wood alcohol, for its effects are more serious than the disease that you are trying to overcome by its use." Quite a large class of physicians continue to use alcohol

as a stimulant, and in cases in which vitality is low for the purpose of increasing the heart's action, and particularly in collapse. This practice has proved to be especially dangerous in many ways, notably in the collapsed condition of persons found on the street, and to whom spirits are given as heart stimulants. Should such collapse and coma be due to cerebral hemorrhage, the action of spirits on the heart would cause a sudden flow of blood through the arteries, thereby increasing the hemorrhage and practically making fatal a condition that might have been overcome otherwise.

When the coma comes from the presence of toxins and pressure from congestion on certain brain centers, the action of alcohol increases the toxins and sends them with greater rapidity over the large brain areas, producing graver results. In the last stages of fever or profound exhaustion, the attempt to keep up the heart's action by spirits is simply making large drafts on the resources with increased collapse and more certain death. This is more startling from the fact that so many substances can be used to produce this result without danger. The question is a very serious one and the physician should be prepared to settle it according to the conditions present, always recognizing the depressive and narcotic action which is sure to follow from its use.

A very practical method has been adopted in many of the hospitals in Europe and this country of using pure ethylic alcohol diluted with water to suit the particular purpose. There can be no question that the crude unknown forms of alcohol, as found in brandies, whiskies, and wines of different kinds, are exceedingly uncertain and dangerous drugs. (If alcohol is to be used in any way, use ethylic spirits reduced with water.) Probably the cheap California wines now on the market contain the purest forms of alcohol, together with acids and other products, which may have some medicinal action. The older the wine, whisky or brandy, the more complex and dangerous are the spirits and alcohol present.

Forms of ether with chloroform and products of this class are the most valuable drugs known to science. The chloral and other aldehyd preparations of alcohol are valuable for their anesthetic and narcotic properties. The progress of chemic research in this direction is one of the most promising in all the field of therapeutics, but every step forward makes the fact more and more prominent that alcohol is an anesthetic and narcotic, and should always be used as such, and never in the crude forms so common at present. Like ether and chloroform, which are derivatives, it is an exceedingly dangerous remedy and cannot be used indiscriminately. At present there are so many substitutes (of which water ranks very highly), whose effects are far more exact, that alcohol should have little or no place as an indiscriminate remedy in our modern therapeutics.

One of the recent conclusions, which is confirmed by daily experience, is that alcohol, either taken as a drug or as a beverage, has cumulative action. The apparent good results are misleading, and the invalid who has taken spirits in moderation for a long time, with the belief that he is regaining health and vigor, is suddenly seized with acute inflammation of the lungs or kidneys, which he attributes to some trivial cause. A sclerotic condition of the arteries, combined with a feeble heart action, culminates in a fatal issue. The inference is very clear that the connection between the continuous anesthetic and narcotic action of alcohol and the final collapse, is far more intimate than we realize.

This, everyday experience confirms and it is seen in the low vitality and feeble power of resistance of all persons who use spirits, either as a drug or medicine. The mortality of moderate or excessive users of spirits is a wellknown clinical fact. The cumulative action from spirits, as pointed out by Kraepelin, falls most heavily on the sensory activities, diminishing their capacity, also on the heart and sympathetic nervous system, deranging the uniform distribution of nutrient material and the elimination of the waste.

This constant anesthesia of the nerve centers going on for a long time must inevitably result in organic changes. If this condition follows when its use began in health, its effects will be much more complete when used on diseased tissue and degenerative processes. Familiar examples are seen everywhere of persons who began the use of spirits in comparative health. Although continuously used in moderation, the time came when well-marked disease appeared. Up until a recent date, many cases have been noted of well-marked delirium tremens in the last stages of typhoid fever that were specifically due to alcohol given every hour or so. Alcoholic coma in acute infectious diseases was more often seen a few years ago than at present. Within a year, I have noted two such cases in which 120 cc. (4 oz.) of spirits was given every three hours for the purpose of sustaining the heart, with decided symptoms of alcoholic coma, preceding death.

An old man of 74 came under my care for delirium. He was using large quantities of spirits and milk. When these were removed he made a good recovery. In the exhaustion of old age, the dangerous prescription of alcohol in some form still continues to be given, and the results are always fatal. One of the most serious errors in its use is seen in persons who become unconscious on the street. They are taken to the drug store, given spirits, and the coma deepens, and after death extensive cerebral hemorrhage is found. The use of alcohol in such instances suddenly driving increased currents of blood to the brain increases the hemorrhage and diminishes the conservative power of nature to protect against the spread of the injury. In sunstroke and heatstroke the vasomotor paralysis is deepened and the blood current slowed up and made more uneven in its circulation. Nothing can be more reckless than the indiscriminate use of alcohol for the purpose of rousing up the heart's action in cases of coma found on the street. I know of but one use of alcohol in the sickroom that is thoroughly scientific—that is its use as a refrigerant. No substance has such water-absorbing qualities, and when applied to the skin takes up the water so rapidly that it becomes an irritant when continued any length of time. To cool off the skin in fevers, it excels ice in the rapidity and certainty of its action. Beyond this, alcohol is a narcotic, and, before the days of ether and chloroform,

it was used to diminish sensation in surgical operations. In more modern times, preparations of alcohol are used for local anesthesia on this principle, and their effects are very good. Many of the exhaustive studies in the laboratory and experiments of alcohol on animal life conflict with clinical experience, but all seem to unite in supporting the claim that alcohol depresses and is anesthetic in its action. The conclusion is very evident that when clinical observations and laboratory experiments confirm each other, the facts may be considered as reliable, and, while they fail, there is something yet to be learned. If the good effects of alcohol as a drug are due entirely to its depressing narcotic action, its use in medicine would naturally be very limited, and this is the trend of modern opinion.

AN AREA OF ENDEMIC GOITER IN THE PHILIPPINE ISLANDS.

BY

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All Americans will remember that the Macabebes allied themselves with the Americans early in the Philippine contest, and that later they assisted in the capture of the leader Aguinaldo. The Macabebes form a tribe of but 25,000 people, small as compared with the million and a half Tagalos or the eight million persons of the whole archipelago. They occupy a single municipality, a division corresponding to a township in the United States, which is rather thickly sprinkled with barrios, villages. All the inhabitants live in these barrios. There are no separate farmhouses as we are accustomed to see at home; if there are but half a dozen families in a neighborhood, they will build their houses together and form a little village. The municipality of Macabebe is situated on the northeast shore of Manila Bay and occupies the delta of the Rio Grande de la Pampanga, the second largest river in Luzon. This delta, some 10 by 12 miles in extent, is but a few feet above sea-level and cut up into innumerable islands by a veritable network of streams, the mouths and submouths of the river, which, on nearing the bay, branches out like a tree. The entire area is so low that the streams are subject to tidal flow and the lands may be irrigated at any time of the year. In time of high water the whole country is afloat, only the higher dykes and the stilted houses appearing above the surface of a vast lake. Even at the end of the rainy season the delta appears much like a flooded American river bottom. The soil is exceedingly rich, fruits grow in profusion, and two or more crops of rice are raised in a year.

The villages, about 30 in number, line the banks of the streams, which afford the principal avenues of transportations. Each village has one street, following the windings of the stream for a half mile to a mile. In going to Macabebe from the railway at Calumpit, a continuous line of houses is noticed on either bank of the river for about seven miles. But should the traveler leave his boat he would have to cross but one narrow street on either bank to find himself in the marshy rice fields. The flatness and slight elevation of the country render drainage difficult or impossible. Sanitation is, of course, unknown. The villages are as dirty as the average Filipino village than which nothing worse can be found. The worst feature of the country is the lack of potable water. A well sunk a few feet any place will strike water, but it is salty and undrinkable. The inhabitants are dependent on the streams, and fresh water can only be obtained from them when the tide is lowest—even then it probably contains some salt. These streams are the sewers of the many towns on their banks, as well as the source of water-supply. As they are lined with villages, they collect a large amount of sewage which the sluggish currents carry away but slowly. The water is as muddy as the Missouri river water, and infinitely more foul.

Standing by a stream one sees a native filling a vessel with water for drinking and cooking, while a few yards away another is emptying refuse and excreta into the same current, which now and then bears slowly by the inflated body of a dead pig or dog. It is hardly necessary to say this water is neither filtered nor boiled before using. Such measures would be regarded by the Filipinos as useless mummery. It is therefore not surprising that each barrio has a well-populated cholera cemetery.

Physically the Macabebes are not prepossessing. Both men and women are plain in appearance, often positively ugly. For hundreds of years they have remained separate from other tribes; today they never intermarry with outsiders. Not less than three-fourths of the adults bear marks of smallpox, and an excessive number are blind in one or both eyes. But there is another disfigurement the most careless observer cannot fail to notice —goiter. On the streets, at church, in the homes, everywhere one sees women with enlarged thyroids. Often two are seen in one house; I counted nine in a short walk on the street. Occasionally a man is seen with goiter, but I observed no case of cretinism or exophthalmic goiter. These tumors are not usually large, but are the more noticeable because a tumor of any description is seldom seen in the Philippine Islands. In no other towns have I seen this affection, though I suppose isolated cases exist; possibly there are other endemic areas not reported. No mention of such is made in the Board of Health reports. I have no means of judging accurately the proportion or number of cases, but it could hardly have been less than 20 per 1,000 of population, and was probably much greater.

We have so often read of goiter in mountainous districts, that it is somewhat surprising to find an endemic area in swamps barely above sea-level. In North America there are goiter areas in the hilly regions about Lake Superior, in the Black Hills of Dakota, and on the Plateau of Mexico. In Europe, cretinism and goiter areas are common in Switzerland, the Tyrol, Valois and other high regions of the Alps and their outlying ridges. In Asia, it is the Himalayan and other elevated regions that produce goiter, and in South America, the Andean backbone of the continent. A recent medical traveler in Abyssinia saw many cases of goiter on the plateaus over 4,000 feet high, but none in the lowlands. It is

said, however, there are goiter areas in the flat, marshy regions of Western Russia.

The most common opinion today is that the active agent producing goiter, whether chemical or bacterial, is found in the drinking water. The conditions favorable to goiter are all found in Macabebe, but they are also found in other parts of the islands where it does not exist.

The locality has little wind, is excessively damp, and, owing to dense vegetation, is imperfectly aired. Though occupying a naturally rich terrane, the inhabitants, through ignorance, natural indolence and an ennervating climate, eke out a meager existence.

Consanguinity and heredity favor the continuance and spread of the affection. The exceedingly vile drinking water probably furnishes the prime etiologic factor, whatever it may be.

In some respects goiter is analogous to beriberi; dampness, poor diet, bad water, low vitality, all greatly favor the disease. In fact, resistance must be lowered by them before it can succeed in establishing itself in the body. These unfavorable conditions probably bear the same relation to the people of a locality that starvation and exhaustion bear to the laboratory rat, which is thereby made susceptible to a disease to which it is naturally immune. It would seem the human race, under favorable hygienic conditions, is immune to beriberi and goiter (scurvy might possibly be included in the same category), but when the contagion is present and food becomes scarce or poor, the water is bad, or for any reason the resisting powers of the body are overcome, immunity is lost and the disease follows.

Though all the conditions favoring goiter are present at Macabebe, there must be some unknown factor present, else the disease would exist in other places where the conditions are practically similar.

THE RETROVERTED UTERUS.[1]

BY

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of Des Moines, Ia.

The treatment of retroverted uterus is the most prolific subject for controversy in gynecology. We find, even among eminent men, those who still maintain that the retroverted uterus *per se*, is not objectionable, and who do not favor operative measures so long as no symptoms are produced by such position. Others, representing a much larger class of practitioners, regard the displacement deleterious in all cases, but maintain that the organ can be satisfactorily retained in its normal position by mechanical means, and that only such cases as are complicated by adhesions, diseases of the adnexa, etc., should be subjected to operation.

In its normal position, the uterus occupies the superoanterior quadrant of a circle, the axis of which is represented by the external os and the circumference by the opposite extremity of the uterus.

In this quadrant the uterus floats freely, following the excursions of the bladder. In this situation the uterus is suspended by numerous ligaments; chief of which are the broad, uterosacral, uterovesical and the round ligaments. Intraabdominal pressure exerts an action in maintaining the uterus, in either the normal or false positions. In most subjects, the organ lies behind a perpendicular line drawn through the pelvis, touching the soft structures which cover the fifth lumbar vertebra, and in the lower posterior quadrant of a circle, the center of which is the point where a horizontal line, as it lies in contact with the upper border of the fundus, crosses the perpendicular one. Thus it is evident that the uterus lies behind, instead of directly beneath the abdominal organs. The pressure upon the uterus, when in this position, is exerted principally from behind, from the hollow of the sacrum, and the force falls upon the posterosuperior surface of the uterus, and also upon the broad ligaments, the latter serving to help maintain the organ in its position. This combined surface is 15 to 20 times as great as that upon which counter force is exerted from before backward. A glance at these relations will serve to convince one that intraabdominal pressure exercises little or no influence in the production of dislocations. It must be evident, however, that in the event a dislocation occurs, pressure is then exerted in a manner disastrous to the organ, as the tendency of the forces is contrary to reposition. When the uterus becomes retroverted, its ligaments must of necessity become elongated. Furthermore, the ovaries being pinned down with the uterus in the culdesac, their circulation becomes impaired, thus materially lowering their resistance to infective processes, and even inducing pressure necrosis.

A retroverted uterus is not in a proper position for drainage, from which fact infection may readily travel to the tubes and ovaries. Successful treatment of retrodeviation of the uterus depends largely upon a proper conception of the forces which have produced it, and more especially upon the pathologic complications that so often accompany the malady. In many cases of recent dislocation in which the pelvic floor is intact, the uterus may be replaced and retained without the use of instrumentation or operative procedure. A few such patients are permanently cured by prolonged rest, faradism, hot douches, and tamponment with gauze saturated with ichthyol and glycerol. The tampon should be changed daily and snugly packed in front of the cervix, in order to prevent it from rotating forward, and thus aid in supporting the uterosacral ligaments. If the endometrium is diseased, curetment becomes necessary. More especially is the treatment just outlined to be recommended for retrodeviation following confinement. Perineal tears must be repaired and diseased endometrium receive proper attention. It is only in the latter class of cases following delivery that I make use of pessaries, and in these I am often disappointed. Nearly all socalled supports act largely by their pressure upon the uterosacral ligaments, which, in being rendered tense by the posterior upright bar of the pessary, the cervix is swung upward and backward. When, however, the pessary is withdrawn, the ligaments relax and the cervix drops downward and forward. Thus it is plainly seen that so far as the uterosacral ligaments are concerned, such pessaries as the Albert Smith or Thomas,

[1] Read before the Iowa State Medical Society, May 19, 1905.

the kind commonly used, actually interfere with the recovery of the tensility of these ligaments. The harmfulness of a poorly fitting pessary is too apparent to demand discussion here. For my part, if there be any virtue in pessaries, I fear I have never learned the art of their successful adjustment, for I am compelled to admit that I have never been able permanently to establish a cure in any case with them in which the uterus persistently sought the retroverted position. Most of the cases which have been apparently cured by the use of pessaries, I believe would have yielded the same results and the displaced organs readily remained in their normal position without the aid of any appliance, after the engorgement had been reduced. A large percentage of retroversions have their origin in the puerperium. I believe it is advisable, therefore, to examine all cases at the end of two weeks following labor, in order that misplacements may be discovered and corrected. By timely and rational treatment of these pathologic processes, we may be able in a very large number of patients, to prevent permanent dislocation. I may be pardoned for slightly digressing here in order to call attention to the advice sometimes given, that of suggesting pregnancy as a cure for retrodeviation of the uterus. Such advice, I believe, should be condemned as unscientific and dangerous. There is nothing connected with the pregnant state that can in the least sense be of value in overcoming such pathologic conditions; while miscarriage or other serious complications are apt to ensue in consequence. During pregnancy the pelvic tissues become indolent, suffer from impaired elasticity, and the engorgement after delivery leaves anything but a desirable condition for the cure of any pelvic affection. Beside, the possibility of uterine incarceration, during the period of gestation, must be borne in mind. It goes, without saying, that many cases of retroversion exist without the manifestation of appreciable symptoms. It is in these cases that the conservative, or rather no treatment whatever, has been advised by some practitioners who maintain that all such cases are harmless, and should receive attention only when symptoms become manifest. Likewise, there are many cases of enteric hernia, that so far as symptoms are concerned, show the most benign disposition. Yet, where is the practitioner who would be so careless in his treatment of inguinal hernia as to wait for the appearance of adhesions or strangulations before even advising the use of a truss? And just as the makeshift truss, from the viewpoint of the advanced surgeon of today, is fast being relegated to the junk pile, and a radical surgical operation performed, so in my opinion, should all cases of retroversion of the uterus, which are not readily retained in place, be subjected to operation before irreparable damage is done to the uterus and adnexa.

The Alexander operation is most ideal in suitable cases, and is almost devoid of danger. Alexander's operation should be undertaken only after strictly excluding diseases of the adnexa, uterine and periuterine adhesions. To avoid the possibility of hernia, as soon as the integument and fascia are incised, the knife should be laid aside and the tissue separated by careful blunt dissection. Upon reaching the ligament at its exit from the internal ring, it is caught with forceps and the wound temporarily covered with gauze and the procedure repeated upon the opposite side. To avoid rupturing the ligaments or swinging the uterus out of line, both cords are pulled upon at the same time. The uterus, however, should always be replaced before the operation is begun. When adhesions of the uterus or disease of the adnexa exist, I believe the opening of the abdomen to be the most rational procedure. Through this route everything may be easily inspected, and the most conservative work accomplished. Intraabdominal shortening of the round ligaments may be done, or the uterus suspended from the abdominal wall. By the latter method the uterus is left in a very unnatural position, but the clinical results are exceptionally good. The operation for shortening the round ligaments as proposed several years ago by Dr. Mann, of Buffalo, deserves the highest credit. The ligaments by this operation are made of treble strength and are much less liable to subsequent elongation. This operation, while most ideal however, does not wholly correct the pathologic conditions accompanying retroversion. In consequence of the elongation of the uterosacral ligaments, the cervix is left entirely unsupported. Therefore, these ligaments should be shortened to their normal length. I have used the same procedure on these ligaments as Mann has recommended on the round ligaments; that is, doubling them upon themselves and whipping them together with silk or chromicized gut. In many cases this operation is very difficult to perform, and indeed, impossible in those in which adhesions have destroyed the outlines of the uterosacral ligaments. When adhesions are not present, these ligaments are plainly brought into view by pulling the fundus of the uterus strongly forward. I have had no opportunity to observe a case of pregnancy following the shortening of the uterosacral ligaments, but I can scarcely conceive how the operation could interfere with pregnancy.

THE CLIMATIC TREATMENT OF TUBERCULOSIS, WITH SPECIAL REFERENCE TO COLORADO.[1]

BY
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of Chicago.

It was never designed that the existence of man should be consumed in premature decay, and that he should pass from the stage of life at a time when everything about him, his aspirations and his hopes pointed to the future, and to the activity of being. This it would seem, is too often the destiny of the unfortunate afflicted with tuberculosis. These individuals have in most instances reached maturity; they are frequently people of brilliant intellect, and decidedly valuable citizens to the community in which they reside, and their death is quite often a public calamity. In the last census year, 109,750 persons died of pulmonary tuberculosis; of these 71,040 were between the ages of 15 and 50; between the ages of 20 and 30 there were 31,042 deaths. We may well avail ourselves of all remedial agents capable of arresting this disease, whether climatic or

[1] Read before the Illinois State Medical Society, May 17, 1905.

medicinal, and we have reason to insist that laws relating to hygienic and sanitary measures be enacted and enforced by the municipality and State, and that the poor afflicted with tuberculosis be properly cared for in State sanatoriums situated in a climatic zone from which the greatest possible benefit may be derived, that they may be cured of their disease and returned to the commonwealth from whence they came, physically capacitated for labor.

It is generally conceded that pure air stands at the head of all remedial agents capable of arresting the disease. Medical climatology has, therefore, come to play an important role in the affairs of those men who treat tuberculosis. The pendulum of professional opinion relative to the value of the arid regions as a place of residence for the tuberculous seems to have swung within recent years far in the opposite direction. Men of recognized ability and wide experience tell us that life in the open air at home will arrest the disease. Flick has stated "that tuberculosis can be successfully treated anywhere. Climate has practically nothing to do with the matter. Formerly, climate was looked upon as the most important factor in the production of tuberculosis; consequently it was looked upon as the most important factor in the treatment. For many men it is difficult even at the present time to give up these ideas." We recognize the fact that in Illinois it has been demonstrated by practical tests, notably at the Ottawa tent colony, that life in the open air, and sunshine, proper food, well-regulated diet, carefully disciplined conduct, have resulted in the arrest of the disease in many cases, and I understand that these cures accomplished in the home climate in which the patients remain are more lasting and more assured than when cures have been attained by temporary residence elsewhere.

The climate of the arid regions contrasts to such an extent with that of our own State that the necessity for advancing arguments relative to their respective merits is not apparent. Four years' residence in Colorado, the great Mecca for the tuberculous in this country, and a careful study of conditions as they are presented to the health-seeker in Arizona and New Mexico, have more than ever convinced me of the fact that we must, by determined effort and honest endeavor on our part, solve the tuberculosis problem at home. The mass of the afflicted element is not well enough equipped financially to take long journeys to distant States, endeavoring to seek a more favorable climate; financially embarrassed, weak and enfeebled by disease, they soon become a charge upon the county, until death, their only friend, claims them. In prescribing climate to those afflicted with tuberculosis the greatest care and discretion must be exercised; as the able surgeon knows well his anatomy, so the medical adviser should be acquainted with meteorologic facts and climatic data relative to a given health resort.

An ideal climate for the tuberculous would appear to be one possessing the greatest possible amount of sunshine; a mild climate; a pure, dry atmosphere; light winds, and porous soil, with elevation sufficient to increase the respiratory act in depth and vigor.

Colorado practically fulfils those requirements constituting an ideal climate. The Signal Service has contributed from time to time its reports of this region, and they are all worthy of study by those residents of less favored regions. The winter temperature, about 30° F., approximates Topeka, Kansas, Kansas City, Boston, Springfield, and New York City. The mean winter temperature of St. Louis, Cincinnati, Washington, and Baltimore, is 5° higher, yet Colorado is noticeably mild as compared to these cities. The hourly wind velocity, covering 10 years' observations, is reported less than seven miles per hour.

We attribute this mildness to dryness and diathermancy; sunshine and diathermancy are very noticeable to the early resident of Colorado.

All students of climatology recognize the germ destroying power of sunlight; its power to destroy tubercle bacilli, and the utilization of the violet rays of light, notably by Kime of this country, is an argument as to the value of sunlight in the arrest of tuberculosis. Furthermore, the mental effects of sunshine cannot be overlooked, such as promoting a cheerfulness of disposition and repose of mind in those compelled to live an out-of-door life.

Atmospheric clearness and transparency, the socalled diathermancy, is a test of purity. Dennison, in his Colorado observations of 1876, proved that it steadily increases, with elevation, by consecutive thermometric observations of the sun's influence at different heights and near sea-level, and under conditions calculated to exclude radiation. He found that for each rise of about 235 feet there is 1° F. greater difference in temperature between sun and shade at 2 p.m., as shown by metallic thermometers. This increasing purity of the air, the absence of dust and smoke or of moisture, with its attendant infusoria, is a decided feature of elevation. Tyndal is quoted as having shown that each higher successive stratum contains less and less of infusoria. Mequel, of Paris, found the same until with rise in elevation the number of bacteria in 10 cm. of space was reduced from 55,000 in the Rue de Rivoli, Paris, and 7,600 in the Park of Montsouris, near by, to 600, 85, and 8 respectively in a hotel at Thums, 560 meters elevation, in its environs, while at 2,000 to 4,000 meters high there were none.

Dennison's conclusions are that purity goes with dryness, coldness, and rarefaction of the air incident to elevation. There are, on the average 300 days of sunshine during the year in Colorado; on the eastern slope of the Rockies there is a tract of land 280 miles long, extending from Wyoming on the north to New Mexico on the south, in which are located the cities of Denver, Colorado Springs, Manitou, Pueblo, Trinidad, Boulder, Golden, Fort Collins, Greely, Cañon City, and other smaller towns of the State. The sun shines for about 70 out of every 100 hours that it is above the horizon. At Denver, which may be recognized in many respects as typical of the entire eastern slope of the Rockies, the average annual precipitation of rain and snow is 14 inches, the relative humidity is for the winter, 57; spring, 56; summer, 51; autumn, 50.

The city of Denver lies within 25 miles of the Rocky Mountains, at an elevation of approximately a mile

above the sea. Its present population is 175,000; the city is modern in every respect, and its many palatial homes and public buildings, its well-paved streets, and their freedom from filth, are features that soon become noticeable to the most careless observer.

The large hospitals, such as St. Joseph's, St. Anthony's, St. Luke's, and Mercy Hospitals, compare favorably with similar institutions in New York and Chicago. These institutions, however, do not receive tuberculous patients. The following are equipped for the care of the pulmonary invalid: National Jewish Hospital for Consumptives, 90 beds; Young Men's Christian Association Health Farm, 45 beds; Agnes Memorial Sanatorium, 150 beds; Rest Haven Home for Consumptives, 50 beds; Mrs. Lares' Tent Colony, tents are here erected as patients are received; Glocknor Sanatorium, at Colorado Springs, 80 beds; the Nordach Ranch, at Colorado Springs, 50 beds; Emma Booth-Tucker Memorial Sanatorium, at Amity, Colorado, conducted by the Salvation Army, 100 beds; Colorado Sanatorium, at Boulder; Fox Hall, at Denver, a private sanatorium conducted by Dr. Beggs; Rocky Mountain Industrial Sanatorium, at Wellington Lake; Ballard Sanatorium, at Pueblo; Tented City, near Denver, conducted by the Jewish Consumptive Relief Society. "The Home" for Consumptives, at Denver, is doubtless one of the most thoroughly equipped institutions of its kind in this country. Here every comfort is provided for the pulmonary invalid; cases of early infection do not mingle with those cases more advanced, and every effort seems to have been made to improve the surroundings and make cheerful the daily life of a small army of sufferers who reside at this institution.

This sanatorium, until quite recently, offered the only comfortable home for the invalid who journeyed to Denver, and it should ever remain a monument to its founder, the Rev. Frederick Oakes.

There are many scattered tent colonies and smaller institutions throughout the State, many of them in the hands of responsible persons, others designed to fleece the invalid. The facilities throughout the State are, on the whole, good for caring for those afflicted with tuberculosis. I believe that an unwarranted fear exists in the minds of many medical men as to the effects of altitude upon those individuals who have long been accustomed to a residence at a lower elevation than 5,000 feet. Patients sent to Colorado usually experience an increase in the rapidity and energy of the heart's action; this is usually accompanied by a lowering of the blood-pressure. The respiratory act is increased in depth and vigor; thus more lung tissue becomes aerated and the expansion of the chest increases, a process of compensation occurs, and the pulse and respiration return to normal.

Dr. Kahn, of Leadville, in 1902 reported his observations on the pulse and respirations at an altitude of 10,200 feet, as follows: One hundred cases examined, 83 men, 17 women; average age for the 100, 31.82; average pulse, 76.5; average respiration, 20.48; average age, 83 men, 32.97; average pulse, 76.36; average respiration, 20.28; average age, 17 women, 26.39; average pulse, 77.17; average respiration, 21.41. The youngest woman was 18, the eldest was 43. The youngest man was 19, the eldest was 64. The lowest pulse was 64, in a man of 29; the lowest respiration was 15, in a man of 25; the highest pulse was 92, in a man of 21, and in a man of 45; the highest respiration was 26, in a man of 64; the lowest combination proportionately of pulse and respiration was 72 to 15, in a man of 25; the highest combination proportionately of pulse and respiration was 92 to 23, in a man of 21.

The pulse and respirations are not accelerated to the extent naturally supposed. It will be observed that even at an elevation of 10,000 feet the pulse and respirations compare favorably with the normal at sea-level.

So much, in brief, for the consideration of a region that has effected as many cures of tuberculosis as any known.

The patients to be sent here must be carefully selected; they should have a permanent income of at least $50 per month; they should be accompanied by intimate friends or relatives on their journey away from home. The tuberculous invalid is prone to develop nostalgia, which is always a factor for evil in these cases, and destroys many lives that might otherwise have been saved.

As mentioned in a former contribution of mine,[1] the disease should be recognized, if possible, before ocular demonstration of the germ. If, at this time, the patient is sent away, recovery is assured with great certainty.

Compensated valvular disease of the heart is not a contraindication to an altitude of 5,000 feet in every case. Cases in the second stage, without laryngeal involvement, will improve in this region; if the throat is involved, I believe the Salt River Valley of Arizona to be more beneficial. Tuberculosis of the bones and joints, of the cervical lymphatics, and of the testicle, especially those cases with open wounds, will find the sunshine of this region a potent factor contributing to their cure.

It would seem more charitable for us to persuade the invalid in the third stage of tuberculosis to remain at home, as the most favorable climate can offer him but little, and contribute vastly less to his comfort, as compared with the home environment. Patients should not be sent to a health resort with the expectation of engaging in labor, thereby supporting themselves during their stay in a favorable climate. They will find competition keen, and only those physically capacitated for labor are successful in obtaining employment; the services of those weak and enfeebled by disease are no more in demand here than elsewhere. Without exception, every invalid sent to a health resort should be referred to some reputable physician. All the well-known health resorts support an army of quacks and nostrum mongers. These frauds are, in most instances, totally devoid of any professional ideals, and their methods usually represent the lowest types of commercialism in medicine. They find in the ever-hopeful tuberculous patient a ready victim.

In conclusion, I will say that in properly-selected cases of tuberculosis, climate is not a will-o'-the-wisp, whether it be the climate of sand-shrouded Arizona, or that of the pine-clad wilderness on Unilaska's shore; the end of the bow of promise to these patient, hopeful sufferers, does not rest on the mystic shores of the spirit land.

[1] New York Medical Journal, August 27, 1904.

THE STRUGGLE AGAINST TUBERCULOSIS IN PENNSYLVANIA.[1]

BY

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of Scranton, Pa.

It is now a very trite saying that tuberculosis has been the greatest scourge of humanity since civilization began, that it annually costs millions of lives and millions of dollars. For centuries it has been accepted as an inevitable curse which humanity must bear. For a little over 20 years, however, there has been very exact knowledge of the means whereby tuberculosis might be all but wiped out. Laymen and even physicians have been slow to grasp the full strength of the power for human advancement that this knowledge brings. The struggle against tuberculosis is now only in its infancy, but it has gone far enough to demonstrate the success of preventive measures. If New York can cut down its deathrate from tuberculosis a third in a few years, every community can.

As in many ways Pennsylvania has progressed quite far in its battle against its worst enemy, it may be interesting and profitable to see what has thus far been accomplished and to take an inventory of the present equipment. From an estimate detailed below, it would appear that there are about 75,000 cases of tuberculosis in the State in a given time. Each year, about 8,000 of those affected die. It is idle to speculate on the suffering and sorrow that this preventable condition causes. It is equally idle to speculate on the amount of money we pay to enjoy this scourge.

The essentials in the prevention of tuberculosis are: 1. Registration with proper sanitary control by Boards of Health, including enforcement of laws against spitting. 2. Constant vigilance among physicians in detecting early cases and instructing the patients in the means of prevention. 3. Societies in each large city to educate the people by pamphlets, lectures and newspapers, and to foster sanatoriums and dispensaries. 4. Adequate special dispensaries, sanatoriums and hospitals for incurables, aided or maintained by the State or municipality.

I will attempt to show what Pennsylvania has done in these details.

1. *Work Done for Tuberculous Patients by Special Hospitals and Sanatoriums*—The following table, prepared from annual reports or letters from superintendents, shows the work done in special institutions in 1904.

From the data collected it is seen that there are in the State 694 beds especially for the tuberculous, of which 310 are primarily for curable cases. While this bed capacity is far under what is needed and is less than that for New York City alone, it is still an increase of about 75% over the beds available a few years ago. Many institutions in the list are rapidly growing, and new ones are being added every year. There is at present a movement on foot among people in the Pocono to establish a large private sanatorium in that region. Several hundred acres have been acquired, and building will be begun when a sufficient proportion of the $75,000 capital has been subscribed.

[1] Read before the Erie County (Pa.) Medical Society, May 2, 1905.

TABLE I.—WORK OF SPECIAL HOSPITALS AND SANATORIUMS IN 1904.

Name.	Place.	Capacity.	Number of cases in 1904.
Home for Consumptives	Philadelphia.	60	133
House of Mercy	"	12	34
Consumptive Department, Philadelphia Hospital	"	180	936
Dermady Sanatorium[1]	"	25	44
Phipps Institute Hospital[2]	"	52	254
Phipps Institute Dispensary[2]	"	.....	458
Rush Hospital	"	80[4]	293
Rush Hospital, Country Branch[1]	Malvern.	25	91
Rush Hospital, Dispensary	Philadelphia.	....	77
Oil City Institute[3]	Oil City.	16	.....
Tent Camp[1]	Greentown.	4-7	4
South Mt. Camp[1]	Mont Alto.	38	89
West Mt. Sanatorium[1]	Scranton.	24	70
Free Hospital[1]	White Haven.	100	408
Sunnyrest[1]	"	75	130
Total		694	3,021

[1] Primarily for curable cases.
[2] Figures from report of 1903.
[3] Established in fall of 1904. Donated and maintained by Mr. Ramage, of Oil City.
[4] Includes addition now building.

The total number of patients treated in these institutions (excluding the Rush and Phipps dispensaries) was 2,486. Including them it was 3,021. In the institutions for curable cases there were 836 patients.

2. *Work Done for Tuberculous Patients in General Hospitals.*—The number of tuberculous patients in the general hospitals from which returns could be obtained is shown in Table II. Column of "tuberculous diseases" refers to all kinds, surgical, pulmonary, etc.

The hospitals noted in Table II were all from which data could be obtained. They represent about two-thirds the total bed capacity of the State. From this table it will be seen that there were 895 cases of tuberculosis treated in wards, and 1,135 in dispensaries. The tuberculous cases in the wards were 1.9% of the total ward patients. This percentage, of course, gives no idea of the relative morbidity from tuberculosis, as most of the hospitals take only surgical tuberculosis, and avoid pulmonary cases, if possible.

The total number of tuberculous patients applying to the institutions named in both tables is 5,015. If we make a *pro rata* allowance at the same rate for other hospitals not included, the total number receiving institutional treatment would be 7,521. Of course, it is freely admitted that many patients drifted from one hospital or dispensary to another, and so were counted one or more times. However, it is equally certain that a large number of tuberculous cases were not so designated. These, for instance, came under the head of cervical adenitis, caries, necrosis of bones, pleurisy with effusion, etc. No cases, not even "hip disease," were counted as tuberculous unless it was definitely so stated.

If we also remember that there were a large number of tuberculous patients who skipped detection altogether, as in a dispensary in Philadelphia where there were nearly 900 patients of the poorer class with no tuberculosis, I think it will be agreed that the figures given are really below the actual facts.

I think it will also be agreed that not more than 1 in 10 of the tuberculous public applies to institutions. The others are treated privately. If we estimate in this way, there are about 75,000 cases of tuberculosis in the State.

I am aware that this method of figuring is far from being mathematically accurate, but with a complete absence of vital statistics in the State, there is no nearer way of getting at the real figures. I think under these circumstances this is the most accurate estimate possible.

TABLE II.

Name.	Place.	Total number of indoor patients.	Number of tuberculous cases.	Number of tuberculous cases in dispensary.
Presbyterian	Allegheny.	497	15	.....
St. Johns	"	940	15	.....
United Presbyterian Memorial	"	136	3	.....
Allentown	Allentown.	805	10	.....
Chester	Chester.	672	21	.....
Easton	Easton.	567	4	5
St. Vincent's	Erie.	729	33	.....
Hamot	"	669	23	.....
Harrisburg	Harrisburg.	951	10	23
State	Hazleton.	409	4	.....
McKee's Rocks	McKee's R'ks.	?	12	.....
Charity	Norristown.	475	11	.....
Children's	Philadelphia.	1,159	14	.....
Douglas	"	244	5	67
Hahnemann	"	1,860	28	339
Merciful Saviour	"	58	14	.....
Howard	"	497	90 [1]	.....
Jefferson	"	5,868	99	297
Woman's Homeopathic	"	1,023	9	.....
Woman's Southern Homeopathic	"	261	2	.....
Medico-Chirurgical	"	1,873	?	101
Methodist Episcopal	"	1,020	29	58
Pennsylvania	"	4,036	63	182
Philadelphia	"	?	23 [2]	.....
Polyclinic	"	1,392	39	6
Presbyterian	"	2,155	29	.....
St. Luke's	"	459	18	.....
St. Mary's	"	1,881	10	.....
St. Timothy's	"	827	9	.....
Samaritan	"	1,141	32	9
Western Pennsylvania	Pittsburg.	3,275	42	.....
Homeopathic	"	3,031	80	.....
Children's	"	286	32 [3]	3
Pittston	Pittston.	286	2 [4]	.....
Robert Packer	Sayre.	513	2	18
Moses Taylor	Scranton.	631	10	.....
Scranton Private	"	412	6	.....
State	"	1,272	33	.....
St. Luke's	S. Bethlehem.	846	21	21
Emergency	Warren.	254	5 [3]	.....
Williamsport	Williamsport.	1,242	18 [3]	.....
Mercy	Wilkesbarre.	826	22	6
Totals		45,201	895	1,135

Percent of cases treated in wards, which were tuberculous, 1.9.
[1] Includes dispensary.
[2] Surgical cases only. Medical cases noted in tuberculous department, Table I.
[3] Report for 1903.
[4] Report for twenty months.

3. *Boards of Health.*—It is an unfortunate and discouraging feature, that, except in Philadelphia, Boards of Health throughout the State are culpably and supinely indifferent to tuberculosis. Whatever is done to check the most frequent and important communicable disease, is left to the initiative of private citizens. So far as I can learn, Pittsburg and Scranton are, again excepting Philadelphia, the only cities where there is a municipal laboratory to examine sputum. In these cities nothing else is done. In Erie, registration has just been required and active measures are being planned by the board. Other cities and towns take no cognizance of tuberculosis.

In Philadelphia a very complete plan is in operation under Dr. Abbott. I understand from him that registration is attempted, circulars of information are distributed, sanitary supervision is carried out, and premises are cleaned after death or removal of tuberculous occupants.

I am convinced that real progress in cutting down the deathrate from tuberculosis cannot be made until there is efficient action by Boards of Health. In Scranton, for instance, private enterprise has done its best to teach the people, and a sanatorium has been maintained for nearly two years, where practically all the early cases among the poor who apply can be admitted. But no impression has been made on the actual or relative deaths. This is because, except by the health department, no direct attack on the source of the trouble can be made. Osler, Biggs, Flick, and others have shown repeatedly that tuberculosis is distinctly a house infection. Until this infection in the house is attacked, the deaths will pile up.

We have had this year in Pennsylvania the amusing spectacle of a Legislature starting in at the top to wipe out tuberculosis by establishing two large State sanatoriums at the cost of about a half million dollars. A number of other States during the past year have done the same thing. No State, however, has bothered with fundamentally necessary sanitary laws. All will agree that Legislatures should make the prevention of tuberculosis, which is of such vast importance to the State, one of its first considerations. It should be made plain to Legislatures, that in taking up this matter they should begin at the bottom and that Board of Health control is the very first requisite. The State should provide against infecting a man before it provides for his cure. State laws should make it mandatory on local Boards of Health to require registration and proper sanitary control. If such legislation were obtained, it would do more good than a half dozen sanatoriums and it would cost infinitely less. Sanatoriums are an important and necessary provision, but they can obtain their maximum efficiency only in conjunction with good laws.

4. *Prisons and Insane Asylums.*—While tuberculosis is so prevalent in the general population, it must necessarily play an important part in prisons and insane asylums. It is gratifying to note that the means taken to prevent the spread of tuberculosis in both the Pennsylvania prisons are very satisfactory and creditable to the authorities. I can do no better than quote from the report of Dr. Leach, physician in charge at the Eastern Penitentiary. He says:

> Special attention is bestowed on tuberculous patients on their very entrance to prison life. All prisoners are carefully examined and those exhibiting the slightest tendency to weak lungs are given outdoor occupations, suitable to their capacity. They are carefully watched, well dieted, weighed weekly, and frequent examinations are made of the sputum. When the diagnosis of tuberculosis is made, they are transferred to the isolation ward, where the treatment is similar to that at White Haven.
>
> They are required to live in the open air from 8 in the morning till 5 in the afternoon and to sleep at night with the doors open into the yards. They have special food, with extra milk and eggs, and special clothing. Cells, cell furnishings, and belongings are regularly disinfected and the greatest cleanliness is maintained. Hygiene takes the place of medication.

It is wonderful that in this prison out of 30 patients treated, in 12 the disease was arrested and the patient apparently cured. It would seem that many practitioners might have better success if their tuberculous patients were under prison control. At this prison the total death-

rate last year was only 17.4 per 1,000. Eleven, or 1%, of the inmates died from tuberculosis.

In the Western Penitentiary the authorities are equally watchful. There are special wards, or cells, for tuberculous cases, and each person has a spittoon, or pocket cup, when out. In this prison, 45 out of 923 in prison, December 31, 1904, were tuberculous. In 1904, 7, or less than 0.7% of the total prisoners, died of tuberculosis.

The condition in Pennsylvania prisons is a fine contrast to the gruesome picture of Sing Sing as depicted in the New York *Tribune* of April 30, 1905.

In insane asylums the disease is naturally harder to detect and to control. In some asylums as much is being done as is possible with the means available. Dr. Hawk, of the Insane Department of the Philadelphia Hospital, states that he is unable to carry out strict isolation, owing to crowded conditions, though this is aimed at when possible. At this hospital, in 1904, 65 out of 331 deaths were from tuberculosis.

Dr. Chapin, of the Pennsylvania Hospital for the Insane, at Philadelphia, states that as his patients are from the better classes, tuberculosis is rarer than in many asylums. In 1904 there was no death from tuberculosis among 657 patients.

Dr. Guth, superintendent of the State Hospital at Warren, states that 34 out of his present population of 1,149 are tuberculous. He has separate wards for these cases.

Dr. Hill, superintendent at Wernersville, states that about 25% of his deaths are due to tuberculosis of some form. He has tents for the tuberculous patients, and applies the outdoor treatment as well as it is possible for the insane.

At Danville, 17 out of 137 deaths in 1904 were due to tuberculosis. At Norristown, 24 out of 179. In one State asylum tuberculosis appeared among the cattle, and was met energetically.

In the insane department, Western Pennsylvania Hospital, 12 out of 108 deaths were from tuberculosis.

At the State Institution for Feeble-minded, at Polk, Dr. Murdoch reports that during life about 5% of the children are found to be definitely tuberculous. About 50% of cases show tuberculous foci on autopsy. This institution is on the cottage plan, and the diseased children are isolated as well as possible.

5. *Societies for the Prevention of Tuberculosis.*—There are five societies in the State for the prevention of tuberculosis. With headquarters in Philadelphia, there is the State society. Its work is entirely educational, and its operations are confined practically to Philadelphia. During the past year it has provided 15 lectures, mostly popular. Many pamphlets have been distributed and attempts have been made to influence legislation by resolutions. But little was ever accomplished by resolutions. It took seven years' fighting to make even the Declaration of Independence worth anything.

In Pittsburg there is a society which is endeavoring to establish a local sanatorium.

In Harrisburg there is a society which has already made progress in popular education. This society aims to establish a dispensary and to aid the tuberculous in getting admission to local sanatoriums.

In Reading there is a society which has already established a dispensary. There is a staff of about 40 physicians, who also do house work in the city. It is also endeavoring to establish a local sanatorium. Aid for this was asked from the last Legislature, but was refused.

In Scranton a society was formed over two years ago. Within a few weeks of its organization a dispensary and visiting nurse system were established. Within six months a farm was bought, and a sanatorium which now has 24 beds was established. Six popular lectures have been given, and many circulars of information have been distributed. The dispensary has since been closed, as after the sanatorium was well established it was found unnecessary. Since the sanatorium was established, in August, 1903, over 100 patients have been admitted. About 15 have been cured. The society raised, entirely by charitable subscription, over $17,000 in the first year, and over $14,000 in the second. It already has about $6,000 pledged for its use this year. I think Scranton is the first city in the United States to establish a local sanatorium for its own cases.

6. *Recent Legislation.*—In the past the Legislature has liberally aided White Haven and Mont Alto. Legislation during the session of 1904–1905 was somewhat muddled.

A number of sanatoriums, either established or in embryo, applied for State aid. The Legislature, however, passed bills establishing two large sanatoriums on forest reserves and appropriated some $450,000 for this purpose. This being done, it was decided that enough State money had been devoted to tuberculosis and all bills for other sanatoriums were killed.

The Governor, who appears to be something of a purist in English, objected to the wording of the two sanatorium bills and vetoed them. This left the whole matter at zero. There were to be no State sanatoriums and local ones were to get nothing. Through the energetic action of leaders who really understood the matter, the cause was again taken up and new bills were passed, making suitable appropriations to the White Haven and Scranton institutions. In the same spirit, the Governor cut down White Haven and threw out Scranton altogether. The only possible explanation of this action of the Governor is complete ignorance of the subject, coupled with deliberate refusal to inform himself in any way.

It is unquestionably not only the right, but the duty of the State to protect itself against dangerous communicable diseases. The people also have the right to direct through their representatives that certain of their surplus funds shall be expended in the aid of 75,000 of their number who have tuberculosis. It is evident that legislators appreciate the unnecessary burden that tuberculosis puts upon the State and that they realize the necessity of lifting this burden. The question of the most efficient and economic means is a very important one, and one to which Legislatures have given little thorough and intelligent consideration. In the first place, I think the policy of establishing one or two large institutions is a mistaken one if the smaller, more widely scattered ones are to be abandoned. Every one knows the proverbial hopefulness of the tuberculous and

how they all expect to be well in a few weeks. It is but few of these people who will close up their business, break up all family ties, and go to an inaccessible sanatorium, perhaps hundreds of miles away. At least they will not do this while they are in the early stage in which sanatorium treatment will do them any good. On the other hand, if there is a sanatorium within or near the city limits, where they can be near their friends and from where they can even direct their business for a few months, nearly 100% more will go to sanatoriums while in a curable stage. I know this from actual personal experience. Before the Scranton sanatorium was established the local society cared for many of the tuberculous in their homes and in the dispensary. When a man was found with beginning infiltration at one apex and told that he must give up everything and go to White Haven, a half day's journey away, or to some other more distant point, he would simply laugh and say that he only had a cold and drift off. When our own sanatorium was established and he was told that he could go up there, where his family could reach him on the street cars and he himself could occasionally go home for a day or two, the problem was entirely different and the trouble was to pacify a long waiting list clamoring for admission.

If the State really wants to do the utmost possible with its money, it would be much better to foster several smaller institutions near large cities. I firmly believe that the State should help only those communities which try to help themselves. Take for instance the cities, Philadelphia, Pittsburg, Scranton, Harrisburg, Reading, and Oil City, which have already made much progress through private efforts. Let the State aid in maintaining sanatoriums at these points and provide maintenance enough to warrant enlarging Malvern Hill, Mont Alto, and White Haven. Then the sanatoriums will be where people can get at them. It will be much cheaper than building two large new ones and it will do much more good. Multiple institutions of from 25 to 100 beds can be run just as cheaply as ones of 400 or more. At Scranton, for instance, we maintain our 24 beds for $5.25 per week per patient.

I have endeavored to show that just as important as sanatoriums, are laws which will compel Boards of Health to attack the source of all the trouble in the homes. This can be done only by registration and sanitary control. As there are these and several other problems connected with the way in which the State may best fight tuberculosis and as they all require careful consideration it seems to me most important first of all that the Legislature early in its next session should provide for a commission on tuberculosis. This commission could draft proper laws governing Boards of Health, it could determine whether a few large or many small sanatoriums are better, and it could frame legislation on which all parties would agree beforehand so that legislation would not again end in a foolish muddle.

7. *The Early Recognition of Tuberculosis.*—The early diagnosis of tuberculosis is another fundamental point without which satisfactory progress cannot be made. I am unfortunately compelled to feel that just here the medical profession is a decided obstacle. The diagnosis by the general practitioner in the early stage is uncommon. It is quite unusual for a patient to be referred to our sanatorium till the disease is far advanced. In fact many patients apply of their own accord, having been forced to make the diagnosis themselves, while their physicians are still telling them that they have "weak lungs"—the real condition being a number of cavities.

This condition is the more unfortunate, as with careful attention to the history and physical signs, the early diagnosis is not often difficult. A number of our patients come to us when the disease is in the late stages, after having been for months under the care of physicians who have never examined their lungs. The only remedy for this is constant missionary work before medical societies, with insistence on thorough physical examinations, frequent examination of sputum, and in a few especially difficult cases, the diagnostic use of tuberculin. In regard to sputum examinations, it should be thoroughly impressed that a considerable number of negative examinations is not even presumptive evidence that a patient has not got tuberculosis.

Another very serious obstacle to progress is the general medical dispensary. Here, a physician may have to see from 20 to 40 or more patients in two hours, and it is almost an impossibility that an early case of tuberculosis should be detected. Instance the fact noted before, that in a Philadelphia dispensary nearly 900 poor patients were treated last year, and not one was diagnosed as tuberculous. Even when the diagnosis is made, the physician will seldom have time to give the special attention to treatment and to instruction which will prevent the patient from being a menace to the community.

The danger of the general medical dispensary in this respect is a matter of very vital importance. This condition could easily be remedied if it should be made compulsory by the State that every hospital that receives State aid shall, if it has a dispensary at all, maintain a separate division for diseases of the lungs. The physicians in charge, if not already especially skilled in the examination of the chest, could easily obtain this skill from the nature of the dispensary service. They would be especially on the watch for early cases. They would be relieved from the routine treatment of a large number of nontuberculous cases, and each individual could be accorded sufficient time and attention. In this way, and in this way only, can a large number of the poorer class be brought under control at the proper time. Legislation to this effect is feasible. It would cost nothing, and would do more good than thousands spent for sanatoriums.

SUMMARY.

1. There are about 75,000 cases of tuberculosis in the State. Most of the sufferers are too poor to provide for themselves. There are less than 700 hospital or sanatorium beds.

2. The Board of Health in Philadelphia is active. Pittsburg and Scranton examine sputum but do nothing else. Erie has just required registration, and is beginning work. Nothing is being done by health boards in other cities or towns, or by the State Health Board. There are no State vital statistics.

3. Prevention societies are organized and working in

Philadelphia (State Society), Pittsburg, Scranton, Harrisburg, and Reading. The Phipps Institute largely takes the place of a local society in Philadelphia.

4. There are sanatoriums for the poor at Malvern Hill, Oil City, Scranton, White Haven, and Mont Alto; aggregate capacity, about 200. There are private sanatoriums at White Haven, Philadelphia, and Greentown; aggregate capacity, about 100. Beds for incurables in special hospitals or special departments of general hospitals, about 280.

SUGGESTIONS.

1. A State commission on tuberculosis should be appointed to frame legislation governing health boards and to determine the best system for sanatoriums.

2. Compulsory divisions for diseases of the lungs should be enforced in all dispensaries receiving State aid directly or indirectly through the hospitals or schools to which they belong.

3. The State Society for the Prevention of Tuberculosis should be put on a State basis with annual meetings at the same time and place as the State Medical Society; this society to collect material for an exhibit to be given together with public lectures in each city in which it meets. In this way each large city in the State would be reached in a few years. The State society should do missionary work and establish local societies in communities now without them.

MENTAL AND MORAL EFFECTS OF THE REMOVAL OF ADENOIDS.

BY

EDWARD A. HUNTINGTON,

of Philadelphia.

Principal of Special School No. 3, Germantown.

The three cases which I shall present to the members of the American Psychological Association were prepared in connection with the psychologic clinic conducted by Dr. Witmer at the University of Pennsylvania. These cases are offered as a contribution to the clinical psychology of mental and moral retardation and deficiency.

CASE I.—T. M. came under my observation in May, 1902, when at the age of 8 years and 3 months he entered Special School No. 3 (Germantown), of which I am principal. He was sent to the school charged by the attendance officer, under the compulsory education law, with disorderliness at school and with truancy. I found his history that of one of the most persistent truants with whom I have ever come in contact. He had not been a pupil of the school long before he began to live up to his reputation. His parents seemed unable to exercise any control over him. Not until the father was taken into court and fined could an approach to regular attendance be secured. The fining of the father and the realization of his lack of control over the boy caused him perhaps to proceed to excessive discipline. The elder sister interfered and had the father arrested. This caused a temporary breaking up of the family. The effect of all this was greater steadiness in T.'s attendance, resulting doubtless from his discovery that to school he must go.

To characterize T.'s moral status is to name him a liar and a thief. As is usual with boys of his type he told falsehoods easily, but not convincingly, in the endeavor to account for and excuse his many failings. He was arrested for stealing money and once I took from him a gold ring he had taken from home. He was very pugnacious, seeming to derive great pleasure from personal combat. In consequence, he was always the cause of much trouble on the playground. The moral symptoms of this lad presented an unusually difficult problem for his trainer.

Physically, T. was well developed, his muscles strong, and his movements vigorous. He was of fair height, and appeared to be well nourished. I can recall no facial indications of physical or mental degeneracy.

His mental development as measured in terms of school progress had been slight. Upon entering the special school he was placed in a class doing the work of the first school year. His written work was unintelligible. He could not copy correctly very simple words written upon the blackboard. His articulation was very defective. At times, particularly when he talked rapidly, only those familiar with his speech could understand what he was attempting to say. For nearly a year, from May, 1902, to February of the following year, he made no progress. Even the most severe corporal punishment seemed readily forgotten. The same punishment had to be administered repeatedly for the same offense.

In February, 1903, I took the boy to the Germantown Hospital for the purpose of ascertaining what physical basis, if any, there might be for his defective speech. The child was examined by Dr. Klopp, who pronounced the primary cause of the trouble to be due to the presence of adenoid growths and enlarged tonsils. He advised admitting the child into the hospital for an operation. I visited the mother, and after much persuasion, succeeded in obtaining her consent.

T. returned to school a few days after the removal of the adenoids and the enlarged tonsils, but it was not until September that any marked signs of improvement were noted. The child then began to do normal first-year work. The improvement became marked, and by December his moral improvement was so great that he rarely needed correction. His pugnacity had almost entirely disappeared. His speech had improved to such an extent that nearly all his words were spoken plainly. Throughout the winter T. attended school with great regularity, walking a long distance each way. From a disorderly truant boy T. had become an orderly and faithful worker.

What the child's behavior at home was during this period I cannot state, but with the appearance of the warm spring days there was an evident relapse to disorder at home and to truancy at school. The parents reported that he remained out at nights, and was practically beyond parental control. The temptation to earn money upon the golf links led him to play truant. In May, 1904, the father concluded that he had endured the misbehavior of his child long enough. Much to my regret T. was brought before the Juvenile Court and committed to the Norristown Protectory. As to his progress there I possess no information.

Adenoids and inadequate home discipline appear to have been causes at least contributory to this boy's mental and moral retardation. The removal of one of these causes, the adenoid growths, resulted in an improvement in speech, in morality, and in mentality. With satisfactory home training, assisting that of the school, I am convinced that very decisive improvement would have been made in the course of the next two or three years. It is probable that the boy could have been brought to a fair standing of mental and moral attainment.

CASE II.—E. H. was one of several subjects of postnasal adenoids discovered last winter among the pupils of Special School No. 2 (29th and Fletcher Streets), a school which I visited in search of such cases to present to the psychologic clinic of the University. This child had been admitted to the school in April, 1903, at the age of 7 years and 7 months. He was enrolled in a class of mentally backward children.

His educational history reveals he entered the Bellevue Elementary School (26th and Cumberland Streets) when just 7, or in September, 1902. Under the instruction of the teacher of a first year class it is reported that he learned to copy neatly from the blackboard but made little progress in the comprehension of any branch of the school work. Owing to his apparent

mental retardation he was sent to the Special School. At the time of my visit, after 12 months at the Special School, E. was scarcely able to do the work of the first two months.

On visiting the home of this child I discovered the mother was dead. I learned from the stepmother that the mother when in confinement had taken some strong medicine, presumably to produce an abortion. She broke out in sores, and died some months after E.'s birth. The child for a time was similarly affected. From an aunt of the boy, I learned that the child had very early breathed through the mouth. She reported that the mother had told her that before E. was born she nursed a tuberculous woman who always had her mouth open, and she blamed this woman for E.'s mouth being open because she watched her sleeping, not knowing that it would hurt the child. The mother also stated that a running from the ear had begun when E. was two months old. As an infant E. was cross and fretful. At six months he had chicken-pox, and at three years typhoid fever. It appeared that time and money had been spent by the boy's relatives in the effort to cure the ear, but to no effect.

On January 23, 1904, I took E. to the Laboratory of Psychology at the University of Pennsylvania, where tests were made to determine his mental and physical status. Among other results, it appeared E. could distinguish colors but did not know all of their names. He seemed to know and name green best. He did not appear to know the name red. When red was added to a series of colors he showed marked hesitation. In a number test he quickly and accurately recognized numbers up to 7; he could add and subtract 1 and 2 from numbers up to 5, but not readily. He could not add 3 to 5.

Physical examination revealed considerable nasopharyngeal obstruction. The fauces were hypertrophied, the palate high, and the uvula cleft. There was also a peculiar unnamed deformity of the throat which was not discovered until later. Chronic otitis media dating from infancy, caused a constant repulsive discharge from the right ear. The chest was flat and otherwise poorly developed. The scapulas were very prominent. The acuity of vision was about two-thirds. The hearing of the right ear was zero, of the left ear the ticking of a watch was heard at a yard, and whispered words at six yards.

With the father's consent I had E. admitted to the Germantown Hospital, February 8, 1904. Dr. Davis removed the adenoids and as much of the enlarged tonsils as the throat deformity would allow. An attempt was then made to heal the ear by local antiseptic treatment. This having failed, E. was readmitted to the hospital April 13, 1904. A mastoid operation was performed by Dr. S. MacCuen Smith, who found the bony wall of the middle-ear eaten through, exposing the brain. As a result of the operation, the discharge was materially lessened, but still continues, though since last summer it has been intermittent. At the present time, nearly seven months after the operation, the ear is not entirely healed, and local treatment is still being applied.

Since the time of the operation, mental improvement has been steady, though slow. In October, six months after the operation, his teacher reported he was making satisfactory progress in first year work, his reading, spelling, and arithmetic being good.

In order to determine in the light of previous tests what improvement had been made, I again took E. to the Laboratory of Psychology, October 29, 1904. Tests were made for color, number work, and reading. In the test for colors, when asked to select blue he at first selected purple, then blue, he chose a medium blue, passing over light and dark blues. When asked for yellow he picked out a yellow with a small amount of red in it, passing over a yellow with a small amount of green in it. Blue and yellow were the colors of a sweater which he had worn for a long time. He picked out red by name, picked up a pink, hesitated, and after comparing it with red discarded it. He appeared to know pink, but it is doubtful if he knew that pink is a shade of red, for he spoke of pink-greens, and pink-yellows. Pink may mean to him any light shade. For a green he selected a medium green, rejecting a darker green. In selecting a color he proceeded most deliberately, picking up each skein and carefully comparing it with his mental image of the color desired.

In the number test, three pegs were thrown upon the table, and 2, 3, and 4 pegs were added at a time. The child gave the successive sums quickly, and readily up to 30, he hesitated for the first time on 30. With 5 more added he hesitated for a longer time, and when 5 again were added, he slowly named the total sum 40, but when 3 more were added he said 70. In subtraction he could subtract 2 and 3 from numbers up to 15, but not readily. He may have counted the pegs.

He correctly wrote the numbers 23, 45, 52, 71, 93, 100. When asked to write 111 he added 11 to the 100 already written; when asked to write it again he wrote 1011, and when asked to write 112 wrote 1012. He wrote 124 and 104 correctly.

He read from Cyr's Primer, stories which he had read before and with which he was somewhat familiar.

In testing his hearing he seemed to hear the ticking of a watch at a distance of a foot. A whisper test was quite unsuccessful. This apparent deterioration in hearing may have been due partly to perversity and partly to fatigue, for he had just been made the subject of a long series of tests, or it may have been due to a temporary catarrhal condition. A recent whisper test made by me on December 20, in the child's home, proved his hearing was as acute as when the earlier test was made last January.

CASE III.—R. H. was brought to Special School No. 3, March 23, 1903, by an attendance officer. The boy had not attended school for 1 year and 7 months, having been excluded from the Alexander Henry School, Frankford, on September 27, 1901, by order of the local school board.

The principal of the Henry School reports that R. had been admitted into the school March 17, 1898, at the age of 6 years and 1 day, coming by promotion from the kindergarten. He soon became a center of disorder. He stole from the teacher's desk. He devoured whatever edible plunder he could come upon. He was cruel, taking pleasure in hurting smaller children. In consequence of this passion he could not be allowed in the recess yard unattended. His obscenity exercised a bad influence over the other children.

The principal also stated that the mother told her that at one time R. had a passion for collecting bones which he hid. Later he abandoned bones for rusty nails which became his favorite playthings.

Owing to his continued disorderliness at school, R.'s parents were requested in October, 1899, to withdraw him. Previously he had frequently been out of school for periods of a week at a time, because of suspensions inflicted as a punishment for misbehavior. In March, 1900, he was again admitted and aside from frequent suspensions remained until his final period of exclusion in September, 1901.

His record of progress during this school period reveals that it was not until his third school year that he began to write his name. This slight mental improvement was accompanied by increased unruliness. During the three years (including suspensions) in which R. had been a pupil in the first grade in the Henry School, four different teachers attempted his instruction and discipline and each successively failed.

By visiting the child's mother I found R. was next to the youngest of eight children and the youngest of the five then living. As a small child he had suffered from an attack of pneumonia, in addition to having the ordinary children's diseases; otherwise he was considered quite healthy. Between the ages of 4 and 6, he had many falls, one of which, at the age of 5 years, was thought to be serious. This fall was from a bridge to the street. Until R. became 6 years of age there was no direct evidence that he was abnormal. However, from these frequent falls it is safe to infer his mind was not normally active, failing to recall memories of previous unfortunate experiences at climbing, and to conclude that he lacked the muscular agility characteristic of normal childhood.

It is worthy of note that on the mother's side there is a history of tuberculosis. Out of 14 brothers and sisters, 5 have died of this disease. But as this boy is the only abnormal child in a family of five living brothers and sisters, it is difficult to diagnose his case as one of hereditary degeneracy. The next child to R. and the last one of the children was stillborn R.'s mentality on entering my school was about that of a middle-grade imbecile. To drawl "No," "I won't do it,"

and "Get out of here," appeared to be his chief accomplishments.

His physical status gave the clue to the cause of his mental deficiency. A long-drawn face and an open mouth indicated the existence of postnasal adenoids. Hypertrophy of the tonsils, a very high palate, a flat chest, together with dulness of hearing made the diagnosis more certain.

Soon after receiving this child I explained to the mother the cause of her child's abnormal character, and requested that she place him in my care for surgical treatment. The request was readily granted and I had R. admitted into the Germantown Hospital, where the adenoids and hypertrophied tonsils were successfully removed by Dr. S. MacCuen Smith. Soon after the operation, an improvement in the child's physical condition was observed, and since he has been developing in the direction of a physically normal boy.

His improvement in school work has been most noted. A few months after the operation he began to progress, and it was not long before he became the equal of his classmates. Last June, R. was promoted into the work of our second year class with the highest mark. While R.'s school attainment cannot be classed as equal to that of a normal second year child, yet his work, particularly his ability to read, approaches it.

Marks of his early abnormal moral nature still persist, but merely as vestiges of former habits. The elimination of these habits has been a matter of severe and constant discipline. While he still says "No, I won't," he afterward smiles and proceeds to his task.

In manual work during all of last year the child accomplished practically nothing. Since last September he has made a very good beginning. At first he cut from thin wood a very inaccurate square. At each step he had to be forced to the task. Next, with less compulsion, he made a much better circle and triangle. Then he completed a small box for soap, and another for salt. In the construction of these he frequently refused to proceed until severe punishment was threatened. When these articles were finished he became very proud of his attainment and took the boxes home to show them to his parents. At present he is constructing, with a fair degree of accuracy, a towel roller. His interest in this project has become so great that forceful methods have been laid aside. A few days ago, when denied his usual shop period, he became so distressed that little could be done with him for the remainder of the day.

Although but little more than a year and a half have elapsed since the operation, yet sufficient success has been achieved to give much encouragement. It seems safe to predict that future progress will be steady and reasonably rapid.

More Typhoid in Nanticoke.—A fresh outbreak of typhoid has alarmed the residents and brought a letter of warning from State Health Commissioner Dixon, who says that persons are careless about using milk and beer bottles from infected houses, and that food in huckster wagons is sometimes handled by persons who have been nursing fever patients.

Medicolegal Society Passes Resolution against Contract Work.—The following amendment to the by-laws of the Medicolegal Society was passed at its regular meeting, held October 30:

Resolved, That on and after the first day of January, 1906, no member of this society shall accept the position of club, society, lodge or organization physician, or agree, or continue to do, any medical or surgical work for any club, society, lodge or organization at a less rate than the regular or customary charges for like services rendered by other physicians for patients not members of such club, society, lodge, or organization. Also that in no case shall any physician agree to attend the families of the members of such club, society, lodge, or organization at half price or a less price than the regular rate. Nothing in this resolution or section of the by-laws shall be construed as preventing any member from attending the worthy poor at a less rate or to give free service to those who are too poor to pay anything, or acting as city, county, or town physician, health officer, or under any political appointments. Any violation of this law shall be considered unprofessional conduct, and render the member guilty thereof liable to suspension or expulsion from this society, as the society may determine.

SPECIAL ARTICLES

CHINESE MEDICINE.[1]

BY

TEE HAN KEE, M.D.,

of Manila, P. I.

Municipal Physician, Board of Health.

When I was invited to write an article on Chinese medicine, I found myself as if I were requested to write something altogether outside the scope of my profession, owing to the fact that Chinese medicine is theoretically and practically different from modern medicine. It is, therefore, beyond my reach and capacity to discuss the subject at length and with authority. However, from my two years' practice of medicine among the Chinese community, and especially from my connection with the Chinese hospitals here in the district of La Loma, I will endeavor to interest my audience in this subject. Unvaluable as it may seem, yet, from the scientific standpoint of medical research, it is not at all useless to know at least a little about the practice of this important and honorable profession by a people whose history of medicine dates back as far as 3,000 years B. C.

Let me briefly give a short sketch of the history of Chinese medicine from the time of its birth up to the present day:

Roughly, the history may be divided into three periods or ages:

1. The first period or the "Dark Age" dates from the time of Emperor Sinliong down to Confucius, a period of about 2,280 years.

2. The second period or the "Progressive Age" dates from Confucius down to Emperor Shunti, the First Emperor of the present dynasty—a period of about 1,800 years.

3. The third period or the "Retrograding Age" dates from Emperor Shunti down to the present time—a period of 268 years.

The first period or the "Dark Age" is renowned for the discovery of the action and uses of many different drugs and also for the first medical book ever written.

The first man in China who understood medicine was Emperor Sinliong, the Second Emperor of the "Dynasty of the Five Rulers." He was born in or about the year 2,785 B.C., at the city of Yukiong, in the province of Shemi, where the present Emperor and Empress Dowager fled during the Boxer trouble. He was one of the best rulers in Chinese history, he was an inventor, an agriculturist, a philosopher, and particularly a physician. He, the father of agriculture, was the first who taught the people about farming, and invented its implements. He was a teacher of commerce, and taught his subjects the secrets of commerce and interprovincial trade. He was the first pharmacist who tested the actions and uses of the different drugs on his own system, and he was also the first writer on pharmaceutic works. His verses on therapeutics have been frequently referred to by all the Chinese doctors of the past, and also by those of the present. Little is known about the remaining part of this period, but it is on record that Chinese medicine has since then gradually attained its reputation as a profession, and the works of Emperor Sinliong have been revised and edited. Books on other subsidiary subjects, such as anatomy, physiology, and therapeutics were also written.

The second period, the "Progressive Age," is celebrated for its many famous physicians and surgeons, and it was during this time that medicine, as a profession, attained its height. Cases have been recorded that amputation of the shoulder-joint had been successfully performed. A case that specially attracts one's attention is the operation performed by Wah-to, the celebrated surgeon of those days, on a Chinese general by the name of Kwan-hu-choo, who was advised to have the operation performed with an anesthetic, but he preferred to have it done without it while he was playing chess. This case seems to show authentically that the uses of anesthetics were known in

[1] Read at second annual meeting of the Philippine Island Medical Association, Manila, P. I., March 3, 1905.

Chinese medicine during this part of the progressive age. The specific uses and actions of mercury for syphilis were also discovered, and it has been used up to this day. Smallpox inoculation was then introduced, and was first practised by a physician from a town near the "Great desert of Gobi"—a prince of the royal blood being the first one inoculated. At that time the people received this discovery as a great blessing, for it produces smallpox in a minor form, and reduces the rate of mortality. Since then it has been continually practised up to this time, although vaccination has been introduced from Europe, yet in the greater part of China this practice still prevails.

It is described to be performed in four different ways: 1. By wearing clothing of persons suffering from smallpox. 2. By inoculating the pus from the vesicles through the nose. 3. By blowing pulverized scabs directly through the nostrils. 4. By inserting through one nostril the scabs in moist cotton and keeping this in position for five days. This method is considered the best.

During the "Progressive Age," not only medicine made great advances, but improvement was noticed along other lines as well, such as the use of gunpowder; printing, the compass, etc., being discovered.

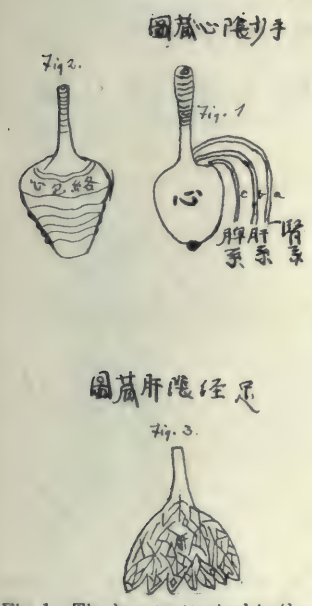


Fig. 1.—The heart attached to the trachea with three tubes connecting with a, kidney; b, liver; c, spleen. Fig. 2.—Heart enveloped by the pericardium. Fig. 3.—Liver as shown in Chinese books on anatomy; supposed to have seven lobes.

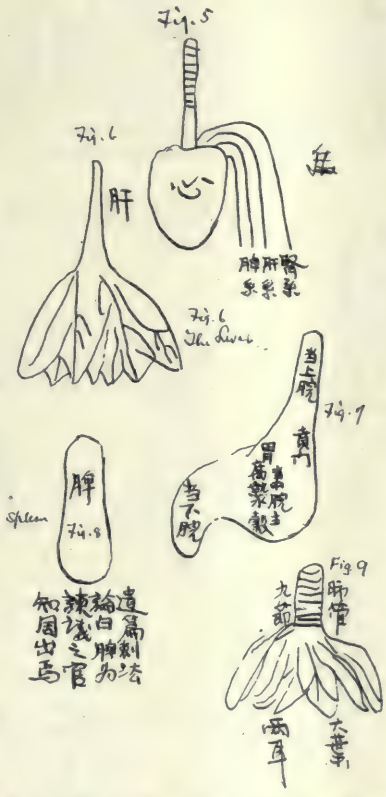


Fig. 5.—The heart. Fig. 6.—Liver. Fig. 7.—Stomach. Fig. 8.—Spleen. Fig 9.—Lungs; supposed to have six lobes and two tubes.

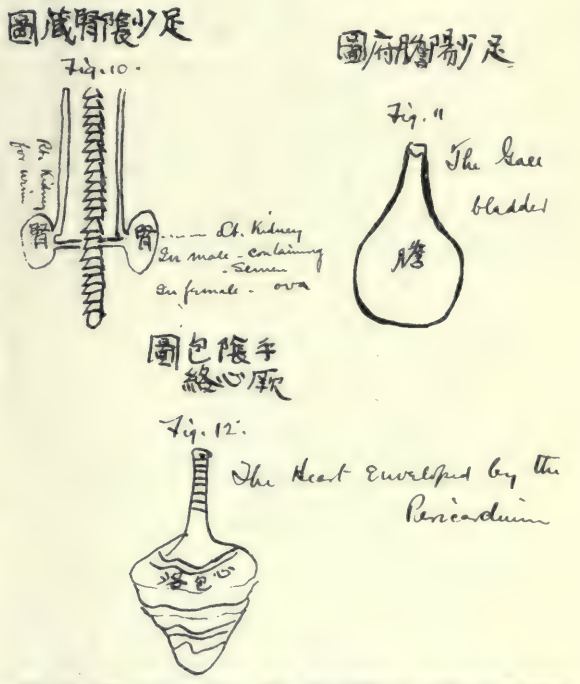


Fig. 10.—Relation between the two kidneys with the spinal column. Fig. 11.—Gallbladder. Fig. 12.—Heart enveloped by the pericardium.

The third period or the "Retrograding Age." We now come to an age in which medicine, instead of making a greater progress, has been gradually retrograding. The physicians who have achieved the greatest prominence in their profession, have become selfish and instead of leaving their knowledge to posterity, have buried it with them. This is also true of professional men in other lines.

There are no schools of medicine. A person can only gain a little medical knowledge through apprenticeship, and for fear of competition, the master will not teach all he knows, the student is therefore compelled to gain the larger part of his knowledge from actual experience. At other times a man buys two or three books and begins to practise. In such an instance, it is chosen more as a trade, or, in other words, to dispose of his medicine, instead of charging a fee for his professional services. This custom or practice is not only carried on in China, but also in Manila, where every Chinese practitioner keeps a drugstore of his own.

Thus, it is clearly seen that the practice of medicine is not conducted on a scientific basis, in fact, it is considered more as a superstitious art than a profession based on scientific knowledge. For instance, a paper drawn with a few fancy lines and strokes and then burned, is taken with tea as a medicine to dislodge fishbones in the throat. It is also sometimes used for driving off devils in cases of high fever. It is possible that here and there may be a man of great natural talent with special aptitude, who may know something and may at times do good, but generally the body of the profession are as ignorant as they are dishonest.

The notions on anatomy and physiology are absurd, as these are not studies from dissections on the human body, but mainly from what has been seen in lower animals. In China, it is considered a crime or at least as inhuman to perform an autopsy. There is no surgery worthy of the name. An abscess, instead of being treated with a knife, will be plastered throughout its whole course and a cure be expected. Medicines there are in superabundance, the spider, cockroach, human urine, etc., are fair samples. The therapeutic value of the different drugs is pure guesswork. There is no knowledge of the diagnosis and pathology of diseases. The diagnosis of diseases is not obtained from the signs and symptoms of the patient or from physical examinations, but the feeling of the pulse on both wrists is deemed to be sufficient and satisfactory. They will feel the pulse for hours until both the doctor and the patient fall asleep. A story is circulated in Manila that a Chinese doctor, while feeling his patient's pulse for more than two hours, fell asleep without noticing his patient slipping away. Hygiene is unknown. They used to advise their patients not to take a bath or open a window for fear of catching a cold. This can be seen by anybody in the Chinese hospitals.

They have a curious classification of disease—the "heating" or "cooling," an article of food, a drink, or a medicine, is classified as a heating or cooling thing. In keeping with this, every disease is classified as a "hot disease" or a "cold disease." It is therefore evident that a "hot disease" requires a cooling diet and medicine, and a "cold disease" a heating diet or medicine. The delightful simplicity of this has laid a very firm hold on

the popular mind. It is a style of logic that catches the uneducated. It has a pseudoscientific air about it that is taking. It enables the layman to argue with his doctor on an equal footing. In fact, they hold a preliminary examination on the doctor before they take his treatment. In official circles, that is, as a private physician to a Chinese official, a written medical essay on the patient's disease is necessary before he would take his physician's advice, though the official himself is not a doctor. But such is the custom. For this reason, modern medicine is variously judged. Medicine in aqueous solution is, like water, considered cooling. Quinin in solution would, therefore, be considered suitable in malarial fever, but not in malarial neuralgia or cachexia, however one gets over this difficulty by giving the drug in pills.

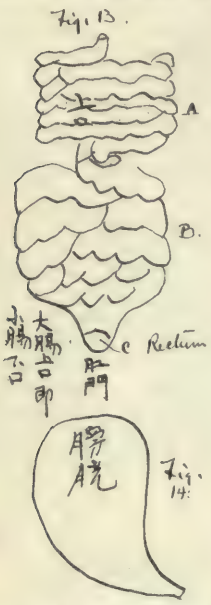


Fig. 13.—A, Small intestine; B, Large intestine. Fig. 14.—The bladder; no inlet above; there is an outlet below.

Thus far, I have shown the evolution of Chinese medicine in its three stages. I shall now give a short description, with diagrams, taken from Chinese books on anatomy, physiology, and a few notes on materia medica and the method they use in diagnosing a disease.

ANATOMY AND PHYSIOLOGY.

Heart: The heart is attached on the trachea, and rests on the diaphragm. It is situated in front of the fifth vertebra. It has more air than blood. It is the center of pulsation. It controls the senses of hearing and tasting. It weighs 12 ounces and has seven cavities and three openings. It has

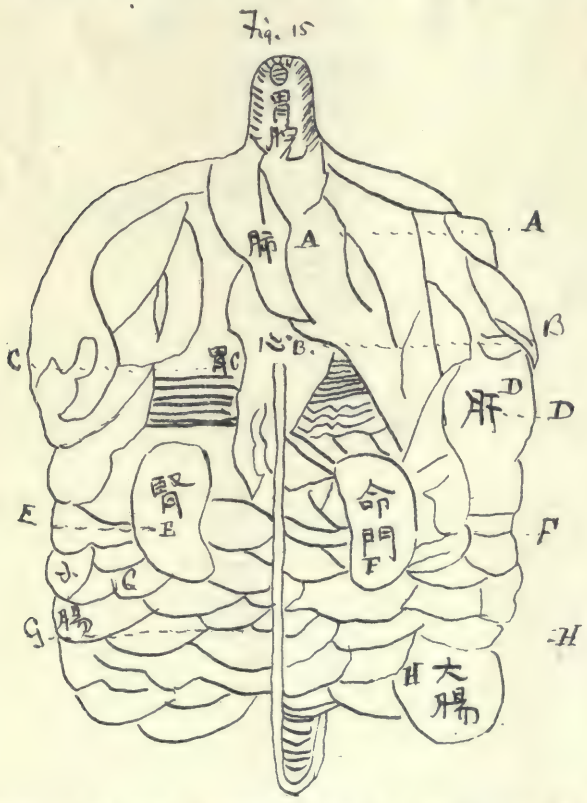


Fig. 15.—A, the lung; C, stomach; D, liver; E, right kidney; F, left kidney; G, small intestine; H, large intestine.

tubes connecting with the lungs, kidneys, liver, and spleen. It is enveloped by the pericardium.



Fig. 18.—Splint for fracture or curvature of spine.

The diaphragm separates the lungs and heart from the abdominal organs, so that the impure air from the abdomen may not contaminate the air of the lungs and heart.

Lungs: The lung is situated in front of the third vertebra. It has 24 cells, spreading throughout the lung for purifying the air of all the organs. It acts as a cover to the heart. This organ has more air than blood. It controls the sense of smelling. It weighs 51 ounces and has six lobes and two tubes. It



Fig. 19.—Splint in position viewed from front. Fig. 20.—Splint in position viewed from back. Fig. 21.—Splint for fracture of spine.

is the original center for the production of air. It covers the five organs. It resembles the honeycomb. When the lung inspires, it is big and full; when it expires, it is small and empty.

Liver: It is situated in front of the ninth vertebra. This organ has more blood than air. It controls the sense of seeing. It has a tube connecting with the heart. It weighs two catties



Fig. 22.—Splint applied in position. Fig. 23.—Splint for fracture of patella. Fig. 24.—Fracture of radius. Fig. 25.—Splint for fracture of forearm.

and four ounces. It has four lobes on the right, and three lobes on the left.

Gallbladder: This organ has more blood than air. It controls the will-power. It is situated at the short lobe of the liver; it weighs 3⅛ ounces. It is about three inches in length.



Fig. 26.—Various clinical varieties of fistula in ano and ischiorectal abscess.



Fig. 27.—How to feel a patient's pulse. Fig. 28.—How to feel your own pulse.

Stomach: This is an organ for digestion. It has a circumference of 1½ feet, with a diameter of 5 inches. It is 2½ feet in length and weighs two catties and 14 ounces. It holds about two taus (a tau holds about two liters) solid food, and 1½ tau of water. It has more air than blood.



Fig. 29.—The three portions of the radial artery of each wrist and the individual organ each represents. Left hand.—First portion represents heart and small intestine; second portion represents liver and gallbladder; third portion represents bladder and left kidney. Right hand.—First portion represents lungs and large intestine; second portion represents stomach and spleen; third portion represents right kidney.

Spleen: This is shaped like a knifeholder and is situated in front of the eleventh vertebra. It has a common membrane with the stomach; it moves when there is any noise outside which causes the stomach to contract. Its function is to help the stomach to digest food. It controls the sense of taste. It contains more air than blood. It weighs two catties and three ounces. It is five inches long and three inches wide. It contains a half catty of soft splenic pulp.

Small intestine: This is situated in the abdomen a little above the umbilicus. It has 16 curves: its circumference is $2\frac{8}{10}$ inches; diameter two-fifths of an inch. It is 32 feet long. It holds $2\frac{4}{10}$ taus of solid food and six chins of water. Its entrance is situated at about two inches above the umbilicus and has an outlet one-half inch below the umbilicus where the water goes to the bladder and the solid matter goes to the large intestine. It has more blood than air and weighs two catties and 14 ounces.

Large intestine: This has three portions. The first portion has 16 curves. Its circumference is 4 inches and its diameter 1.2 inches; length 21 feet. It holds one tau of solid food and seven taus of water. The second portion is the largest. It is 8 inches in circumference and has a diameter of two inches. Its length is 28 feet. It holds nine chins of solid matter. The large intestine weighs 2¾ catties. The rectum weighs 12 ounces.

Kidneys: These are two in number and are situated in front of the fourteenth vertebra. The left is for holding water; the right is an organ for holding semen in the male and ovums in the female.

Bladder: This is situated in front of the nineteenth vertebra and in front of the large intestine, below the kidneys. It has an outlet below but no inlet above. The water in the small intestine enters the bladder through dialysis; when it fails to enter the bladder it then enters the large intestine and causes diarrhea. When it does not enter the large intestine or the bladder it causes general dropsy. It has more blood than air and weighs nine ounces. It is nine inches wide and contains nine chins of urine. The mouth is two inches wide.

Materia medica: The Chinese pharmacopeia consists of substances of the mineral, vegetable, and animal kingdoms. The vegetable substances are by far the most numerous, and are mostly bitters. The first person who claimed to understand the actions and uses of the different drugs was Emperor Sinliong, and the whole pharmacopeia during those days consisted of only 360 different species of drugs, but these were afterward increased to thousands of different kinds.

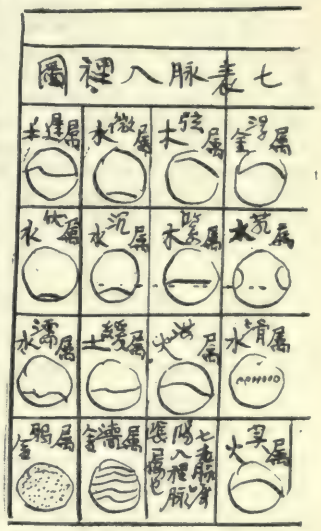


Fig. 30.—The rate, volume, and the hardness of the pulse, shown diagrammatically.

Since all diseases are classified as either hot or cold, the actions and uses of different drugs are also classified as heating or cooling. The heating drugs must be gathered during the daytime in summer, when the weather is hot, and must be prepared by the aid of fire, either by frying or boiling. The cooling drugs must be gathered at night, during winter, and then soaked in water.

Some of the medicines that are commonly used are ginseng, gentian, chrysanthemum, dog's testicles, cockroaches, sulfur, orange bark, dragon's bones, almonds, rhubarb, mercury, deer's horns, urine, milk.

The way by which medicine is prescribed to the patient is usually in the form of decoctions. However, pills, powders, and other forms are also used. The quantity of decoction for a single dose is about a half pint. Generally about one to two pints of water are added to the drugs prescribed, and then boiled down and strained to about half a pint, a method of boiling and concentrating by evaporation. The number of substances that form a prescription is from 10 to 20, and even more.

The three portions of the radial artery of each wrist and the individual organs represented are as follows:

		Pulse incompressible.	Pulse compressible.
1. Right wrist	First portion represents	Lung	Large intestine
	Second portion represents	Spleen	Stomach
	Third portion represents	Pericardium	Right kidney or the gland containing semen in the male and ovums in the female.
2. Left wrist...	First portion represents	Heart	Small intestine
	Second portion represents	Liver	Gallbladder
	Third portion represents	Bladder	Kidney

How to diagnose disease: As mentioned before, the feeling of the pulse is the only method in diagnosing disease. The

radial artery at the wrist is the only one used for this purpose. Each wrist is divided into three portions, each portion representing certain internal organs and each organ representing certain tissues in different parts of the body; therefore, the diagnosis of the disease is obtained when there is any difference of the rate, volume, and hardness of the pulse in the respective portions.

Chinese doctors study the pulse from a book entitled "Eighty-one Difficulties." It is so called, because they consider it extremely difficult to understand thoroughly the pulse. In forming a diagnosis of disease, they must always feel the pulse of both wrists, which takes about ten minutes for each side. When it is very difficult to make a diagnosis, they will feel a pulse for several hours or even a whole day. It is believed that some expert diagnosticians are able to tell all the diseases a patient has suffered from throughout his whole life.

There is another question with which I shall deal before I conclude, and that is how modern medicine is viewed through Chinese eyes, and whether the Chinese will ever adopt modern medicine to take the place of the old.

With regard to surgical cases, that is in disease, in which the character and method of cure are more or less manifest, the Chinese are already acknowledged superior. But in medical cases, that is, in diseases the nature of which is less apparent, the hot and cold system still holds their minds.

The conservative spirit of the people, the glamor of traditions, the reference for the authority of the ancients and for what has been written, their disbelief in things that are strange, these and other inherited ideas are the greatest obstacles to the advance of modern science. Yet in time, by patient demonstration and by multiplied proofs, the old fancies and the old superstitions will be abolished. At the present time, modern medicine is slowly, but surely, forcing its way among the Chinese in Manila, and especially in many seaport towns of China, where European dispensaries are rapidly taking the place of Chinese drug stores.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 11, 1905. [VOL. XLV, NO. 20.]

1. Pseudosclerosis.—C. S. Potts and W. G. Spiller report a case, with autopsy. They reproduce Frankl-Hochwart's diagnostic comparison of the two types of pseudosclerosis and diffuse sclerosis, and point out their clinical resemblance. Spiller says, it is evident that sharp distinction between the findings of pseudosclerosis and those of diffuse sclerosis cannot be made, and that the differences are probably chiefly in the degree of the alteration and not in the character of the alteration. The unusual firmness described in some of the cases of pseudosclerosis must be caused by a proliferation of the neuroglia, even though this proliferation cannot be detected by the microscope.

2. Cancer of the Breast.—Homer Gage gives the result of 62 additional cases to those already reported by him. All the patients were operated on before 1904 and 42 of them before 1902. He does not believe in any three-year limit as indicating a cure and thinks that the practice of so estimating it should be abandoned. He has no very decided faith in anything but radical operative procedures in breast cancer. Excluding one patient not heard from, three incomplete palliative operations and one patient who died shortly after the operation from typhoid fever, there are left 57 cases. Of the 38 patients operated on over three years ago, 15 are well at the present time. This is an improvement over his previous statistics and is attributed by him to the more radical operation. Patients between 40 and 50 seem to do better as regards recurrence than those in the next following decade.

3. Repair of the Perineum.—George B. Somers. See *American Medicine*, Vol. X, No. 9, p. 346.

4. Typhoid Fever in Children.—W. J. Butler gives a clinical analysis of 210 cases of typhoid fever in children, 106 boys and 104 girls. The duration of symptoms, such as restlessness, vomiting, drowsiness, headache, anorexia, fever, etc., before coming under observation, was, on the average, seven days. In 107 in whom the condition of the bowels was ascertainable, 69 had diarrhea, 31 constipation, and in 7 the bowel movements were irregular. Nose-bleed occurred among the preliminary symptoms in only 29 of the 210. After coming under observation, anorexia and furred tongue were the rule. Vomiting occurred in 28 cases, in 13 of which it had been present during the onset. In many cases it seemed to precede more serious symptoms or complications. Butler does not ascribe to constipation any very special prognostic significance. Tympany of varying degree was usually present after the first week, and in some cases was an annoying symptom extending into convalescence. Epistaxis occurred in 12 cases during the course of the disease, in one case several times and with repeated bowel hemorrhages, terminating fatally. The average duration of abnormal temperature in all cases was 17.3 days. The disproportion between pulse-rate and temperature, first noticed by Roger in adults, holds good for later childhood, but in very young children they run more or less parallel. Blood counts were made in many cases, chiefly with reference to the leukocytes. The Widal test was made in 96 cases, with 86 positive results. In 40 patients the reaction was positive within the first four days after coming under observation. Relapses occurred in 31 of the 210 cases, in five cases fatal. The mortality, as usual lower in children, was 11. Butler is inclined to think that the enlargement of the diet of typhoid patients, advised by some, is unadvisable so far as children are concerned. Milk, diluted for infants and very young children, with albumin water, and the usual cereal gruel diluents, such as barley water and rice water, as drinks, he thinks, are best for this class of cases. Care in diet during the early part of convalescence is as important as during the height of the attack.

5. Some Causes of Failure after Gynecologic Operations.—William E. Ground. See *American Medicine*, Vol. X, No. 4, p. 136.

6. Etiology and Treatment of Socalled Endometritis.—Ernest F. Tucker. See *American Medicine*, Vol. X, No. 11, p. 430.

7. Transplantation of Bone for the Relief of Saddle-nose, with Report of One Case.—Cullen F. Welty. See *American Medicine*, Vol X. No. 8, p. 305.

8. The Diagnosis of Intracranial Complications of Suppurative Ear Disease.—John F. Barnhill. See *American Medicine*, Vol. X, No. 9, p. 347.

9. Peculiar Symptoms Following a Radical Operation.—George F. Cott reports a case of long standing in which after a mastoid operation the patient complained of almost constant pain, and the temperature varied from 104° F. to 99° F. for two weeks. The patient had a regurgitant murmur and there was at times pain in the region of the heart. As the patient was markedly neurotic, the sinus was not explored, though sinus phlebitis was suspected. The patient was able to leave the hospital on the thirty-fourth day after operation. During the following year there was frequently pain in the ear, but not so severe as to require opiates. The temperature has never been quite normal, though the patient has improved in general health, and the ear is practically well.

10. Copper Salts in Actinomycosis and Blastomycosis.—A. D. Bevan remarks that, while potassium iodid has a very definite and positive effect on circumscribed lesions of actinomycosis, a very large proportion of the cases of abdominal and lung infection are fatal, in spite of the treatment. He has been looking, therefore, for some other method of treatment, and the well-known action of copper salts on vegetable parasites

suggested their employment. Of these the most powerful is the sulfate which the French investigators have shown can be taken in doses of from 2 gr. to 8 gr. a day for a long period without deleterious results. He has used it in several cases in doses of from ¼ gr. to ½ gr., in some cases increasing it to 1 gr. 3 times a day, also employing irrigation with a 1% solution. The results seemed so satisfactory that he has also used it in 2 cases of blastomycosis, the skin lesions of which are likewise benefited by potassium iodid, especially in conjunction with the röntgen ray.

11. Typhoid Perforation.—J. B. Thomas reports two cases of typhoid perforation with operation, and one recovery. From this experience he criticises the text-book instructions to avoid operation during shock. In the future he would operate as quickly as possible, except in cases of extreme shock or of imminent death. He was impressed in both cases with the fact that there must have been a considerable interval between the actual perforation and the symptoms of peritonitis, thus preventing as early a diagnosis as would be desirable.

Boston Medical and Surgical Journal.

November 9, 1905. [Vol. CLIII, No. 19.]

2. Plaster Jackets in Spinal Curvature.—E. G. Brackett and L. R. G. Crandon have attempted to determine by which method the greatest amount of backward extension of the spine at the point of disease could be obtained in such a way as to diminish most completely the pressure on the vertebral bodies. Fixation is but one of the objects of a plaster jacket. In comparing suspension and recumbency, one of the writers has found that a greater amount of extension and less lordosis resulted by methods of recumbency. Three forms of apparatus were used in applying the jackets: The hammock with the patient prone, and the rods and the fork, with the patient supine. Lumbar disease improves under any method, with the balance in favor of the hammock. Dorsolumbar and dorsal disease shows a gradual increase by any method of extension that brings about a compensatory increase of the normal lumbar curve. High dorsal (fourth) may be held by either form of support, if the jacket is carried high in front. Care is necessary to avoid postural defects. The ventral position is adapted for all cases of lumbar disease, and to dorsal cases when the part covering the anterior chest is left until the patient is removed from the hammock, and the jacket finished in the sitting posture, with the patient held back in the extended position. The dorsal position is adapted to dorsal or lumbar disease. The fork is rather the more applicable to the dorsolumbar and lower dorsal, and the rods to the higher dorsal cases. In old cases with deformity, care must be taken to avoid lordosis. Poise in standing is a valuable guide. Shrinkage in weight is about 9% of the rolls before wetting. For a child of 3 to 5, 1 pound 12 to 14 ounces should be sufficient and 2 pounds 10 ounces for a child from 10 to 12. [H.M.]

3. Treatment of Chronic Prostatic Enlargement.—J. P. Lewis believes the use of sounds is generally to be condemned. The sphere of the catheter grows smaller as the advantages of early operation manifest themselves. The Bottini operation may be applicable in selected cases, but should seldom if ever be adopted. Orchidectomy, vasectomy, ligation of the internal iliacs, injection of carbolic acid, applications of electricity and allied methods are to be condemned. Prostatectomy is the procedure of choice, performed when symptoms are first manifested and the patient's condition is best. The perineal is the preferable route, and the preferable method that of Young, or one of its modifications. In patients with foul bladders and diseased kidneys, who would not stand extensive operation, thorough drainage through suprapubic or perineal incision under local anesthesia may be followed later by enucleation. Local anesthesia, especially spinal cocainization, should be more extensively employed. [H.M.]

Medical Record.

November 11, 1905. [Vol. 68, No. 20.]

1. Notes on Nonoperative Gynecology.—Sarah J. McNutt maintains that in many instances a woman with pelvic or abdominal disease may recover under medical treatment only, without operation. The cases calling most urgently for operative treatment are those of pelvic or abdominal tumor, the accidents of childbirth, malignant disease, and pus collections. In order to deal successfully with the nonoperative cases, one must realize that while the patients present themselves for gynecologic treatment, many of their symptoms are not purely and exclusively gynecologic, but rather of reflex origin. While the local conditions must be treated, the local measures adopted will be made more effective if combined with them is a careful consideration of the general condition. The most frequent general symptoms are the derangements of secretion and excretion, anemia, and nervous symptoms. The most frequent local conditions are (1) displacements of the uterus, with or without displacements of the adnexa; (2) catarrhs, acute, subacute, and chronic, confined to the uterus; and (3) the same, with extension to the tubes and secondary involvement of the ovaries. In many cases one can use local treatment indefinitely and utterly fail to cure the patient if with it does not go general medication and hygiene.

2. Nongonorrheal Urethritis.—Henry G. Spooner prefers a classification based upon the clinical conditions in which cases of nongonorrheal urethritis have been observed and he suggests the following classification: 1. Urethritis caused by external irritation—coitus, catheterism, ungratified erections (?), masturbation (?), medicated injections. 2. Urethritis caused by internal irritation, mechanical, chemic, and tonic, of constitutional origin—food, drinks, drugs, gout (?), rheumatism (?), arthritic diathesis (?), diabetes (?), herpes, mumps (?), syphilis (?), tuberculosis, typhoid fever (?). After the urethra has been chronically inflamed by a previous gonorrhea, or by any other cause, indulgence in coitus renders the urethra more susceptible to germ invasion. From the clinical point of view, differential diagnosis is impossible, but as a rule in nongonorrheal urethritis the incubation period and the course are shorter and less painful than in the specific form. Nongonorrheal urethritis of constitutional origin must be treated so as to remove the exciting cause. When due to pyogenic bacteria the treatment is the same as in gonorrheal urethritis. Some cases of aseptic urethritis of unknown origin are not influenced by any form of treatment. In conclusion Spooner says: I. The presence of pyogenic bacteria is not sufficient to cause urethritis until the vitality of the epithelium is lowered. 2. There are two varieties of nongonorrheal urethritis of primary origin, those caused by external irritation, those due to internal irritation, chemic or toxic. 3. No incontestible cases of urethritis caused by gout, rheumatism, the arthritic diathesis, diabetes or mumps are contained in the literature.

3. The Stomach in Pulmonary Tuberculosis, and the Effect of Gastric Juice on Bacillus Tuberculosis.—E. Palier has studied the gastric conditions present in a number of cases of pulmonary tuberculosis, most of the patients being men between the ages of 22 and 45. He describes several of these, and says that his observations lead him to believe that in about 60% of the cases of incipient tuberculosis there is hyperchlorhydria, in 20% the stomach is about normal, and in about 20% there is hypochlorhydria. The diet must therefore vary in different cases of the disease,

and it is necessary to study the condition of the patient's stomach before it is possible to lay down rules for his nutrition. The normal gastric juice is bacteriolytic to the tubercle bacilli, but *in vitro* the process is very slow. The author believes, however, that in the stomach it is much more active, so that ordinarily no bacilli can pass the normal stomach and reach the intestine in virulent condition. In hypochlorhydria they undoubtedly can, and also under any conditions on repeated ingestion some may find opportunities to slip through and cause disease. The frequency of hyperchlorhydria with hypersecretion in pulmonary tuberculosis explains the frequency of gastric ulcer in this disease.

4. Perforations of the Tympanic Membrane.—David G. Yates recommends the use of patches of rubber to be applied over the perforation, so as to make an air-tight joint, in the treatment of recent or long-standing cases of this injury. In applying a patch to the drum a piece of rubber is selected which is about twice the size of the hole to be covered. The canal and drum are thoroughly sterilized by syringing and mopping, and dried. If necessary, the edges of the perforation are pared or touched with nitrate of silver. The disc is carried into the drum by means of forceps or a cotton-tipped probe through a speculum, if small, without it if too large. It is then pushed into position and the edges pressed down firmly all around. No adhesive material is necessary. The rubber is most conveniently sterilized by keeping it in alcohol or other antiseptic for a few moments while other preparations are being made. The patch hastens the reparative process and at the same time effects an immediate improvement in the hearing.

5. Transverse Incision in Abdominal Operations.—A. E. Rockey speaks of the development of abdominal incisions which have been becoming shorter and shorter, until now appendicectomies are done through an inch and a half incision. The transverse skin incision represents a further advance, for the cleavage lines of the skin of the lower abdomen are parallel to the wrinkles, being transverse with a slight downward curve. The transverse incision has already come into extensive use for cases in which the abdomen is to be opened in the median line, but the author applies the same principle to operations on the appendix and cecum, to exploratory laparotomy on the right side, and to colostomy and resection of the colon on the left side. The operation for ordinary acute, unruptured appendicitis, or the interval operation, is done through a transverse incision, slightly less than one and a half inches in length, crossing McBurney's point at its center. This incision should lay bare the aponeurosis of the external oblique. Narrow retractors should be used and the incision completed on McBurney's lines. The advantage of this incision is that it falls along structural lines in the skin. The fibers of the aponeurosis of the oblique may be readily separated to twice the length of the incision, thus giving easy access to the transversalis, which, being the heavier and deeper, is then in line with the external opening, thus giving a maximum exposure with a minimum incision. In this operation the peritoneum is incised transversely.

New York Medical Journal.

November 4, 1905. [Vol. lxxxii, No. 19.]

2. Spirochæta pallida in syphilis is taken up in detail by Antonio Fanoni. Of the cases examined 15 were syphilitic, of which 2 were in the tertiary stage, and 13 in the primary or the secondary stage. Two were control cases of nonsyphilitic character. *Spirochæta pallida* was found in 11 out of 13 cases of primary or secondary syphilis examined. It was absent in 2 cases of tertiary lesions (gummas), in the two controls, and in 2 cases of secondary syphilis, both of which had been treated for some time. All the chancres examined, 7 in number, were found to be infected with spirochæta. The spirochæta was found in a hypertrophic and congested tonsil in a case of secondary syphilis. So far as the author knows, this is the first time the spirochæta was found in the tonsils. It was also found in the inguinal glands, in papules, in condylomas and in mucous patches. In three cases it was found alive in hanging-drop preparations. The author says that the fact that no spirochætas were found in the two cases which had been under antisyphilitic treatment, seems to point to its protozoal nature. The disappearance would be accounted for on the same principle as the malarial parasite is found to disappear from the blood after the administration of quinin. Fanoni says that in view of the findings in the recent investigation, and in view of the results obtained by previous observers, it seems that there may be a possibility that *Spirochæta pallida* of Schaudinn is the etiologic basis of syphilis, but the study of the cause of this disease has brought so many disappointments in the past that it behooves us to be exceedingly cautious in accepting any germ found in syphilitic lesions as the causative factor. Before we do so we must have a large statistic, showing the spirochæta in the deeper parts of the body, where contamination could not occur from the exterior; we must have more control tests, and we must complete the triad of Koch, finding the organism in the tissues, cultivating it, and inoculating into animals, to produce the disease. [C.A.O.]

3. Methods of Exploring the Abdomen, and a New One.—Alexander Hugh Ferguson. See *American Medicine*, Vol. IX, No. 2, p. 52.

4. Exophthalmic Goiter.—Alfred Gordon concludes that the affection is of a nervous origin, that its immediate cause lies in the sympathetic nerve, which, with its three ganglions is the source of the ocular filaments and of the accelerators of the heart and the vasodilators of the thyroid. The comparative study of the results obtained from various therapeutic measures proves amply that operations on the sympathetic nerve are followed by results far superior to those obtained from removal of the thyroid gland or from internal administration of thyroid extract and other drugs. He says that the theory of hyperthyroidization or hypothyroidization cannot hold ground, as it does not explain all the phenomena of the disease. [C.A.O.]

6. Blood-pressure.—L. F. Bishop says that we find the great vices of blood-pressure to be: 1. Primary low arterial tension, met with in all enfeebling disease, in great physical emergencies, and following either to diseases of the heart structure, or to a failure of the vital force and tissues of the body. 2. High arterial tension, indicating that the circulation is laboring under stress, and due to nervous causes, such as overwork, excitement, and dissipation, or chemic causes, such as the overingestion of food, or the failure of kidney elimination; indeed, all of the causes which can arise from a life of mental hardship combined with physical luxury. 3. Secondary low arterial tension, which represents the final outcome of preexisting high arterial tension. [C.A.O.]

Medical News.

November 11, 1905. [Vol. 87, No. 20.]

1. Sea Air Treatment of Tuberculosis of the Bones and Glands in Children.—J. W. Brannau notes the work done in France and England along this line, and describes the experiment of the New York Association for Improving the Condition of the Poor on Coney Island. The improvement in the general condition of the children has been uniform. Improvement in the local lesions has naturally required a longer time to manifest itself, but the end of the year shows marked progress, amounting in some cases to apparent cure. A few operations have been necessary, but they have not

depressed the patient. Instead of braces, plaster-of-paris is used in most cases for fixation, fenestras being cut when there are sinuses present. Wallace has found that sinuses heal more readily and permanently when all packing and drainage are omitted and only a sterile absorbent dressing is applied. In no case has there been an infected wound, nor has a sinus healed when it still contained pus. [H.M.]

2. Report of the Committee on the Influence of Climate in Pulmonary Tuberculosis.—Chas. L. Minor, E. N. Baldwin, S. E. Solly, C. F. McGahan, Henry Sewell, and Norman Bridge. See *American Medicine*, Vol. IX, No. 22, p. 933.

3. A Case of Spinal Apoplexy.—W. Browning and F. Tilney give the clinical history and pathologic report. The points of diagnostic value are: (1) Central hemorrhagic areas; (2) circumscribed and diffuse disintegration of the white substance characterized by axons much swollen with swollen sheaths, also by large lacunas caused by the total disappearance of many axons with their sheaths; (3) chromatolysis and degeneration of many cells; (4) injected and dilated condition of the bloodvessels; (5) increase of neuroglia. The presence of the central hemorrhage determines the diagnosis of hemorrhagic myelitis. [H.M.]

5. Strictures of the Urethra.—E. G. Ballenger divides strictures into linear, annular, and tortuous; into simple strictures that are readily dilatable; inflamed strictures, and resilient strictures which recontract almost immediately after dilation; into soft or recent strictures and cicatricial or nodular strictures; into those of large and those of small caliber. The majority are in the bulbomembranous region. They are usually multiple. He does not think it possible for the urine posterior to the stricture to undergo ammoniacal decomposition as it is retained for so short a time, being washed out at each micturition, unless pouches have formed. He advises, however, massage from above downward after each urination, as retention is irritating. The inflammation may extend backward to the bladder, finally involving ureters and kidneys. In no disease is a temperate life so necessary as in stricture. A frequent mistake in management is in waiting until the constriction is relieved before treating the inflammatory symptoms. Strictures near the meatus must be incised as dilation is too painful. Elsewhere dilation is the safest method. If the strictures are complicated with abscess, urinary infiltration, or intractable cystitis, they should be treated, as a rule, with external perineal urethrotomy. Internal urethrotomy is a valuable adjunct to gradual dilation for incision of an irritable or resilient stricture, or where inflammation is engrafted upon a normal narrowing. In using gradual dilation the urethra should be irrigated and then there should be introduced back of the stricture with a Tomassoli ointment carrier, a salve containing silver nitrate, glycerin, and lanolin, which should be massaged into the depressions. Satisfactory anesthesia may be obtained by injecting $\frac{1}{4}$ gr. to $\frac{1}{3}$ gr. of cocain into the root of the penis. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN
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HELEN MURPHY

REVIEW OF LITERATURE

Study of Renal Function.—G. Kapsammer and V. Gaudiani[1] take up the two methods, which have to do respectively with urinalysis and usage of substances such as methylene-blue, phloridzin, or carmin. This work demands an ability to distinguish between the functions of the two kidneys. Luys has reported, in 210 cases, the results of his excellent (so termed by Kapsammer) instrument. Among all these 210 cases, it was found necessary to practise cystoscopy but seven times. The good results and importance of separating the secretions of the kidneys in forming a diagnosis, show in the case of a woman who had vesical tuberculosis, and gave the ambiguous "terminal hematuria," but with separation of urine it was found that the blood pigment came first from one kidney and then from the other. The ureters must be catheterized at the same time to obtain exact data. In 1897, Koranyi added to our clinical methods that of cryoscopy. In the future, it would appear, the decision will be made in the laboratory, and not at the bedside. Normal urine congeals at —1.3° C. to —2.3° C. When as high as —1.0° C. some renal lesion may exist. Claude, Balthasard and Bujnewitsch, in 1901–3, assert an ability to differentiate between lesions of the glomerulus and of the canaliculus. Koranyi claimed, in 1901, that all changes beyond —1.3° C. indicate a positive renal disease. In 1904, he modifies this in admitting that no positive diagnosis can be made from the mere establishment of the point of freezing. Kouvesi and Roth-Schultz, in 1900, introduced the method of dilution, and show plainly that the difference between interstitial and parenchymatous disease is not in a different freezing-point, but in the permeability of the renal substance to different materials. Casper and Richter perform cryoscopy after separation of the secretion of the two kidneys. The more concentrated urine is that derived from the organ more active in function. The failure of Kümmell to sustain his two theses (1902) and the fact recently proved that a normal freezing-point may persist in the face of nephritis, lead Kapsammer to remark the present insufficiency of cryoscopic tests. Kapsammer does not care for tests with methylene-blue. He advises the use of indigo-carmin, as introduced by Voelckler and Joseph, of Heidelberg. This is accomplished by an intramuscular injection of 0.16 gm., in control 15 hours by cystoscopic examinations. But a careful bilateral ureteric catheterization must also be made to insure success. Phloridzin tests were made by Achard, and others, who have shown that sugar compounds of phloridzin are made in the glomerulus, and not in the tubules, so that diseases of these channels can be differentiated. Casper and Richter, in 1901, report formulas which indicate by the comparative retardation of phloridzin-sugar the extent of renal disease. The formation of this chemic combination may occur in normal conditions of the renal parenchyma, says Kapsammer, notably in polyuria reflexa. It is not heavy, and is transient. If the sugar of phloridzin is persistent after 30 hours, some lesion exists. Seventy cases are given on the part of the author, to show how the question of operability should be determined; 30 of these were brought to the table. Microscopic tests must be conjoined. These are important if negative. Roysing and others report confusing examples of retarded secretion occurring in normal individuals. Such cases depend on the credibility of the observer for their clinical import. All of these tests look toward the future. [T.H.E.]

Local Immunity of Tissues and Its Practical Value.—A. Wassermann and J. Citron[1] found from a series of experiments that tissues coming in contact with infectious material react to them by becoming immunized against them. Certain bacteria (*B. coli communis* for instance) produce serious infections in some tissues, but not in others—peritoneal cavity, intestinal tract. In the intestinal tract of young animals they may set up infections, but not in those of old animals. After recovery from typhoid fever, cholera, etc., typhoid fever and cholera organisms thrive in the intestines without setting up a second infection. The cause for this phenomenon is to be found in the cells coming in contact with the bacteria-producing antibodies; gradually the tissues be-

[1] Il Policlinico (Rome), August 27, 1905.

[1] Deutsche medicinische Wochenschrift, 1905, xxxi, 573.

come so transformed as to be absolutely insensitive against the particular poisons; this immunity lasts a long while, and may last during the life of the animal. Whether the immunity has been produced by spontaneously or artificially acquired disease, it has only been induced thus far by the introduction of living pathogenic microorganisms. This is an entirely different immunity from serum immunity and manifests itself without the slightest sign being apparent in the blood. [E.L.]

The Value of Copper as a Means of Purifying Drinking Water.—C. E. P. Fowler[1] states that contaminated water standing for 20 hours in a copper vessel, even though containing a large quantity of copper foil is not rendered safe for consumption. Copper sulfate is a fairly efficient germicide of intestinal organisms in 24 hours up to 1 part in 60,000 of clear, 1 part in 30,000 of somewhat turbid and 1 part in 10,000 of a foul water. The last cannot be tasted, but gives a bluish opalescence to the water. One part in 60,000 is just over 1 gr. in a gallon and it is a question whether this would not be harmful. The dose as an astringent is ½ gr. to 2 gr. [H.M.]

Experimental Measles.—Ludwig Hektoen[2] reviews the literature and records the details of experiments from which he concludes that the virus of measles is present during the first 30 hours of the eruption. The virulence of the virus persists after at least 24 hours, when blood containing it is inoculated into ascitis broth and kept at 37° C. It is not difficult to separate the virus of measles from other microbes, and to study it by various methods in such form. [J.H.W.R.]

Sanatoriums for the Poor and the Eradication of Tuberculosis.—R. C. Macfie[3] says that sanatoriums can be merely useful auxiliaries in the warfare against tuberculosis. The number of beds is entirely inadequate, and the cost of treating each patient makes them a financial extravagance. Most of the cases in the free sanatoriums are late cases, and the percentage of cures is very low. Those discharged as cured or almost cured, frequently relapse in a very short time. A careful selection of cases for sanatorium treatment would probably lead to better results, as most of the beds at present (in England) are occupied by hopeless cases. Each center of population should have special medical officers to select suitable, incipient cases. It is also of greatest importance to supervise the after-life of the patient, and to provide favorable surroundings and healthful work. If the patients are sent back to their unhealthy surroundings and hard work, about 60% to 80% will relapse. The only economic solution of the problem is the establishment of colonies for the tuberculous. The cost of maintenance would be much less, and many lives would be saved. The constant pernicious flow of population from country to town would be counteracted, as many cured patients would elect to remain in the country. The most important weapon, however, in the warfare against tuberculosis, is the institution of hygienic improvements, better food, better housing, more open spaces, etc., with the establishment of educative dispensaries and sanatoriums, along with notification, isolation, disinfection, and house-to-house visitation. [B.K.]

Vaccination against Cholera.—The recent appearance of cholera in European Russia and its extension into Germany have given a fresh impetus to investigation. During the past 20 years a large statistical material has been accumulated, which appears to encourage the confidence in the prophylactic efficiency of vaccination against cholera. Formerly live cultures of cholera bacilli on agar have been employed, as well as dead cultures, and finally both dead and live cultures, one after the other. Recently bacillary extracts have been prepared after the method of Neisser and Shiga, and B. E. Klein[1] made a number of experiments on guineapigs, proving the efficiency of the new preparation as a cholera preventive, when used as a vaccine. It remains to be shown, however, how long such an acquired immunity lasts in man before the general employment of the new vaccine can be recommended. [L.J.]

The Influence of the Röntgen Rays, Radium, and Ultraviolet Light on the Blood.—P. Linser and E. Halber[2] find that the white corpuscles in the organism are destroyed under the influence of the röntgen rays. This effect is most marked in the circulating blood, and is especially active against the lymphocytes. This destruction of the white corpuscles produces a leukotoxin in the serum. The injection of such a serum into other animals produces a marked disintegration of leukocytes. The leukotoxin gives rise to an antitoxin, which is destroyed by a temperature of 55° C. to 60° C., and which can pass through the placenta from mother to fetus. After exposure to the röntgen rays, a nephritis may arise, which is not due to the direct influence of the rays on the kidneys. The red corpuscles, blood-platelets, and hemoglobin are comparatively little affected by the rays. The coagulability of the blood undergoes no change, in spite of the abundant disintegration of leukocytes. Radium and ultraviolet light have no appreciable effect on the blood. [B.K.]

Skiagraphy of Stomach and Intestines.—H. Hulst[3] reports the results found in 22 cases, the skiagraphs being made after the patient had taken 30 gm. (1 oz.) of bismuth subnitrate suspended in a quart of milk. The first skiagraph is taken immediately after the meal, the second 6 hours after; 12 to 48 hours after is the best time for taking the colon. If the textbooks are correct, Hulst says he has not found a normal stomach; extended röntgen-ray examination of the stomach will probably change the current conception of this organ. Prolapse and vertical position were common. This was also true of the intestine. Hulst states that if prolapse of the abdominal organs is half so common as our best internists now believe, and as the cases described in his article lead him to suspect, skiagraphic examination of the abdomen as carried out by him cannot fail to add something of value to the other exact methods of diagnosis. This is especially true if ptosis and dilation is the cause of suffering, chiefly of women, attributed to it. The article, with the illustrations, is a very valuable contribution to this subject. [A.G.E.]

Experiments upon the Fra Fra Arrow Poison.—A. J. Chalmers[4] considers, as the result of his investigations, that the poison is allied to acokantherin, and that it causes death by cardiac failure, brought about by its action on the cardiac center in the medulla. From experiments on guineapigs he suggests that an arrow be removed at once—every second being of importance—and that the wound be thoroughly filled with a 3% or 6% solution of potassium permanganate, which appears to have an antidotal action if used at once. Beware of injecting or administering directly after a wound, strychnin, amyl nitrite, or hyoscin hydrobromate. These were found to accelerate the action of the poison in animals. After injecting the permanganate through an ordinary glass syringe, treat in the usual way as a poisoned wound. [H.M.]

The Blood in Pulmonary Tuberculosis.—J. T. Ullom and F. A. Craig[5] state, as a result of their examinations of a number of cases of tuberculosis, that when a cavity is present there is a constant mild anemia, associated with a decrease in the hemoglobin. When the

[1] Journal of the Royal Army Medical Corps, September, 1905.
[2] Journal of Infectious Diseases, March 1, 1905, p. 238.
[3] The Lancet, September 30, 1905.

[1] Russki Vratch, August 20, 1905.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 479.
[3] The Physician and Surgeon, September, 1905.
[4] Journal of the Royal Army Medical Corps, August, 1905.
[5] American Journal of Medical Sciences, September, 1905, p. 386.

erythrocytes increase in cases without cavity it is a favorable symptom. A decrease of leukocytes is unfavorable in advanced cases. They are under the impression that an actual increase of lymphoytes indicates an increase in the resistance on the part of the organism against the tuberculous infection, a rule which is true for the transitional forms as well as the lymphocytes. A very extensive bibliography is appended. [J.H.W.R.]

GENERAL SURGERY

J. Chalmers DaCosta
John H. Jopson — Lawrence Hendee
J. Coles Brick — John W. Churchman

EDITORIAL COMMENT

Exuberant Callus of the Lower End of the Humerus in Children.—"Fractures of the elbow in children are always serious lesions and difficult to cure. To say that the patient will preserve all his movements after a fracture of the elbow, is to assume a great responsibility." Such were the words used by Lannelongue in 1880, and the opinion of all surgeons has practically been the same ever since. The seriousness of certain types of fracture of the lower end of the humerus is due especially from the fact that an exuberant callus often results. The causes giving rise to this pathologic condition, and the ulterior functional disturbances, are many, such as chronic arthritis of the elbow joint, difficulties in reduction and retaining the fracture reduced, are those principally in play. Müller[1] insists especially upon two other factors no less important, namely, exuberant ossification and late deformities. Exuberant ossification, due to irritation of the periosteum, increases the size of the callus, filling up the coronoid and olecranon fossas and forming periarticular bony projections. As to late deformities, Müller believes that they are wrongly attributed to a disturbance in growth resulting from the lesion of the cartilage of conjunction of the lower end of the humerus. These deformities appear more likely to be due to a faulty consolidation of the fragments, the result of which is noticed especially when the return of the movements of the joint allows one to judge the shape of the limb. Another cause may also participate in giving rise to late functional disturbances, namely, nervous disturbances resulting from compression of the nerves by the callus, as well as their adhesion to the periosteum. Generally speaking, the fracture may be above the condyles, in the condyles or epitrochlea. In the first-mentioned type, the defective callus principally results from the displacement of the diaphysis downward and forward, and thus the functional disturbance will be found in flexion of the elbow, which is limited. If the fracture is seated in the condyles, a bad callus will change the orientation of the articular surfaces; the external aspect of the elbow will be found thickened and the ulna pushed outward. Under these circumstances, the functional disturbances will be seen in flexion and extension, rarely in pronation and supination. Now, if the fracture has resulted in detachment of the epitrochlea, the clinical picture becomes changed. The bony fragment becomes displaced downward and backward, and becomes united against the internal border of the sigmoid cavity, or may even penetrate between the articular surfaces. Under these circumstances there is no deformity, but the movements of extension and flexion are almost entirely done away with. Functional troubles, resulting from exuberant callus, may improve after a time, and likewise the nervous troubles may disappear, but in the large majority of cases an operation is indicated. When a late interference seems necessary to resort to on account of the functional disturbances, it should be undertaken at a sufficiently long time after the receipt of the traumatism, in order to be sure that all spontaneous improvement has had time to take effect, as well as to allow the periosteum to return to its normal condition. Operative interference in fractures above the condyles, consists in a resection of the end of the fragment of the diaphysis projecting forward, while in fractures of the epitrochlea, the operation merely consists in the excision of the small fragment of bone. It frequently happens that the result of these operations is compromised by the persistency or the return of the periosteal ossifications, and in order to avoid this unfortunate outcome, one should resort to semiarticular resection of the humerus, as this operation will find its indication in the greater number of cases, while the results obtained appear to have been very satisfactory. In case of persistent paralysis, the nerve involved should be exposed and liberated from its adhesions. The segment of adherent nerve, which may appear degenerated over the point where the lesion exists, should not be resected, because suture would then be necessary in order to unite the ends, and this technic should only be reserved for those very rare cases where section of the nerve is complete. In all the cases collected by Müller, the freeing of and suture of the nerve were followed by return of the functions within five or six months.

[1] Thesis, Lyons, 1904.

REVIEW OF LITERATURE

Appendicitis and Embolic Gastric Disturbances.—E. Payr[1] has repeatedly called attention to grave disturbances of the intestines, erosions and ulcers of the stomach with hemorrhage following abdominal operations. He believes them brought about by retrograde embolism following thrombosis of the vessels of the mesentery and omentum during these operations. To prove this theory he has performed a series of experiments with a large number of animals, and has thus shown that emboli introduced into these veins artificially will lead to erosions, ulcers, infarcts, and hemorrhages of the stomach, and sometimes of the duodenum. These accidents are especially liable to accompany or follow operations for appendicitis, they having induced in his experience small and large gastric hemorrhages, pylorospasms, perigastric adhesions, and cicatricial pyloric stenoses. He sums the condition up thus: In a number of light cases of appendicitis, gastric disturbances are noted after the first attack; they may be spasms, pain after eating, hyperacidity, sour expectoration, bloody vomiting, and symptoms of stenosis. They last but a short time, recurring with each attack however. In some cases a gastric mass can be felt during these attacks. All the symptoms are induced by small emboli from thrombosed veins in the omentum and the appendiceal mesentery. [E.L.]

Iodin in Surgery, with Special Reference to Its

[1] Münchener medicinische Wochenschrift, 1905, lii, 793.

Use as an Antiseptic.—N. Senn[1] discusses the use of iodin in certain surgical diseases, as syphilis, tuberculosis, anthrax, etc. Its therapeutic value, locally, depends on two properties: 1. It is a powerful tissue stimulant. 2. It is the safest and most potent of all antiseptics. In proper dilution, it does not damage the tissues, but produces an active phagocytosis, very desirable in the treatment of acute and chronic inflammatory affections. In simple hyperplastic goiter, actinomycosis, and blastomycosis, the local use of iodin is made more effective by kataphoresis. [H.M.]

Grave Injury of Liver: Intrahepatic Ligature; Recovery.—Gesualdo Costa[2] (Vizzini, Italy) presents the case, occurring in a youth, aged 19. The puncture was treated surgically within 18 minutes of the occurrence. Patient was in a state of collapse for over 14 hours; hypodermoclysis and stimulants were used. The ligature was boldly effected to close one entire wing of the organ. Several methods are available: 1. That of Bonnano. 2. That of Penski and Kousnetzoff. 3. That of Auvray, and of Fabrini. These all are limited to single incisions of slight enough extent to permit one ligature, or virtually one; while Masnata advises a system of ligatures, which he terms "anglature," *i. e.*, formation of angles, and it is this method which best meets large or multiple incisions of the hepatic parenchyma. Eleven references include the really important literature. [T.H.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Albuminuria and Eclampsia in Pregnancy.—R. Boxall[3] says that the ecamptic convulsion is due to toxins produced by faulty metabolism, together with deficient elimination by the kidneys and liver. Pregnant women are more subject to albuminuria than others, and preexisting nephritis is likely to become aggravated. The condition increases in severity as pregnancy advances, and almost invariably subsides at its termination. Eclampsia is almost invariably associated with albuminuria, and occurs with proportionately greater frequency in the albuminuria of pregnancy than in the nonpregnant nephritic. The liability to eclampsia bears a rough relation, not only to the amount of albumin, but also to the scantiness of the urine and diminution of urea. Disorganization in the functions of the liver and of the nervous system also plays an important part in the causation of eclampsia. Frequent and regular examination of the urine should be practised in pregnancy, to safeguard against an outbreak of this condition. If albuminuria exists before pregnancy, or arises during it, strict hygienic and dietetic measures should be instituted. A marked increase in the albumin, or the appearance of nephritic symptoms, calls for prompt eliminative treatment. A tendency to eclampsia may be controlled by chloral. If serious complications arise, the question of interrupting pregnancy must be considered, especially if the patient's condition grows worse in spite of treatment. In some cases the slow induction of labor by passing a bougie may be practised; but in bad cases a rapid dilation of the cervix and artificial delivery are necessary. [B.K.]

Mooted Questions in Gynecology.—A. Brothers[4] considers first the question if vaginal work should precede or follow intraabdominal work at the same sitting; he rules that, if possible, no vaginal work should be done on patients requiring intraperitoneal work from above. If such work is unavoidable, presuming the vaginal part is first done, the instruments should be discarded or resterilized, and the operators and assistants should wash, put on clean gowns, if needed, and to be doubly secure, wear rubber gloves for the later operation. As to the flushing or drainage of the peritoneal cavity after the escape of blood or pus, the necessity does not exist in a very large percentage of cases. Regarding the use of vaginal celiotomy, Brothers formerly used this method extensively; after more than 100 such operations, he has drifted away from the procedure, until during the past year he resorted to vaginal section only five times. Numerous reasons are cited for preferring the abdominal route, but in spite of this there is still a distinct field for vaginal work in selected cases; even then, the beginner had best leave such work to experts. Brothers feels that we have gone too far in removing the uterus, doing so in many cases when such sacrificial, socalled radical surgery is not demanded. [A.G.E.]

[1] Surgery, Gynecology and Obstetrics, July, 1905.
[2] Il Policlinico (Rome), August 27, 1905.
[3] British Medical Journal, September 23, 1905.
[4] The Postgraduate, October, 1905.

A New Plan of Procedure in Retrouterine Displacements.—E. E. Montgomery[1] describes a combination of procedures which he has followed for the past two years. Through an abdominal incision a temporary ligature is passed beneath each round ligament, an inch and a half from the uterine cornua. The ends of one of these ligatures are threaded in a pedicle needle, the ligament seized with pressure forceps just external to the ligature and drawn toward the median line to render the external portion of the ligament tense. The anterior portion of the broad ligament is snipped, affording a trap door through which the needle carries the ligature to the abdominal wall, when it is thrust through the muscular structure and is withdrawn from the needle external to the aponeurosis. Having drawn the fascia from the point made by the opening in the aponeurosis the ligature is drawn tense and pointed scissors are introduced closed alongside it and their blades are slightly separated as they are withdrawn. A loop of the round ligament generally follows or can be teased through by pushing back the tissues with the point of the scissors while traction is made by the ligature. Both ligaments are then secured by catgut to the aponeurosis, and the wound is closed. This operation imitates the normal condition, employs the strongest part of the round ligament, leaves no lesions in the abdomen for the formation of adhesions, and permits of careful exploration and treatment of diseased conditions of the pelvic organs or appendix. [H.M.]

Influence of Pus in the Urethra on Gynecologic and Obstetric Cases.—J. Campbell[2] believes that the presence of pus in the female urethra is an unfavorable factor in gynecologic operations and labor cases, which requires special attention on the part of the physician. Statistics show that over a fourth of all gynecologic patients have contaminated urethras, and that the proportion among parturient women is less, but still considerable. Examination of the urethral pus often shows a mixed infection; staphylococci are almost always present, while the streptococcus or gonococcus may be found in a number of cases. Unsatisfactory recoveries after operation or labor may often be traced to the presence of urethral infection. The average temperature is higher after delivery in these cases than in those without pus in the urethra. The author therefore recommends the examination of this organ in every gynecologic or obstetric case. In endometritis the curet should be avoided, if pus is found, and the endometrium should be swabbed with carbolic acid. In labor cases, with infected urethra, the external genitals should be washed with 1 to 2,000 bichlorid solution, while at the same time the urethra and Skene's glands are squeezed free from pus. Delivery should be followed by an intrauterine douche of bichlorid solution. [B.K.]

[1] Surgery, Gynecology, and Obstetrics, July, 1905.
[2] British Medical Journal, September 23, 1905.

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The yelling peril is the new title for the street noises against which the medical profession has been protesting for a generation or more. The matter has recently been discussed by *The Lancet* in an editorial which calls attention to the harm done to the sick by avoidable noises, particularly at night. Attention is called to the pandemonium of sounds in American cities. Yet it is not at all certain that this is the main cause of the nervousness and dyspepsia which are assumed to be so common among Americans, though neurologists recognize it as one cause of nervous breakdown. The matter was brought up by a gentleman, who, while convalescent from a surgical operation in Birmingham, was kept awake by the painful clanging of the chimes of the town clock every fifteen minutes. His request for relief elicited the typically British reply of the mayor that nothing could be done, as those chimes were of "the first importance to the inhabitants of the city"! To change a custom would be revolution, to criticise one is treason. In this matter Birmingham is a quarter century behind Philadelphia, whose courts compelled a powerful church corporation to be charitable to its neighbors and not destroy their rest and health by too much bell music. A crusade against Chicago noises some years ago by a local physician elicited much ridicule from a few hardened wretches, but the cause was finally considered just and some good was accomplished. Detroit was compelled to stop the dreadful steam sirens on the river boats, and most cities limit or prohibit locomotive noises. So there are numerous precedents for the present effort to reduce the avoidable noises of our cities.

Noise and Health.—A healthy, robust man can ignore habitual sensations, and, unfortunately, is wholly unaware that any damage is being done. He may even suffer from silence should he move to the country—not an uncommon cause of insomnia, indeed. The sick, the convalescents, and particularly the nervous, are the ones who feel the damage and cry for relief. Perhaps even the children are silent sufferers. Modern transportation has introduced an awful nuisance of this nature, which seems irremediable, though inventors are constantly at work to reduce it to a minimum. Boys are naturally noisy and must act like barbarians now and then to blow off steam on holiday nights and when their football team has artistically done up the enemy, but there is no reason why night should be made hideous at other times. By all means let the crusade continue, for it might be the means of saving many a life in the balance when a few hours' quiet sleep would turn the scale. It is a matter which the American Civic Association can take up among its other numerous good works. It is more than a nuisance—it is destructive of nerve tone and a menace to health, so that physicians can justly aid in the effort to abate the evil.

The dangers of football have a decidedly professional interest now that a game can not be started until the surgeons have arrived on the field with their stretchers and instruments ready to remove the wounded. It is beginning to take on the tone of warfare—each army with its medical department and its ambulances. The battle is waged by men, who, through long training, have become experts in manufacturing patients for the surgeons, and surgeons they must have for the sport. The commander-in-chief of our regular army thinks the game a wee bit too strenuous even for him—and that speaks volumes. College presidents, too, are waking up. As a drawing card to attract boys, who notoriously revel in such muscularity, the American game is found to have faults which are greater than the advantages. There is a growing impression that parents are more desirous of placing their boys where their brains are trained, and their bodies not maimed. It is now said that the game has taken a form which the human physique cannot possibly endure. From the strange costume, with its pads, guards and masks for every prominent bone or joint, it is quite likely that the

statement is correct—a cyclone is safer. There is ample reason then for the universal demand for its abolition or at least its reform to a point which an ordinary growing boy can stand without risk of being permanently crippled. We had visions of a new specialty in the profession—a medical corps for football teams—but public policy demands prevention not cure. We hope that in next year's games a surgeon will be as out of place as in a kindergarten—though it is likely to be a vain hope. Above all we hope that the rules will be so arranged that it will not be necessary for the players to pledge themselves to abstain from "slugging" their opponents. This may prevent police interference in the college curriculums, and the players might have a better defense if public opinion forces them before a jury. Of course, the physical injuries are less to be considered than the intellectual and moral ones. It is a startling fact that those supposed to be educators should encourage the development of the physical, rather than the production of scholars and gentlemen.

The Chattanooga Conference on Immigration and Quarantine on November 9 and 10 put the prophets to confusion. Many who recognized the necessity of such a conference did not believe that definite progress could be made in two days. Some of those who were invited, scented a nefarious scheme, and therefore stayed away. They expected the convention to be packed, that free discussion would be choked off, that the program and resolutions would be machine-made and put through relentlessly. Especially surprised were the representatives of Boards of Health, who expected that the question of immigration would keep the center of the stage, and that the dissensions about quarantine would prove irreconcilable. The prophets underestimated the effects of recent plowing and harrowing in the South—the *extensive* cultivation of public opinion on immigration, and the *intensive* cultivation of public opinion on quarantine. In the discussion on quarantine there was some talk about State's rights; but the advocates had not a chance, for a great majority of the delegates knew what they wanted and went after it by the most direct route. The Committee on Quarantine reported unanimously in favor of exclusive control of maritime and border quarantine by the federal authorities, and federal jurisdiction in cooperation with State Boards of Health in matters of interstate quarantine. The latter recommendation did not express the will of the convention, for an overwhelming majority of the delegations favored undivided control of interstate quarantine by the federal government. The resolutions took little heed of the few sticklers for State's rights, but took careful account of the probable view of Congress and of possible objections in other States to a more radical program. Governor Blanchard, of Louisiana, made a cogent plea for the transfer of all quarantine powers to the national government. Governor Vardaman, of Mississippi, and Senator Mallory, of Florida, were unwilling to go so far. Congressman John Sharp Williams, of Mississippi, in a forcible speech, supported the view of Governor Blanchard, but urged the expediency of reserving to State authorities the power of cooperation in interstate quarantine; saying that ultimate control by the federal authorities would not be delayed by such a concession, since State authorities would speedily cease to exercise the right of cooperation, and would find their proper sphere in intrastate quarantine.

The Action of Texas.—Fourteen States were represented at the conference. Texas was missing, and this hiatus is significant. Without her quarantine powers, Texas would have not a shred left of sanitary organization. Sometimes quarantine is profitable to Texas. So it is this year. Galveston, especially, has realized large profits on the prostration of New Orleans, and is deeply enamored of Texas quarantine. Galveston newspapers were opposed to the Chattanooga conference, and the aloofness of Texas was somewhat ostentatious. When the reasonable petition of 14 southern States comes up for consideration in Congress, it is probable that several States having little interest in the sanitary welfare of the South may be found in opposition, and with their aid, Texas may maintain her medieval policy until it becomes a unique distinction. Having already a neighbor southward, far more enlightened and more efficient in sanitary self-government, and with a prospect of better sanitary organization in the States northward, Texas may in a few years find herself girdled round with a sanitary civilization, on which Texas may feed as a parasite. That, indeed, will be the result, unless the largess of the United States government has been wasted in 1905 on the State of Louisiana, as two years earlier that largess was wasted on Texas. Out of the work of the United States Public Health Service against yellow fever in Texas, Texas learned to believe that yellow fever is conveyed by mosquitos, but on the soil of Texas, that vital truth seems no more fruitful that wheat in Cheops' pyramid. It sends no root downward nor leaf upward. If the Federal Bureau hoped, by the yellow fever campaign of 1903, to awaken in Texas a desire to become efficient in sanitary self-government, the experiment was a dismal failure, and should cause the national authorities to consider well whether similar intervention elsewhere is more likely to foster self-help than parasitism.

The Right and Duty of Local Self-government.—The argument was repeatedly heard at Chattanooga that the safety of the country is always endangered by the presence of yellow fever in the South, and that the burden of defense should not fall on an infected locality. In its application to interstate, maritime, and border quarantine, this argument is sound; but it can never justify the assumption by the national government of duties which belong rightfully to local authorities. The right of local self-government implies a commensurate duty. If the duty is neglected, the penalty must and always will fall on the locality. Eventually, through negligence, in one or more of the particulars of self-government, an equal part of the right to self-government may lapse and be forfeited. Precisely that happened in Louisiana in 1905. The social disorder, the prostration of commerce, the disease and death in the Southern States were indeed of national importance. But yellow fever did no more than point out a preexisting and persisting danger to the United States. The presence of yellow fever revealed the absence of sanitary government in the State of Louisiana. That is all. Plague or cholera could have made the same exhibit. The unopposed progress of more familiar diseases testifies daily to the same effect. Louisiana quarantine let through the initial case of yellow fever, and the wrath of the people has fallen upon the quarantine board, the only substantial defense which Louisiana has ever provided against foreign pestilence. Perhaps this anger is not unmerited, but it is unproportioned, for neither State nor nation can make the coast impregnable. When yellow fever first appeared in New Orleans, the occurrence was not in itself more significant than a fire in a small bakery. Failure of local self-government might magnify one contingency as well as the other into national importance. According to the newspapers, the people of Louisiana mean to discharge their present health officers and appoint new ones. But after that the State Board of Health of Louisiana will still be only a bucket brigade, and until the people of Louisiana in General Assembly ordain something better, every small invasion of yellow fever may call for federal intervention.

Congressional Responsibility.—Though commending the Chattanooga petition, as we most earnestly do, to the favorable consideration of Congress, we must protest that unconditional compliance would be the act of an overindulgent and unwise parent. "Heaven helps them that help themselves," and Congress can do no better for these petitioners. Congress should not assume the responsibilities offered by the Chattanooga memorialists without demanding equally vigorous exercise of rights reserved by the States. Of the 14 States joining in this petition, some certainly, possibly a majority, are fit to profit by the release of all their quarantine powers to the United States; but three or four of the number show at this time no evidence of efficiency in sanitary self-government, and must be classed, not as contributors, but as beneficiaries in the amended practice of American public hygiene. These States lie about the very atrium of yellow fever invasion of the United States. They are Alabama, Mississippi, and Louisiana, and to give these States extraterritorial safeguards, without expecting them to construct internal defenses, would be to give something for nothing. The State Board of Health of Alabama is a mirage, a figment of medical imagination, believed in by its sponsors, but of little or no utility to the people of Alabama. In Mississippi the State Board of Health has a name to live, but is in reality dead. Mississippi, however, is not deluded as Alabama is. The State Board of Health of Louisiana has already been alluded to. Its function appears to be to keep business slightly constipated. It appears to have been created by the Legislature of Louisiana for this purpose and for none other. From this part of the South issued that tide of smallpox which spread to all parts of the United States between 1897 and 1903, and to this part of the South smallpox has retired for the time being. In these States no account is kept of profit or loss in population. Every year they pay without dispute the tax imposed on human energy by typhoid fever, malaria, uncinariasis, pneumonia, and tuberculosis. How can the yellow fever mortality among the citizens of Alabama, Mississippi, and Louisiana be a matter of national importance, if indigenous pestilence, killing 10 or 20 times as many American citizens, is not a matter of local importance? If these States propose to relinquish duties which do not properly belong to them, and in which they have hitherto failed, while retaining rights which they have never exercised, and do not mean to exercise, Congress should reject the proposition flatly. The sanitary arm of the federal government can never become highly efficient, if local sanitary government is not coefficient. In weighing the merits of the Chattanooga memorial, these considerations are not merely appropriate—they are peremptory.

The Wistar Institute of Anatomy.—The spirit of investigation now so rife in all branches of medicine, is to be substantially encouraged in Philadelphia by the recently adopted policy of the Wistar Institute of Anatomy and Biology. Chartered by General Isaac J. Wistar, in 1892, and opened in 1894, the institute has steadily grown until the collection of specimens illus-

trative of human and comparative anatomy, numbers more than 14,000. Early this year a conference of American anatomists recommended that the principal object of the institute be research. An advisory board of ten leading anatomists was elected, and Dr. Henry H. Donaldson, of Chicago, was chosen professor of neurology; an associate in neurology and research assistants are yet to be appointed. For the present, the work will largely be confined to problems in neurology, but opportunities in other divisions of anatomy will be open. The desire of the board is to make the institute a central station for anatomic research in this country. Investigators will be furnished working room in the laboratories of the building, and arrangements will also be made to send materials to workers in other places. The personnel of the board of managers and the high scientific attainments of the advisory board of anatomists, ensure that work of the highest type only will be accomplished. In addition, the lately appointed director, Dr. Milton J. Greenman, is a most capable executive. With the cooperation of the institutions of learning throughout the country, the Wistar Institute cannot fail to prove a most fertile source of anatomic knowledge. A point made emphatic by the promoters, however, is that independent investigators will be furnished opportunities fully equal with those who labor under the auspices of educational bodies.

An explanation of radiobes was suggested by Sir Wm. Ramsay in a letter to the *Independent*.[1] He called attention to the fact that when a few grains of radium are sprinkled on a gelatin broth medium, they would undoubtedly decompose water, liberating oxygen and nitrogen with other emanations. These would form microscopic bubbles, and the gases would probably coagulate the albumen of the medium, the whole forming a close resemblance to a cell. Further emanations would burst through the walls, forming other bubbles, giving the impression of budding or of subdivision-like bacteria. The process would continue as long as the radium remained active—a matter of some centuries at least, so that instead of creating organic matter, or life, the radium is actually destroying it, as it always does when sufficiently active. Prof. Burke, the discoverer of this particular phenomenon, has merely noted one of many instances in which dead matter assumes forms strangely resembling those of low organisms. M. Henri Piéron[2] has collected quite a number of these instances, which he uses as illustrations for that new study which has been called "plasmology," and which attempts to find the determining physical cause of every vital phenomenon. It is the borderland between chemistry and biology—a neutral zone where the materialist and vitalist can live in a temporary harmony. Unfortunately, these phenomena are being used by the former to prove that the whole world is dead, while the latter think they prove that every material substance is alive. As long as the present state of knowledge lasts we must expect many to fall into Burke's error—of mistaking a common material phenomenon and considering it vital. The opposite mistake of finding an alleged material cause for every vital act is equally deplorable, as it blinds us to the fact that there is an abyss of ignorance to be dispelled before we can begin to understand the nature of life. It is remarkable that with the increase of "plasmologic" knowledge, the two philosophies—materialism and vitalism—should become more antagonistic than ever, and we can well doubt that they ever will compromise.

[1] Science, September 29, 1905.
[2] Revue Scientifique, October 7.

The death by a fist duel of a midshipman at Annapolis has aroused so much comment throughout the country that it is somewhat surprising that the psychologic side of the matter has been neglected. Boys will be boys, of course, and their personal clashes with playmates seem to be the normal just as it is the normal among adults in lower cultures—vestigial remains of a prior adult existence. Indeed, it is not so very long ago that every man had to be ready to fight at a moment's notice if he were to protect his home. Before society assumed these duties, the duel was a necessity, and it naturally gave rise to the trial by combat—a legal procedure which has not yet completely disappeared. An accused man fought his accusers, and if he won, the court declared him innocent. Annapolis and West Point, the two places where military conservatism retains old customs the longest, are apparently the last places in this country where the duel survives as a recognized though clandestine method of dealing out punishment for personal grievances which the law or regulations ignore. Of course no cadet ever dreams that the winner was right and the loser wrong, yet it is quite likely that there is a leaning that way. It is a curious survival of medievalism, and formerly did no particular harm, except to exalt brawn over brain in the boyish mind. But now that cadets are older and stronger than formerly, we must expect fatalities unless the authorities can induce the boys to find a more mature way of settling personalities. The whole genius of military systems is control of subordinates by moral means—if muscles are needed the officer uses those of some one else. Napoleon and Nelson were little fellows, and the world would never have heard of them, had they been compelled to fight their way up with their own muscles.

A custom which favors the mere bruiser does not seem to be necessary in a well-ordered community. Of course a boy always behaves well when he knows that misbehavior results in a thrashing before he gets home and a spanking later, but we do hope that in the future our cadets will be grown-ups, able to restrain themselves through fear of less physical penalties. The manly or boyish art of self-defense has become too deadly.

A new Philippine fever has been described by Drs. H. D. Bloombergh and J. Morgan Coffin,[1] of the army, from blood-examinations made of two cases in the Military Hospital at Manila. Briefly, it might be said that, though the patients looked sick, they were devoid of all symptoms except fever and malaise. They had no premonitory symptoms except a slight chill before the advent of the fever and there was no sweating. The temperature remained up only a few days. One patient had severe muscular pains and the crisis was followed by a profuse sweat. In both there was a slight albuminuria. They found in the red blood cells an actively moving hemocytozoon, which is entirely different from the hemameba of Laveran. It has been mistaken for a form of the estivoautumnal organism, though it contains no pigment. There are numerous cases of simple fever reported from the Philippines. They last from three to ten days, recover without quinin, and do not present plasmodiums of malaria. Some of them, undoubtedly, are thermic fevers, or indeed, they might be light fevers, if it is true that the short rays can cause such disturbances, as some physicians believe, yet the authors are inclined to the view that many of the febriculæ of the tropics are due to these parasites. It is quite possible that there are numerous blood parasites which inhabit the lower animals symbiotically, but which may be transferred to man by insects, flourish for a few days, causing fever, and then perish from lack of adjustment. There are possibilities of interesting findings in this direction, and it is hoped that more of such work will be done. It shows the necessity of a great military laboratory, as suggested by the Surgeon-General. Our biologists also would, no doubt, make many valuable discoveries by investigating the parasites or symbiotics of the wild animals of the Philippines.

Ginseng in China.—In the government Monthly Consular Reports for June, 1905, are communications from two consulates in China regarding the ginseng trade. The statements there made are interesting, both from the medical standpoint and from the economic aspect of the ginseng industry in this country. The use of foreign drugs is gradually increasing in China, and this has some effect upon the consumption of ginseng, but the latter is still the great medicine of that country. The American product has a certain demand, but brings much less than that from foreign countries, especially Manchuria. There it is obtained wild, the roots possessing a grotesqueness of contour not seen in the cultivated American plant, and this is largely responsible for the discrimination between the two, the Chinese ascribing to the shape of the root certain superior and highly desirable qualities. The Manchurian ginseng also comes from the Emperor's mother country, out of the same soil from which he, the Son of Heaven, sprang, and hence is regarded as a more potent life-giving remedy. In some cites, however, the American milder and cheaper product is preferred, the demand varying markedly in different communities. In many provinces five grades of ginseng are recognized, and the merchant must supply each community with its choice, which is dependent almost entirely upon the whims of the people instead of upon the real quality of the roots. This peculiarity will remain true just as long as the Chinese retain their firm belief in the mysterious powers of the plant.

[1] Journal American Medical Association, October 28, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

A Real Invalid.—During the Spanish war a certain amateur nurse found ample scope for her enthusiasm and abilities, but her zeal was slightly abated after a morning visit to her ward, when a suffering hero was discovered lying with the coverlet pulled over his head, and a placard pinned to the outside which read: "Too sick to be nussed today."—*Harper's Magazine.*

Restrictions against Cuba.—The Public Health and Marine Hospital Service has issued an order requiring that all passengers from Havana, Cuba, taking passage on vessels bound for ports in the United States south of the southern boundary of Maryland have certificates of immunity from yellow fever. The order also extends the coast quarantine season so far as Havana is concerned until further notice. This season ordinarily ends November 1. This action was taken on the reports of yellow fever in Havana.

Pure Food Forces Federate.—A plan to federate the forces working for national pure food legislation has been perfected as a result of the joint conference of representatives from the National Consumers' League, Federation of Women's Clubs, American Medical Association and State Food Control officials, which called on President Roosevelt, in behalf of national pure food legislation, last Thursday. The plans include the gathering of facts about food adulteration from every source, to be presented to the committees of Congress this winter.

Nurses for the Navy.—Surgeon-General Rixey advocates the employment of women nurses in the navy. It has been found that the women nurses in the army have shown themselves capable in their adaptability to service conditions and efficiency in institutions under military control. Their employment in the navy

would insure as careful nursing in the naval hospitals as is now given to the sick of the army. Women nurses would also be of value in teaching and training the men of the hospital corps, and, in the event of war, beside being utilized on hospital ships, they could, in large part, take the place of the men in the naval hospitals, thereby releasing the latter for service with the force afloat.

The American Tuberculosis Exhibition, which is being planned under the joint auspices of the National Association for the Study and Prevention of Tuberculosis and the Committee on the Prevention of Tuberculosis of the Charity Organization Society of New York City will open November 27 and close December 9. The Committee on Arrangements has laid its chief stress on a popular presentation of facts and the approved methods of prevention and cure. Charts and tables will show the public the prevailing conditions and by means of photographs, plans, models and apparatus the recognized measures which have been taken to cure the disease will be presented. A series of public meetings will be held at the Museum during the Exhibition. On the opening night the principal address will be given by Mr. Talcott Williams, of Philadelphia, while brief addresses will also be made by Mayor McClellan, of New York, by Dr. Darlington, Commissioner of Health, and by President Jesup, of the Museum. November 29, a special meeting devoted to tuberculosis and the trades will be held at which the principal address will be by Mr. Graham Taylor, of Chicago, with short addresses by President Gompers of the American Federation of Labor, and other wellknown representatives of organized labor. December 1, a special meeting for physicians has been called at which addresses will be made by Doctors Lawrence F. Flick, of Philadelphia, W. A. Evans, of Chicago, A. Jacobi, of New York, Vincent Y. Bowditch, of Boston, and others. December 8, a meeting for the teachers of the public schools has been arranged, the address on that occasion to be by Dr. S. A. Knopf, of New York. A special exhibition of pathologic material has been installed, the nucleus of which is formed by contributions from the Phipps Institute, in Philadelphia, and the Laboratory at Saranac Lake.

NEW YORK AND VICINITY.

New York University.—The floors in the new laboratory building of the Medical College devoted to the University Clinic were opened last week. The first floor is occupied by the clinic for children, the tuberculosis clinic, and the clinic of diseases of the nose and throat. In several cases the equipment of the new room has been given by the physicians in charge of the respective departments. During the month of October over 9,000 cases were treated in the clinic, and over 100,000 cases in the college year just closed.

Edward N. Gibbs Memorial Prize.—The New York Academy of Medicine announces that the sum of $1,000 will be awarded to the author of the best essay on "The Etiology, Pathology, and Treatment of Diseases of the Kidney." Essays from competitors must be received on or before January 1, 1907, by the recording secretary at 17 West Forty-third street, New York City. Each essay must be in English, typewritten, designated by a motto or device, and accompanied by a sealed envelope, bearing the same motto or device, which shall contain the name and address of the author. No envelope will be opened except that which accompanies the successful essay. The academy reserves the right, according to the direction of the donors, not to award the prize if no essay shall be deemed worthy of it. The academy will return the unsuccessful essays, if claimed by their respective authors, or by authorized agents, within six months. The competition is open to the members of the regular medical profession of the United States. The original of the successful essay shall be the property of the academy, and, according to the deed of gift, will be published in its Transactions.

Waste in New York Hospitals.—The committee on hospital needs and hospital finances reports that the private hospitals of New York are extravagant in the use of costly drugs and dressings and do not receive the support from charitable persons that their work deserves. The men of experience and responsibility composing the committee suggest that there should be uniformity in keeping accounts and making reports of work done, claiming that the public has a right to know that hospitals are run on the most economic basis consistent with efficiency in treatment. Much saving could be accomplished if the various hospitals would combine and purchase all materials in bulk, especially coal; they might even induce the gas companies to furnish gas at reduced rates.

PHILADELPHIA, PENNSYLVANIA, ETC.

Medical Inspection of Schools.—The Philadelphia Bureau of Health reports that during October its medical inspectors examined 15,308 pupils in the public schools. Treatment was advised for 4,114, and 877 pupils, 384 boys and 493 girls, were excluded from attendance owing to illness.

Philadelphia Health Department to Receive Appropriation.—The councils committee on public health and charities has recommended an appropriation of $650,496 for the year 1906. Of this amount, $285,156 is required for the maintenance of the Philadelphia Hospital and $80,140 for expenses of the office of director of public health and charities.

500 antitoxin depots have been established by State Health Commissioner Dixon for the free distribution of diphtheria antitoxin in Pennsylvania. Physicians attending patients who cannot afford to buy antitoxin may procure the serum free at the nearest distributing point, a drug store or country general store. The doctors are obliged to make a clinical report of the cases.

Report of Philadelphia Bureau of Health for October.—The report of the division of medical inspection of the Bureau of Health for the month of October shows that 6,020 inspections were made, excluding schools; 506 fumigations were ordered, and 11 cases were presented for special diagnosis. The inspectors made 5,351 visits in the schools and excluded 877 children from attendance; 84 cultures were collected; 81 injections of antitoxin were given, and 1,120 vaccinations were performed.

Philadelphia Weekly Health Report.—There were 407 deaths in Philadelphia last week, a decrease of 31, compared with the number during the previous week. The health of the city, according to the medical inspectors, was generally good, with the exception of typhoid fever, 113 new cases being reported to the health authorities for the week. The rate the health reports show is about the same that has occurred weekly for many months. There were 108 cases in the previous week. Chief Medical Inspector Cairns says that the steady run of the disease is an indication that the warning of the health authorities to boil the water is not heeded.

SOUTHERN STATES.

Appropriation for Mississippi State Insane Hospital.—It has been decided by the trustees of the Mississippi State Insane Hospital to ask the Legislature for an appropriation of $150,000 for new buildings and necessary improvements. The hospital is overcrowded, and the board is desirous of having a detached building for the treatment of tuberculous patients.

Hospital Out of Debt.—The floating debt of $4,000 which has been hanging over the Western Maryland Hospital, at Cumberland, is now in a fair way to be wiped out. The State appropriated $2,000 for the purpose upon the condition that a like amount would be secured by subscription. To accomplish this end the board of managers appointed a special committee, which has secured the amount necessary.

Presentation to Dr. Hemmeter.—On November 15, Surgeon-General Walter Wyman, of the United States Marine-Hospital Service, on behalf of the 95 subscribers, in the presence of a number of the foremost practitioners, clinicians and educators of the East, presented to Prof. John C. Hemmeter, of Baltimore, a handsome oil painting of himself, in commemoration of the twentieth anniversary of his doctorate. Dr. Hemmeter graduated from the University of Maryland Medical School in 1884. From 1885 until 1888, he served as physician in charge of Bayview Hospital. Since 1899, he has been a member of the faculty of physic at the University of Maryland and director of the clinical laboratory. He is also consulting physician to the University and other hospitals. He received the degree of doctor of philosophy from the Johns Hopkins University in 1890, and recently received the degree of doctor of laws from St. John's College.

WESTERN STATES.

Missouri Opposes Contract Doctors.—A resolution has been adopted by the Jackson County Medical Society asking all physicians engaged by lodges, societies and commercial institutions under contract prices, to resign. Refusal to do so will result in their being suspended from the society.

Consolidation of Indiana Journals.—The *Medical and Surgical Monitor* of Indianapolis and the *Central States Medical Magazine*, Anderson, have consolidated and will be known as the *Central States Medical Monitor*, to be published in Indianapolis. Dr. Samuel E. Earp will be editor, and Dr. Samuel C. Norris will edit the department on the eye, ear, nose and throat.

Dr. Senn Honored by the Profession.—At a testimonial banquet given to Dr. Nicholas Senn at the Auditorium Hotel, Chicago, November 11, 1905, there were 686 physicians present representing 20 States. Dr. Joseph D. Bryant, of New York City, presented to Dr. Senn a gold medallion, miniature replicas of which were distributed among those in attendance. On one side was a likeness of Dr. Senn; and on the other the inscription: "To Nicholas Senn, the Master Surgeon, from his Fellows, November 11, 1905." Dr. L. G. Nolte, Milwaukee, Wisconsin, presented to Dr. Senn a silver loving cup, which was given by his former private pupils. Among the speakers were William J. Mayo, Rochester, Minn.; Colonel Harvey, United States Army; Lewis S. McMurtry, Louisville, Ky.; John A. Witherspoon, Nashville, Tenn.; Charles Adams, Chicago, Ill.; Charles A. L. Reed, Cincinnati, Ohio; and William E. Quine, Chicago.

FOREIGN NEWS AND NOTES

GENERAL.

Variola Epidemic in Chile.—Since the beginning of the recrudescence of variola in Valparaiso, January, 1905, there have been no less than 11,000 people stricken with the disease, and over 5,000 deaths have resulted.

Bubonic Plague at Antung and Niuchwang.—Information has been received through the United States consulates that bubonic plague has broken out at Antung, Manchuria, and that there has also been one death from the disease at Niuchwang.

Deaths by Wild Animals in India.—According to a report issued at Simla, the deaths of human beings in India caused by tigers, wolves, and other wild animals, and also by venomous snakes, amounted to 2,157 in 1904, which was a decrease of 592, says the *Pioneer*, as compared with those in the previous year.

Cholera in Europe.—The official reports from Russia, as received by the Imperial German Health Department, indicate a remarkable increase in the number of cases of cholera in the districts immediately adjoining the Russo-German frontier. The measures taken by the general health authorities seem to have the desired effect, and a focus is obliterated very soon after its establishment by their prompt, vigorous action. In view of the fact that cholera is increasing in Russia in the provinces adjoining East Prussia and Galicia, and in the districts which are drained by the Vistula and which are in direct water communication with Prussia, constant vigilance will be necessary on the part of the German authorities to prevent reinfection of the disease.

OBITUARIES.

Charles H. Langdon, November 16, from exhaustion following an operation for appendicitis, at his cottage in the grounds of the Hudson River State Hospital, Poughkeepsie, N. Y. He was graduated from the College of Physicians and Surgeons, New York City, in 1874. For 48 years he has been a member of the staff of the Hudson River State Hospital.

Edwin Curtis Bidwell, aged 84, November 15, a his home in Vineland, N. J. He was graduated from Yale Medical School, in 1841. During the Civil war he served as surgeon in a New England regiment. He rendered great service to fruit raisers in discovering the black rot fungus which threatened to destroy the grape growing industry in 1879.

Arthur C. Wightman, November 12, suddenly, at his home in Ashland, Va. He was graduated from Johns Hopkins University, in 1889; served for one year as demonstrator of biology at Johns Hopkins University, two years in the Maryland Agricultural College, and was professor of biology at the Randolph-Macon College at the time of his death.

Augustus Choate Hamlin, aged 76, November 18, at his home in Bangor, Me. He was graduated from Harvard University Medical School, in 1855, and later studied in Paris. During the Civil war he served as surgeon in the army, becoming medical director of the Eleventh Corps. He was widely known as an author and artist.

Joseph V. Wallace, aged 75, November 17, of Chesapeake City, Md., at the home of his son-in-law, at Lewes, Del. He was graduated from the University of Maryland School of Medicine, in 1853, and practised in Chesapeake City for 51 years.

George Read Moorehouse, November 19, at his home in Philadelphia, Pa. He was graduated from Jefferson Medical College, in 1850. He was the author of a number of papers dealing with medicine and surgery.

Francis M. Harry, aged 56, November 20, at his home in Mt. Joy, Pa. He was graduated from Hahnemann Medical College, Philadelphia, in 1878. He had practised in Chester county for about 30 years.

Christopher Fawcett, November 11, suddenly, at his home in Baltimore, Md. He was graduated from the University of Maryland School of Medicine, Baltimore, Md., in 1864.

J. E. Gemmell, aged 45, formerly of Winnipeg, Man., November 14, at his home in Rush City, Minn. He was graduated from Manitoba Medical College, Winnipeg, in 1888.

Isaac S. Herbein, aged 69, November 20, at his home in Strausstown, Pa. He was graduated from Jefferson Medical College, in 1865.

John S. Angle, November 15, at his home in Strafford, Pa. He was graduated from Jefferson Medical College, in 1862.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended November 18, 1905:

Sergeant First Class HARRY MEADE will stand relieved from duty in the office of the chief surgeon of the department of California on November 6, and will then proceed to Fort Washakie for duty.—First Lieutenant CARROLL D. BUCK, assistant surgeon, Fort Leavenworth, will proceed to Fort Riley and report not later than November 10 for duty with the Sixth Battery, F. A., under orders to change station by marching to Fort Sam Houston.—Colonel GEORGE W. ADAIR, assistant surgeon-general, leave for 15 days from November 6 is granted.—The following-named officers will report November 27 to Major WILLIAM H. ARTHUR, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for advancement: First Lieutenants ERNEST L. RUFNER and WILLIAM H. BROOKS, assistant surgeons.—THOMAS S. LOWE, contract surgeon, leave granted July 10, is extended one month.—So much of orders of August 16 as direct First Lieutenant HERBERT C. GIBNER, assistant surgeon, to report to the commanding officer, Fifteenth Infantry, for duty to accompany that regiment to the Philippine Islands, are so amended as to assign Lieutenant Gibner to temporary duty in the United States transport service and to direct him to report to the medical superintendent of that service in San Francisco, Cal., for assignment as transport surgeon of the Buford during the next voyage of that vessel from San Francisco to Manila. Upon arrival at the latter place Lieutenant Gibner will report to the commanding general, Philippines Division, for assignment to duty as heretofore ordered.—S. DAVIS BOAK, dental surgeon, is relieved from duty at Fort Myer, and will proceed to Columbus Barracks for duty.—So much of orders of September 11, as direct First Lieutenant LOUIS C. DUNCAN, assistant surgeon, to proceed from Manila, P. I., to San Francisco, Cal., on transport to sail December 15, are so amended as to direct Lieutenant Duncan to proceed on the transport to sail from Manila on or about April 15.—First Lieutenant NELSON GAPEN, assistant surgeon, is relieved from further duty in the Philippines Division, and at the expiration of his present leave will proceed to Angel Island, Cal., and report to the commanding officer of the depot of recruits and casuals for duty, relieving First Lieutenant ROBERT E. NOBLE, assistant surgeon, who upon being thus relieved and at the expiration of the leave granted him from headquarters, department of California, will proceed to Fort Casey for duty.—Sergeant First Class THEODORE H. CONNOR, Philippine Islands, is relieved from further duty in the Philippines Division, and will be sent to the depot of recruits and casuals, Fort McDowell, Cal., reporting for orders.—First Lieutenant WALLACE DE WITT, assistant surgeon, leave granted October 23, is extended 10 days.—EDGAR J. FARROW, contract surgeon, now at San Francisco, Cal., will proceed to Manila, P. I., on the transport to sail from San Francisco about November 25, and upon arrival at Manila will report to the commanding general Philippines Division, for assignment to duty.—GEORGE W. DAYWALT, contract surgeon, is granted leave for 1 month and 12 days.—JOHN R. HEREFORD, contract surgeon, leave granted July 31 is extended one month.—Colonel JOHN VAN R. HOFF, assistant surgeon-general, will report to the chief of staff for temporary duty in his office.

Changes in the Medical Corps of the U. S. Navy for the week ended November 18, 1905:

E. A. VICKERY, assistant surgeon, detached from the Franklin and granted leave until December 1, November 16.

Changes in the Public Health and Marine-Hospital Service for the week ended November 18, 1905:

Surgeon C. E. BANKS, relieved from special temporary duty at Century, Fla., and directed to rejoin station at Key West, Fla., November 9, 1905.—Surgeon W. P. MCINTOSH, granted leave of absence for 21 days from November 15, 1905, November 13, 1905.—Passed Assistant Surgeon R. BLUE, relieved from special temporary duty at New Orleans, La., and directed to rejoin station at Norfolk, Va., November 14, 1905.—Passed Assistant Surgeon R. BLUE, granted six days leave of absence from November 15, 1905, November 14, 1905.—Passed Assistant Surgeon R. H. VON ESDORF, directed to proceed to Biloxi, Miss., for special temporary duty, November 9, 1905.—Passed Assistant Surgeon R. H. VON ESDORF, relieved from duty at Biloxi, Miss., and directed to proceed to Havana, Cuba, for duty, November 13, 1905.—Passed Assistant Surgeon L. D. FRICKS, directed to report to Surgeon C. W. Stoner, at Ellis Island, New York, for duty, November 9, 1905.—Passed Assistant Surgeon J. W. KERR, directed to transfer inspection duty from Quebec to St. John, N. B., on or about November 17, 1905, November 8, 1905.—Passed Assistant Surgeon T. F. RICHARDSON, relieved from special temporary duty in New Orleans, La., and directed to rejoin station at Savannah, Ga., November 14, 1905.—Passed Assistant Surgeon J. D. LONG, directed to report to the Governor-General of the Philippine Islands for duty as Assistant Director of Health of said Islands, November 8, 1905.—Passed Assistant Surgeon J. D. LONG, granted leave of absence for one month, November 11, 1905.—Assistant Surgeon W. C. RUCKER, relieved from special temporary duty at New Orleans, La., and directed to rejoin station at Boston, Mass., November 8, 1905.—Assistant Surgeon W. K. WARD, directed to report to Surgeon G. W. Stoner, Ellis Island, New York, for duty, November 15, 1905.—Assistant Surgeon JOSEPH PETTYJOHN, relieved from duty at Fort Stanton, N. M., and directed to proceed to San Francisco, Cal., reporting to the medical officer in command for duty and assignment to quarters, November 15, 1905.—Assistant Surgeon R. D. SPRATT, granted leave of absence for seven days from November 17, 1905, November 15, 1905.—Acting Assistant Surgeon E. ALEXANDER, six days leave of absence granted from November 10, 1905, amended to read six days from November 17, 1905, November 11, 1905.—Acting Assistant Surgeon J. T. EWING, granted seven days leave of absence from November 7, 1905, under paragraph 210 of the regulations, November 7, 1905.—Acting Assistant Surgeon S. B. FOSTER, granted leave of absence for 10 days from October 21, 1905, November 14, 1905.—Acting Assistant Surgeon G. A. GREGORY, granted leave of absence for 14 days from November 11, 1905, November 11, 1905.—Acting Assistant Surgeon J. G. STANTON, granted leave of absence for 13 days from November 6, 1905, November 9, 1905.—Acting Assistant Surgeon J. W. TAPPAN, granted leave of absence for 23 days from November 13, 1905, November 11, 1905.—Pharmacist W. L. STEARNS, the three days leave of absence granted Pharmacist Stearns November 3, 1905, revoked.—Pharmacist W. L. STEARNS, relieved from special temporary duty at Century, Fla., and directed to rejoin station at Santa Rosa Quarantine, November 9, 1905.—Pharmacist F. L. GIBSON, granted one day's leave of absence November 1, 1905, under paragraph 210 of the regulations.

SOCIETY REPORTS

AMERICAN RÖNTGEN RAY SOCIETY.

Sixth Annual Meeting, Held in Baltimore, Md., September 28 to 30, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 850.*]

President's Address.—CHARLES LESTER LEONARD (Philadelphia) reviewed what has been accomplished with the röntgen ray since its discovery 10 years ago, discussed its application in medicine, and indulged in a speculative discussion of the identity of the ray, its chemistry and physiologic action. He said that improvement in technic and better knowledge of the action of the ray and its application will advance its usefulness.

Present Status of Radiotherapy.—GORDON G. BURDICK (Chicago) said that there is no longer any question as to the specific field of the röntgen ray in all forms of acne, lupus, eczema, psoriasis, pruritus, tinea, sycosis, mycosis fungoides, senile keratosis, venereal condylomas and hyperidrosis. Among the skin diseases that may be classed as erratic are lupus erythematosus, pigmented vascular nevi, hypertrichosis and acne rosacea. Of the first mentioned, about 18% is cured and about 30% is improved. He has treated 80 cases of epithelioma, involving the skin only, with no recurrence. When the tumor is situated at a mucocutaneous junction, it is well to have the glands removed after a period of quiescence has been brought about by the röntgen ray. He followed this method in 23 cases, with no recurrence after two years. He considered the röntgen ray sufficient treatment in the great majority of cases. The knife should be used only in such cases where the tumor is situated favorably for radical removal. In cases having the characteristic odor, he invariably anesthetizes the surface, and by means of the galvanic cautery, drives into the tissue for a prolonged period of time zinc and mercury ions, following with the röntgen ray after the separation of the slough; 18 cases of carcinoma, treated vigorously with the röntgen ray, were cured. In 14, the tumors and enlarged glands disappeared completely; in 4 they ceased growing. All primary cases should be rayed, excluding the knife. He does not believe in the existence of a case of sarcoma that cannot be markedly benefited by a prolonged, mild radiation from an old hard tube, well coated with aluminum, the thickness depending on the individual circumstances existing in the individual case.

Treatment of Carcinoma.—GEO. C. JOHNSTON (Pittsburg) said that in carcinoma of the breast the application of a ray of sufficient intensity, for a sufficient length of time is able of causing a disappearance of the tumor and carcinoma cell nests and their replacement by connective tissue, a proliferative, obliterative endarteritis and a sclerosis of the lymph vessels and glands leading from the affected part. A course of radiation not to exceed 10 treatments of 20 minutes each at a tube distance of 18 inches is sufficient in the majority of cases to accomplish the desired result. A tube of fairly low vacuum should be employed, carrying a current not to exceed 2½ milliamperes. On about the fifteenth day after operation postoperative treatment should be begun. Cases of extensive carcinoma may be rayed, operated, rayed again and freed from the disease, providing the surgeon and the röntgenologist cooperate thoroughly. Postoperative radiation is made directly over the wound through the dressings, the length of each exposure being 10 minutes; treatment being given every other day for as long a time as may be necessary. HENRY PANCOAST did not believe that very many cases of carcinoma of the breast recover if there are metastases in the mediastinum. GEO. E. PFAHLER agreed with him.

Late Results in Treatment of Sarcoma.—WM. B. COLEY (New York) said that facts, up to the present time, fail to show that the röntgen ray is curative of malignant growths, except those that are located superficially. No patient has yet remained free from a local or general recurrence for three years. The value of postoperative treatment is undetermined. The treatment of sarcoma by the röntgen ray has shown, in a small proportion of cases, that the tumors decrease in size and even disappear in a few instances. In the small percentage of cases in which the tumor has disappeared, the universal tendency to recurrence and the danger of dissemination of the growth is sufficient reason for not advocating the method, except in inoperable or recurrent cases.

Discussion.—J. RUDIS-JICINSKY (Cedar Rapids, Ia.) believed that the use of Coley's antitoxin precipitated the occurrence of metastases. BOWEN, STEVENS, BURDICK, and others reported favorable results in the treatment of sarcoma with the röntgen ray. VERNON J. WILLEY (Ann Arbor, Mich.) treats his patients for two to four weeks prior to operation, using a hard, low tube incased in a Friedlander shield, with good result. One case treated entirely with the ray recovered after 42 treatments with no recurrence a year later.

[*To be continued.*]

AMERICAN ACADEMY OF MEDICINE.

Thirtieth Annual Meeting, Held in Chicago, November 9 and 10, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 852.*]

The report of the committee to tabulate the value of the first degree was read by DON C. HAWLEY (Burlington, Vt.) The committee found it necessary to make a prefatory study before attempting the definite work assigned to it. This study included two questions: (1) What is a college course intended to do? (2) What are the elements, which, when compounded, make the physician? 1. A college was a factory where the value of the finished product depended upon the character of the raw material furnished. It also depended upon the process employed; but no process would cause a transmutation of metals. Unless the gold be in the ore, none could be found in the end-products. 2. To obtain material upon which to base the answer to this question, a circular letter was sent to a large number of physicians, medical teachers and others, and college presidents. The replies received were studied by the committee, and were also included in the report as an appendix. The questions were: 1. What is the character to be desired of the neophyte in medicine? To what extent can it be developed by educational processes? And what class of studies is adapted to bring it about? 2. What mental discipline is essential that a student may profitably benefit by a medical course? 3. What facts should be in possession of the intending medical student before he enters upon his medical studies? Can the acquisition of these facts be used to train the character and the mind? The report discussed each of these topics in turn. It was admitted that sometimes the man with a limited training outstripped his fellow with greater scholastic advantage. There must be something underlying which educational processes could not supply. The boy or girl must belong to that type designated as "fact seeker" by President Hadley, of Yale. He must also be self-reliant, able to arrive at fair conclusions on accurate observation, and to follow such conclusions with confidence. He must also have a bulldog tenacity, a love of seeking scientific facts, apart from preconceived theories, and sympathy with mankind. These were

foundations, and every trait which would make an honorable man and a cultured gentleman would be helpful. Having a youth of this type, what should be the mental discipline to produce the best result? He should be taught to observe accurately and to interpret honestly the results of observation, to know how to study, to think logically, and train his memory to be of ready service. He should be educated first for the man, then for the physician. And, on the whole, the course in colleges leading to the A.B. degree seemed to be fitted for this better than any other course. Beside, the mind so furnished should be in possession of certain facts to be used directly in his medical studies. These included a knowledge of elementary physics, that he might understand its application in physiology and elsewhere; such a knowledge of chemistry as to make it necessary to teach only medical chemistry in a medical course; and general biology, that the student could undertake the study of life processes in man in an intelligent manner.

Discussion.—PROF. LOSEY (Northwestern University, Chicago) emphasized that part of the report that students preparing for medicine should be advised to elect, or to select studies in their college course, so that they might have two or three years of work in chemistry, biology, etc., and that they be advised to take up such subjects as histology, embryology, and comparative anatomy. Some institutions were pursuing such a course at present. He would like to see intending medical students advised to utilize their time, not so much with a further study of the classics as with a liberal and long enough training to include general biology, comparative anatomy, histology, and embryology. LEARTUS CONNOR (Detroit) said a four-year course of study in medicine would give a man a broader outlook; it would give him imagination to look forward to what he ought to become; to have a broad, sympathetic outlook of those with whom he had to do. The service of the physician reached far beyond peddling of pills or the opening of bellies. The practice of medicine required a vigorous body, and a college course ought to give chance to know what sort of body a man had; whether he could endure the long strain of days and nights and of anxious thoughts about critical cases, etc. A man could not go through college and mingle with others without becoming a thinking machine. The man who had not a good imagination, who could not see an operation before him with his eyes shut, so to speak, was not an educated physician. He was a peddler of pills, a pure mechanician, and not a doctor. CARL H. VON KLEIN (Chicago) pointed out and emphasized the value of an academic training preliminary to entering upon the study of medicine. The man who was academically well trained, other things being equal, made a good physician. A man should not be discouraged because he failed in his first examination, as there were notable instances of men who subsequently became great, yet who failed in their first examinations. Among others he instanced Bismarck. PROFESSOR H. B. WARD (University of Nebraska) said that those who had not followed carefully the development of modern college education, were not aware of the extent to which even in small colleges the elective system had been introduced. Formerly, a college course meant in the same section of country, or in a group of affiliated colleges, more or less the same training; not only four years, but four years applied relatively to certain lines, with some philosophy, some mathematics, some science, some literature, and some history. The modern college had made a departure from this. Even the most conservative had introduced different courses which went under different names, but which in many, if not in all cases led to the same degree, and in general, he thought, the degrees of B.S. and B.A. were apparently on a par with reference to future training. He not only emphasized but deplored the fact that there was not a series of recognized studies toward the professional line of medicine, as there was in the mind of the college teacher with reference to theology, to law, or to some other vocation.

[*To be continued.*]

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 851.*]

General Blood Poisoning Emanating from the Nose and Pharynx.—J. HOLINGER (Chicago) stated that microorganisms of the nose and pharynx were formerly considered harmless. A great many diseases can be directly traced to them. Fatal cases of blood poisoning occur, but are not very frequent. This statement in the paper is substantiated by the histories of two cases. The speaker said that Schwarzenbach has shown that a number of general diseases, such as acute and chronic articular and muscular rheumatism, sciatica, etc., can be traced directly to general infection from the pharynx with streptococci. He proves this statement by showing that with the decrease in the number of streptococci in the pharynx all general symptoms not only diminish, but disappear. Schwarzenbach has the advantage of practising in the mountains, where these infections are only sporadic, and sometimes epidemic. In the city these are constant, general, and endemic. The connection between acute rheumatism and tonsillitis is well known. The tonsil receives its lymph from the nose and pharynx, and may therefore become secondarily inflamed in cases of infections located in the nose and pharynx. There is a difference in the course of the disease, whether the infection dates from the nose and pharynx, or directly from the tonsils. The most striking example is diphtheria. All know the seriousness of diphtheria starting from the tonsils and the lymphatics of the nasopharynx, while diphtheria of the nasal mucous membrane is a rare but comparatively innocent disease. Histories of cases are given by the author where chronic rheumatism of many years' standing, which have been treated with all kinds of medicine, massage and röntgen ray, disappeared when the suppurative processes in the nose and its sinuses were cured. The mixed infections of tuberculosis of the lung and bones may be avoided, in the opinion of the author, if the pharynx and nose whence they started are treated. As to treatment, very little is accomplished by sprays. Washes with boric acid solution are used in the nose, and in the pharynx, paintings with solutions of iodin and iodid of potash and glycerin. Difficulties are experienced in locating a suppuration of the nose or nasopharynx; then the experience and skill of the specialist come to the rescue.

Cancer of the Rectum.—E. B. SMITH (Detroit, Mich.) made a special plea for extirpation in the treatment of cancer of the rectum as being the only procedure that will give hope of a cure. He spoke of colotomy as the operation of necessity rather than one of choice, and urged an examination in all cases where the rectum is involved, as in cases of hemorrhage, when there are bloody stools, when there is painful defecation, and when there is constipation, and advises a microscopic examination in all cases when the neoplasm is developed. The author shows that the extirpation of a part or the whole of the rectum by the Kraske method is the ideal operation, and should be practised only by those who have had experience in capital operations.

The Surgical Management of Injuries of Peritoneal Viscera Resulting from Violence Applied to the Abdominal Wall.—JOHN YOUNG BROWN (St. Louis, Mo.) calls attention to the dismal mortality in such cases, and emphasizes the importance of their early diagnosis and prompt surgical treatment. He reported a series of six cases, which have come under his personal care during the past 18 months, in all of which

abdominal resection was done. Of the six cases, one recovered and five died. An analysis of the cases leads to the conclusion—the importance of early diagnosis and prompt surgical treatment by abdominal section in all cases of abdominal contusion in which there are present the slightest symptoms pertaining to injury to peritoneal viscera. If one waits until the classic symptoms of peritonitis are present, surgery promises little.

[*To be continued.*]

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 854.*]

Lessons to be Learned from the Present Outbreak of Yellow Fever in Louisiana.—JAMES CARROLL (Washington, D. C.) summarized as follows: 1. The methods now in vogue for handling and reporting cases of yellow fever in cities exposed to the importation and epidemic prevalence of yellow fever in the United States are generally lax and need to be changed. 2. It is time to acknowledge that many cases of yellow fever cannot be diagnosed with certainty in the early stages, and the only real safeguard in the epidemic zone, during the epidemic season, is to handle all recent cases of fever, not diagnosed, as if they were yellow fever. 3. Bilious remittent fever, occurring in the yellow-fever zone, should be regarded as yellow fever, unless it is shown by microscopic examination that the infection is one of malaria, relapsing fever, etc. 4. Physicians who make an early diagnosis of yellow fever are often subjected unjustly to severe criticism, and as the result they naturally hesitate to commit themselves even when the diagnosis is fully justified. They should be relieved from this duty by a special diagnosis commission in every city exposed to the danger of infection. The commission should be composed of three eminent diagnosticians, who should be controlled by the department of health, and whose duty it would be to examine promptly and report in writing upon every case of fever occurring during the season from about May 1 to October 31. Practising physicians should be required, under penalty, to report promptly to the health authorities during the season in question every case of fever coming under their observation, whether in a patient or not. The health authorities should immediately notify the members of the commission, whose duty it would be to visit the case at once and every day following until the diagnosis was made clear or the case shown to their satisfaction to be not one of yellow fever. All cases suspected of being yellow fever should be treated in a mosquito-proof ward or hospital set apart for the purpose and under the control of the diagnosis commission. Appointments of resident physicians or clinical assistants to have charge of the patients should be made only on the recommendation of the diagnosis commission. The decision of the commission in the matter of diagnosis or the removal of a patient to the hospital should be final. 5. In exceptional cases, to be decided by the commission, certain patients might be retained in their homes, protected by mosquito nets and wire screens, awaiting a final decision. The responsibility for the proper disposition of such patients should rest upon the commission, who should be aided, when necessary, by subcommissions appointed upon their recommendation. 6. The members of the commission should be paid a stated fee for each visit to a patient necessary to establish the diagnosis or decide upon his removal to hospital. In this way the expense to the city would be trifling, the responsibility for diagnosis and treatment would rest upon the commission, and the occurrence of an epidemic would be impossible, if the law were rigidly enforced.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

TUBERCULOSIS NOMENCLATURE.

BY

LIVINGSTON FARRAND,

of New York.

Executive Secretary of The National Association for the Study and Prevention of Tuberculosis.

I enclose herewith a copy of the Report of the Committee on Nomenclature to the National Association for the Study and Prevention of Tuberculosis, presented at the annual meeting in Washington. This report is about to appear in the Transactions of the Association and I am sending you a copy with the request of the Board of Directors that you will cooperate in giving it publicity by publishing it in your columns. The Association is anxious to have it tested by physicians in sanatoriums and hospitals in order to invite criticism based upon experience. We shall appreciate your cooperation in the matter.

Translation with some modifications of Turban's scheme for a method of comparative statistics for pulmonary tuberculosis now used by the International Association for the Prevention of Tuberculosis in Europe.

From *Tuberculosis*, monthly publication of the Central International Bureau for the Prevention of Consumption, September, 1904. Johann Ambrosius Barth, Leipsig.

Suggested for use in the National Association, with the addition of the scheme offered by the committee.

1 Extent of disease in the lungs.
I, II, III } For exact definition see below.

2 How long consumptive?
3 months. Period to date from the observation of the first clinical symptoms, *e. g.*, stubborn coughing, hemoptysis, pleurisy, loss of flesh, etc.

3 General condition of the patient.
A A = favorable.
X X = unfavorable.

4 Digestion.
B B = unimpaired.
Y Y = impaired.

5 Pulse.
The pulse is to be registered every morning and evening, the patient resting.

6 Temperature.
F F = maxima for the day over 101° F.
f f = maxima for the day from 99° F. to 101° F.
t n t n = normal temperature (mouth).

7 Tubercle bacilli.
+ + = tubercle bacilli present.
O O = tubercle bacilli absent.

8 Tuberculous complications.
Larynx Name of the organ suffering from tuberculosis.

9 Other complications.
... Name of the disease.

10 Result of treatment.
: Vide Classification of Results of Treatment proposed by Committee on Nomenclature.

DEFINITION OF THE EXTENT OF DISEASE IN LUNGS, ACCORDING TO TURBAN.

I. Slight lesion extending at most to the volume of one lobe or two half lobes.

II. Slight lesion extending further than I, but at

most to the volume of two lobes; or severe lesion extending at most to the volume of one lobe.

III. All lesions which in extent of the parts affected exceed II.

By "slight lesion" we understand disseminated centers of disease which manifest themselves physically by slight dumbness, by harsh, feeble, or bronchovesicular breathing, and by rales.

By "severe lesion" we mean cases of consolidation and excavation such as betray themselves by marked dulness, by tympanitic sounds, by very feeble bronchovesicular, bronchial, or amphoric breathing, by rales of various kinds.

Purely pleuritic dulness, unless marked, is to be left out of account; if it is serious, the pleurisy must be

MODERATELY ADVANCED.

No marked impairment of function either local or constitutional.

Localized consolidation moderate in extent with little or no evidence of destruction of tissue;

Or disseminated fibroid deposits.

No serious complications.

FAR ADVANCED.

Marked impairment of function, local and constitutional.

Localized consolidation intense;

Or disseminated areas of softening;

Or serious complications.

ACUTE MILIARY TUBERCULOSIS.

PLAN SUGGESTED BY THE COMMITTEE ON NOMENCLATURE FOR TABULATION OF CASES FOLLOWING TURBAN'S SCHEME.

Name		Condition.	Amount of Involv'm'nt	Duration of disease.	General condition.	Digestion.	Range of pulse.	Max. tem. for day.	T. B.[1]	Complications.	
										Non-tub	Tuberculous
Mr. X.	On admission.	Advanced.	II	3 months.	Favorable.	Impaired.	76-100	100°	+	Negative.	Negative.
	At discharge.	Arrested.	II	9 months.	Favorable.	Unimpaired	76	98.6°	0	.....	.....

[1] Absence or presence of tubercle bacilli to be determined only after repeated examinations while patient is under observation.

specially mentioned under the head of "tuberculous complications."

The volume of a single lobe is always regarded as equivalent to the volume of two half lobes, etc.

BY THE COMMITTEE.

Proposed Classification of Cases and Results of Treatment in Pulmonary Tuberculosis, to be Used in Connection with Turban's Scheme.

Progressive: (Unimproved.) All essential symptoms and signs unabated or increased.

Improved: Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.

Arrested: Absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least *two* months.[1]

Apparently Cured: All constitutional symptoms and expectoration with bacilli absent for a period of *three* months; the physical signs to those of a healing lesion.

Cured: All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life.

INCIPIENT (FAVORABLE).

Slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe.

No tuberculous complications. Slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight).

Slight or no elevation of temperature or acceleration of pulse at any time during the 24 hours, especially after rest.

Expectoration usually small in amount or absent.

Tubercle bacilli may be present or absent.

[1] The length of time mentioned is of course somewhat arbitrary, but is intended to cover the cases which frequently occur, where the patients leave a sanatorium for various reasons, contrary to advice, after a stay of a few weeks, although all active symptoms may have ceased completely soon after entrance.

THE EXCHANGE OF SERUM AND VACCINE.

To the Editor of American Medicine:—I am a little surprised to note your recent editorial on the "Exchange of Serum and Vaccine." The subject-matter seems to me to be treated entirely wrong. The policy advocated, if carried out, would prevent the possibility of a supply of reliable serum and vaccine being at all times available, and would lead to the use of out-of-date serum and vaccine by the druggists, and by some few physicians. If there was not an exchange feature that protects absolutely the physician and druggist against loss, this would surely come to pass. The advantage of the immediate use of antitoxin in treating diphtheria cannot be gainsaid, and the advantage of the prophylactic value must be recognized. How can this be secured unless a supply of serum is immediately available? In some parts of our country the supply of serum and vaccine requires from 24 to 48 hours for distribution. It is certain that the exchange feature works a very great hardship to the manufacturer, but the best manufacturers do not feel justified in allowing the quality of any preparation that is so essential for the control of epidemics and the saving of life to be jeopardized by the possible use of out-of-date, and consequently unreliable serum. To convince you that this policy is the correct one, note the United States Pharmacopeia, new revision, under antidiphtheric serum. Conditions that prevail in the States are entirely different from those which prevail in foreign countries, the United States covering a territory practically as large as all Europe. From letters received from physicians, druggists and jobbers, it is evident that the interests of the profession and trade are best protected by absolutely guaranteeing the quality of serum and preventing any possibility of out-of-date or weak serums or vaccines being used.

MANUFACTURER.

Few Suicides in Italy.—The superior moral qualities of the Italian nation appear in the fact that there have been only about 8,000 suicides in Italy in the past four years, while in France more than three times as many have been recorded. When the peasant of Calabria or Apulia gets discouraged he doesn't shoot himself; he emigrates.—[*Boston Transcript.*]

ORIGINAL ARTICLES

REPORT ON THE YELLOW FEVER IN CUBA.[1]

BY

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of Habana, Cuba.

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The maintenance, in Cuba, of the prophylactic measures invented by Dr. C. J. Finlay and instituted by the American Government of Intervention against the yellow fever, has resulted in (1) continued freedom from yellow fever throughout our territory, and (2) conclusive demonstration that the bite of an infected mosquito is the only natural way of transmission of yellow fever.

In presenting this review of what has been done in Cuba during the last three years, I shall advance argument in favor of the second of these two propositions.

This has been done because in some of our sister republics there is still some hesitancy in admitting and following up to all its logical conclusions the doctrine of the mosquito transmission of yellow fever. The people of these countries have not been educated to a complete understanding of this doctrine, and hence the continued prevalence of the disease in some of them, and its invasion of others. I repeat what I stated at the last meeting of this conference, namely, that it is not possible to institute successfully the prophylactic measures against yellow fever without the cooperation of the people. A community in which the announcement of the presence of a case of yellow fever produces ungovernable excitement, is not going to permit its health authorities to make such announcement, or to surround the patient with the proper safeguards. Such announcement is sure to be followed by serious interruption of business, commercial restrictions and violent quarantines. A curious vicious circle is, in fact, established, which may be concisely expressed as follows: Great excitement and disturbance follow upon the announcement of a case of yellow fever, because everybody fears (often with reason) that there must be other cases concealed; and, on the other hand, cases are concealed for fear of bringing about damaging excitement.

The feeling of security that prevails in Habana is based upon the acceptance of the mosquito doctrine by the people, and the conviction that the health authorities will act promptly and openly in the presence of any suspicious case.

In Las Animas Hospital, the yellow fever hospital of Habana, we find perpetually present, and in active operation, all the causes that might, according to the older views, give rise to the spontaneous origin, or to the propagation of yellow fever. It is now over four years that the theorists of the old school have been watching in vain for these causes, still supposed to be lurking in the soil, to renovate their activity, and again renew the horrors of the old endemic of the Caribbean sea.

The last days of the icterode endemic in Cuba have been related in a paper read before the Sociedad de Estudios Clínicos of Habana, by Dr. J. Le-Roy, in April of 1902, under the title of "Statistics of Yellow Fever, and Disappearance of the Disease from Habana, as Demonstrated by the Data of the Said Statistics."

The agony of the great endemic extended over a period of seven months, namely, from February 16 to September 28, 1901, the date of the last autochthonous case in Habana. It is well to recall that at the time of starting the antimosquito campaign in February of 1901, there had been, since 1898, an inflow of 42,000 immigrants. There was, therefore, no lack of raw material for the infection to work upon.

We shall not repeat once more the details of the new method employed to combat yellow fever. The method has been accepted, at least in theory, as the only procedure for the eradication of the disease. Suffice it to say that it consists in protecting every subject of yellow fever against the bite of mosquitos, and in destroying all the mosquitos that may have bitten patients with yellow fever; that is to say, all the insects found in the vicinity of the patient. This was done with our autochthonous cases; and the vigilance of our Maritime Quarantine, and of our Immigration Bureau, enabled us to act in the same manner with all imported cases.

The effect of these measures may be followed in the statistics for the year 1901: In January we had 27 cases of yellow fever. In February we had 10 cases. The campaign was started in this month, at the time when, as was usually the case, the morbidity from yellow fever was reaching its minimum. The success obtained in Habana, as well as other theoretic conditions, leads us to believe that this is the best time to initiate the campaign in the endemic foci. In March we had 2 cases, and one imported. In April we had 2 cases. In May we had 5 cases, and one imported, thus showing that the customary annual epidemic was beginning to assert itself. In June we had one case, and one imported. In July we had 6 cases, and 6 were imported from a neighboring town. In August we had 7 cases, and 4 were imported. In September we had 9 cases. Two of these patients were taken sick on September 28, and they were the last cases to originate in the city of Habana.

We present this statistical review because the last cases of the dying endemic have a very special interest in connection with the experimental cases in which inoculation was done at Las Animas Hospital. These were, generally speaking, the most severe that had been obtained by the application of laboratory mosquitos, and they possess special interest as evidence of the transmission of the infection by the mosquito, because, in two of them the postmortem lesions characteristic of yellow fever were demonstrated.

Some authors, however, who have attempted to argue against the acceptance of this mode of transmission of the disease, have rejected the evidence of all the experimental cases. The mild cases have been rejected because the symptoms were not sufficiently developed, and of the severe cases it has been said that the patients did not contract the disease through the mosquito inoculation, but through ordinary exposure to the unknown cause.

[1] Read before the second Sanitary Convention of American Republics, in Washington, October 13, 1905.

Thus Professor Sanarelli, and some of our Brazilian confreres, have maintained that the experimental cases at Las Animas Hospital are of no value, because they occurred in a yellow fever hospital and in a city where there was prevailing at the time an epidemic of the disease. Our confreres are mistaken. It can be seen from the statistics quoted that there was no epidemic at the time, but only the last manifestations of the passing of the great endemic.

The cases of yellow fever that occurred during that period (the latter half of August) constitute a well-limited focus of the disease, circumscribed in the center of the city, about the Tacon market. There was the last stand made by the American plague in Cuba. So well circumscribed was this focus that it sufficed to destroy the mosquitos in a few houses near the market to give the last blow to the yellow specter that had shadowed the colony for more than a century.

Nothing is easier than the demonstration that Las Animas Hospital was not infected at the time of these experiments. The inoculated subjects in question were taken sick on August 11, 12, 14, 17, 18, and 20. Let us now observe the movement of other yellow fever cases in the said hospital during those days and during the preceding months of 1901, as represented in the following:

TABLE OF CASES OF YELLOW FEVER TREATED IN LAS ANIMAS HOSPITAL DURING THE YEAR 1901 UP TO SEPTEMBER 1, CLASSIFIED ACCORDING TO THEIR SOURCE.

Months.	Cases from Habana.	Imported cases.	Experimental cases.
January	3	2	0
February	1	1	1
March	1	1	0
April	1	0	0
May	1	1	0
June	0	0	0
July	0	0	0
August	0	1	6

It will be seen that the patients treated in the hospital had gradually fallen off, and ceased altogether during June and July, which is the very period in which an infected building ought to have begun to produce its crop of amarillic infections. And it cannot be said that this immunity was due to the absence of susceptible individuals in the hospital, because we had there, since February 22, 1901, beside the ordinary run of cases of other fevers, most of whom were nonimmunes, a number of young immigrants, recently arrived, who had been brought from the Immigration Station at Triscornia, for our inoculation experiments. During the month of August there were 12 of these young Spaniards in the hospital buildings. The nonimmune population of the hospital appears in the following:

TABLE OF NONIMMUNES RESIDING IN LAS ANIMAS HOSPITAL DURING THE MONTH OF AUGUST, 1901.

Cases of typhoid fever	3
Cases of orchitis	1
Cases of uncinariasis	4
Cases of febricula	2
Total of nonimmune patients	10
Nurses and attendants	5
Young immigrants	12
Grand total of nonimmunes	27

Of this nonimmune population, consisting of 27 individuals, only 6 were attacked by the fever, and they were precisely the 6 who were experimentally bitten by mosquitos infected by a grave case of yellow fever.

We have still to study the one case that appears in the column of imported cases for the month of August in our first table. Let us see whether this patient might have given origin to the small epidemic of 6 cases during August at Las Animas Hospital. He was admitted on August 6 from the steamer Monterey, from Mexico. According to our present knowledge of the epidemiology of yellow fever, this imported case could not have produced the small epidemic in question. The patient was admitted August 6, and the epidemic began only five days later, on August 11. The cycle of development of the yellow fever parasite requires at least 10 days in the mosquito and two days in man, a total of 12 days. Let it not be said that this period of epidemiologic incubation is observed only in the experimental inoculations, since we know that some time before the conclusive demonstrations of the United States Army Commission, Dr. Carter had already called attention to the fact that a period of 12 days or more must elapse between the introduction of yellow fever and the development of secondary cases.

It is evident, therefore, that the infection at Las Animas was contained in the wide-mouthed jar covered with gauze, in which infected mosquitos were kept. The application of these insects to nonimmunes was discontinued and the small epidemic at Las Animas ceased. It became necessary a few weeks later to produce a case of yellow fever in order to show the fallacy of a certain vaccine, and a mosquito was taken out of the jar and applied to a susceptible individual, and he had yellow fever.

One more case was required later on by Dr. Carroll to carry out certain experiments with filtered serum, and another case was produced by the same procedure. The local epidemic at Las Animas Hospital was, therefore, made or unmade by opening or closing the jar containing infected mosquitos.

Since that time we have had only imported cases at Las Animas, viz.: September to December, 1901, 2 cases; in 1902, 7 cases; in 1903, 10 cases; in 1904, 2 cases; January, 1905, 3 cases.

There can be no doubt that the system of prophylaxis employed in this hospital has been successful, because during the time that these 24 patients were treated here, we have had in the wards numerous other patients suffering from other diseases, and who were mostly nonimmunes. And yet, without any other isolation than the separation by wire screens, the disease has never spread.

According to the old theories, this hospital should be a pestilent focus of amarillic infection. No disinfection, in the ordinary sense of the word, is ever done here against yellow fever; and quite frequently nonimmune relatives remain in the same room with yellow fever patients throughout the attack. The wards and patients are frequently visited by American and European physicians who are nonimmunes. A number of confreres, members of the American Public Health Association, during the meeting in Habana last January, visited the three patients we then had in the hospital, imported from Colon. In the laboratory connected with this in-

stitution, the blood and the excreta (never disinfected) from subjects of yellow fever are examined. The assistant who manipulates these things, and who goes to the bedside to get them is nonimmune. The autopsies are made in the same laboratory building with the help of the same attendant. The two last necropsies were done in the presence of seven members of the Public Health Association who were nonimmunes. In this same laboratory I still use, upon the wide-mouthed jars for breeding mosquitos, the same gauze sleeves that were employed during the epidemic of 1900 over the mouths of jars containing infected mosquitos. Through these sleeves the sweaty hands and arms of many a person with yellow fever have passed. I have never had them washed, but keep them in their very dirty condition as perfect specimens of fomites.

May we not then assert, without fear of contradiction, that every opportunity, other than the infected mosquito, is there furnished, in the old home of yellow fever, for the propagation of the disease?

I need not repeat here the details of the preventive system established in Habana. They will be found in the Transactions of our last Conference. So far as possible, the same system of defence has been established in the other parts of the Republic, and wherever there has been any threatening break in the defences, all the resources of the Superior Board of Health, and of our Maritime Quarantine are concentrated upon the weak point.

An instance of this was seen recently in Santiago, where, for the first time since 1901, the yellow fever succeeded in penetrating our defences, and producing two cases of the disease. The first case was that of S. A. F., a native of the United States, who was taken sick on October 18, 1904, at Punta de Sal in Santiago Bay. Mr. F. had been on the Island 24 days when he was taken sick. We were, therefore, forced to the conclusion that he had been infected either at Santiago or at Punta de Sal, the only places that he had visited during the five days preceding his attack. I was ordered by my government to investigate this very grave case, and I came to the conclusion that the focus of infection must have been at Punta de Sal, because the visits of Mr. F. to Santiago were too near or too far from the date of his illness to come within the limits of the period of incubation of yellow fever. Fortunately I found that the situation of Punta de Sal was very favorable for the isolation of the sick, and the observation of all those who might have been exposed to the infection. The place lies about three miles distant from Santiago by water, and nine miles overland. It was, therefore, easy to detain there the nonimmune population, and to keep it from starting elsewhere new foci of infection. The individuals thus detained could be defended against further infection by the rapid destruction of all the mosquitos in the men's quarters. All the buildings were fumigated at once, and we succeeded in limiting the propagation of the disease to one secondary case. The patient himself was removed to the Isolation Hospital on one of the islands in the bay, and was screened as soon as the diagnosis was made. In this hospital the patient was surrounded by nonimmunes.

We do not know how the infection was introduced. Of course, there can be but one of two possibilities: Either a case of yellow fever had been introduced undiagnosed into Punta de Sal, or an infected mosquito had been landed from a vessel coming from an infected port. In the first instance, we must suppose an extremely mild case that escaped observation. The objection to this theory is that in such an unrecognized case, the patient must have been treated without any precautions, and should, therefore, have infected a considerable number of mosquitos. The result of this should have been the simultaneous appearance of several cases at the same time with that of Mr. F. I am, therefore, inclined to accept the second theory; that is, the importation of an infected mosquito from a ship; if not one, certainly not many, for they all perished without producing more than the one case, that of Mr. F.[1]

The diagnosis was made on the third day of the attack. It became necessary, therefore, to destroy the insects that had bitten Mr. F. during these three days that constitute the period of danger. Fortunately, we had still eight or nine days in which to carry this out, before the infected insects could begin to transmit their infection. This time was put to such good advantage that only one secondary case occurred, that of Mr. S., who was taken sick November 1. With this the little outbreak became extinguished. When Mr. F. and Mr. S. were discharged from the Isolation Hospital at Key Duan, all mosquitos were destroyed in that building.

There was still one other serious threat of invasion of yellow fever, in which instance, as in the one just related, the successful measures instituted bore evidence to the truth of the principles upon which our system of defence is founded. In July, 1903, a passenger on the steamer Vigilancia, from Mexico, succeeded, by means of a false certificate of immunity, in breaking through our quarantine inspection at Habana. This man took lodging at No. 29 Inquisidor street, where he passed the first 48 hours of his attack in a house where there was a large number of nonimmune boarders. He asked then to be sent to a hospital, and on admission to the Mercedes Hospital, the nature of the complaint was at once recognized and the patient was immediately transferred to Las Animas. The prophylactic measures in this case consisted in the destruction by the burning of pyrethrum powder of all the mosquitos in the block around the house on Inquisidor street and in the Mercedes Hospital. A list was made of all nonimmunes residing at the time in these localities. The temperature of all these was taken twice daily to detect the first appearance of a secondary manifestation. Thanks to the prompt action taken, there was no spread of the disease.

In conclusion, I wish to direct attention once more to the picture represented in the earlier part of this paper: The passing of a great epidemic disease. What a source of satisfaction to have witnessed the last hours of the dread malady! To have seen the wonderful result of

[1] I have since seen evidence of the existence of a single infected mosquito on board a vessel. The crew of this vessel were taken sick one after the other, with intervals of three or four days, which is the time that the mosquito requires to digest its meal and make ready for the next one. More than one mosquito should produce simultaneous cases, or at closer intervals.

the work of Reed, Lazear, Carroll, and Agramonte! This is the first time in the history of medicine that such things have been witnessed as are now passing before us: Within a short decade the agony and extinction forever of a widespread and deeply-rooted plague.

If our satisfaction on contemplating these performances be great, how much greater must be that of the man, who, by a mental effort that stands unexcelled in the history of human thought, made all these things and this great benefaction possible—Dr. Carlos J. Finlay.

THE RELATION OF STOMACH DISORDERS TO DIABETES MELLITUS.

BY

JOHN P. SAWYER, M.D.,

of Cleveland, Ohio.

The several published studies upon the stomach in diabetes which I have found have been concerned with the attempt to trace a definite relation between the secretion of the stomach and the excretion of sugar. All have reached the same conclusion, that the variations in the chemic composition of the gastric juice occur without any parallelism observable in the chemic composition of the urine.

With this I fully agree, but in the work hitherto done the failure to find any mathematic parallelism in the secretions has caused the inference that because of this want of parallelism there could be no recognizable influence exerted from the stomach upon the process of diabetes.

The cases which I have to report will, I think, prove that the reverse is true, that from the stomach, or, at least, in association with digestion occurring within it, is exerted a powerful influence upon the clinical course of the diabetes, expressing itself in many cases in the heightening of the errors of metabolism, which we recognize in the increased elimination of sugar and urea, with the clinical symptoms of thirst, hunger, polyuria, muscular weakness, and emaciation.

It was the empiric idea of Rollo and his immediate successors that the stomach in some way was the cause of diabetes.

As physiologic knowledge grew it was seen that in any such way as had been supposed this was untenable.

With the introduction of the study of test-meals came the researches of the 90's, showing the irregular chemic composition of the gastric contents in diabetes. Apparently no attempt was made to treat the stomach in diabetes, according to the measures which the study of later years has shown advantageous, when that organ is the one primarily involved.

Because the analysis of the stomach contents cannot be found uniformly in this disease to be associated with uniform pathologic findings is not a sufficient ground for concluding that, therefore, the stomach may not be the starting point from which, or in which, errors of digestion begin; with the resulting error developed multiplied in the later process of metabolism, to the great detriment of the individual.

The following case histories show that some influence upon many of the cases was exerted by a direct attention to the condition of the stomach. The degree of this influence varies in varying cases, but of definite clinical importance the observations appear of value.

I will proceed directly to report cases, for the sake of brevity mentioning only pathologic findings or positive observations bearing upon the subject-matter.

CASE I.—A young man, aged 20, from Ashtabula, Ohio, consulted me April 13, 1903. He was discovered to be passing 8 quarts of urine daily since last January after he had had an attack resembling the grip. (No better description could be obtained). His best weight had been 117 pounds about January 1, in February, 105 pounds, and on April 13, 103 pounds. Previous to January 1 he had had a considerable amount of digestive trouble, frequent and severe distress being reported.

Physical examination showed a slender but, so far as the internal organs were concerned, an apparently healthy young man.

Examination of the urine showed a specific gravity of 1,022, and the quantity of sugar amounted to 3.75%.

A test-meal gave 80 cc. of stomach contents which separated into three layers on standing, the top layer being a third the column; free hydrochloric acid, 40; total acidity, 50.

The patient went to the hospital and was confined to the bed a greater portion of the day. A measured amount of exercise was allowed. Specimens of urine were saved, and lavage was begun for the catarrhal conditions of the stomach, using resorcin and followed by sodium bicarbonate. The treatment consisted of daily lavage and during his stay in the hospital he was kept upon the von Noorden standard diet for two weeks, no starch whatever being allowed. The quantity of urine of April 23 was 2,700 cc., and contained 2% of sugar.

On April 24 the quantity of urine was 3,600 cc. 3.5% of sugar being present.

April 27, 2,500 cc. was obtained and the quantity of sugar was found to be 3.75% by fermentation. Standard diet was now discontinued.

On May 2, 2,800 cc. of urine was obtained and the quantity of sugar was found to be 2.5% by Fehling's solution.

On May 11, 1,170 cc. of urine was obtained and contained 1.55% of sugar.

On May 17, 0.6% of sugar was found by fermentation. The patient returned to his home and was under the care of Dr. Geib. Lavage was continued, and mashed potatoes and bread were allowed.

No sugar was found in his urine at this time, and frequent tests made throughout the following months showed no trace of sugar.

During his stay in the hospital the catarrhal process persisted until just before his return home, and lavage was continued till the disappearance of the catarrhal symptoms rendered it unnecessary. Test-meals have not been taken by Dr. Geib, but the thirst of which the boy complained and his great hunger entirely disappeared while the patient was in the hospital.

The case is of peculiar interest from the fact that the persistent use of the standard diet for two weeks did not materially reduce the sugar, which, however, promptly disappeared upon the institution of lavage, and the allowance of bread and potatoes with fats—and in addition in recent months—a greatly increased quantity of finely-ground starch.

The last of September a quantity of sugar was found in the urine, and he was sent back to me by Dr. Geib.

The 24-hour specimen examined at the hospital showed 2.5% of sugar, and the quantity found was 1,400 cc.

The examination of the stomach showed the recurrence of the catarrhal gastritis with a very heavy top layer of clumpy mucus and a considerable hyperchlorhydria. Thirst and bulimia had not developed. This case is extremely valuable in showing the reappearance of the glycosuria with the coincident reappearance of the catarrhal gastritis, and disappearance of both on resumption of same treatment.

For the last year and a half the patient has continued the use of all kinds of foods, eating as usual from the family table,

restricted only to the use of sugar and the taking of raw fruits. Twice only has he shown sugar in the urine, once for a few hours after the taking of a Christmas dinner, and once last summer after the indulgence in fruits and grapes.

At the present time he is reported as apparently in the best health and is at work as a clerk in a hardware store, weighs more than ever in his life, and for enjoyment takes a "stroll" of over 20 miles without any bad effects.

Case II.—C. S., a teamster, aged 22, had always had good health. His former weight was 170 pounds. He entered St. Vincent's Hospital November 16, 1903. During the spring he began to experience some slight dyspeptic distress, and then, with continued loss of flesh, thirst developed, the secretion of urine increased, and in May he was unable to work.

His urine was not examined till he visited the dispensary of the hospital, at which time a large quantity of sugar was found, and he was sent into the hospital. His weight at that time was 128 pounds, a loss of 42 pounds.

The Ewald test-meal, taken an hour after ingestion, gave 50 cc. of stomach contents, of which 40 cc. was clumpy mucus with a strong reaction for hydrochloric acid. It was not determined quantitatively because the standard solutions were exhausted the day before.

The quantity of urine was a little over four quarts, but it was not more accurately measured. Lavage was begun on November 17, and continued daily with sodium bicarbonate. The quantity of urine was 1,900 cc., with a specific gravity of 1,040; by the copper reduction test 5% of sugar was found, and by fermentation 5.2%. These figures represent the daily determinations until December 4, at which time the quantity was 2,500 cc., and 5.6% of sugar by the copper test was found, and by fermentation 5.6%.

On December 4, I ordered lavage twice daily with a more alkaline solution, using a teaspoonful each of sodium bicarbonate and sodium biborate in a quart of water. The percentage of sugar promptly began to fall to 3, 2.8 and 2.4, until on December 8 the 24-hour quantity of urine showed 1,800 cc., and contained 1.6% of sugar. The patient gained six pounds in two weeks. He felt so well that he decided to leave the hospital, and went to work in some town in Michigan, and I have no further knowledge of him.

Case III.—Mrs. H. consulted me at my office on September 17, 1903. At that time the urine contained a quantity of sugar which was very large, about 10.5% by the copper test. This patient was aged 23, and was well till two years ago, though she previously experienced weakness. She had lost much flesh, especially six months ago, when there was great loss in six weeks' time. She is now passing seven quarts of urine a day. There is no history of diabetes in the family, she never had serious illness since her childhood, but for the past three or four years she has always felt a load in the stomach with "bloating" as she expressed it, after eating.

The following day the 24-hour specimen gave a percentage of 8.3 by copper and 8.3 by fermentation.

The residue taken 3½ hours after ingestion gave 300 cc. of stomach contents, showing great motor insufficiency, with 150 cc. mucous top layer, 70 cc. clear liquid, and 80 cc. food substance. Hydrochloric acid was 16, total acidity 56. After the use of lavage for three days with alkaline solution and salicylic acid, separately used, the quantity of urine was 4½ quarts, the copper reduction test gave 4.9%, and fermentation 5.5% of sugar.

The specimen of urine on September 22 showed 5.0%, on the next day 4.1%, and on the following day 3.4%, while the influence of lavage showed in a test-meal a considerable reduction of the residue, 100 cc. only being recovered, of which there was 5 cc. clumpy mucus, 20 cc. clear liquid, and 75 cc. food sediment.

The patient meanwhile expressed the greatest relief from thirst and the excessive hunger, and on September 25 was passing three quarts of urine in 24 hours, showing 2.7% of sugar. She now felt so much better that she thought she would carry on the lavage at home. The conditions there were not favorable, and the percentage of sugar in the specimens rose to 6 and 7 until she entered the hospital about the middle of November, when 5.5% was found in the secretion of four quarts in 24 hours.

With lavage daily and quiet, not much impression was made on this patient till December 4, at which time the amount of sugar was 4.6%. Lavage with stronger alkaline solution was ordered twice daily. The quantity secreted and the percentage diminished till December 8; the test for sugar showed 2.4% by copper.

This patient gained 5½ pounds in three weeks and expressed the liveliest satisfaction in the increased strength and vigor. She returned to her home, and during the month of January five urinary examinations were made, averaging four quarts a day, the specific gravity 1,032, sugar 4.2%.

Nothing more was heard from this patient till September 30, 1904, when a specimen was sent in, and found to be from three quarts in 24 hours, specific gravity 1,032, sugar 4.6%. At my urgent request, she came for a test-meal October 5, and there was obtained 175 cc. four hours after a Riegel meal, of which 150 cc. was of a mucus and food residue top layer, with 25 cc. of clear liquid at the bottom. Hydrochloric acid 20, total acidity 40. The specimen brought in this day reported to have been taken from a daily excretion of six quarts, specific gravity 1,035, sugar 3.9%.

She reported herself as doing her own housework, ironing but not washing. Says she is eating everything, but uses saccharin in her cooking. She has gained decidedly in her strength and in every respect is far better and far more comfortable than seemed possible a year ago.

Case IV.—Harry J., of Alliance, O., a high-school pupil, aged 15, consulted me August 11, 1904, with a history as follows:

As a child of 8 or 9, he had "yellow jaundice," none of the other infectious diseases of childhood till last April, when he had the socalled (three-day measles)—"rotheln."

He began to have some stomach difficulty and shortly thereafter he developed thirst and polyuria. Sugar was found when the patient consulted Dr. C. M. Hoover and Dr. J. A. Roach, who referred him to me for consultation. August 12 the test-meal showed motor insufficiency, 80 cc. of stomach contents being obtained, the same separating into two layers, the top of clumpy mucus, about 50 cc., the lower layer, 30 cc. being clear liquid. Free hydrochloric acid 32, total acidity 46.

The urine for the 24 hours was 10 quarts, specific gravity 1,035, sugar 4.4%, albumin absent, bile positive.

The patient was put upon the plan outlined, of alkaline lavage, and diet by no means starch free, though excluding sugar and materials, which, by their physical properties, might irritate the mucous membrane.

Two days later the amount of the 24-hour secretion was 2,400 cc., a little over two quarts; specific gravity 1,032, sugar 3.4%. From the first the patient's thirst was almost entirely relieved, the quantity of urine steadily diminished, and the patient's sense of well-being vastly improved.

He returned to his home to carry out for himself the practice of stomach washing and the use of the resorcin and chloroform water before meals.

The patient has at various times returned to the hospital for a few days' observation and treatment, in the course of which various changes in the solutions used for washing the stomach have been made. Silver nitrate, hydrastis, salicylic acid, lysol, creolin, sodium bicarbonate, and sodium biborate have been used. The patient has pursued his work in school, gained in weight 12 pounds, is not conscious of easy fatigue, feels quite well, does not suffer from thirst, but continues to excrete sugar in proportions from 2% to 4%.

Case V.—Ida R., a school-girl, less than 15, consulted me April 4, 1904; was known to have diabetes for about a year, apparently following a typhoid or malarial attack. The glycosuria was recognized April 4, 1903, and she is known to have been quite thirsty for a short time before this. In the course of her disease she lost some flesh and had grown quite weak, her pulse being 120, but no elevation of temperature. In the family there is no evidence of other diabetics.

April 4 there were four and a half quarts of urine in the 24 hours; a trace of albumin, bile, and indican absent; sugar 4.8% by copper, urea 0.4%. The test-meal gave 40 cc. of stomach contents, no distinct separation, the whole mass being of a catarrhal character; hydrochloric acid 68, total acidity 104.

The patient was put upon alkaline lavage, with the resorcin and chloroform water and farther with benzosol, 3 gr. t. i. d.

April 8, 4 quarts of urine in 24 hours, specific gravity 1,028, sugar 3.9%, urea 0.99%.

April 9, specific gravity 1,028, sugar 3.7%, 5 pints and 6 oz. secretion.

April 22, 5 pints in 24 hours—"has drank but half a glass of water last night"—sugar 5%, and so on through a great number of examinations which were made, the quantity ranging from 5 pints to 3½ quarts, percentage of sugar running on the average about 4.2.

The patient has gained in weight and strength and the quantity of sugar has not lessened in percentage, average secretion through June being 5 pints, percentage of sugar running from 2 to 3.9, once touching 5.

The patient has not remained under continuous observation, but has come to the hospital for short periods of time, during which the standard diet has been administered in several trials without producing the disappearance of the sugar.

In one of the late trials sugar disappeared for a single day after several days of standard dieting, but promptly reappeared.

Her condition at present is one of apparently good health, maintaining her weight and strength with a great degree of comfort; she is not troubled by thirst and feels so well that it is difficult to restrain her from overdoing.

The excretion of urine ranges from 5 pints to 3 quarts, and from 3.5% to 5% of sugar. During this period she has continued her strength and development, increasing apparently as a healthy person should do. But for a knowledge of the excretion of sugar, she and her parents would think she was well.

CASE VI.—Mr. G., aged 23, married, one child, consulted me January 8, 1904. Two years ago he had first noticed at Thanksgiving time that he was passing a large quantity of urine at night. He had had no previous illness save pneumonia in childhood. The family history is one of good health. No tuberculosis, none of the family has had diabetes, one sister living, aged 38, is thought to have gallstones.

A 24-hour collection of urine gathered and weighed by him at 15 pounds—something over seven quarts—specific gravity 1,027, albumin and bile both positive, indican absent, urea 0.35%. By copper and fermentation, 4.7% of sugar.

A test meal taken January 9, showed 40 cc. of stomach contents, which separated into two layers, the upper consisting of tough, clumpy mucus, markedly tinged with blood, indicating the severity of the process. Free hydrochloric acid 20 cc. total acidity 60 cc.

The patient was put at once upon the treatment outlined of alkaline lavage, the rest in bed with diet as in other cases.

The thirst and excessive urination diminished, and the test of January 15 showed 2,400 cc. January 23, the amount in 24 hours was 2,130 cc., specific gravity 1,040. Copper and fermentation gave 5.4% and 5.3% respectively of sugar. January 25, the amount was 1,800 cc., 5.3% of sugar. February 16, the stomach contents were markedly less catarrhal, but showed no free hydrochloric acid. February 17, the amount of urine was 2,300 cc., sugar 5%.

March 5, 100 cc. of stomach contents was obtained after a test-meal, showing practically no catarrhal process; hydrochloric acid 18 cc., total acidity 26 cc.

The patient reporting a very great gain in strength, has been feeling so well that he has gone to work on the farm, and, in fact, he worked hard in the sugar bush (!).

He reported during the summer that he continued to feel well, gaining in weight and strength. Sugar was still present, but polyuria, thirst and voracious appetite were absent, and without the assurance that sugar was still present, he would have thought himself well.

This favorable condition continued until last fall, when I believe he went into other hands, because of inability to come to the city for treatment, and was not doing well when last heard from.

CASE VII.—Mr. R., aged 26, consulted me for a supposed Bright's disease. He has indulged somewhat in the use of liquor and six months ago weighed 223 pounds, now 165 pounds.

The residue of foodstuff in the stomach was catarrhal, abundant and exceedingly hyperchlorhydric.

He has been very thirsty and passing large quantities of urine, which upon examination showed a specific gravity of 1.032, neither albumin nor bile were present, urea 0.4%, sugar 5.6%.

This patient never had measured his urine, but said he "was passing gallons per day." He entered the hospital three days later, having had daily lavage with great relief from thirst and excessive excretion.

The second, third and fourth, he passed an average of 2,300 cc. per day, 5.2%, the average excretion of sugar.

Von Noorden's standard diet was now administered and the quantity of urine averaged about 2,000 cc., with sugar 0.8%. At this time the craving for liquor asserted itself, and after a free indulgence he left the hospital with 2.2% of sugar in the 24-hour secretion of 2,060 cc.

In December he was readmitted and died shortly after in diabetic coma.

CASE VIII.—This patient is a physician and in active practice. I wrote to him a few days ago to secure a statement of his personal experience, on which I laid the more value as because of extensive laboratory and clinical training, I think him exceedingly well qualified to give valuable opinions concerning his experience.

"My glycosuria developed 4½ years ago," he writes, "and was ushered in by the cardinal symptoms of extreme thirst, polyuria, increased appetite, loss of weight, and a sense of muscular and mental fatigue.

"Upon discovering sugar in my urine I went on a vacation and began a diet quite free from carbohydrates. The sugar all disappeared, but returned intermittently after a couple of weeks; I gained several pounds in weight and got stronger. I continued on the diet of meat, eggs, cabbage, etc., with a small allowance of gluten bread for three years, taking very little carbohydrates at any time. My appetite was much exaggerated, I had frequent attacks of nausea and occasional vomiting, especially at night. I ate large quantities of food because I got no sense of satisfaction from the moderate amount and even then it was an hour or so after a meal before I felt that I was getting any benefit of my food.

"After seeing you I have been relieved of the abnormal appetite, I now eat only an ordinary amount, have no thirst, am taking a small amount of starch at each meal, feel satisfied after eating, and have a sense of well-being."

He also writes: "Upon a proteid diet I had hunger, thirst, nausea, occasional vomiting, fatigue, and glycosuria. Under a bland nonirritating diet mixed proteid and carbohydrates, my abnormal hunger and thirst are gone. I can do far more work, without fatigue, I feel far better. When I get to feeling 'off' with either gastric distress or discover glycosuria I have gastric lavage with benefit."

CASE IX.—June 30, 1902, Mr. C., an attorney, aged 54, consulted me for a known diabetes which had been recognized a year and a half before. Previous to this he had a considerable dyspeptic trouble.

A 24-hour secretion had never been obtained, but percentages of sugar ranging from 7.5 to 2 were reported to him from individual specimens.

He was troubled with thirst, polyuria, weakness, but not much loss of flesh.

A test-meal showed good motor sufficiency, 25 cc. being obtained three and a half hours after ingestion, which separated into three layers, hydrochloric acid was 31, total acidity 54. Sugar 6.2% in the specimen submitted. The patient had been in the habit of rising three and four times per night, and at times urinating every hour or oftener during the day.

Lavage was begun and there was prompt relief from the frequent urination and the percentage of sugar fell in the 24-hour specimen to 4.2. A week later, 3.6. Two weeks later, the quantity in 24 hours, was one quart, three gills—1,250 cc., sugar 1.5%.

At about these findings the case has continued for the past three years, rising occasionally to 3.5% or 5%, but never with polyuria, thirst, and with sleep broken never more than once per night.

The patient expresses himself as much pleased with the marked gain in strength and comfort which has come in spite of active participation in an active and responsible practice of law.

He has gained so much that he feels unwilling to limit, as I desire, the amount of work undertaken.

Standard diet and the "oat cure" have failed to relieve entirely the presence of sugar, although exercising a markedly favorable influence.

CASE X.—Mr. M., a politician, aged 56, first seen by me October 29, 1904. For three years he has known he had diabetes. This knowledge came after an attack of typhoid, during which he lost 45 pounds, which were never recovered. Two years before this he had great thirst and hunger, with as far as he knows increased polyuria.

The 24-hour specimen measured six pints, 4.8% of sugar, specific gravity 1,040, urea 0.67%, no albumin, bile positive. The scanty stomach contents obtained after a test-meal showed no reaction to hydrochloric acid.

This patient has continued to the present time passing five to six pints of urine per day, percentage ranging from 4 to 6.5. The "oat cure" and standard diet have not reduced these figures, but under the diet and the use of remedies directed to the catarrhal condition, notably resorcin and chloroform water, the patient has expressed himself as much stronger, and with far greater endurance. This case has shown the least effect of all the cases treated with direct attention to the condition of the stomach, but is decidedly stronger than at the commencement, gaining six pounds in 10 weeks.

CASE XI.—Mr. R., seen in consultation with Dr. Merriam October 17, 1903.

This patient was a hotel clerk, aged 64, and when seen at his home confined to the bed, intensely icteric, with a marked congestion of the liver reaching three fingers' breadth below the costal margin without enlargement upward. Dr. Merriam had found sugar in the urine three months previously, and continually thereafter.

The test-breakfast taken showed good motor sufficiency, the gross appearance markedly catarrhal, blood-stained, no free hydrochloric acid, an abundance of lactic acid, and microscopically, numbers of Oppler-Boas bacilli; and a very considerable amount of pus. The patient had been a free drinker for a number of years.

The examination of the urine showed 5.9% of sugar, no albumin, bile positive, indican absent.

He was advised to stop his whisky, and a diet which was to be bland and nonirritating but not starch free was recommended, saccharin in the place of sugar being the only marked restriction upon his carbohydrates.

April 28, 1905, Dr. Merriam reports that on quitting alcohol, the use of lavage and rest at home, he improved immediately, and at no time for more than a year past has any sugar been found in the urine either by copper tests or the polariscope, and the stomach disturbance has entirely subsided.

The glycosuria persisted too long to be an alimentary glycosuria simply, but the case may well have been an alcoholic diabetes, and of special interest is the severity of the catarrhal gastritis, which has disappeared also.

CASE XII.—A diabetic referred to me by Dr. D. P. Allen. There was loss of flesh, considerable thirst, great hunger. There had been gangrene necessitating the removal of three toes while the patient was under Dr. Allen's care at Lakeside Hospital.

When coming under my observation the percentage of sugar was 5.2 in the 24-hour specimen. The patient was a large, fleshy man of over 50, and of nervous temperament; no other essential findings were observed save a catarrhal gastritis with hyperchlorhydria and motor insufficiency.

Lavage with creolin followed by sodium bicarbonate solution was begun, and, as he complained of his restricted diet, a considerable relaxation was allowed.

Under these measures the excretion of sugar rapidly diminished and soon entirely disappeared. The patient remained free from glycosuria for months, at last going under the care of Dr. O. T. Maynard, of Elyria, who made repeated examination and found sugar only once in the course of a year, and then only after an unusual indulgence in a Christmas dinner.

CASE XIII.—A gentleman, aged 57, large frame, and good flesh, weighing 245 pounds, one year ago 250 pounds (capitalist, actively concerned in the development of traction properties and banks which entailed considerable nervous strain) consulted me on February 6, 1904, with a statement that he felt quite well till within the past two months. About six weeks before coming he had noticed that he was compelled to rise at night to urinate, and this had increased till he was up every hour. Great thirst was noticed and a voracious appetite.

The specimen of urine he passed in the office had a specific gravity of 1,035, a trace of albumin, bile was present but not indican. Sugar by the copper test, 6.2%, by fermentation 6.4%; the elimination of urea was noticeably not relatively great, 0.99%.

Two days later, having put him on his first visit of the sixth upon a diet, which, while by no means starch free, was calculated to be bland and contain no particles to serve as physical irritants to the membrane, the quantity of urine for the 24 hours was reported as a little over three quarts, specific gravity 1,034, sugar by copper and fermentation 6%, urea 1.4%. A Riegel test-meal taken three hours after ingestion, showed normal amount, catarrhal mucus in considerable quantity, stained with blood. No free hydrochloric acid, and no lactic acid.

In this case, owing to business requirements of patient, the use of the alkaline lavage was not immediately instituted, but he was treated with resorcin and chloroform water (1 dr. of resorcin to 4 oz. of chloroform water), a teaspoonful taken in water before meals, this formula being one of which I make large use in cases of catarrhal gastritis, independently of the presence of sugar.

He reported that the first night in place of rising every hour and passing enough urine to fill a slop-jar, he rose but once. The second night his sleep was unbroken and he has not been disturbed at night since this time, for urination.

One week later, February 15, the quantity for the 24 hours was 4¾ pints, specific gravity 1,028, urea 1.08%, sugar by the copper test 1.5%. All excessive thirst had gone and his appetite was normal.

February 27 the urine showed a specific gavity of 1,015, urea 1.35%, sugar absent by the bismuth, copper, and fermentation tests. Examinations were repeated March 7, 14, 21, 28, April 1, 5, 11, 25, 26, May 9, 19, 31, June 6, 27, July 5, 16, August 8, September 19, October 10, and November 7, and sugar has not been found at any time, the specific gravity ranging from 1,016 to 1,020.

The last test-meal was taken April 28, when the catarrhal process was found much reduced, there being now but a trace of mucus without the blood and other evidences of intense inflammation, but free hydrochloric acid was still absent. He has pursued his business, though at my urgent insistence he has diminished somewhat the line of work undertaken, not enough to satisfy me, but still enough to make some positive gain.

CASE XIV.—Mrs. C., a housekeeper, aged 55, is a well-nourished woman. She complains of weakness, loss of flesh, thirst and hunger, and easy fatigue. There has been no serious illness in the personal history, but for some years she has been much troubled with gastrointestinal disturbances, for some of which I have treated her, finding catarrhal gastritis the usual disturbance, with occasional involvement of the duodenum, slight icterus, and constipation. She is now troubled with spastic constipation.

The patient shows exaggerated knee-jerks, slight tremor, occasional tachycardia, and slight enlargement of the thyroid, though not marked enough to attract attention until the neck is palpated. Graefe's sign is present, Stellwag's and Möbius' signs are absent. There is no exophthalmos, and the peripheral arteries are not thickened.

During my care of her previously (and I am informed by Dr. T. C. Martin, while she was under his care) no sugar was at any time found in the urine. A specimen examined October 28, 1902, the 24-hour secretion being more than 3 quarts, showed large quantities of sugar, by the copper reduction test 8% and 7.8% by fermentation; there was no reaction for bile nor indican; the specific gravity was 1,038.

The test-meal showed good motor function of the stomach, with positive reaction for free hydrochloric acid, but apparently in diminished proportions, while the scanty quantity obtained showed undigested meat fibers enveloped in tough, clumpy mucus.

The patient was not put upon a standard diet, but 4 gr. of benzosol t. i. d. and alkaline water were prescribed.

The diet included bread, mashed potatoes, cornstarch, arrow root and tapioca; the restrictions were principally abstinence from cane sugar, and irritating substances like seed coats and fibers and all raw fruits. Cold baths were also ordered. On November 3, the specimen of the 24 hours showed by Fehling's solution 2.8% of sugar, and by fermentation 2.3%. On November 26, the patient feeling very much better, there were two quarts of urine in 24 hours, and Fehling's solution gave 0.3%, and fermentation 1.5%.

On December 2, the specific gravity was 1,016, no reaction was obtained for sugar by copper nor by Nylander's solution, nor in the several tests made on January 9, 14, 27, March 9, and April 17.

On May 7, three hours after taking the Riegel test-meal, 15 cc. of stomach contents was obtained, showing the following in three layers: The upper third was mucus with food residue, the reaction showing a total acidity of 66, of which 30 was free hydrochloric acid. The other physical findings remained the same. Although she has experienced considerable subjective benefit from the use of cold sponge baths, the knee-jerk, tremor, tachycardia, and Graefe's sign still remained unchanged.

The patient throughout this period has taken quantities of starchy food beyond the usual amount often indulged in by those who have had no trace of sugar in their urine.

On September 22, 1903, sugar was again found in large quantities in the urine, 5.6%—but there was no thirst, nor polyuria, and repeated examination throughout the year has shown the constant presence of sugar without polyuria, without thirst, without feeling of weakness.

October 1, 1904, she reported herself as never feeling so well, but on November 7 she came stating that within the past few weeks she has noticed a beginning of thirst, and in the specimen sent in on December 12, there was found 5.4% of sugar in the two quarts in the 24 hours.

Lavage was begun and immediately thereafter great subjective relief was experienced. The thirst which she was beginning to notice again has disappeared and the percentage of sugar decreased to 3.6 in the 24-hour secretion. There is again present a considerable catarrhal gastritis with motor insufficiency.

In this case the slight exacerbation of the catarrhal gastritis is always found with the slight increase of thirst, and the relief is gained in the presence of a persistent excretion of sugar when the stomach condition is bettered by local treatment of the viscus, without change in diet or in any other respect.

CASE XV.—Mr. H. has been under my care very frequently and has been a family patient of my father's for many years.

I had occasion to make urinary examinations in his case on January 23 and July 24, 1902. In January he was suffering from a wellmarked catarrhal icterus and at various times in the preceding years has presented the same evidences of obstruction of the bile duct from simple inflammatory processes apparently excited by rapid overeating. The patient has suffered from eructations of gas and a sense of load and weight in the stomach after meals, and has, at various times, corresponding to the development of the duodenal catarrh, noticed the passage of clay-colored stools. There has never been ground for diagnosing gallstones. This patient has been unwilling to take a test-meal and I have not strongly urged it upon him for various reasons such as obtain in general practice.

On December 8, four and a half months after the last test of urine, he came to me complaining of some weakness, easy fatigue, and a week before, he had noticed a suddenly increased thirst, which had continued through the week. The examination of the urine was at once undertaken, and a specific gravity of 1,039 was noted, with the positive reaction for bile.

Sugar was found in large quantities by Fehling's solution, 8.4%; by fermentation, 8.5%.

The meaning of findings was explained to him, and he was put upon Vichy water, cautioned to withdraw sugar from his food, and to diminish the amount of starch.

Knowing the diffiulties of controlling this patient, I did not think he would stand at all well the sudden withdrawal of all starchy foods.

The prescription in his case was the resorcin and chloroform water, as in the others.

The following day, the excretion was over two quarts, with a specific gravity of 1,036, and gave a large quantity of sugar, 6.2% by Fehling's, and 6.4% by fermentation.

A week later, the specific gravity was 1,029, and the sugar was 3.3%. On December 24, the 24-hour secretion showed 0.83% of sugar. On January 13, 0.2% of sugar was found, and on May 5, none was found by fermentation, the specific gravity being 1,020, bile positive, and urea 1.6%.

The patient writes: "For four weeks I have eaten bread, meat, potatoes and fruits as usual in my life. Yesterday, I ate freely of wheat cakes and maple syrup."

After some months of pursuing his dietary folly, it was followed by the reappearance, but his previous easy relief made him discount the importance of the difficulty.

CASE XVI.—Four years ago, the patient, Mr. M., was for a year or more under my care, during which time he suffered from a catarrhal jaundice, with accompanying catarrhal gastritis. During the year, I made several examinations of the urine, and sugar was not found at any time.

On May 26, 1903, he again consulted me, stating that his physician in the town in which he lived had a week previously found sugar in his urine (but the examination was not made till the patient had been under treatment for some time.) The duration of the excretion of sugar before coming was not less than a month, probably more.

The patient was slightly jaundiced, and thinking that he had a recurrence of his old difficulty, I used the stomach-tube to ascertain the condition of the residue in the stomach, and found a small quantity of catarrhal mucus, with markedly free hydrochloric acid, not enough, however, for the quantitative tests.

Examination of the urine gave a specific gravity of 1,026, albumin, bile, and sugar all present, indican negative, and hyaline casts with granules. The quantity of sugar was 6.2%. The urea content was very low, only 0.67% being obtained by the Squibb method. The patient declined the test-meal, so that I was unable to report more definitely about this case with respect to the condition of the stomach. A 24-hour collection of urine, from which a specimen was sent on May 28, gave as a quantity two quarts, specific gravity 1,134, albumin and bile positive, sugar 7%, urea 1.2%. No red reaction with ferric chorid was obtained.

The patient was directed to take three drops of Fowler's solution three times a day after meals and drink Saratoga Vichy. He was cautioned to avoid the use of all sugar and starch, and four days later after a rigorous exclusion of the sugar and starchy foods—*i. e.*, "standard diet," the patient sent in a secretion of 24 hours amounting to 3 pints, the specific gravity of which was 1,007. Albumin, bile and sugar all present. It contained 2.7% of sugar. Mashed potatoes and a slice of bread were allowed with each meal, especial pains being taken to reduce all particles of food to a bland and nonirritating form, all high seasoning to be avoided, and rest after meals was advised. He was also allowed a small portion of cornstarch and manioca. Resorcin and chloroform water were prescribed.

On June 8 the amount of urine obtained was 1 quart, the specific gravity 1,026, albumin and sugar were positive, the sugar being 0.62%. "The patient states that he has been eating a ton of mashed potatoes a day and a little bread."

By his rather generous estimate he meant that he had eaten three times a day a quantity of mashed potatoes about equal to a double handful. Peas and beans mashed through a sieve were added to the diet. On June 18 the quantity of urine in 24 hours was 40 ounces and the specific gravity 1,022. It contained a mere trace of albumin, and no sugar was present. Similar tests were made on June 22, 26, July 2 and 6, and no sugar was found.

He has eaten of mashed potatoes and he has also taken cornstarch, peas, beans, tomatoes, onions, manioca, and I suggested the use of apple tapioca pudding and similar preparations.

On July 8 no sugar was found, nor on July 13, 21, and 25, nor in the several examinations since then.

CASE XVII.—Mrs. W., aged 55, a widow, colored. Had malaria seven years ago, and four years ago is said to have had three strokes of apoplexy, very slight, directly following these attacks began to be very thirsty, voracious appetite, she also passed great quantities of urine. This kept her feeling weak, she lost 50 pounds in weight. This continued for two years, then she improved so that her desire for water and food diminished and she returned to work for a year. In July, 1904, a return of the symptoms, thirst, appetite, increase of urine, with pruritus, and at present, April 22, she is very thin, otherwise no abnormal physical findings.

Before entering the hospital she was passing 4 quarts of urine per day, and during her stay in the hospital on lavage with alkali there has been a quantity varying from 1,000 cc. to 2,000 cc. of urine with an average percentage of sugar of 3.5. Her thirst and hunger have been markedly relieved, her strength has also been much improved. The standard diet did not materially affect the percentage of sugar, but the patient expresses great relief from the lavage.

The test-meal in this case taken May 1, 1905, gave 40 cc. of stomach contents, which separated into two layers, nearly all of which was tough catarrhal mucus. Hydrochloric acid was absent, lactic acid present, total acidity lacking.

CASE XVIII.—Mr. H., aged 42, a manufacturer, referred by Dr. W. A. Knowlton.

For 15 years has had some digestive disturbance, otherwise well, save for grip. In June, 1904, began to be very thirsty, urinated frequently, and in October noticed he had lost 25 pounds.

He was put upon the usual antidiabetic diet, but in March developed a jaundice which has been persistent, though at this writing is improved.

The quantity of urine in 24 hours had never been measured till this time when, although it was much reduced, it was still six to seven quarts a day, the percentage of sugar 4.1, and heavily loaded with bile.

The Ewald test-meal gave 200 cc. of stomach contents which separated into two layers of which 160 cc. top layer, was clear liquid and 40 cc. food residue, the free hydrochloric acid 86 cc., and total acidity 80 cc.

The standard diet is not well borne by this patient, and can not be persisted in. Two days' trial does not reduce the percentage of sugar. Under lavage and rest in bed, hot applications and enemas, the patient has lost his thirst and excessive hunger, is now passing about three pints of urine per day with from 2% to 2.5% of sugar. There has been distinct improvement in the condition of the patient, and he expresses great relief from the practice of lavage.

CASE XIX.—The last case which I shall offer is that of a man who came to my office October 6, 1904. A specimen passed in the office showed 3.9% sugar.

The patient and his physician, Dr. Morton, stated that for nearly two years he had an excretion of sugar, the last six months with a very great polyuria and a loss of flesh of fifty pounds—weighing now 240 pounds.

This man was one of great strength and size, a market man, who had never measured the quantity of urine for 24 hours but who reported that for several months each night between 9 p. m. and 3.30 a. m., when he rose for the day's work, he passed on an average 14 quarts of urine. During the day he excreted large quantities of urine every half hour, so that it is no exaggeration to state that his urination exceeded 30 quarts per day.

His thirst was correspondingly enormous. When coming to my office the urine contained a considerable quantity of albumin and he had had for five days a marked amaurosis with a marked *retinitis albuminurica*. He had been unable to distinguish light from darkness for three days, but in the last two days he had a considerable betterment of sight.

I wanted him to go at once to the hospital, but he felt he must go home that night to consider the idea. He was taken that evening with uremic convulsions, for which I was consulted by phone, and directed hot packs and that he be taken to the hospital at once if possible. He was taken there directly and the packs were started at once. The first urine passed was nearly solid with albumin, containing no sugar, the next specimen containing 2.4%.

Lavage was begun in connection with the packs, and the second day his thirst had entirely disappeared, though sugar was still present.

The test-meal taken October 9, 1904, gave 250 cc. of stomach contents, the gross appearance of which was large quantities of undigested food which did not separate into layers, with much mucus in the mass.

The free hydrochloric acid was 18 cc., the total acidity 54 cc. Microscopically there were present mucus, starch, blood cells, and yeast.

October 8, the quantity of urine was 500 cc., sugar 0.9%.
October 10, 930 cc., 0.725% of sugar.
October 11, 1,020 cc., 0.4% of sugar.
October 12, 1,200 cc., 0.28% of sugar.
October 13, 900 cc., 0.37% of sugar.
October 15, sugar absent.

In the specimens which have been brought to the office to date there has been no trace of sugar.

This case is a most gratifying one as to his present condition. Its interpretation is, of course, open to the uncertainty as to the cause of the disappearance of the sugar, from the fact that in some cases of diabetes the development of a nephritis is attended with the disappearance of sugar, but I have thought this case might well be included in the present study, as there are absent, cardiac hypertrophy, or edemas, to indicate the establishment of a chronic nephritis.

The duration of his glycosuria, the enormous excretion of urine, often exceeding 14 quarts in a night, his voracious appetite and corresponding thirst, with loss of flesh and weight from one year ago, weighing 296 pounds, to February 3, 1905, when he weighed 182 pounds; with his prompt recovery from a most threatening condition and with a total disappearance of sugar from the urine, the quantity averaging a quart per day, mark the case as one of unusual type and interest.

When these 19 cases are examined as to the relation between the stomach disorder and the diabetes, we find that of the 19, 14 gave evident histories of previous dyspetic trouble, one of alcoholism without dyspepsia noted, three slight indigestion, and only two stated a complete freedom from dyspeptic disturbance.

The ages of these patients range from 2 at 15 to 1 at 73. Six of them are 23 or younger, 1 is 27, and 1, 28. All the others are over 40.

As to the duration of the glycosuria, 9 of the 19 are known to have been diabetic for years, 7 known to have been diabetic for months, 1 possibly for a month, while in 2 the period is thought to have been from 1 to 6 weeks; and from these considerations, as well as from the clinical history while under observation, all are fairly to be excluded from the range of alimentary glycosuria.

Among them are cases of the severest type, as well as of the milder forms.

With reference to the condition of the stomach, 16 show abundant catarrhal mucus, clumpy, sago grain-like in the contents of the stomach; 2 do not show this catarrhal process, and from 1, owing to age and disinclination, no test-meal was obtained.

As to motor function, 10 show a considerable failure, and of the 18 cases, the secretion of hydrochloric acid in 8 is increased; 7 show normal proportions, 3 show less than normal or absent.

In the 3 cases showing less than normal, Case XI, with a markedly catarrhal process and an alcoholic, with a considerable amount of pus, may well have been in the acute development just at the stage in which the acid had recently disappeared.

Case XIII shows an active catarrhal process, which often inhibits the production of acid.

The analysis of these cases confirms the previous investigators as to the absence of any definite relation between the presence or absence of free hydrochloric acid and the excretion of sugar.

Of the 19 cases, all but two show definitely active catarrhal processes, and in every case of the 19 has there been marked subjective benefit—gain in strength, weight, freedom from thirst, and polyuria—gained by direct attention to the catarrhal process, and in two cases, without presently existing catarrh, there has been some measure of benefit.

The most striking influence has been observed on the polyuria and thirst. In some cases the percentage of sugar has undergone no change, but there has been in these cases a great reduction of the total excretion of sugar per day, owing to the great change in the quantity of urine excreted, and the clinical course of this group of diabetics has been much more favorable under direct treatment of the stomach than without it. Moreover, the cessation of this treatment has been followed by the recurrence of the difficulty with prompt relief on resuming the treatment directed to the catarrhal process.

In most of these cases lavage formed an important part of the treatment, using antiseptic and alkaline solutions. In a few, lavage was not instituted, but remedies and diet adapted more to the catarrhal gastritis than to the diabetes were followed by prompt relief and disappearance of the sugar. These were cases of recent development in whom the catarrhal process also was freshly active.

Of the marked influence of lavage, Cases II and III are of special interest because the observations were under favorable conditions, and show in the charts the marked additional benefit from lavage, done twice daily, as contrasted with the results obtained from its performance once a day, all other conditions remaining the same. I should here state that, instead of the siphon used in the upright position for cleansing the stomach, I routinely use the Politzer bulbs, the patient being in the reclining position, and also make use of free manipulation of the entire area of the stomach, believing that by so doing I secure a more thorough cleansing and more direct application of the drug than is possible in the customary procedure.

Pending the further study to explain these results, I do not desire to anticipate later findings, but that much may be accomplished for the comfort and relief of many diabetics from direct attention to the condition of the stomach seems to be established in these cases.

In this connection it is also proper to suggest that the use of alkaline waters, like Vichy and Carlsbad, which have been helpful in a great number of patients, may receive a possible explanation of their effect.

So far as lavage removes from the stomach substances capable of irritating the nerve terminations, it becomes possible to see how at least a part of the favorable influence of opium in this disorder is exerted, as this drug diminishes the irritability of the nerves concerned.

So far it has been difficult to directly connect the work of Pawlow and his assistants, and of Bayliss and Starling, with these observations, but of the clinical advantage in the treatment of diabetes to be derived from attending directly to the disorders of the stomach digestion, which have been thought to be simply results of the diabetic state, I believe careful trial by the methods indicated will prove convincing.

THE AMBULANT TREATMENT OF INTERNAL HEMORRHOIDS.*

BY

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For the past 30 odd years the injection method for treating hemorrhoids has come in for much praise, but more often for condemnation from the general surgeon and the proctologist; while it has, for years, undoubtedly been employed more or less effectively by quacks and charlatans, who naturally, for financial reasons, claimed by its use to work miracles, promising the patient a quick, sure, and painless recovery, unattended with risk from the operation, and a sure escape from the terrible dangers of an anesthetic and the tortures of the knife and hot iron. Investigations, published by Andrews in 1876, proved conclusively that the injection method as then employed by the itinerant quack was not quite so harmless nor so painless as was claimed. He reported in a series of over 3,000 cases a mortality somewhat under ½ of 1%, with minor complications, such as hemorrhage, pain and sloughing, in 3%. The other rarer complications mentioned were embolism of the liver, prostration, abscess of the liver, impotence, stricture of the rectum, carbolic acid poisoning, and severe inflammation.

This report, which has been quoted largely in the later textbooks on rectal diseases, as well as Kelsey's candid admission of some unsatisfactory results, have done much toward creating in the minds of the profession a very unfavorable impression. Aside from Agnew in this country, and Mr. Swinford Edwards in England, the method seems to have few supporters, other surgeons preferring the known dangers and complications of the clamp and cautery, and of the ligature, to the rather uncertain results obtained by the hypodermic treatment.

In a paper presented to this society last year, I endeavored to show that the dangers and complications from this treatment were present, yet by a thorough understanding of their cause they could be eliminated.

It must not be forgotten that the injection method is a surgical procedure as truly as the clamp and cautery or the ligature operations, and calls for the same careful technic and the same rigid observance of asepsis. It is, therefore, not a method to be entrusted to the general

* Read before the American Proctologic Society, Pittsburg, Pa., May 5, 1905.

practitioner until he has thoroughly mastered the anatomy of the rectum, as well as its pathologic conditions. I have often been asked by postgraduate students what I use for injecting piles, and, without trying to learn a single thing about the rectum, they go away, expecting to become full-fledged rectal specialists. Of course, haphazard attempts with this method can only result in bringing it or any other method into disrepute. One might just as well ask what kind of ligatures are used for tying piles, or what particular make of clamp is the best to employ for the cautery operation.

It should be thoroughly impressed upon the student that the injection method is not one that can be tried recklessly upon any patient afflicted with hemorrhoids, but that it is a legitimate surgical procedure producing brilliant results if used properly, but capable of doing much harm in the hands of one unskilled in its application. He must be made to understand that the treatment of hemorrhoids constitutes but a fractional part of the field of the proctologist, and he should be thoroughly familiar with the anatomy, pathology, and surgery of the rectum before attempting to use a method which more than any other depends for its success upon careful attention to detail.'

It seems rather strange that while all the other operative procedures for the cure of hemorrhoids have their drawbacks, dangers, and complications, the untoward results are put down as unavoidable accidents, or the blame is placed upon the patient for not obeying instructions, or upon the surgeon for unskilful performance of the operation, while not a word is said against the method. Allingham,[1] an enthusiastic exponent of the ligature, mentions as the results of the ligature operation, a mortality of 5 in 5,000 operations, also such complications as pain, stricture, ulceration, abscess, fistula, bubo, pelvic suppuration, pyemia, erysipelas, retention of urine, and last but not least, alarming primary and secondary hemorrhage. The clamp and cautery has had its sequels of hemorrhage, pain, abscess, and stricture. It should be remembered that most of the fatalities from all these methods were due to infection, and that nearly all of them occurred before the introduction of aseptic and antiseptic methods. I presume that all of the known operative procedures have had an attending mortality from the anesthetic employed. In spite of this array of accidents and misfortunes the methods are recognized (as they should be) as reputable surgical procedures. In other words, have we today any cure for piles which has not some risk, however remote, attendant upon its use?

In these days of brilliant surgical achievements too little thought is given to the dangers of prolonged and profound anesthesia. My experience has been that patients suffering with rectal diseases as a class are not the best subjects for anesthesia, partly because of the profound degree of surgical anesthesia required for operations in this locality. In addition to this, patients in any stage of pulmonary tuberculosis run a grave risk of having their lungs irritated and their resistive powers depressed, particularly if ether be employed. Diseases of the circulatory system and of the kidneys, also contraindicate an anesthetic except in the last extremity. There is no knowing when a patient may be called upon to take an anesthetic for some major operation, and the vitality and recuperative powers should be reserved for this time. Why subject the patient to the shock of a prolonged anesthesia and a severe convalescence if the condition can be as effectively cured without?

In a paper entitled, "The Injection Treatment of Internal Hemorrhoids," I[2] pointed out that the complications, such as pain, hemorrhage and strangulation could easily be avoided by a free divulsion of the sphincter muscles under nitrous oxid anesthesia. This anesthetic is quick, safe and nonirritant and the patient need not be confined to bed after the operation. About four days after divulsion, or when the primary soreness has subsided, the treatment by injection may be commenced. I employ a 50% solution of phenol (Boboeuf), injecting from 7 m. to 10 m. of this solution directly into the center of the pile. The injection is made through a conical speculum, care being taken first to swab off the surface of the pile with an antiseptic solution. The speculum is withdrawn, allowing the rectal walls to collapse, after which the hypodermic may be removed. After introducing a suppository containing 3 m. of ichthyol the patient is allowed to return to his usual occupation. These suppositories are also used twice daily—one after stool and one at bedtime. Beyond a momentary aching pain and possibly a slight discomfort for an hour or so, the patient experiences no trouble. Occasionally a slough will occur, but aside from a sense of discomfort, there is usually no marked pain, due to the absence of sphincteric irritability obtained by divulsion. From 3 to 12 injections made at intervals of from 2 to 7 days will usually result in a permanent and radical cure. Should a slough occur it will heal kindly in a short time. I have had but one case give me trouble, and in this the muscle appeared so relaxed that I did not deem a divulsion advisable. In this case the pain was quite severe and the resulting ulcer was slow to heal.

The recurrences I estimated at about 15%, occurring after an interval of from 3 to 5 years. These figures were taken from a series of about 4,000 patients treated by my father, Dr. Robt. W. Martin, while in my own series of 420 patients treated during the past 5 years, only 11 have had a return of their trouble. A few treatments cleared up all but one, upon which patient I subsequently did a ligature operation under water anesthesia for a persistent prolapse of the mucous membrane on the left side of the anus. Of course, it is too soon to estimate the percentage of recurrences I will have from this series. Only in 7 cases was there an appreciable amount of pain, this in every instance was caused by localized sloughing. In one of the cases I mentioned, the sphincter muscles had never been divulsed.

In all cases in which there was much pain or hemorrhage before divulsion these symptoms stopped within a few hours after the operation, and hemorrhoids which were eroded and congested, appeared to have a healthy mucosa within a few days. Most patients giving a history of constipation were materially benefited by the divulsion, having one bowel movement daily after the operation. Apparently, the freedom from accidents and

complications from the use of this method may be traced largely to the routine practice of primary divulsion. Agnew[3] evidently had much the same experience, for he writes:

Those subject to spasmodic contraction of the sphincter, I have always found, take kindly to general anesthesia, and should the paroxysms of pain show little or no signs of abatement under palliative measures, forcible dilation of the muscles is the only rational expedient at our command. . . . Should there be present an undiscovered fissure which has been aroused by the operation and gives rise to the spasm, the fissure will be cured; likewise an existing constipation due to lack of expulsive power of the rectum. If the mucous membrane has prolapsed and become swollen from sphincter compression, the prolapse will recede and the swelling disappear by this procedure; therefore do not hesitate to dilate at any time the case calls for it. In one case, during my experience, the spasm began shortly after the operation on the hemorrhoids and continued. Dilation quelled the storm like pouring oil on troubled waters.

In the same work (page 45) the author says: "Pain as a factor in the treatment of hemorrhoids will depend largely upon the condition of the sphincters." The reasoning is obvious—get rid of the sphincteric irritability before beginning injections and the surgeon need not fear accidents.

Adler,[4] in speaking of the injection method, says: "Weak injections had been used, which formed in places solid fibrous masses, which were pedunculated and dragged upon the bowel." Probably in most of these cases the primary condition was one of fibroid hemorrhoids, little suited for treatment by absorption. In these cases the employment of a strong injection, such as Agnew's formula, would have resulted in a radical cure. These patients I usually treat by ligature, employing local anesthesia. I would certainly prefer the injection method to the use of the ligature for ambulant cases, for I would be afraid of secondary hemorrhage.

My experience has also been that the patients suffer much more pain from the ligature. The only objection which can be made to the injection treatment as outlined is that in a few cases the treatment may extend over a considerable period of time. This is no serious drawback unless the patient comes from a distance, in which case I would employ either the clamp and cautery or the ligature. When general anesthesia is used I prefer the clamp and cautery, reserving the ligature for those cases in which it is imperative that local anesthesia be employed.

My reasons for preferring the injection treatment for internal hemorrhoids does not lie in the fact that it gives any better results than the other operative procedures, but because the patient is perfectly comfortable throughout his treatment, is able to attend to his business without interruption, and is not put to the necessity of undergoing a prolonged anesthesia. In my hands and in the practice of my father it has been perfectly safe, unattended with unpleasant complications, and eminently satisfactory. In any case, should the method not come up to expectations, no harm has been done, and one of the other operative procedures may be advised. We should only be actuated with the desire to cure our patients with as little pain and discomfort as possible, consistent with their safety and permanent results.

In conclusion, let me quote a few words from Tuttle's[5] admirable textbook. He says: "Lately, however, a better knowledge of the method and the class of cases to which it is applicable has led many surgeons to give it a trial, and their reports are very satisfactory. The method is well worthy of thorough consideration."

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DISINFECTION OF DWELLING HOUSES AND BEDDING.

BY
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of Philadelphia.

There is no other sanitary measure concerning which there is such a wide difference of opinion as that of the proper methods of procedure in the matter of disinfection of living rooms and bedding used by persons suffering from communicable diseases. Of our large cities, there are scarcely two Boards of Health that are using exactly the same methods of disinfection.

The reasons for these differences may be found, (1) in the chaotic state of our knowledge concerning the causes of certain communicable diseases; (2) in the varying results obtained by different observers in testing disinfecting machines, due to a lack of a standard test object; and (3) in the fact that the character of the buildings to be disinfected differs in various cities.

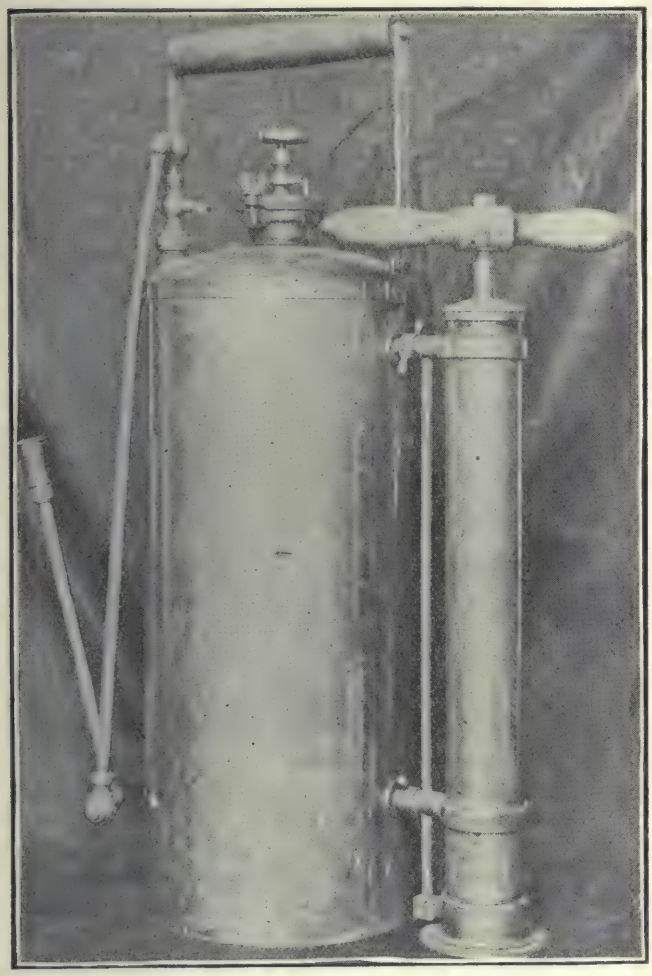
The use of sulfur as a disinfectant, a method which age has made almost venerable, is still held in great reverence by many Boards of Health, both in Europe and America. In many instances, this method alone is relied upon, to the exclusion of the more recent methods, to destroy the contagium of disease, regardless of its origin and character. Other health officers have discarded sulfur as almost worthless as a germ destroyer; while the destructive action of the sulfur fumes upon cotton goods, hangings, etc., has induced still others to abandon it use. The fact that its action is of little value except in the presence of a high degree of moisture has also aided in the passing of sulfur as a disinfectant. Its peculiar penetrating odor probably has done much to win its great favor in professional and lay minds. However, when tested with properly prepared test objects, the actual disinfectant action of sulfur fumes has always resulted in disappointment.

Abroad, the spraying of infected rooms with weak solutions of mercuric chlorid, followed by a thorough scrubbing with soap and water has been in favor. In other places the mopping of infected surfaces with 5% carbolic acid solutions is in use.

Since the advent of formaldehyd gas, in the disinfecting field there has been a general discontinuance of the other methods mentioned. The advantages that a 40% solution of formaldehyd gas (formalin) in water possesses over sulfur, mercuric chlorid, and phenol are well

known, and various methods have been employed in the endeavor to obtain the greatest disinfecting action of the formaldehyd gas.

During the last ten years we have tested every form of apparatus and every method as applied to disinfection that has been brought to our attention. About nine years ago Dr. Wm. H. Ford, then president of the Board of Health, of Philadelphia, purchased four large spraying machines or atomizers in Paris. These were used for several years by the division of disinfection, with good results. Unfortunately these atomizers had the following objections: Their weight—it required two men to handle a machine and to operate it. The spray was almost unbearable on account of the fine atomization of



the formalin. The rubber hose was frequently eaten out by the solution and had to be replaced, while the parts to be replaced could not be procured in this country. In spite of these objections, however, the tests made with these machines, showed a high percent of surface disinfection.

About 1897, autoclaves or pressure sterilizers using formalin came into use. The results obtained with these machines were fairly good, but the apparatus was so heavy and slow that it was soon discarded for the low-pressure gas generators, of which there are, at present, on the market, about a half dozen forms. These gas generators are nearly all slow acting, and results are not generally so good as with the old French atomizers.

A formaldehyd gas apparatus which gave the best results, by test, of any of these machines, is frequently used by us in routine work where there are destructible hangings, etc. Our tests are all made, not in a carefully prepared box or room, but in actual practice in the infected houses.

The percent of disinfection obtained with the boiling of the formaldehyd gas in the low pressure machines and in the open pan method of Novy, was between 55 and 80 of surface disinfection in our hands. The objections to this method were as follow: Numerous complaints and claims for damages were made by housekeepers for carpets, etc., ruined by the boiling over in mass of the liquid from the generators. The kerosene lamps used to generate the heat were constantly getting out of repair. The boilers became filled with semisolid or solid masses of paraformaldehyd and needed constant attention. The action of most of these machines was so slow that the gas escaped or became inert before any action was procured. And, finally, it was found that the houses in a large part of Philadelphia are not suited for the use of a gas machine of this character.

To disinfect schoolrooms with such machines requires hours, and to disinfect some of the large school buildings in our city even days are required. Naturally, the expense involved is a matter for serious consideration.

In 1901, a generator of formaldehyd gas from wood alcohol which acted by breaking up the fumes of the alcohol through bringing them into contact with a heated platinized plate of asbestos, was brought forth with great claims for its efficiency. This apparatus, after repeated tests under most favorable circumstances, frequently failed to give 50% of disinfection when in use for a few weeks. The formaldehyd candles and mixtures of charcoal and formaldehyd gave a low percent of disinfection in rooms of any size. Many other methods were tested with varying low results.

During the smallpox epidemic of 1901 and 1902 so much disinfection was required that a cheap effective method was demanded. A large number of garden sprays were immediately purchased, and rooms were sprayed quickly, but I fear not so effectively as they should have been, by the men who were transferred to that work from other departments. This method was thoroughly tested, and it was found that some of the disinfectors were getting a high percent and others a low percent of disinfection.

In the spring of 1903 I purchased a small continuous spray machine, and putting it into the hands of a bright intelligent disinfector, I succeeded in getting a 100% surface disinfection in a large number of tests. The machine, however, soon gave out, the tank was too light, and the pump a source of danger to the operator. The rubber hose rotted by the action of the formalin, and soon had to be replaced.

I then devised a new apparatus, built of best material, and that would throw a continuous fine spray without the mixture of air, thus allowing the operator to cover the surface of a room before the evaporated gas became unbearable, the spray having a reach of 10 to

20 feet. The tank 18 inches high and 8 inches in diameter, was made of heavy brass, which is but little affected by formalin. A good strong Boekel air pump was attached to the side of the tank to furnish the air pressure, and in this position prevented the squirting of formalin solution into the face of the operator, which frequently happened with the first apparatus used. The rubber tubing generally used on such sprayers was discarded and an ordinary gas bracket with two joints used. This can be set in any position, so that the operator can remain in an erect position at all times, even when spraying under beds, etc. The stream of formalin is broken up by a whirling device at the extremity of the gas bracket. There is no rubber hose on the machine to wear out, and no rubber gaskets. The air, which is pumped into the machine in a few seconds, is used for pressure, and hence it does not require two men to operate it, as did the old French machine used years ago, which required the air to produce the spray. The machine is portable, and weighs 25 pounds when loaded with two gallons of solution.

We began using this machine with a 5% solution of formaldehyd gas, but now use 20%, or half formalin and half water. This was made necessary on account of the large size of the rooms to be disinfected. With 5% solution too much water was used and the rooms were flooded. With this machine a man can go over about 500 square feet of surface in three minutes.

The room is first carefully sealed with gummed paper strips and after the disinfection the door is sealed and allowed to remain closed for six hours. The walls of the room and then the floor are thoroughly sprayed, and after that the bedclothing.

When disinfecting with a gas machine the room frequently is not affected in any way by the gas and the germs used in the test objects will grow, but when a spray is used, the floor, the part of the room which needs the most disinfection, receives the most attention, and usually all the germs in the test objects are killed.

Tests are being made regularly of the work of each disinfector. A series of 2,000 tests made while the disinfectors were being trained to use the machine, and when 5% solution of formaldehyd gas was used, showed 97% of surface disinfection. A series of tests was made showing the result of the gas given off after spraying the floor and walls of the room. Ninety-seven percent of the test objects placed in the room after spraying were killed in six hours. The comparatively large amount of moisture has no doubt much to do with the power of gas in this method.

Our success with this machine in room disinfection led us at once to test the value of spraying bedclothing in the same way instead of hauling the clothing to the Municipal Hospital and running it through the autoclave.

A series of tests was made in the everyday work of the disinfectors. The floor being sprayed, the mattress was then thoroughly sprayed and placed upon the floor and the quilts, sheets, etc., were placed one on top of the other and sprayed.

Our test objects, small oblong tin boxes with lids, inclosing strips of cloth soaked in bouillon cultures of *B. coli communis*, *B. pyocyaneus* and *B. subtilis*, were placed in the mass of clothing. When the lids of the boxes containing the infected test objects were opened, 500 tests showed 99.4% killed. All test objects not killed were sporulating *B. subtilis*.

These results induced us to stop the autoclave disinfection of bedclothing, except in cases of smallpox. This has been done and as a result there has been a saving of nearly $400 per month.

Recently, tests have been made of the method of Dr. Walker, of Brooklyn, and Dr. Wilson, of New York. This consists of pouring a mixture of two ounces of saturated solution of aluminum sulfate and one pint of formalin upon two pounds of quicklime for each 2,000 cubic feet of space. Our tests, made most carefully, failed to show great disinfecting action of the gas.

Another method advanced recently by Mr. Evans and Dr. Russel, of Augusta, Me., advocates the use of a pint of formalin and 6 oz. of potassium permanganate in a large vessel. A quart of formalin was used to 1,000 cubic feet. This method has been under investigation in our laboratory and we find that with the quantity of formalin recommended we cannot get a very high percent of disinfection.

In conclusion, I might say that after years of attempting to get results worthy of the name in disinfecting with formalin and formaldehyd gas machines, I have concluded that the way to kill germs in infected rooms is to apply a 20% solution of formaldehyd gas in water, directly to every portion of the room, walls and floors to be disinfected. With this large evaporating surface the results are more encouraging, and no secondary infections occur.

PURPURA HÆMORRHAGICA, WITH THE REPORT OF A CASE OCCURRING DURING PREGNANCY.[1]

BY

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The exact nature of diseases accompanied by a tendency to hemorrhage has long been a matter of much speculation, and even the advent of exact laboratory methods has not thrown very much light on the subject, because the blood changes are not usually marked.

There have been microorganisms obtained from the blood of patients suffering from one of these affections, but no single one has been found often enough to make one suspect it of being the sole etiologic factor, nor has one been found capable of producing the disease upon injection in the lower animals, so that our knowledge is still empiric.

When we find a case which presents bleeding, we must distinguish between a number of different affections. There are those born with the hemorrhagic diathesis, a disease transmitted by the female side usually. These are the socalled hemophiliacs, or "bleeders," and present no difficulty in diagnosis when the history is clear.

There are those cases in which the eruption is secondary, as malignant endocarditis or sepsis from any

[1] Read before the Northern Tri-State Medical Society, Ft. Wayne, Ind., June 15, 1905.

cause. Some of the acute specific eruptive diseases present varieties characterized by purpuric eruptions.

Then also some drugs or toxic substances are capable of producing petechial eruptions, as quinin, copaiba, iodids, etc.

Extreme constitutional conditions developing in chronic diseases may occasion it, as in cancer, cirrhosis, etc.

Hysteria is said to be responsible for the appearance, though rarely, of minute bleeding points on the skin, and a similar eruption is sometimes seen in organic nervous disease, as in tabes, over the region occupied by the lightning pains, and also in myelitis.

Then there are those cases accompanied by joint symptoms, known as rheumatic purpura or arthritic purpura. Osler divides these cases into the purpura simplex and peliosis rheumatica or Schönlein's disease. The simple purpura is a mild affection, occurring usually in children, coming on with or without pain in a joint, in which spots appear on the extremities. The whole affection lasts for about ten days and is usually afebrile. In peliosis, on the other hand, we have multiple arthritis and moderate fever, with a varying eruption. The attack may be ushered in with sore throat.

The disease described by Henoch is characterized by the gastrointestinal crises, by relapses, by erythema multiforme, rather than purpura, slight joint involvement, and hemorrhages from the mucous membranes. It is seen mostly in children.

There is also a disease described by Werlhof met in young and delicate individuals frequently, particularly girls. It is characterized by a purpuric eruption on the skin, bleeding from the mucous membranes, and anemia.

Purpura is also described as a chronic affection by Bensaude and Rivet[1] appearing clinically in two forms, the continuous and intermittent, the former being the rarer of the two conditions.

According to an editorial in the *Journal of the American Medical Association*, June 10, 1905, the subjects of the continuous variety generally consult the physician for general weakness with gastric and intestinal disorders and the skin lesions are often considered of minor importance, and are discovered as the result of routine examination. The patients usually give a history of having been subject for years to attacks of nosebleed or hemorrhage from the gums. Continuous observation of patients shows that for months or years they present petechial eruptions, appearing in crops and disappearing spontaneously. The severe hemorrhagic crises of acute purpura hæmorrhagica are entirely lacking. The intermittent form is more common. In these cases there is a history of crops of purpura recurring at intervals of months or even years. These attacks are quite severe, and resemble closely the ordinary picture of Werlhof's disease. Between the attacks of skin eruption it is not uncommon for the patient to suffer from nosebleed or gingival hemorrhages. There is often a history of perfect health between the purpuric attacks, and it is only by questioning that one finds that nosebleed, menorrhagia, or bruising from insignificant traumas has occurred in the seemingly normal intervals. In other cases the general health between the attacks is more or less disturbed; the patient feels weak, there is a certain degree of anemia, or the digestion is feeble and accompanied by more or less pain. In some cases there seems to be an alternation between visceral and skin hemorrhages, the latter disappearing on the advent of visceral bleeding. The free intervals vary greatly, and a period as long as 17 years may elapse between two purpuric attacks.

[1] Arch. Gén. de Méd., 1905, No. 4.

George Roe Lockwood, in the Loomis-Thompson system has the following on the subject of purpura occurring during pregnancy:

Cases complicating pregnancy are usually followed by miscarriage and postpartum hemorrhage. The disease commonly appears during the sixth or seventh month, but it may follow labor at term. The course of this type of purpura is rapid, and recovery from it is rare.

CASE I.—Patient aged 21, six months pregnant. Purpura for four days; then rapid onset of increasing purpura, with hemorrhages from the nose, gums, kidneys, and stomach. Miscarriage on the sixth day, with postpartum hemorrhage. Death on the eighth day of the disease, four days after the development of the acute symptoms (Puech).

CASE II.—Patient aged 30, seven months pregnant, with the history of five normal labors. Purpura, followed in a few hours by miscarriage and postpartum hemorrhage. Death on the second day (Phillips).

The American Textbook of Obstetrics contains the following in regard to this condition occurring during pregnancy:

The most serious condition of the blood attacking the pregnant patient is purpura hæmorrhagica. Its occurrence and severity in pregnant women are explained by the sympathy existing between the uteroovarian and tegumentary systems of the body. This nervous connection is often observed in the skin eruptions which accompany disorders of menstruation. As has been shown by Immerman, the complication is sporadic in pregnant patients, and it occurs without regard to family history or previous condition.

Phillips collected cases illustrating the absence of previous history of hemophilia in these patients. In some of them hard work and insufficient nourishment seem to have produced the disorder. Profound mental disturbance has occasionally been followed by this condition.

In Phillips' case the child showed no symptoms of purpura, and the mother recovered rapidly after labor.

Kaezmanky reports a case in which severe sacral pain during pregnancy was the first symptom. The birth of a dead fetus followed speedily, and the mother perished from hemorrhage.

Dohrn reports a twin pregnancy with this complication with severe postpartum hemorrhage and death. Both these patients had been healthy.

Wernicke, Recklinghausen, Hanot, and Luzet offer evidence which seems to prove on the one hand that the disorder is a form of infection by bacilli; on the other hand, the cases described by Dohrn do not point to this condition as causative.

The immunity of the fetus in these cases is inexplicable and of interest. Microscopic study made of the blood in this complication by Gibbon during the height of an attack of purpura showed that the red corpuscles contained considerable numbers of black granules massed together in some of the cells.

These bodies increased as the disorder became severe and diminished in convalescence. The number of cor-

puscles early in the disease was over 5,000,000 per cubic millimeter, this number being greatly diminished as the disorder made progress.

The white corpuscles became excessive and the hemoglobin fell to 30%, afterward rising to 60%.

A number of other obstetric textbooks examined contained no reference to the condition and the works on practice are silent as to the affection as a complication of pregnancy.

It was then with a frightful mortality record staring one in the face that the following case was encountered:

Mrs. F. McM., aged 25, had always had good health up to her marriage in June, 1904. She has no hemorrhagic heredity. She conceived in August and suffered greatly from nausea and vomiting during the early months. To relieve this distressing symptom the cervix was cauterized on three occasions. Following these cauterizations considerable relief to the nausea and vomiting was experienced. She had a leukorrheal discharge before the cauterizations, but following them this became more profuse and purulent in character. The nausea subsided largely though it did not entirely disappear as the pregnancy advanced.

In January she removed to this city and came under my observation.

On January 13 she noticed a fine eruption appearing on the body and extremities particularly the extensor surfaces. A number of small hemorrhages from the nose had occurred. These increased in frequency and amount, and bleeding from the gums arose. This was sufficient to tinge the saliva and form dark crusts about the lips, especially on waking. The skin eruption was distinctly petechial and did not fade on pressure. Later several large "black and blue" areas appeared resembling severe contusions.

She was admitted to Hope Hospital on January 16, 1905. At this time she was suffering from dyspnea, increased by exertion, some nausea, profuse purulent vaginal discharge which became slightly bloody and the various hemorrhages. The urine contained a trace of albumin and sugar on the first examination, but no casts. The sediment showed blood cells and epithelium. The blood-examination showed 50% hemoglobin, 2,808,000 reds and 5,126 whites. Cultures made from the blood at this time revealed nothing and were unsatisfactory because of supposed contamination, although every care was taken to prevent it.

The temperature was 99° F. and pulse 92 on admission. The former rose on one occasion to 99.4° F. and the pulse to 100 the next day, then the temperature remained about normal, the pulse gradually sinking to 70.

The blood on January 23 showed 56% hemoglobin, 2,648,000 reds and 6,230 whites.

The urine contained traces of albumin and a few epithelial cells and leukocytes, the red cells having decreased markedly. The trace of sugar was not present.

The medication consisted in the exhibition of .32 gm. (5 gr.) of calcium chlorid and .06 gm. (1 gr.) of extract suprarenal gland every three hours, also a ferruginous tonic and gelatin *ad libitum*.

The patient gradually improved, the rash disappeared, the hemorrhages from the mouth and nose gradually ceased, the dyspnea improved, the vaginal discharge lost its pink tinge, and the patient left the hospital for her home on January 25, 1905. She still continued to lose a little blood at times upon blowing the nose, but progressed more or less satisfactorily during the balance of her pregnancy, and was delivered of a boy baby by forceps on May 6, 1905, without any alarming hemorrhage occurring at any time. The puerperium was normal.

During the last few months of pregnancy she took more or less continuously small doses of Fowler's solution.

There are some interesting questions which arise in connection with this case, prominent among which may be mentioned the cause.

The one incident in the history which would seem to support the theory of infection of the blood as the prime etiologic factor is the cervical cauterization. It is conceivable that such a procedure might be productive of a focus of infection, and the hemolysis the result. The fact that the vaginal discharge changed in quantity and became purulent lends color to this view. The absence of a leukocytosis, however, seems against it. The only theory upon which these things can be reconciled, in my mind, is that the infecting organism was one about which we know little, perhaps, and which does not include leukocytosis among its effects.

Had labor begun during the bleeding period, it is highly probable that death would have resulted from our inability to control the hemorrhage.

PERNICIOUS MALARIA: POSTMORTEM DISAPPEARANCE OF THE PARASITE. REPORT OF A CASE.

BY

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Marchiafava and Bignami and Bastianelli, in 1894 and 1895, were probably the first observers to call attention to the fact that the malarial parasite may not be found in cases in which death occurs from pernicious malaria, and Ewing[1] has reported such a case. But we have been unable to find in other than the Italian literature and in Ewing's article a discussion of this pathologic phenomenon.

The case we report below has an added interest in that the symptomatology was such that it led originally to the erroneous diagnosis of nephrolithiasis; but those who have experience in the malaria of the tropics are aware that this disease may be most protean in its various clinical manifestations.

While the temperature in pernicious malaria is generally high, in certain of the more severe cases it may be normal, and this condition of apyrexia is well illustrated in the accompanying temperature chart.

C. G. S., a soldier, was admitted to the hospital from Marivales, P. I., on May 6, 1905, with the diagnosis of "suspected renal calculus, left kidney." His family history is unimportant. Nine days ago he had chills and fever and was in the hospital for five days. At that time he had a slight pain in both sides of the back (lumbar region). When dismissed from the hospital, his fever had left him, but he still suffered from indefinite pains and aches. On the morning of May 5, while on guard, he had a "stitch in his left side." This pain was severe, well localized, and not referred to the genitalia. The patient stated that he was passing less urine than previously.

Physical Examination.—Patient lies on his back with left leg flexed on the abdomen, has an anxious expression, and his respirations are entirely thoracic. Lungs are apparently normal. Heart shows no increase of cardiac dulness, sounds are of good quality, no murmurs; liver, upper border normal,

[1] The Journal of Experimental Medicine, Vol. vi, No. 2.

lower border obscured by tympany. On the left side there is an area defined as follows: The upper border begins at the vertebral column and extends through the axilla in a straight line which corresponds in the midaxillary line to the lower border of the eighth rib. At the anterior axillary line, the edge curves downward, reaching the costal border 2.5 cm. to the left of the midclavicular line and extending 2.5 cm. below the ribs. There is apparently dulness over this area, but the extreme sensitiveness of this surface prevents careful percussion and palpation. The physical examination elsewhere revealed nothing more of importance.

The patient's temperature on the afternoon of May 6, when he was admitted, was 97.8°. The next day the examination of the urine showed a cloudiness due to amorphous urates, a specific gravity of 1,016, an acid reaction, and no sugar, albumin, blood, or other pathologic elements. The leukocyte count was 6,200. Examination of the fresh blood for malaria was negative. The pain in the back of which he had originally complained passed away gradually and by May 10 had entirely disappeared. His temperature remained normal until the afternoon of May 11 when it reached 99.4°, and the afternoon of May 13, when it reached 99°. On the afternoon of May 14, the patient had a chill at 4 p.m. and the temperature reached 102°. During the following night he had an attack of vomiting. The next day his temperature was again normal. On the succeeding day the patient's condition became suddenly precarious. Vomiting began at noon and continued steadily for two hours, the temperature rising from normal to between 101° and 102°. The bowels began to move frequently and the stools finally became bloody. That afternoon for the first time, in spite of careful examinations on preceding days, ring forms were found and it became evident that the case was one of pernicious malaria. That afternoon and during the night 2 gm. of quinin bisulfate was administered hypodermically, and on account of the collapse into which the patient had suddenly sunk, and the condition of the pulse, an intravenous infusion of 1,000 cc. of physiologic salt solution was given.

On the next day numerous ring forms and a few hyaline forms of the malarial parasite appeared in the blood. The ring forms were small, nonpigmented, and very slightly ameboid. The hyaline forms were larger, sometimes round, usually irregular or dendritic as a result of their ameboid movement. They could not be classed either as tertian or quotidian and no pigmented forms were observed at this or any subsequent examination.

On May 17, 18 and 19, the hypodermic administration of quinin was continued. After May 18 no parasites were seen in the circulating blood.

During the last two days of his illness the patient was vomiting or hiccoughing almost constantly and had alternating periods of consciousness and delirium. He died on May 20, apparently of toxemia.

Necropsy two hours after death; skin sallow, mucous membranes pale; no eruption on body; rigor mortis present in muscles of extremities, absent in neck and back.

Brain: No free fluid, no edema; bloodvessels of pia and arachnoid injected; no blood clots.

Lungs: Collapsed, pale pink throughout, apices free of nodules; pleura free of adhesions and fluids.

Heart: Normal size; 10 cc. of fluid in pericardial cavity; no pericardial adhesions; heart muscle very pale but firm; slight thrombus formation on anterior lappet of mitral valve; left side of heart distended with fluid blood.

Kidneys: Normal weight; capsules strip easily, cortex not increased in diameter, malpighian bodies prominent; capillaries markedly injected, epithelium slightly swollen and pale. Pelves of kidneys and the ureters are free of stone.

Liver: 1,755 gm. in weight; edges sharp, parenchyma firm, of a dark red color, intralobular veins distinct.

Pancreas: Pale pink in color, firm in consistency.

Spleen: 295 gm. in weight, 12 x 14 cm. in area; slight perisplenitis on upper surface; connective-tissue trabeculas very evident on section. Spleen is very firm and the cut surface is very dark red in color; malpighian bodies not distinct.

Gastrointestinal tract: Throughout the entire extent, the mucous membrane shows petechial hemorrhages; solitary follicles in large intestine swollen; mesenteric glands not enlarged.

Microscopic Examination.—Smears and tissues fixed and hardened in alcohol and stained with various modifications of the eosin and methylene-blue method.

Spleen: Prevailing types of cells are the large and small mononuclears; disintegrated blood cells and yellow and black pigment found in considerable amounts. A few nucleated red cells are present; no parasites; considerable deposition of pigment in the trabeculas.

Liver: The unusual cell present on smear is the giant macrophagus with one, two, and three nuclei, enclosing pigment and disintegrated blood cells. On section, the deposition of pigment is marked in the endothelial cells and Kupfer's cells; no parasites.

Bone marrow: Large mononuclear the prevailing type of cell. Nucleated red cells are present; no parasites. Smears and sections of the brain and other organs show no change from normal.

It is probable that after a long period of latency the old malarial infection started up very acutely and was localized in the spleen and liver chiefly, and that the pain of which the patient originally complained was due to an acutely enlarged spleen. That we were unable to find the parasite is probably due to the fact that the infection was diminished by the copious hemorrhage from the bowels and to the steady hypodermic treatment with quinin which the patient received.

SPECIAL ARTICLES

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary,

WILLIAM J. GIES, PH.D.,

of New York.

The thirteenth meeting of the Society for Experimental Biology and Medicine was held in the Physiologic Laboratory of Columbia University, at the College of Physicians and Surgeons, on Wednesday evening, October 18. The president, Edmund B. Wilson, was in the chair.

MEMBERS PRESENT.—Adler, Auer, Brooks, Burton-Opitz, Calkins, Dunham, Emerson, Ewing, Field, Gies, Hiss, Jackson,[1] Lee, Levene, Levin, Lusk, Meltzer, Meyer, Murlin, Noguchi, Norris, Park, Richards, Salant, Sherman, Sweet, Torrey, Wadsworth, Wilson, Wolf, Woodworth, Yatsu.

MEMBERS ELECTED.—Carl L. Alsberg, S. P. Beebe, R. H. Chittenden, P. M. Dawson, W. J. Elser, G. M. Meyer, P. A. Shaffer, Douglas Symmers, L. L. Woodruff.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.[2]

"*A fatigue wheel:*" FREDERIC S. LEE.

The author demonstrated a wheel designed for fatiguing mammals by means of voluntary muscular work.

"*Mutation in the evening primrose, Onagra biennis (L.) Scop.:*" with demonstrations. ELIZABETH BILLINGS and FREDERIC S. LEE.

[1] Nonresident.

[2] The authors of the communications have written the abstracts. The secretary has made occasional abbreviations in some of them.

Culture experiments by the authors confirm MacDougal's discovery of a narrow-leaved mutant of this species. From purely pollenated seed obtained by MacDougal and Britton from a wild plant growing at the New York Botanical Garden, 499 seedlings were obtained, of which 3 belonged to the narrow-leaved type. It is possible that a second mutant was found, but further observations are needed to confirm this. The species here studied is not *O. biennis* studied by de Vries.

"*Influence of thyroid feeding and of various foods and of small amounts of food upon poisoning by acetonitril:*" REID HUNT. (Presented by ALFRED N. RICAHRDS.)

One of the current theories of the functions of the thyroids is that these organs neutralize certain poisons occurring in the body; these poisons are purely hypothetical, and, so far as the author is aware, no one has yet reported experiments in which it has been shown that the thyroid can render a poison harmless. In the present experiments it was found that mice, to which thyroid had been fed for a few days were markedly resistant to acetonitril; such mice recovered from the effects of ten to eleven times the ordinarily fatal dose of acetonitril. No such increased resistance to hydrocyanic acid or nitroprussiate of soda was caused by the thyroid feeding. Thyroidectin had an effect the opposite of that of the thyroid, *i. e.*, it increased the susceptibility of mice to acetonitril, but this effect was not greater than that of dried normal blood and was less than that of peptone. Feeding with parathyroids had an effect the opposite of that of thyroid, *i. e.*, it caused the mice to become more susceptible to acetonitril; the effect, however, was much less marked than that of the thyroid. Potassium iodid increased the resistance of mice to acetonitril, but the extent of this action was not at all comparable with that of thyroid.

In other experiments it was found that a proteid diet (ham and cheese) caused an increased susceptibility of mice to acetonitril; a carbohydrate diet (rice and dextrose) increased the resistance to this poison. As a rule it required about four times as large a dose to kill the animals that were fed on a carbohydrate diet as it did to kill those fed on a proteid diet. Animals kept on a very limited diet also showed a marked resistance to acetonitril; in most of such experiments it required about three times as much acetonitril to kill as was necessary to accomplish the same result on animals which had been kept on a normal diet.

The experiments are being continued.

"*A case of spirochætal infection in man:*" with demonstrations. CHARLES NORRIS.

The author's object in presenting this case was to give the members of the society an opportunity of seeing the spirochætas under the microscope.

He did not enter upon the clinical history of the case, which occurred in the service of Dr. Carlisle, of Bellevue Hospital. In July, of this year, the patient shipped as an assistant steward on the steamship Denver, of the Mallory line, and stayed five days in Galveston, sleeping on board, and returned on the same steamer to New York. Two days later he was taken with a chill, accompanied with fever, prostration, and pains in the bones. On admission he had a temperature of 102.4°. The fever continued for two days. After four days of normal temperature, there was a rise of temperature to 105°, which was followed by a period of apyrexia for ten days, when he again had a relapse. At that time the examination of the blood by Dr. Heitlinger showed the presence of a few spirochætas. Ten days later there was another relapse and rise in temperature, associated with the presence of spirochætas in the blood. Inoculation of a monkey with the blood containing the organisms gave rise to an infection with the presence of spirochætas. The monkey has had three relapses thus far with rise of temperature, and the presence of spirochætas in the blood. Two additional monkeys have been infected with the blood of the first monkey.

The case reported is of interest from many points of view. It appears to be the first case reported in this country, of spirochætal infection, verified by microscopic examination of the blood. Another case, it is said, has been recently observed in one of the hospitals of this city.

The research work of the past few years, upon the tropic diseases of man and animals, has brought to light, especially in South Africa, the discovery of the etiologic agents of various hitherto little understood diseases.

Obermeier, in an epidemic of relapsing fever in 1868, in St. Petersburg, was the first to discover the presence of spirochætas in the blood of patients suffering from so-called relapsing fever. The observation, however, was not published until five years later. To Obermeier belongs the credit of having first demonstrated the socalled contagium vivum of infectious diseases in man. The association of spirochætas with another infectious disease was made by Sacharoff in 1890; he demonstrated the etiologic connection of *Spirochæta anserina* to the spirillum fever or septicemia of geese. In recent years, other spirochætas have been described in connection with disease processes. Thus, A. Theiler has described what he calls la spirillose du betail, caused by a spirochæta which is found in the blood, where it produces an anemia, being present among cattle in a bad condition. Like the piroplasma bigeminum, it lives in the blood of immune cattle, as the disease has been inoculated with the blood of such cattle. The disease is conveyed through the agency of the blue tick, which is the intermediate host. Like the piroplasma, the infective agent passes into the egg and is inoculated by the larvas. He believes the spirochæta is a parasitic protozoon.

Two English observers, Dr. Todd and the late Everett Dutton, have found that the tick fever, or at least some cases of tick fever, are associated with the presence of spirochætas in the circulating blood. They believe that tick fever is clinically identical with relapsing fever, and that it has for a pathogenic agent a spirochæta, which they consider probably identical with the spirochætas of relapsing fever, as described by Obermeier. They believe that a tick, *Ornithodorus moubata*, transmits the spirillum from animal to animal, since they have conveyed the disease to a monkey by a tick, and they have evidence that the young ticks, after their first feeding, bred from infected mothers, are able to transmit the disease. They have not been able to

trace the spirilli in infected ticks further than the stomach and malpighian bodies. In the light of Marchoux and Salambeni's work, upon the transmission of the spirillum disease of fowls by ticks, Ross considers it probable that the disease in man is also inoculated by infected ticks.

It is unnecessary to enter at this time into the discussion of the protozoon nature of this interesting group of organisms, except to recall that Schaudinn considers that there is little doubt that the spirochætas of relapsing fever and of the septicemia of geese will be shown to be trypanosomes, and hence unrelated to the bacteria. Novy and McNeal, it will be remembered, have shown, in a communication to this society,[1] that Schaudinn's interpretation of what he has seen is subject to grave doubt. The spirochætal forms of the trypanosomes depicted by Novy and McNeal, have not the slightest resemblance either to the organisms of this case or to Obermeier's or Sacharoff's spirilli, as shown by the photographs of the latter. The question as to the identity of the organism of this case, to that of the spirillum of Obermeier cannot be settled off-hand. On account of the great variety in the clinical symptoms of the reported cases of relapsing fever observed during the epidemics, it is perhaps unreasonable to draw any conclusions, either for or against the identity of the organism of this case to that of relapsing fever.

To settle this question, morphology gives us a little help. Although the organism of this case resembles the descriptions of the morphology as well as the photographs, of the spirillum of Obermeier, practically in all respects, it must be remembered that the spirillum of geese is strikingly similar to that of Obermeier, and yet, in the animal reactions, the anserina may be sharply differentiated from that of Obermeier, as it is not infective for monkeys.

The organism of this case, like Obermeier's is infective for monkeys. The following differences have, however, been noted: The disease transmitted to the monkeys inoculated by the author seems to have been much milder than the experimental spirillum infection of those animals, as reported by various observers. Relapses in monkeys have rarely been noted; by one observer, in one out of eight monkeys. Other observers seem never to have observed relapses. In the author's experience, three monkeys have all had relapses, the first Rhesus having already had three.

Dr. Ewing has also called the author's attention to the fact that the spirochætas of this case, as seen in the blood of the inoculated monkeys, as well as in the human blood, is similar to *Spirochæta refringens*.

Such a case directs attention to the probability of mild spirochætal infections, more or less constantly occurring, in sailors or travelers coming from southern climates into the port of New York. The author also called attention to the possibility that infection may be communicated, from person to person, through the bites of ticks and bed-bugs, and through wounds.

"*The chromosomes in relation to the determination of sex in insects:*" EDMUND B. WILSON.

Material procured during the past summer demonstrates with great clearness that the sexes of Hemiptera show constant and characteristic differences in the chromosome groups, which are of such a nature as to leave no doubt that a definite connection of some kind between the chromosomes and the determination of sex exists in these animals. These differences are of two types. In one of these, the cells of the female possess one more chromosome than those of the male; in the other, both sexes possess the same number of chromosomes, but one of the chromosomes in the male is much smaller than the corresponding one in the female (which is in agreement with the observations of Stevens on the beetle *Tenebrio*). These types may conveniently be designated as A and B, respectively. The essential facts have been determined in three genera of each type, namely (type A), *Protenor belfragei*, *Anasa tristis*, and *Alydus pilosulus*, and (type B) *Lygæus turcicus*, *Euschistus fissilis*, and *Cœnus delius*. The chromosome groups have been examined in the dividing oogonia and ovarian follicle cells of the female and in the dividing spermatogonia and investing cells of the testis in case of the male.

Type A includes those forms in which (as has been known since Henking's paper of 1890 on *Pyrrochoris*) the spermatozoa are of two classes, one of which contains one more chromosome (the socalled "accessory" or heterotropic chromosome) than the other. In this type the somatic number of chromosomes in the female is an even one, while the somatic number in the male is one less (hence an odd number), the actual numbers being in *Protenor* and *Alydus* ♀ 14, ♂ 13, and in *Anasa* ♀ 22, ♂ 21. A study of the chromosome groups in the two sexes brings out the following additional facts: In the cells of the female all the chromosomes may be arranged two by two to form pairs, each consisting of two chromosomes of equal size, as is most obvious in the beautiful chromosome groups of *Protenor*, where the size differences of the chromosomes are very marked. In the male all the chromosomes may be thus symmetrically paired with the exception of one which is without a mate. This chromosome is the "accessory" or heterotropic one; and it is a consequence of its unpaired character that it passes into only half the spermatozoa.

In type B all the spermatozoa contain the same number of chromosomes (half the somatic number in both sexes), but they are, nevertheless, of two classes, one of which contains a large and one a small "idiochromosome." Both sexes have the same somatic number of chromosomes (14 in the three examples mentioned above), but differ as follows: In the cells of the female (oogonia and follicle cells), all the chromosomes may, as in type A, be arranged two by two in equal pairs, and a small idiochromosome is not present. In the cells of the male, all but two may be thus equally paired. These two are the unequal idiochromosomes, and during the maturation process they are so distributed that the small one passes into one half of the spermatozoa, the large one into the other half.

These facts appear to admit of but one interpretation. Since all of the chromosomes in the female (oogonia) may be symmetrically paired, there can be no doubt that synapsis in this sex gives rise to the reduced number of symmetric bivalents, and that consequently all of the

[1] Proceedings, Vol. ii, p. 23.

eggs receive the same number of chromosomes. This number (11 in *Anasa*, 7 in *Protenor* or *Alydus*), is the same as that present in those spermatozoa that contain the "accessory" chromosome. It is evident that both forms of spermatozoa are functional, and that in type A, females are produced from eggs fertilized by spermatozoa that contain the "accessory" chromosome, while males are produced from eggs fertilized by spermatozoa that lack this chromosome (the reverse of the conjecture made by McClung). Thus if n be the somatic number in the female, $n/2$ is the number in all of the matured eggs, $n/2$ the number in half of the spermatozoa (namely, those that contain the "accessory,") and $n/2-1$, the number in the other half. Accordingly:

In fertilization

$$\text{Egg } \frac{n}{2} + \text{spermatozoon } \frac{n}{2} = n \text{ (female).}$$

$$\text{Egg } \frac{n}{2} + \text{spermatozoon } \frac{n}{2} - 1 = n - 1 \text{ (male).}$$

The validity of this interpretation is completely established by the case of *Protenor*, where, as was first shown by Montgomery, the "accessory" is at every period unmistakably recognizable by its great size. The spermatogonial divisions invariably show but one such large chromosome, while an equal pair of exactly similar chromosomes appear in the oogonial divisions. One of these in the female must have been derived in fertilization from the egg-nucleus, the other (obviously the "accessory") from the sperm-nucleus. It is evident, therefore, that all of the matured eggs must before fertilization contain a chromosome that is the maternal mate of the "accessory" of the male, and that females are produced from eggs fertilized by spermatozoa that contain a similar group (*i. e.*, those containing the "accessory"). The presence of but one large chromosome (the "accessory") in the somatic nuclei of the male can only mean that males arise from eggs fertilized by spermatozoa that lack such a chromosome, and that the single "accessory" of the male is derived in fertilization from the egg-nucleus.

In type B all of the eggs must contain a chromosome corresponding to the large idiochromosome of the male. Upon fertilization by a spermatozoon containing the large idiochromosome a female is produced, while fertilization by a spermatozoon containing the small one produces a male.

The two types distinguished above may readily be reduced to one; for if the small idiochromosome of type B be supposed to disappear, the phenomena become identical with those in type A. There can be little doubt that such has been the actual origin of the latter type, and that the "accessory" chromosome was originally a large idiochromosome, its smaller mate having vanished. The unpaired character of the "accessory" chromosome thus finds a complete explanation, and its behavior loses its apparently anomalous character.

The foregoing facts irresistibly lead to the conclusion that a causal connection of some kind exists between the chromosomes and the determination of sex; and at first thought they naturally suggest the conclusion that the idiochromosomes and heterotropic chromosomes are actually sex determinants, as was conjectured by McClung in case of the "accessory" chromosome. Analysis will show, however, that great, if not insuperable, difficulties are encountered by any form of the assumption that these chromosomes are specifically male or female sex determinants. It is more probable, for reasons that will be set forth hereafter, that the difference between eggs and spermatozoa is primarily due to differences of degree or intensity, rather than of kind, in the activity of the chromosome groups in the two sexes; and we may here find a clue to a general theory of sex determination that will accord with the facts observed in Hemiptera. A significant fact that bears on this question is that in both types the two sexes differ in respect to the behavior of the idiochromosomes or "accessory" chromosomes during the synaptic and growth periods, these chromosomes assuming in the male the form of condensed chromosome nucleoli, while in the female they remain, like the other chromosomes, in a diffused condition. This indicates that during these periods these chromosomes play a more active part in the metabolism of the cell in the female than in the male. The primary factor in the differentiation of the germ cells may, therefore, be a matter of metabolism, perhaps one of growth.

"*Experimental hepatic cirrhosis in dogs from repeated inhalations of chloroform:*" C. A. HERTER and WM. R. WILLIAMS.

The difficulty of inducing pronounced interstitial hepatitis in dogs by means of poisons makes it of interest to report the well-defined results obtained as a consequence of repeated inhalations of chloroform vapor. Experiments of this character were made upon three dogs. In one instance the animal received chloroform three times a week on 18 occasions, the inhalations being continued for an hour. In six subsequent inhalations the duration of the narcosis was one and a half hours. The duration of the entire experiment was about eight weeks. The liver everywhere was found to be the seat of an abundant, richly cellular connective-tissue growth between and into the lobules. The bile ducts were proliferated, and the liver cells showed much fatty and hyaline degeneration.

In two other dogs a similar experiment was carried out with the exception that in these instances a highly satisfactory control was secured by first removing a small portion of normal liver for subsequent comparison with the damaged liver. In one of these dogs the inhalations were given eighteen times in about six weeks. The animal lived somewhat longer than five months and showed a wellmarked though not extreme cirrhosis. The third dog was narcotized forty-nine times and lived about eight months. The changes in this instance were perfectly distinct, but less advanced than in either of the other animals mentioned.

The liver tissue from the first dog was subjected to an analysis which showed a distinct fall in the normal percentage of the arginin constituent of the proteid molecule. Similar analyses indicate that the arginin yield of proteid may fall rapidly after even very short exposure to toxic influences and these results, indicating early damage to living protoplasm, give much force to the

contention that the connective-tissue overgrowth in these cases of hepatic cirrhosis is secondary to changes in the chemic constitution of the liver cell. A further feature of interest is the fact that in two of the dogs the liver cells contained little fat at the time of autopsy. Finally, it may be mentioned that although a considerable loss in weight was observed in the dogs during the period of repeated narcotization, this loss was subsequently recovered in spite of the persistent cirrhotic changes.

These observations open the question whether the fatty and parenchymatous degenerations of the liver, which in some cases follow narcosis by chloroform in the human subject, may not occasionally pass on to interstitial cirrhosis—a single narcosis in man being sufficient to induce the primary damage to the protoplasm of the liver cell.

"*Color sense in different races of mankind:*" R. S. WOODWORTH.

The evolution of the color sense is very imperfectly understood. Scarcely any direct evidence is at hand regarding the color sense of animals, though some indirect evidence that various classes distinguish colors is afforded by the facts of protective and attractive coloration.[1] We do know from human experience, that there exists a form of color vision (red-green blindness) which is less complete than the usual human type, and as it appears not to be pathologic, it may be, as has been suggested, a reversion. In the absence of subhuman data, it is of some value to ascertain whether those races of mankind which seem to represent the more primitive stages in human development are specially subject to color-blindness. The results of various authors go to show that other races are perhaps even less subject to it than the white race. Some previously untested races were examined by the author in association with Mr. Frank G. Bruner, under the Anthropological Department of the St. Louis Exposition. Of 252 adult male Filipinos (including Christians and Moros), 14 were red-green blind, or 5.6%; of 75 males of the "wild tribes" of the Philippines (Igorots, Tinguianes and Bagobos), 2 were red-green blind, or 2.7%; of 13 male Negritos, none was color blind. Special interest attaches to the Negritos, as they probably represent a more primitive type of man than has previously been tested in this way; and though the individuals examined were too few in number to enable the author to establish the percentage of color-blindness among them, the absence of color-blindness from the 13 males tested (as well as from the women) shows certainly that color-blindness is not universal among them, and very likely no more prevalent than among more developed races. On the whole a negative conclusion is warranted as to the suggestion that the color sense has developed, within human history, from anything approaching red-green blindness.

Quite a different hypothesis has been advanced by certain anthropologists from a study of the color names of primitive languages. While all languages have names for red, and most of them also for yellow, comparatively few have definite names for green, blue, or violet. Even in European languages, the names of these latter colors seem to be a rather recent acquisition. The suggestion is that color vision was first developed for the red end of the spectrum, the rest remaining colorless at first, and only gradually taking on the appearance of green and blue, and that this development has occurred during human history. In testing the natives of Torres Straits, who have no name of their own for blue, Rivers obtained a certain amount of evidence in favor of this view, in that these people were somewhat less sensitive to faint tints of blue than Europeans, though rather more sensitive to red. As the Filipinos also have no native words for green, blue and violet, the authors tested them as to their power of discriminating these colors. The test employed called for the matching of dark shades of several colors, with pale tints of the same. Colored papers were used; the tints were spread out in spectral order, and each dark shade was to be matched with the tint with which it agreed in color. The authors found that the Filipinos, and indeed all other races examined, were inferior to whites in this test; but it was impossible to detect any special deficiency in the greens, blues and violets. These colors were relatively as well matched as the reds, and better than the yellows. Nor was there any tendency, except among the Igorots, to confuse blue, green or violet with neutral gray. The Negritos did better than many more advanced races. The results obtained by the author are thus opposed to the view that the color sense has developed within human history from a more primitive type, in which only the red end of the spectrum appeared as colored.

"*The Practical Concentration of Diphtheria Antitoxin:*" R. B. GIBSON.

The Department of Health of New York City has recently placed on the market an antitoxin for diphtheria prepared by the concentration of lower grades of serum. The author described the method of its preparation.

The methods which have been proposed for the purification or concentration of antitoxins are, for the most part, peculiar and tedious ways by which the whole or a portion of the globulins are separated from serum or milk. Evaporation and freezing have been tried, but the general use of such methods has not been continued. Pick states that by the isolation of his soluble or high ammonium sulfate fraction, it is possible to concentrate the protective properties ten to fifteen times. Though superficially the most applicable, Pick's method is open to certain objections. Considerable quantities of antitoxin may be carried down with the nonprotective fraction on third saturation of the serum with ammonium sulfate. Such a manifold concentration is also not practicable.

An artificial concentration can best be effected, for the present at least, by preliminary isolation of the antitoxin globulins; on this procedure is based the plan of the following method which has proved fairly successful.

The serum is precipitated with an equal volume of saturated ammonium sulfate solution and the precipitate extracted with a solution of saturated commercial sodium chlorid. The antitoxic globulin is easily dissolved in the chlorid solution. The nonsoluble globulin settles to the bottom on standing. After filtering, the NaCl solu-

[1] See Grant Allen: The Color Sense, Its Origin and Development, 1879. W. A. Nagel: Der Farbensinn der Tiere, Wiesbaden, J. F. Bergmann, 1901.

tion of the antitoxic globulin is precipitated by the addition of a half volume of saturated ammonium sulfate solution, or, better still, with acetic acid in the usual way. The filtered precipitate is pressed as dry as possible with paper and dialyzed in parchment a few hours. Its solution is then neutralized and dialyzed again in running water.

After two or three days' dialysis of the neutralized solution of the proteid precipitate, sterilization is accomplished by a double filtration through a Berkfeld filter. Before filtration a quarter to one-half of a percent of sodium chlorid is added, and a preservative is used. The strength of the filtered product is ascertained. It is tested bacteriologically, injected into animals and finally actually administered in the Department of Health hospitals before distributing.

By this method almost all the ammonium sulfate is removed before dialysis, and the additional acid precipitation gives a purer product. Dialysis is quicker under these circumstances than when the sulfate alone is employed to effect precipitation. The antitoxin is practically all recovered, and a concentration of several times the original potency is easily and constantly obtained. The sodium chlorid separation is sharp, the two groups of proteids showing essentially different physical characters as precipitates. The final product is somewhat viscous, faintly opalescent and colorless or slightly tinged with hemoglobin. Dried at low temperatures, a beautifully transparent and entirely soluble scale antitoxin is obtained. Large quantities of serum can easily be worked over in this way at comparatively small expense.

Tests show that the artificially concentrated antitoxin, kept in small vials in an icebox, preserves its potency as well as or even better than the ordinary antitoxic serum. Therapeutically, the comparative results obtained are identical. Local irritation, rashes, etc., seem to be less frequent and severe when the refined antitoxin is administered. Hundreds of injections have been given in the department hospitals, yet no infection for which the antitoxin is responsible has resulted.

The method of separation is possible and practical largely because of the extreme solubility of the antitoxic globulins and the remarkable retention of this character as compared with the behavior of other proteids. The antitoxic properties follow this soluble globulin at every step, and are lost or lessened only by such agents as can considerably modify or actually destroy the proteid.

"*On the effect of magnesium salts upon the excitability and conductivity of nerves:*" S. J. Meltzer and John Auer.

In their communication to this society[1] on the anesthetic effect of magnesium salts after subcutaneous injections, the authors stated that they made several series of experiments on the physiologic and pharmacologic effects of these salts and that all their experiments had demonstrated a common result, namely, that magnesium salts produce a profound effect upon the nervous system and that this effect is invariably of an inhibitory character.

In their recent experiments the authors applied solutions of magnesium salts to the sciatic, pneumogastric, depressor, and sympathetic nerves of rabbits. Numerous applications of the magnesium salts to the various nerves failed to produce, in any instance, a phenomenon which could be interpreted as an excitation, but in all cases there was produced, sooner or later, a profound inhibitory effect upon the conductivity of the nerve under experimentation. After application to the sciatic nerve, the conduction of motor and sensory impulses was manifestly inhibited; a strong stimulus applied below the block caused strong contractions of the muscles of the thigh, but no pain; when applied above, pain but no contraction was caused. In experiments on the depressor, stimulation on the distal side of the block failed to produce a fall of blood-pressure. Applications to the sympathetic blocked the conductivity, so that strong electric stimulations applied to the section of the nerve exposed to the influence of the solution, or distal to that section, failed to cause a constriction of the ear vessels or a dilation of the pupil.

Instructive results were obtained in the experiments upon the vagi. As is well known stimulation of the central cut end of the vagus produces an unmistakable effect upon respiration, while stimulation of the peripheral cut end causes a standstill of the heart, and a contraction of the esophagus and the cardia. When a section of about 2 cm. to 3 cm. of an intact vagus was exposed for some time to the influence of a solution of a magnesium salt, stimulation above the block affected the respiration but not the heart or the esophagus, and stimulation below affected the function of the last named organs but not that of respiration.

Applications to the vagus nerves enabled the authors to study the blocking of *normal* impulses. When applied to one nerve, after the other had been cut, or when applied to both intact nerves, the respirations slowed up perceptibly after a while, as happens after cutting both vagi; and also, after spontaneous or induced acts of deglutition, no contractions of the esophagus or cardia followed.

These effects were obtained with hypertonic as well as with isotonic, and even with strongly hypotonic solutions. The weaker the solution the longer it took to establish a complete block; 10 to 30 minutes was about the average time. This blocking of the conductivity could be completely removed when the nerve was washed out with Ringer's solution. When hypotonic solutions of magnesium salts were used, the conductivity would often soon return without washing with Ringer's solution, if simply the application of the magnesium solution was not renewed. After the application for two or three hours of strongly hypertonic solutions, the conductivity would not return for 24 hours or longer, sometimes not even after washing with Ringer solution, as was observed in experiments on the sciatic and on the superior cervical ganglion. Thus far the experiences of the authors indicate that the conductivity is finally restored in all cases.

[1] Proceedings, Vol. ii, p. 81.

New York Surgical Society.—At the annual meeting, held November 8, 1905, the following officers were elected for the ensuing year: President, Dr. George Woolsey; vice-president, Dr. Joseph A. Blake; secretary and treasurer, Dr. John A. Hartwell.

THE INFLUENCE OF PRESERVATIVES AND COLORING MATTERS AND THEIR RELATION TO NUTRITION.[1]

BY

HARVEY W. WILEY, M.D.,

of Washington, D. C.

The widespread use of preservatives and coloring matters in food products has attracted the attention of physiologists, physiologic chemists, hygienists, and food officials during the last few years. Two important questions are involved in the use of these bodies in food products. One relates simply to the question of fraud or deception, and the other relates to the influence of these bodies upon health and digestion.

The artificial coloring of food products can scarcely be defended upon esthetic grounds. The natural colors of foods are doubtless attractive, but simply because they are natural, and when these colors are not sufficiently developed in food products, either by fault of growth or preparation, the imitation of the natural colors becomes a simple deception. This deception should not be encouraged either by the consumer or the hygienist.

The question of preservatives is also to some extent one of honesty in trade. There are many food products which are prone to decay, and, therefore, when they are presented in a well-preserved state it is reasonable to infer that they are fresh. If this freshness be retained for an indefinite time by the addition of chemic preservatives it is to that extent deceptive. The chemic preservatives referred to are not those of a condimentary nature which always reveal their presence by the odor or taste. On the other hand, they are those of a non-condimentary nature which have neither odor nor taste. Their presence, therefore, in food products is not announced to the consumer in any way unless it be by the label upon the foods themselves. Therefore, a priori the use of dyes and preservatives in foods is reprehensible, aside from their influence upon health. In regard to this latter point the most conflicting views obtain. Numerous experiments have been made in various countries and from the results of these experiments opposed conclusions have been drawn. In regard to the character of this evidence an important point is often lost sight of, namely, that a negative result is really a verdict of guilty. The experiments which go to show that no hurt has come from the use of preservatives and coloring matters are in reality condemnatory. Their use must be justified by positively beneficial results. On the contrary, with the prejudicial results obtained, the use of preservatives and coloring matters in foods, even in the small percentage of the cases in which they are used, is or should be condemned. My own experience leads me to believe that the use of even small quantities of ordinary preservatives for a long while, or large quantities for a short while, leads to unfavorable effects. There is in general a loss of weight, a feeling of lassitude and malaise, and in some cases more pronounced symptoms of intestinal and metabolic disturbance. If it be assumed that with wholesome food the metabolic relations which are observed are normal, and these relations are changed on the addition of preservatives and coloring matters, then this change, no difference what it may be, must be regarded as prejudicial because it is not normal.

I have not time to go into the details of these experiments. In all cases, however, the same general results were produced. Some of the preservatives commonly used in foods, such as borax, act more vigorously and promptly than others, such as benzoic and salicylic acids. In fact, these latter seem to have the least injurious effect of the ordinary preservatives employed. Of the coloring matters used I have only experimented with one, namely, copper sulfate, and the results of this experimental work do not permit me to say anything very good of this very common and wholly unnecessary coloring agent. That small quantities of preservatives and coloring matters may be occasionally used without danger is unquestionable; that the promiscuous, unlimited, and general use of drugs of this kind in foods is advisable is of equal certainty to be answered in the negative. There is apparently no excuse for forcing people in general to eat drugs in their foods whether they want to or not. The well-known tendency to tolerate certain quantities of drugs and to require larger amounts thereof, which is characteristic of the drug habit, must not be forgotten. There are unobjectionable ways of preserving food products for a reasonable length of time without the use of preservatives. There is an entire possibility of securing properly colored foods without the use of artificial dyes.

The chief points which I wish to call attention to in this symposium are as follow:

1. There is no necessity for the use of chemic preservatives in food products.

2. There is no necessity for the use of artificial colors in food products.

3. It is not ethical so to prepare foods as to force people in general to eat preservatives and coloring matters whether they want to or not.

4. Those who desire to eat preservatives and coloring matters in foods can have their foods specially prepared for them.

5. The fact that small quantities of preservatives may do no harm is not equivalent to a verdict of "not guilty."

6. It is certain that a great many conscientious and painstaking observers have established with reasonable certainty the fact that preservatives and coloring matters at times work injury to health and digestion.

[1] Read before the New York Medical Association, New York, October 9, 1905.

Directory of "Dead Beats."—St. Louis physicians are going to have a dead beat directory, which will contain 15,000 names of persons who have failed to pay bills. The book will bear the title of "St. Louis Medical Credit Guide," and will be furnished to physicians, dentists, druggists, and undertakers. It will be kept up to date by the issuance of a monthly sheet, and will be revised once a year. The 15,000 names are chosen from lists used by a collecting agency for three years in collecting the bills of 500 physicians. The book also will contain the names of 70,000 persons who are "good," in the sense they have property and are responsible.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 18, 1905. [VOL. XLV, No. 21.]

1. Tuberculosis.—A. P. Francine reviews the statistics of tuberculosis, showing that it causes a tenth of all the deaths in this country, and a still larger proportion in Europe. This, however, is not all the evil, for tuberculosis attacks every organ of the body and passes under many different names, filling with its indirect results our hospitals, asylums, prisons, and reformatories. The means and methods for combating this evil are to be sought in individual prophylaxis and State regulation, the former by proper care and hygiene of the patient, and the latter by the establishment of public sanatoriums for the poor, the aiding of private efforts in this direction, and by suitable and properly enforced registration. The most important element of individual prophylaxis is the destruction or disinfection of the sputum of the tuberculous by fire, boiling water, or steam, the disinfection of infected rooms by formaldehyd gas and local measures, such as absolute cleanliness as regards dust and dirt and disinfection of articles contaminated by use. Other general measures are government inspection of dairies, slaughter houses and herds, and the formation of societies for the prevention of tuberculosis.

2. Led Astray.—Heinrich Stern. See *American Medicine*, Vol. X, No. 4, p. 138.

3. Sinus Thrombosis. A Report of Two Cases with Marked Symptoms.—Hill Hastings. See *American Medicine*, Vol. X, No. 10, p. 390.

4. The Care of Infants in Public Institutions.—H. M. McClanahan. See *American Medicine*, Vol. X, No. 5, p. 178.

5. A Fourth Detailed Report of the Superior and Lasting Results of My Biinguinal Operation for Simple and Complicated Aseptic Retroversion of the Uterus.—A. Goldspohn. See *American Medicine*, Vol. X, No. 8, p. 304.

6. The Conservation or Restoration of Normal Anatomy in Gynecologic Surgery.—Daniel H. Craig. See *American Medicine*, Vol. X, No. 10, p. 389.

7. Blood Cultures from Typhoid.—R. Duffy, believes that blood cultures afford a surer and earlier diagnosis of typhoid than the Widal reaction and are perfectly feasible in family practise. In his 88 cases, the Widal test was positive in all but two, and in 18 the blood cultures showed bacilli before the Widal test. The cases were not selected, but were taken as they came. Eleven were fatal. The blood was taken from the arm veins and cultivated in bouillon ($\frac{1}{50}$ dilution) in the incubator for 48 hours. In a few cases positive results were obtained only at the end of four days. In 36 cases in which the temperature was above 102° F. the bacilli were present in the blood in every case, and in 23 cases in which the temperature was 100° or 101° F., the bacilli were cultivated from the blood in 10 cases, or 43%. Other organisms than the typhoid bacillus were found in the cultures after the second week with the temperature 103 or over, but none before. His conclusions are given as follows: 1. *B. typhosus* is present in the blood in all cases of typhoid fever in the second and third weeks, when the temperature is 102° F. or over. 2. Bacilli of the enteric group of bacteria (*B. alcaligenes*) are present in a considerable percentage of the cases after the second week, at first accompanying *B. typhosus*, then supplanting it. 3. Later in the disease, cocci may be present in the blood. 4. *B. coli communis* is never present in the blood of typhoid patients. In the cases in which the typhoid bacillus was isolated no control cultures were made to exclude the possibility of air contamination.

8. Methyl Alcohol Amblyopia, with Special Reference to Optic Nerve. Report of Case.—C. S. G. Nagel. See *American Medicine*, Vol. X, No. 14, p. 557.

9. The Physiologic Action of Dionin.—Walter Hamilton Snyder. See *American Medicine*, Vol. X, No. 6, p. 221.

Boston Medical and Surgical Journal.

November 16, 1905. [Vol. CLIII, No. 20.]

2. A Practical Photometric Method for Case Record.—G. W. Fitz describes a camera in which the focus can be instantly secured by setting an index to a mark and adjusting the subject's distance by means of a graduated tape, the photograph being taken in exact ratio without any delay. The camera will take three or four different aspects of the individual upon the same plate, thereby avoiding confusion in labeling and loss of identity. He also has a device for photographing an identifying number with each subject and a transparent scale based on the ratios of subject size to image size, by which the image may be measured as to any dimension, asymmetry, or deformity, directly in inches or centimeters. [H.M.]

3. Technic Employed in the Last 100 Laparotomies, with the View of Restricting the Employment of Drainage.—L. J. Hammond. See *American Medicine*, Vol. X, No. 17, p. 684.

Medical Record.

November 18, 1905. [Vol. 68, No. 21.]

1. The Treatment and Care of Advanced Cases of Pulmonary Tuberculosis.—S. A. Knopf regards as advanced those cases of pulmonary tuberculosis that can no longer be classified as incipient or early. The advanced cases are divided into ambulant and bed cases. The former are those who are most of the time without fever, and in whom the systemic disturbances are only a little more aggravated than in the early stage. These may be treated as incipient, with the one exception, that if there is not a satisfactory gain in weight they should be put at rest in bed or on the reclining chair, constantly exposed to the open air. The ambulant patients are the most frequent sources of infection, and the greatest care must be taken to train them to dispose of their sputum properly. The bed cases are subdivided into four classes: Sanatorium patients, hospital patients, home patients—well-to-do, living either in cities or country—and the tuberculous poor, living in villages or in city tenements. It is a matter of great difficulty to find proper accommodations for such patients, as sanatoriums are usually unwilling to receive cases that do not offer a favorable prognosis.

2. Primary Cryptogenetic Pneumococcus Cerebrospinal Meningitis.—R. C. Cupler discusses three cases of cerebrospinal meningitis in which pneumococci were found in the cerebrospinal fluid, removed by lumbar puncture. One patient recovered after an illness of five weeks, and the other two died at the end of 36 and 48 hours respectively. The differential diagnosis from delirium tremens, hysteria, enteric fever, septicopyemia, and uremia is discussed, and the author says that the fact that meningitis is the only intracranial disease, except abscess and apoplexy, which shows leukocytosis, may be of great value in excluding other causes of coma. Drainage is a cardinal point in the treatment, and gives better results if followed by antiseptic applications. The author has found caffein citrate excellent in combating the paralysis of respiration, and he recommends lingual traction if stupor is deep and cessation of breathing imminent. Of lumbar puncture, he says that it relieves the intracranial pressure, lessens

the severity of symptoms, assists in diagnosis and meets the requirements of a rational principle in treatment. Primary pneumococcus meningitis is not common, and recoveries from it are few.

4. A Case of Typhoid Fever with Triple Intussusceptions.—Bertram L. Bryant and Jesse S. Bragg report this case. The patient was a man of 23, who, 38 days after the first symptoms of his uneventful typhoid infection, was suddenly seized with pain in the right iliac region, rise of temperature, and symptoms of shock. A perforation was suspected and the abdomen opened. It was found filled with clear serum and on drawing out the small intestine a short distance from the ileocecal juncture an intussusception was found about eight inches long, invaginated both ways. A short distance further on a second was found about five inches in length, also invaginated both ways; and drawing out more gut there was a third intussusception about three inches long, invaginated from the right. Beyond this the gut appeared normal in color, excepting the infiltrated patches and lymph-nodes due to the typhoid infection. Reduction of the invaginations was easily accomplished, but the patient died in shock five hours later.

5. Antitoxin of Unusual Dosage, in a Case of Scarlet Fever Complicated by Diphtheria.—St. Clair Street describes this case, in which only after 67,000 units of antitoxin had been administered was there any response to treatment. The fresh product of two reliable firms was used. He says that the experience teaches the propriety and necessity of continuing the use of antitoxin even when the patient does not seem to respond to it, and the further necessity of increasing the dose administered until such time as results are obtained.

6. A Case of Anthrax: Probably Due to Inoculation: Without a Visible Initial Lesion.—J. D. Jones describes the case of a farmer, aged 40, who skinned a cow that had died of an illness lasting a day, but declared by a veterinary surgeon not to have been anthrax. A week later an inflammatory process started on the palmar surface of the left forearm. The infection proceeded rapidly and anthrax bacilli were found in the blood and in serum from the bullas that had formed. In spite of free incisions and antiseptic treatment, the patient died in delirium on the fifth day. The author says that there is no question that the inoculation took place in the left forearm, and yet the patient was very positive that there was no pimple, or vesicle, or redness of the skin to indicate the point of entrance of the virus. As the first swelling did not appear until over a week after the date of exposure, it does not seem probable that the bacilli could have entered his lymphatics or bloodvessels at that time, but probably were on the skin and gained entrance to the circulation later, possibly through scratching the arm.

New York Medical Journal.

November 11, 1905. [Vol. lxxxii, No. 20.]

2. Milk and Typhoid Fever.—J. S. Billings, Jr., discusses the relation of milk to typhoid fever in New York City. He gives in detail their manner of reporting cases, and the special blank history and letter sent to each physician so that the source of infection may be determined if possible. He says that it seems probable that the majority of cases of typhoid fever in New York City are due to infected water, and that milk plays relatively a very small part in the spread of the disease. He adds that this conclusion is borne out by the recent epidemic of typhoid fever in Brooklyn, which was very soon checked by the adoption on the part of the residents of that section, of the widespread advice of the department—boiling of water before using for drinking purposes. He says that the supervision of the milk supply of the city is most careful and thorough, and that the milk companies exercise the most careful supervision of all milk handled by them; yet routine inspection and supervision of all dairy farms is a thing that should be systematically carried out. He believes also that the necessary money for this purpose should be furnished to and utilized by the State authorities. [C.A.O.]

3. Cesarean Operation.—F. T. Woodbury reports the case of a woman of 25, in whom abdominal section was indicated, because of the urgent necessity of emptying the uterus on account of puerperal convulsions with rigid os after two failures of delivery by forceps. Version was regarded as being contraindicated by the absence of amniotic fluid and the inertia of the uterine muscle. The patient was apparently convalescing on the sixth day after the operation. On the seventh day sapremia developed and the patient died. Her albuminuria and anasarca gave place to uterine inertia and subinvolution, which facilitated the absorption of septic products. [C.A.O.]

4. The Treatment of Leukemia and Pseudoleukemia by the Röntgen Rays.—Arthur Holding and Mortimer Warren believe they have demonstrated the palliative action of the rays in cases of leukemia and pseudoleukemia, and suggest that in some cases even curative effects may be hoped for; 25 cases of splenomyelogenous leukemia treated by the rays have been reported; 8 cases being symptomatically cured; 15 cases improved; and 2 cases unimproved or fatal; second, that 8 cases of lymphatic leukemia treated by the rays have been reported; no cases being cured; 3 cases improved; and 5 cases unimproved or fatal; third, that 22 cases of pseudoleukemia similarly treated have been reported; 6 cases being symptomatically cured; 13 cases improved; and 3 cases unimproved or fatal. The technic employed in treating leukemia and pseudoleukemia consists in applying the light over the spleen, the enlarged glands, chest, knees, and elbows. [C.A.O.]

5. Ocular Symptoms of Gout.—K. K. Wheelock says that authors recognize inflammations of the following tissues of the eye as being caused by the gouty diathesis; iritis, plastic and serous; cyclitis, plastic and serous; choroiditis; retinitis; retrobulbar neuritis; scleritis and episcleritis; cataract; hemorrhagic retinitis; and glaucoma. He says that he has observed all these structures except the crystalline lens to be the site of inflammation and has felt certain that the origin was gouty, yet in many cases the evidence was of the post hoc order following the administration of colchicum and potassium iodid. He also recognizes gout as a causative factor in several forms of keratitis. In four cases reported by him the ocular evidence was followed by local manifestations of undoubted character. [C.A.O.]

Medical News.

November 18, 1905. [Vol. 87, No. 21.]

2. Immunity against Cancer in Mice.—G. H. A. Clowes and F. W. Baeslack, in previous publications, showed that blood-serum of spontaneously recovered mice exerted an effect on growing tumors in other mice. As it was impossible to determine what course the tumors would have taken if untreated, they have adopted two other methods of demonstrating the existence of an immune body: 1. The reinoculation of spontaneously recovered mice. 2. The admixture of cancer material with the serum of recovered mice, the results being controlled by mixing material from the same tumor with normal serum or salt solution. About 1,100 mice have yielded 350 tumors; 300 of these caused the death of the mice and 50 mice recovered. Care has been used to distinguish inflammatory masses from true tumors. The standard adopted has been the presence of a growing mass not less than three weeks after inoculation and at some period having a volume of 20 cm. In no case has

a tumor developed after reinoculation of a mouse previously recovered from a true tumor. By mixing cancer materials with serum of spontaneously recovered mice it has been shown that the percentage of tumors is much smaller and the percentage of mice surviving the treatment is larger in the immune than in the normal series. [H.M.]

3. Female Type of Hand in Extension.—R. Kingman describes the sigmoid carpus as an S-curve formed by flexion at the wrist where the carpus articulates with the ulna and radius and by overextension at one or more of the three finger joints. This sigmoid carpus is present in the majority of women when the arms and hands are extended, while not often seen in men. The masculine type in extension shows a level dorsum of wrist and fingers and forearm when these are held out. The most concave form of dorsum is found in the leisure class. In unilateral cases the appearance was about evenly divided between the two hands. Causes leading to the disappearance of the feminine type are rheumatism, obesity, senility, and continued sewing, beside various accidents. Piano players develop this hand to a marked degree. It is commoner among colored people than whites. It is also commoner among Jews and those of a "neurotic temperament." [H.M.]

5. Digitalis.—F. Schyzer advocates the use of Cloetta's new soluble digitoxin as having a constant composition and effect, as containing all the valuable properties of the fresh leaves, as injectable and nonirritating. Through the mouth, it acts much more quickly than the powdered drug; hypodermically, in a few hours; intravenously, at once. It is not cumulative. The single dose is $\frac{1}{3}$ mg. (corresponding to 0.1 dr. digitalis) three times daily or oftener. In acute dilation of the heart, the dose may be larger. Its use is a safeguard in general anesthesia. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

The Blood in Scarlet Fever.—W. Tiliston and E. A. Locke[1] have studied the blood in 34 cases of scarlet fever, 28 of whom were between 2 and 10; one under 2, and five from 11 to 23. They found that the blood of scarlatina in children differed from that of adults only as far as the differences in normal blood at different ages were concerned. A slight secondary anemia was present in all but the very mild cases, the fall in hemoglobin being from 5% to 25%. A return to normal occurred after a period of several weeks. A hyperleukocytosis is almost invariably present. The count rises abruptly from the second to the eighth day, then falls rapidly for a few days, then gradually, until convalescence is established, at the end of three to six weeks. The polynuclear leukocytes relatively and absolutely increase from the period of invasion and eruption, but decrease gradually to convalescence, when they become relatively below normal. The mononuclears take an opposite course. The eosinophiles disappear entirely, or are gradually reduced with the onset, and rise above normal when defervescence begins, persisting until late convalescence. The myelocytes are seen in small numbers, as in all infectious diseases. Complications usually have no effect upon the course of the blood, although, if severe, the anemia may be increased, or if nephritis and diphtheria intervene, a leukocytosis may be induced. [J.H.W.R.]

Polycythemia, with Splenic Tumor and Cyanosis.—P. Reckzeh[1] contributes five additional cases to the observations on this symptom-complex. The condition occurs chiefly in middle life. The first subjective symptoms are almost always indefinite and of gradual development. They usually consist of headaches, vertigo, weariness and weakness, and also gastrointestinal disturbances. Often the pains and heaviness in the left side, due to splenic enlargement, are the first symptoms. The cyanosis is the most prominent objective symptom. Hemorrhages are frequent, and there is usually a dilation and tortuosity of the superficial veins, both large and small. Moderate albuminuria is repeatedly found. The number of red blood-corpuscles varies between $6\frac{1}{2}$ and $12\frac{1}{2}$ millions per cubic millimeter, the hemoglobin being correspondingly increased. A moderate leukocytosis is the rule, with a preponderance of the polynuclear neutrophiles. The various theories proposed in explanation of this condition, include tuberculosis of the spleen, abatement of the function of the spleen, and disease of the erythroblastic myeloid tissue, none of which will explain every case. The author believes that venous stagnation plays an important role. In his third case, a tumor of the thymus and lungs caused a compression of the superior vena cava, with resulting cyanosis of the upper half of the body, polycythemia and splenic tumor. It is known that congenital and acquired cardiac defects can also produce cyanosis with polycythemia, as seen in the author's fourth case. Furthermore, he reports some experiments in animals, which show that obstruction to the circulation may produce this syndrome of symptoms. He therefore concludes that this cause might naturally be made answerable for the other cases, and suggests that a diminution in the tone of the veins may also be a causative factor. [B.K.]

Goats as a Means of Propagation of Mediterranean Fever.—U. H. Horrocks[2] states that some goats in every herd examined are suffering from Mediterranean fever. *M. melitensis* is exuded from the milk in enormous numbers when the disease has been present sufficiently long to cause a change in the physical character of the fluid. It is also excreted in considerable numbers even when the animals are in "full milk" and no changes have occurred in either the physical or chemic characters of the milk. *M. melitensis* is also excreted in the urine of goats but has been found only when the disease has existed for some time and physical changes have occurred in the milk. [H.M.]

A Curious Case of General Infection with Staphylococci.—Friedrichs[3] reports the case of a soldier, who while marching acquired a slight abrasion of the small toe of his left foot. His whole left foot became swollen, later covered with vesicles of varying size and having purulent contents. He recovered after six weeks of antiseptic dressings. He had no fever during this attack. Two months later, after an abrasion on one of his right toes, the right foot went through the same ordeal. In addition, he developed fever, lymphangitis, and lymphadenitis of both lower extremities; also a general erythema without other swelling over the lower extremities and abdomen; also some vesicles about the umbilicus. The kidneys showed no implication. The attack lasted 3 weeks. Two months later he had a recurrence in both legs, this time without injury. In addition to conditions mentioned the soles of the feet became affected and painful hard papules appeared in different places; there was transient albuminuria and the genitalia became edematous. A culture was made from one of the vesicles and staphylococci obtained. They were pathogenic for mice, the mice dying in from 3 to 5 days. The man's shoes were thoroughly disinfected and since then he has remained well. [E.L.]

The Bacteriologic Diagnosis of Cholera.—Dun-

[1] Journal of Infectious Diseases, June 24, 1905, p. 375.

[1] Zeitschrift für klinische Medicin, Bd. lvii, p. 215.
[2] Journal of the Royal Army Medical Corps, September, 1905.
[3] Deutsche Militaeraerztliche Zeitung, 1905, xxxiv, 221.

bar[1] finds that the time heretofore occupied in determining definitely whether or not a certain infection is due to the cholera spirillum was too great, and in order to expedite matters he has devised the following method: Upon each of two cover-glass slips he places a drop of peptone solution. From the stool suspected to be infected with the spirillum of Asiatic cholera he takes, by means of a platinum needle, some of the mucoid substance, and mixes it with the peptone solution on the cover-slips. To one of the slips he now adds a drop of normal rabbit blood-serum, diluted 50 times, and to the other drop he adds one drop of a high bivalent cholera blood-serum, diluted 500 times. If the two cover-slips are now placed upon a drop-culture slide and examined, the organisms in the one containing the normal blood-serum will be found motile, while those bacteria contained in the other slip will be found to have lost their motility. The preparation of the whole procedure, exclusive of the time taken to the examination of the slips, occupies but five minutes. If both slides as prepared are then placed in the incubator, already in the course of a half hour, in the slide containing the mixture of normal serum, the bacteria take on increased activity, while in the other there is no evidence of motility. If the slides are prepared with bacteria like the spirillum of Asiatic cholera, cessation of motility does not occur in either slide. When there is a mixture of the spirillum of Asiatic cholera and bacteria like that organism, the diagnosis becomes more difficult, but upon observation, clumps are formed in which the bacteria are motionless, while in other parts of the slide the bacteria are still motile. [J.F.]

Hygiene of the Mother before the Birth of the Child.—J. W. Ballantyne[2] says the arduous task of influencing the child before birth is worth while, because if it can ever be discovered how the health of the unborn may be influenced for good by any treatment which we can apply to the mother, the first step in the prevention of disease and deformity will have been taken; no medical man with imagination can fail to be impressed with the possibilities of beneficent therapeutics which must follow such a discovery. A consideration of each of the three periods into which antenatal life has been divided, fetal, embryonic, and germinal, shows that the parent influences the offspring. In none of them can the influence with certainty be regulated because we do not possess full knowledge of the mechanism or the laws which govern it. The common advice of medical men for pregnant women, to obey the ordinary laws of living to which they have been accustomed, is safe if the person has been living in the proper manner; the first point to be settled is the way in which she has lived. If her habits have not been proper, very much can be done in regulating them in a way best adapted to the developing child. [A.G.E.]

GENERAL SURGERY

J. Chalmers DaCosta
John H. Jopson — Lawrence Hendee
J. Coles Brick — John W. Churchman

REVIEW OF LITERATURE

Morbid Growths and Their Treatment.—A. F. B. Richards[3] says that benign and malignant growths resemble each other in fulfilling no physiologic purpose, and constituting a malformation resulting from an overgrowth, a disordered nutritive activity of certain elements present in the structures from which they spring. He disbelieves in the parasitic theory of malignant growths, claiming that the factors at work in their production are similar to those producing a benign tumor, but are intensified in action. The cause is probably a physiologic aberration in cell growth and activity. Injury or irritation, especially if repeated or prolonged, seems to have an important etiologic bearing on tumor development. If the nutritive activity of the irritated cells is great, or the resistance of surrounding tissues lessened, the tendency to abnormal growth is increased. In youth and early middle age, when the mesoblastic tissues (muscle, bone, etc.) are growing rapidly, the benign growths, composed of these tissues, are apt to develop. Later in life the nutritive activity of these tissues wanes, and the tumors are of epiblastic or hypoblastic origin. These epithelial tumors are likely to occur in organs where great variations in functional activity take place physiologically, or where the epithelium is exposed to long-continued irritation. The tissue nutrition is largely under control of the nervous system, and the nerve impulses are largely concerned in preserving a metabolic equilibrium between the constituent elements of the body. These nerve impulses can best be explained by electromotive disturbance, possibly depending upon differences in the electric reaction of the nucleus and extranuclear substance in the nerve cells. On this theory he suggests electric energy in the treatment of morbid growths, and advocates the trial of an electrode over and around the growth, consisting of a large number of fine copper points, evenly distributed over the inner surface of a soft rubber cap. The battery could be worn and carried about with the patient. In this way electric impulses could be distributed to all parts of the tumor. [B.K.]

Lumbar Anesthesia with Stovain.—When Tillman[1] has introduced the canule into the spinal canal he adjusts the syringe containing the solution of stovain and draws into the instrument the cerebrospinal fluid slowly. At times the solution becomes cloudy but this does not affect its effacacy in any way. He has performed 42 operations under the influence of this solution, the results of which were entirely satisfactory to him. In 25 of the 42 the analgesia was obtained in the course of three minutes; the anesthesia extended from the umbilicus to the soles; motor paralysis was also present. In eight cases six minutes elapsed before the analgesia was attained, in five cases ten minutes elapsed, and in four cases 15 minutes. Tillmann speaks of an instance where after the successful application of the 0.06 gm. of stovain, the use of the drug failed completely in the same case 14 days later; this failure he attributes to the loss of the fluid before the injection. In another case where two operations were performed, the first injection succeeded with 0.05 gm. of stovain, and the second 14 days later with 0.07 gm. One of the operations which he performed was the repair of a rectovesical fistula which occupied an hour's time, another was an amputation of the leg, the duration of which was 70 minutes. In eight cases sensation returned in the course of an hour and a half, in seven within two hours, and in five within two and a half hours. He performed prostatectomies in men of 67 and 73. With this form of anesthesia he has replaced fractured bones, he has done knee operations and transplantations. He has not performed the radical cure for hernia, nor laparotomies as yet. The patients realized that something was being done, but experienced no pain. There was no vomiting after the operation. [J.F.]

A Safe, Simple, and Sure Cure for Ganglion.—B. B. Cates[2] recommends injecting camphophenol with a syringe. This is made by mixing equal parts of crystallized carbolic acid with gum camphor. It is safe, efficient, and nontoxic. The needle should be thrust directly in the center of the ganglion. He has never used but one injection of 15 or 20 drops. As there is always some reactionary swelling, it is best to wear a splint for a few days in the case of the upper extremity and to lie quietly in bed with the limb elevated, in case

[1] Berliner klinische Wochenschrift, No. 39, 1905.
[2] The Practitioner, October, 1905.
[3] The Lancet, September 23, 1905.

[1] Berliner klinische Wochenschrift, No. 34, 1905.
[2] Surgery, Gynecology, and Obstetrics, August, 1905.

of the lower limb. This remedy is also capital for cuts, bruises, sprains, etc., applied with the hand. [H.M.]

Radical Operation for Leg Ulcer.—Schneiderlin[1] advises peritomy in the treatment of leg ulcer. It consists of a circular incision through the superficial tissues of the lower third of the thigh extending as far as the muscles and fascia; all the vessels are then carefully ligated and the skin incision sutured. It is based upon the thought that the cutaneous veins are not sufficiently large to hold all the blood from the chronically inflamed area; this insufficiency retards the return flow of the blood and the ulcer is thus constantly in a state of venous congestion. By destroying the superficial veins altogether, the blood is forced to find its way through the deeper veins and appropriate treatment cures the ulcer. Eight cases are reported cured in a short time; also three cases of varicose veins. Rest in bed until the ulcer is healed is absolutely necessary, but recurrence has never been noted. [E.L.]

Removal of a Pin from the Lung by Operation.—The extreme rarity of thoracotomy for removal of a foreign body justifies the report of this case by R. H. Russell and W. R. Fox.[2] The patient was a boy of 12, in whom a large, black headed shawl pin suddenly slipped down the larynx and trachea. No symptoms occurred until a week later, when he began to cough and expectorate a little blood-stained sputum. Three or four weeks after the occurrence, a radioscopic examination showed the pin to be lodged in the lower left lobe of the lungs. The position of the head could be easily located by examining the chest in two positions. A free incision was made in the chest wall, a portion of the eighth rib resected, and a small opening made in the pleura, to allow of gradual collapse of the lung. The opening was then enlarged, the pin was grasped through the lung tissue, a small incision made, and the pin extracted. Abscess formation was already present around the foreign body. The wound in the chest wall was closed except for 2 inches of its length. The recovery was somewhat complicated by a consolidation of the affected lobe and slight suppuration of wound in the chest wall. [B.K.]

Traction Diverticulums of the Esophagus.—H. Ribbert[3] opposes the view that esophageal traction diverticulums are produced by inflamed lymph-glands becoming adherent to the hitherto normal esophagus and as they atrophy and contract, pull the esophageal wall with them; he believes the cause to lie in a congenitally abnormal esophagus and the connective tissue lying between it and the trachea. He speaks of it as a developmental disturbance which arises during the separation of the two organs; a large fasciculus of connective tissue continues to connect the two organs, and at its point of attachment to the esophagus the wall is usually incomplete. On account of this defect in the muscle, and because of this point being very firmly fixed and less resistant than the rest of the wall, a dilation and diverticulum form here very readily, during the movements of the esophagus from side to side. This connective-tissue bundle often inflames and contracts, thus favoring the diverticular formation. In many cases there are no atrophic lymph-glands to be found at all; he has seen 23 such. He reports 12 new cases in support of his view, and demonstrates the fallacies of the observations of others. In six other cases the muscular deficiency existed in the anterior wall, and fusiform dilations were formed by the same process. [E.L.]

Empyema of the Gallbladder with Unusual Symptoms.—R. A. Stoney[4] reports a case in which a diagnosis of appendicitis was made on the following symptoms: Sudden seizure with pain in the right side, vomiting, constipation, fever, and the appearance of a large oval swelling in the right side of the abdomen just below the level of the umbilicus and close to the outer border of the rectus. The liver dulness extended for an inch and a half below the costal margin, but there was a broad band of resonance between it and the tumor. On operation an empyema of the gallbladder was found, the result of an obstruction of the cystic duct by a calculus. The liver extended to the umbilicus, but its edge was thin, and the transvere colon was adherent to its under surface, thus giving rise to the resonant band between the liver dulness and the gallbladder. [B.K.]

Expulsion of Tubular Casts from the Esophagus and Stomach after Corrosion.—H. Grau[1] reports the case of a woman who swallowed a large quantity of dilute hydrochloric acid on an empty stomach. This was followed by repeated vomiting and painful deglutition. Nine days later, severe pains in the course of the esophagus were followed by the expulsion of a tubular cast, 10 cm. long and 6 cm. in circumference. Two days later an incomplete cast of the stomach was expelled. About a month after the acid was taken, an operation for pyloric stenosis was performed, and the patient died the same day. Examination of the casts and the autopsy findings showed that the mucous membrane had been separated from the lower part of the esophagus and the pyloric end of the stomach. The separation had occurred in the submucous layer, and was probably the result of two factors—the formation of granulation tissue beneath the mucous membrane, and the mechanical effect of the violent vomiting. [B.K.]

Splenic Abscess in Typhoid Fever.—Federmann[2] reports the case of a man who developed an abscess of the spleen in the course of typhoid fever. Federmann opened it, as well as the pleural space, removing a large quantity of stinking pus from the former, dirty fluid from the latter. The wounds were packed; the patient recovered. He believes the case to have been of metastatic origin, the typhoid bacillus acting as the pus-producing organism. The symptoms of which the patient complained were referable to the lower part of the left lung and pleura; the splenic signs were but slight. The very high leukocytosis (24,000) in the course of the infection led to the suspicion of a pus focus somewhere; the leukocytosis existed early in the disease, but the condition itself did not become apparent until after 11 days of cessation of the fever. [E.L.]

Congenital Hypertrophic Stenosis of Pylorus Treated without Operation.—A. J. Blaxland[3] reports the case of an infant on artificial feeding, who began to vomit two weeks after birth. The vomit was forceful in character and large in quantity. Well-marked peristalsis of the stomach could be observed, and a small, hard tumor was felt in the pyloric region. At the age of four months he weighed only eight pounds. Treatment by lavage was then begun, and was immediately successful. The diet consisted of "humanized" milk, and the stomach was washed out twice daily at first. Not only did the condition of the child improve, but the vomiting became less frequent, and the abnormal physical signs in the abdomen gradually disappeared. [B.K.]

Dry Iodin Catgut.—A. v. Moschcowitz[4] experimented extensively with dry iodin catgut to determine the cause of the loss of strength which the catgut suffers when prepared in iodin solution, and also to determine the sterility of the catgut, and the effect of infected catgut. He was able to conclude from his experiments and his clinical experience that "dry iodin" catgut is absolutely sterile. He asserts that it cannot be infected by ordinary means. The amount of iodin present he states

[1] Münchener medicinische Wochenschrift, 1905, lii, 813.
[2] The Lancet, September 9, 1905.
[3] Virchow's Archiv, Vol. clxxviii, 351.
[4] British Medical Journal, September 9, 1905.

[1] Zeitschrift für klinische Medicine, Bd. lvii, p. 369.
[2] Deutsche medicinische Wochenschrift, 1905, xxx, 586.
[3] The Lancet, September 16, 1905.
[4] Annals of Surgery, September, 1905.

is not sufficient to irritate the tissues. Its tensile strength surpasses that of raw catgut, and that prepared by the sublimated alcohol method. It is rapidly prepared and is cheap, and it has the advantage of not being absorbed until after it has served the purpose for which it was used. [J.H.W.R.]

Röntgen-ray Diagnosis of Renal Calculus.—Morton Smart[1] considers this method an extremely useful auxiliary to the usual methods of diagnosis, and should be employed in every case of suspected stone. He does not think that an operation should be done without first employing this diagnostic measure. It should be performed with the greatest possible care, inasmuch as a mistake may readily lead to serious consequences. In his opinion it would be possible, as knowledge increases, for a röntgen-ray specialist to exclude all doubt in the interpretation of a negative. He advises that when a stone is located by the negative and an operation is decided upon, a second photograph should be taken under conditions as similar to the first as possible, a day or so before the operation. This is to avoid the possibility of a change in the position of the stone. He urges that every case should be taken stereoscopically at least once. [J.H.W.R.]

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

REVIEW OF LITERATURE

Angina Pectoris.—In counting up the various symptoms of angina pectoris, A. Fraenkel[2] mentions as the chief symptoms the peculiar pain and the sense of impending death. There is no real dyspnea and in many cases relief is found in short breathing. The pain grips the chest as if held in a vise, radiating from there along the arm or arms (chiefly the left) to the ulnar side of the little finger, occasionally also to occiput, larynx, back, or scrotum. The pulse is little affected or not at all; the blood-pressure is always elevated. Conditions increasing blood-pressure often bring on an attack. The number and violence of attacks vary greatly; they may occur daily or nightly or not oftener than once a month. If care is taken, the patient can prevent many of them. Especially grave attacks may terminate fatally. Increase of pain while walking, and the irradiations will serve to separate true from false angina pectoris. The prognosis depends on the underlying cause. The pathology of the condition is to be found in a sclerosis of the coronary vessels; the angina occurring in the course of syphilis, gout, diabetes, and aneurysm is due to this; in other cases a spasm of the smaller vessels of the heart produces an anemia and the pain described follows. This is noted in cases of tobacco poisoning, exposure to marked cold, gastric affections, gallstone colic, neurasthenia, hysteria. The treatment of the condition includes the forbidding of tobacco and alcohol, the regulation of the quantity of food, the instruction of the patient to rest after meals, and not to go out in rough weather. Of drugs he gives sodium iodid, theocin, and sodium acetate; also nitroglycerin. During the attack, cold or heat to the chest, amyl nitrite, inhalations of ether, morphin, aspirin, etc. [E.L.]

Iodipin in Prostatitis.—Instead of iodin suppositories and large enemas of potassium iodid solution, W. Richter[3] recommends in cases of acute parenchymatous prostatitis, iodipin (iodized sesame oil) injections. He begins with a half syringeful of equal parts of olive oil and 10% iodipin solution twice daily, gradually increasing it to 2 syringes of 10% iodipin during the day. He reports a number of cures in different varieties of prostatitis and inflammations of the vas deferens. The cures resulted in from 8 to 14 days. [E.L.]

Exaltation and Reduction of Blood Coagulability by Therapeutic Measures.—A. E. Wright and W. E. Paramore[1] detail their experiments with the use of various substances to increase the coagulability of the blood. They find that calcium chlorid accelerates coagulation within an hour after administration. A single dose of 60 gr. reduces the coagulation time from 25% to 75%, and the increased coagulability is maintained for five to eight days. The results obtained with calcium lactate were even more satisfactory, and are ascribed to a readier absorption of this substance. Magnesium carbonate also gives results that are quite comparable with those of the calcium salts. The authors find that the coagulability of the blood is consistently increased by the ingestion of cow's milk, this increased coagulability being associated with the presence of large quantities of calcium and magnesium salts in the blood. Success in maintaining the blood coagulability at a high level involves adjusting successive doses of calcium salts in such a manner as to avoid introducing an excess into the blood, as this would retard coagulation. Hypodermic injection of these salts has not met with much success. [B.K.]

Treatment of Obesity.—Obesity of marked degree is treated by C. von Noorden[2] at all ages, except in the very old. He advises periods of treatment lasting four to six weeks, followed by periods of rest, etc. Moderate corpulency he treats in the young and middle aged, especially if the fat accumulates quickly. Slight tendency to fat accumulation he treats, when there is a steady inclination for it and in women. The existence of the following diseases he considers an indication for treatment, no matter how slight the amount of surplus fat: Chronic diseases of the circulatory and respiratory organs, chronic nephritis, chronic rheumatism, diseases of locomotion, intertriginous eczema, neuralgia, and some cases of gout and diabetes. His treatment includes regulation of diet, and exercise. The diet he orders, consists chiefly of proteids, some carbohydrates, no hydrocarbons, no alcoholic drinks; different schemes of diet are given. He does not approve of distributing the food over the greater part of the day. Limitation of water is necessary when cardiac diseases complicate the obesity; in ordinary cases it assists only by robbing the patient of his appetite. He orders an increase of muscular work, laying stress on the benefits of mountain climbing and rowing. He considers bicycle riding dangerous, horseback riding, massage, and gymnastics useless. Thyroid gland feeding is very valuable, but it requires careful watching. He approves of spas, but only because the waters are combined with exercise and regulation of diet. Baths (water, steam, or sun) as actual factors in increasing katabolism he considers valueless. He approves of sanatoriums, but says the patients must live along the same lines when they return to their homes. [E.L.]

Anthrax Cured by Lipiodol Injections.—Toupet and Leubret[3] report having cured a case of anthrax, from which anthrax bacilli were isolated, by the following method. They cauterized the lesion thoroughly, opening all its sinuses; believing iodin to be a specific against anthrax, they injected 4 cc. of pure tincture of iodin all about it. The wound was dressed with antiseptic applications of bichlorid, peroxid, etc., which were changed every 3 hours. To prevent absorption of anthrax germs into the blood and to impede further

[1] British Medical Journal, September 16, 1905.
[2] Deutsche medicinische Wochenschrift, 1905, xxx, 571.
[3] Monatshefte für praktische Dermatologie, 1905, xl, No. 9, 496.

[1] The Lancet, October 14, 1905.
[2] Deutsche medicinische Wochenschrift, 1905, xxxi, 743.
[3] Gazette des Hôpitaux, 1905, lxxviii, 316.

development of anthrax organisms at the site of the lesion, they injected lipiodol (tetraiodopyrrhol) into the muscles of the gluteal region in daily doses of 5 cc. for seven days. Each cc. of the oil is equivalent to 428 drops of the tincture of iodin; no untoward symptom was observed from the injections, and they believe that lipiodol alone is capable of checking anthrax infection. [E.L.]

Barutin, a New Diuretic.—To test the diuretic properties of drugs, E. Biebergeil[1] recommends the use of Richter's method; Richter induces artificial nephritis and general dropsy by giving uranium nitrate solution hypodermically and sodium chlorid solution by mouth. Biebergeil tested barutin, the salicylate of barium, theobromin and sodium, in this manner. He found that rabbits who were given from 0.15 gm. to 0.25 gm. (2¼ gr. to 3¾ gr.) barutin per day, when treated as described above, did not develop effusions or anasarca; while animals who were not given barutin, developed both. Smaller and larger quantities, while not as efficient, served to keep the transudates in check. When the two components (barium chlorid and sodium theobromate) were given separately, the same diuretic action, but to a less degree, was observed. When small doses of barutin were given, the barium chlorid was the more efficient; when large doses of barutin were given, the sodium theobromate did the most work. His conclusion is, therefore, that barutin acts as a diuretic by increasing the excretion of water and solids and prevents the formation of anasarca. [E.L.]

The Treatment of Pulmonary Tuberculosis with Bacillary Emulsion of Koch.—Poeppelmann[2] maintains that with the emulsion of the bacillus of tuberculosis his results have been so satisfactory that he can say without exaggerating his conviction that, when used at the right time, in the right place and in the correct manner, this form of treatment will meet the demands of a remedy directed against a chronic disease. He holds that in the use of this remedy one cannot follow a definite, laid out plan, but each case must be studied and then determine upon a method by which the patient should be treated. The first data to be determined is that the condition is not too far advanced; careful examination will clear up that matter. Then the presence of streptococci in the lung lesion must be ruled out; if these organisms be found, or mixed infection be present, he tries to get rid of these bacteria before instituting the emulsion therapy by dietetic hygiene, hydrotherapy, the administration of creosotal and the inhalation of the oil of turpentine and the ethereal oil of Montana pitch. The patient must not be feverish and must possess an equilibrium of the nutrition. The treatment is contraindicated in an associated ulcerative tuberculosis of the intestines, but not tuberculosis of the peritoneum. If the patient be in ill-health as a consequence of another disease, or through starvation, or through hard work, Poeppelmann advises that attempts be made to build up the patient by rest and feeding before instituting the emulsion treatment. If in a patient, in whom after the administration of the treatment there was an improvement in all the symptoms, a condition of quiescence should set in, he advises "hands off," as an attempt to force the treatment would merely hasten death. The emulsion treatment is contraindicated in the phthisis florida and in the acute miliary tuberculosis with complication of the meninges and the brain. While he regards a vessel hemoptosis as a contraindication, the capillary hemorrhage will admit of treatment. The fluid in the treatment is made as follows: A tenth of a cubic centimeter of the emulsion of the bacilli is diluted to 10 cc. with a fluid composed of sodium chlorid, 0.8 parts; phenol, 0.5; aqua distilla, 100. The 10 cc. thus made is known as the stock solution, of which 1 cc. is again diluted to 10 cc. with the diluting fluid. This is known as the "administering fluid"; of this from 2 to 10 parts of the Lieberg's syringe are injected into the subcutaneous tissues of the arm or into the vein. The frequency of the injection depends upon the degree of the temperature elevation, the local infiltration, and the general condition of the patient. If some complication arises, this condition must subside before the next injection. With normal conditions he injects on the 1st, 3d, 6th, 10th, 15th, 21st, 28th, 36th, 45th, and 55th days; not infrequently the periods are of greater interval. If the condition of the patient after the institution of the treatment continues to get worse, the administration of the emulsion should be abandoned. The injection in favorable cases should be given until all the symptoms disappear. In children he notes more advanced tuberculous condition can be treated favorably than in adults, and in these individuals some of the contraindication of adults will not preclude treatment. [J.F.] [This treatment is not to be commended. S.S.C.]

[1] Deutsche medicinische Wochenschrift, 1905, xxx, 584.
[2] Berliner klinische Wochenschrift, No. 36, 1905.

Treatment of Scarlet Fever with Antistreptococcic Serum.—F. Ganghofner[1] treated 15 cases of scarlet fever of grave and very grave type with Aronson's antistreptococcic serum. He injected from 10 cc. to 30 cc. to a dose, in most cases but one dose on the first day, in some he repeated it on the second day. Of the 15, seven (46.6%) died. In several cases a marked drop in temperature was noted, but he is not impressed with the decrease in the mortality. No influence over any of the other symptoms was noted nor over the general condition, but he suggests that probably his dosage was too low. He also treated eight grave cases with Moser's antistreptococcic serum. Five (62%) died; those who recovered received injections on the first, second, and fourth days; those who died on the third, fourth (3), and fifth days. In one case the eruption seemed to be favorably influenced; in no case was the glandular swelling improved; the general condition was improved in three cases; the temperature was lowered in all; no serum eruptions were observed. He is not convinced that Moser's serum was of any particular advantage in any of the cases, but suggests that his sample may not have been of standard quality. He will continue the use of both serums so as to have larger numbers of cases to judge from. [E.L.]

The Action of Ibogain.—Pouchet and Chevalier[2] report concerning their experiments with ibogain, a crystallin alkaloid obtained in 1900 by Landret, from the "tabernanthum iboga" (apocinaceæ), a plant indigenous in the Congo; the natives employ it under the name of iboga for the treatment of tropic coma, also as a general invigorating medium (muscle and nerve tonic) and aphrodisiac. In small doses they found it to be tonic to the nervous system, a cardiac stimulant and an agent to improve general nutrition. In large doses it is a poison to the central nervous system, especially the spinal cord. [E.L.]

Maretin in Rheumatic Polyarthritis.—W. Sobernheim[3] treated a number of cases of polyarticular rheumatism with maretin (carbamic acid m tolyl hydracid). All were cured, the fever disappearing quickly, the pain and swelling diminishing gradually. The dose he used was 0.25 gm. (3¾ gr.) three times daily. Neuralgic headaches yielded quickly to it. In gonorrheal rheumatism, he found it less active; the condition improves, and the fever yields somewhat, but the disease does not disappear. Sobernheim speaks of maretin as a better antipyretic, antirheumatic and antineuralgic than any of the other antipyretics, as it has more powerful curative properties in these lesions. [E.L.]

[1] Deutsche medicinische Wochenschrift, 1905, xxx, 529 and 592.
[2] Bulletin Medical, 1905, xix, 159.
[3] Deutsche medicinische Wochenschrift, 1905, xxx, 588.

American Medicine

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The spread of bubonic plague is discussed by Dr. J. Ashburton Thompson, chief medical officer of Sidney, Australia, in his report on the fourth, or 1904 outbreak of the disease in that city. The important point brought out is the repetition of the proof that the rat is the sole means by which the disease is kept up and spread. There was no evidence that the infection was ever communicated directly from man to man as was believed prior to 1900. Of course it is possible for one man to be inoculated from another as easily perhaps as from a laboratory culture, but it requires an actual mechanical transfer of the bacillus which is not likely in ordinary nursing. It is not contagious then—not even in the sense that yellow fever or malaria is, for there is no intermediary host. The disease is apparently an epizootic among rats—human victims being mere incidents or accidents. It appears among the rats before any men are infected, dies out among them coincidently with the human epidemic and the areas of the two are coextensive. These facts which have now been known for some years, fully explain the peculiarities of an epidemic. It is attached to localities, spreading to adjoining ones, or if it jumps to a distant place there was evidence that rats brought it. It was not communicated in any marked degree by any other mediums such as clothes, merchandise or excreta, and one case in a house was rarely followed by a secondary case, nor was there any special proneness to spread to adjoining houses. There is no evidence that man communicates it to rats, though there are numerous ways in which that can happen, and the spread from rat to rat is not hard to understand.

How the rats infect man is still uncertain, and though Thompson states there is much circumstantial evidence that the flea is the mechanical means, yet there have been no experimental proofs. If we knew this one fact, certainly we might prevent some cases, but that knowledge would not change existing sanitary measures to stop an epidemic by killing all the rats in an infected area. Isolation of the sick is, of course, necessary to prevent the possibility of their infecting rats, but such isolation alone does not have the least effect in stopping an epidemic. The Japanese sanitarians work along these lines, and when a case is reported, the surrounding area is immediately fenced in with corrugated iron to prevent the escape of the rats, which are then caught and destroyed, the houses being disinfected as well as their contents. This particular plague seems, then, to be an exception to the usual epidemic diseases, being a mere transfer to man of a disease properly belonging to the lower animals. Prior to 1900 it was considered to be a human disease which could be transmitted to rats, but now opinion is reversed. There are, of course, other diseases, such as actinomycosis, due to vegetable organisms, which are normally parasitic to plants, and there are more which are due to vegetable organisms essentially parasitic to animals, but they rarely rise to the grand proportions of a plague.

Protozoal diseases of the lower animals are also being studied from this new viewpoint of their secondary invasion of man. Some of our animal invaders, such as the hookworm, appear to live an independent existence as scavengers or as carnivorous enemies of other animals—only incidentally attacking man. They may be classed with the saprophytic bacteria which make but occasional, or perhaps only accidental invasions. There is a growing impression that many obscure fevers are due to animal parasites of lower animals. Sleeping-sickness is due to an organism which may be a symbiotic or parasitic inhabitant, according to the resistance of the host. It suggests the possibility that there might occasionally be similar transfers from the domestic animals, as in the case of ringworm on the vegetable side. This close touch between us and all the rest of creation, shows the necessity of more workers in this special field, for the discoveries already made are

of great importance. Europe seems to have the start of us, and it is necessary for us to catch up at once.

An American school of tropic medicine is naturally suggested by every newly-reported fact relating to infectious diseases. The matter is being given serious consideration at present in several parts of the country, notably the South. It is doubtless the most important need of human pathology, because such a school would inevitably become an institution of research. Teaching and investigation can be kept separate to be sure, and grand work be done this way, but there is a growing opinion that each is better for the aid of the other in the same organization. Whether separate or combined, they need money for endowment, and money is not attainable until those who have it are convinced that they are making a good investment either for themselves or posterity. In Great Britain it was found possible to convince the commercial classes that trade would be improved by every discovery lessening the diseases which checked and sometimes stopped tropic intercourse. Anything which would obviate the expensive quarantines was worth buying, and they proceeded to buy it at once. Their contributions toward the establishment and support of schools and laboratories for tropic medicine were thus based upon practical needs. The same conditions exist in America, though to a much less extent, on account of our relatively small tropic trade, consequently it is not possible at present to appeal to the self-interests of tradesmen, and it is too long to wait until the Panama canal makes the matter imperative. The men, who, from their surplus wealth are endowing about everything which can be endowed, should have their attention called to this neglected matter. There is probably nothing which will so greatly react to the future prosperity of the country. Indeed, it is not at all unlikely that, without it, we will be unable to reap the full trade benefits of our Panama venture. By all means let us seek endowments for one or more great institutions for investigating and teaching tropic medicine.

The best places for schools of tropic medicine are also under consideration. The present practical importance of the matter in our South naturally leads attention in that direction, particularly to New Orleans, as it is already an important medical center, and is to become one of the great gateways to the Panama Canal. It has a delightful winter which would attract students, and the research work could be continued all the year by acclimated workers. Tropic material would be obtainable at all times and would be constantly imported after the canal is opened. Whether it should be a separate postgraduate institution or part of existing schools, is for the local profession to decide. Of course, branch laboratories should be established in the tropics, to which advanced students could be sent for short periods, as continued residence would not probably be conducive to first-class work. The government laboratories in the Philippines, both civil and military, will fill important needs, but are too far away for teaching purposes. San Francisco is also suggested, from the fact of its being a point of entry, and there is no reason why Seattle and other cities of Puget Sound should not also take up the matter, as part of their present policy, to make that waterway the future outlet to the tropic Orient. Washington City is suggested for its present scientific equipment, but perhaps there are advocates of all the larger eastern cities.

There is plenty of room for several tropic schools or laboratories devoted to this one end—each having some special advantages of location not possible elsewhere. The manner in which the established schools are recognizing the matter by engaging special lecturers is an index of the importance of the matter, but it is acknowledged that these are teaching efforts, for the real investigations depend upon the cooperation of many men, each devoted to one tiny specialty. Medicine needs someone with persuasive powers to loosen pursestrings. The sooner the matter is taken up the better, for the needs are urgent if American medical science is to retain the lead it is now acknowledged to be gaining over that of the European schools. Perhaps the tropic needs of the government medical services may bring about a combination of their several schools and laboratories for this purpose.

Flies as carriers of cholera vibrios have come to occupy a prominent place in practical sanitation. When the disease was introduced into New York many years ago the few widely-separated sporadic cases could be explained on no other hypothesis. According to reports[1] from Manila, the epidemic in the local prison attacked men who had probably not been outside the walls for months or even years. The water was not infected and the foods were sterile, yet in spite of isolation of the sick, cases persisted in arising, two to five daily. It was finally determined that the vibrios were carried from the latrines to the food by flies. The means of disposal of excreta were quite primitive and the crowded prisoners had to be fed in close proximity to the latrines or tubs. Flies were plentiful and it was a logical deduction that as there were probably ambulant cases in the prison and also as vibrios must also be present in the

[1] New York Medical Record, November 4, 1905.

stools of infected men before symptoms appeared, the infection was ready for transfer to the well, even if the sick were promptly isolated. A fly warfare was instituted, the latrines were screened, and vestibule screens built at the entrance, fly paper was used to catch any insects which might enter when the doors were opened, the rooms, beds, and the prisoners themselves with their clothing too, were washed with corrosive sublimate solution and the epidemic promptly ceased. Similar success in the case of recent measures to prevent beriberi infection from feces in prisons, would seem to indicate that flies carried this disease also. The proof that they carry typhoid bacilli in American towns seems to be quite conclusive, and their instrumentality in the case of tuberculous sputum is self-evident.

Four indictments against the house fly can be considered as well proved, as making it necessary for preventive sanitation to step in with practical measures. It is evident that the Manila health authorities would not have been justified in waiting until they had captured a fly in *flagrante delicto* with the goods on him. Similarly in our fight against the spitting danger we need not wait until we have found an actual culprit fly. The sanitary measures taken against cholera in Germany seem to have been entirely successful, and there is no longer any danger of an epidemic infection from that source. Whether they have also acted on the theory that the fly could be a carrier is not reported, but we presume they have. There seems to be no danger of an epidemic here, yet this new evidence as to the fly gives us another weapon of defense which makes us doubly safe.

The role of the fly in nature should be kept in mind, though it is rarely mentioned in medical literature. It belongs to the most widely diffused order of animals (diptera)—an order containing the largest number of species, many, if not most of which require liquid food. They must serve a tremendously important role to be so numerous and so widespread. The commoner flies seem to be part of the great natural mechanism for reducing organic nitrogenous substances to a simpler nitrate or nitrite form suitable for plant food. It is probably necessary for flies to carry liquefying bacteria from place to place to inoculate organic substances—otherwise they would perish. Their legs, indeed, seem specially designed for this purpose. That they incidentally carry pathogenic organisms also is not strange—indeed, it is a necessary evil connected with the good they accomplish. According to an old edition of the Encyclopedia Brittanica, it is now close to 35 years since it was first known that they were responsible for the transfer of disease. It is not at all remarkable that this discovery should have been barren of practical results so long—such backwardness is the rule. We can now rest assured that the fly is responsible for the spread of every infectious disease whose causative organism can live a saprophytic existence—and many pure parasites as well.

Sanitary measures directed against the fly must, therefore, be a necessary part of all preventive medicine in the future. Already our best hospitals are acting upon this knowledge. It is not sufficient to keep merely malaria and yellow fever cases in mosquito-proof buildings, but flies are now to be excluded from every case which can discharge living bacteria of any sort. Their exclusion is at least a necessary part of the isolation of the sick for the protection of the well. In Connecticut, the warfare against the fly is a part of the crusade against typhoid. It might be well to suggest that the elimination of the fly is, of course impossible, and even if it were, it would be a disaster. The whole matter must be looked on in the light of measures to prevent these ubiquitous necessary nuisances from reaching infectious bacteria.

The campaign for cleanliness is naturally helped along by every discovery as to the diseases spread by flies. It was known a long time ago that diseases were most frequent in the filthiest places, and it was quite naturally reasoned that these were filth diseases. The campaign then began against filth for the sake of the filth itself. The discovery of the real causes in microorganisms which were temporarily residing in the filth changed the purpose of the campaign into an effort to get rid of the bacteria. Disinfection became a shibboleth and in the minds of many it became an article of faith that filth was harmless if it was only sterilized by a few drops of somebody's chlorids. Even yet it is difficult to induce many people to remove filth and its contained bacteria, so widespread is the idea that it is only necessary to sprinkle over it something which smells bad. An article on the downfall of the theory of the filth origin of disease appeared in a popular science journal a few years ago and actually gave an impression that filth was harmless. It is now time to emphasize the fact that the best disinfection is the removal of infection and the filth which harbors it. The army authorities long ago prohibited the routine issue of disinfectants, and stated that such use indicated a lack of cleanliness. We hold no commission from soap makers, but it does seem that they should be patronized more, so that disinfectants will not be needed.

The Woman's Health Club, of Boston, is doing an excellent work in the interests of public health by the publication of its booklets on hygienic subjects, and particularly by those which teach the great doctrine of cleanliness. They are written in a plain style, which can be understood by every one who makes an attempt to read, though it is to be confessed that they will never reach the great mass of free-born naturalized American citizens who never read anything—not even a yellow newspaper. Yet they will accomplish much in the direction of educating and enlisting leaders and teachers of the future work for civic and household cleanliness. It will awaken more people to the theory that they have a right to prevent injury from the uncleanliness of others. Clean streets, clean houses, clean bodies and clothes, and, most of all, clean water and foods—these are the prerequisites of public health. It has well been said that we have "God's own country, man's own back yards, and the devil's own cesspool." We have not yet emerged from the conditions of medieval cities—indeed it is but a century since London itself was worse than a barnyard. At the rate we are pouring filth into our water courses, there will soon not be a clean stream east of the Rocky Mountains. By all means let the crusade go on, and let the woman's health clubs receive our blessings and some cash beside.

Football Abolished.—In commenting on the roll of dishonor of 1905—22 killed, 137 seriously injured, and perhaps 1,000 others hurt, the *New York Sun* says: "Football is a hospital feeder, a tough, maiming, and cannibalistic game. Don't add the terror of meaningless statistics to it." Thus the shrewdest newspaper wisdom confirms what we have been repeating in season and out of season for many years, and which the president of Harvard College has lately put in this way:

Deaths and injuries are not the strongest argument against football. That cheating and brutality are profitable is the main evil.

The newspaper uses more popular language:

We hate that peculiar American college way of taking exercise which consists in taking it by proxy, in "supporting" the eleven or the nine by watching it and yelling for it. A few hulking athletes, some of them of mature age, varied experience and crooked "record"; a crowd of pimple-faced, undeveloped, unathletic boys "rooting" for them—that is "college athletics."

It now turns out that "the doctors" have been injecting strychnin, etc., into the players. "It puts life and ginger into the men when exhausted," says Coach Smith. This is a fine role for physicians to play, but it is the logical result of the support of the game by a few professors, the parade of Provosts before the team, the burning of shutters in celebration bonfires by college Presidents, etc. That Yale, Pennsylvania, and other large universities have encouraged the degradation of the game, the shame of American young men, and the disgrace of American education, is a sad commentary on the judgment and character of the pedagogs. At last the infamy has reached such a suicidal degree of senseless hysteria that one or two colleges have determined to abolish the thing. Columbia has led the reform, and to her everlasting honor. It is a pity that owing to a complicated triple divided responsibility and the influence of the President of the United States, Harvard University could not have taken her logical position as the first in withstanding this insane mania. New York University will soon follow Columbia, and others, surely, willy nilly, must also do so. We suppose that the fine type of character, that flower of courtesy and chivalry, said to be inseparable from football ethics and practices by certain of our educators, must, alas, go. But perhaps we shall have in its place scholarship, quietness, honorable conduct, living and unmaimed bodies. The last thing, certainly, America needs is the football hero, or his "rooter," or his Professor, or his gambler hanger-on.

Vital Statistics in Pennsylvania.—The Commissioner of Health of Pennsylvania has completed his arrangements for the systematic registration of vital statistics. This announcement comes 50 years late in the history of the Commonwealth, and its welcome is on that account well prepared. Sanitary government without vital statistics is like banking without bookkeeping, or navigation without a compass, or wire-walking blindfold—hazardous business. With the establishment of a bureau of vital statistics, intelligent supervision of the public health becomes for the first time possible in Pennsylvania. It is hardly a matter for congratulation that one of the oldest and greatest of American States has turned her department of hygiene back to the rudiments of the subject, for many steps intervene between this logical beginning and the actual work of life-saving, and the American public always begrudges time spent in preparation. It is a distinctive vice of public hygiene in America to neglect its fundamental data. Of 40 States having sanitary organization, 21 have no registration of vital statistics; 19 States have laws on the subject, and in 10 of them the laws are effective as to registration of deaths. Only 6 States are able to show satisfactory mortality tables for more than a decade, and not one American State secures complete returns of births. It is evident, therefore, that American States, with hardly an exception, need a fresh start in the practice of hygiene, and that Pennsylvania, having returned to the post, has set a good example, and has not perhaps lost the race.

Vices of Registration.—Beside this neglect of vital statistics, which we say is a national distinction, American registration offices are not free from certain positive vices which seem novel, if not distinctive. At the inception of the largest work of registration ever undertaken in this country, it is worth while for the Department of Health of Pennsylvania to consider and to guard against the misuse of its vital memorandums. Beside statistics of marriage, birth, and death, returns of sickness are to be collected in Pennsylvania on a scale quite unprecedented, and some, if not all, of the difficulties experienced elsewhere in the registration of so much necessary data will certainly be encountered in Pennsylvania. In previous editorials *American Medicine* has suggested that one difficulty of this work lies in unreliable custody of the records. The medical profession, if obedient to the laws on this subject, will send every year hundreds of thousands of individual records to the Department of Health of Pennsylvania. One might suppose that in such a multitude any single record would be safely obscured, but as the number of records increases, so must the number of more or less responsible officials increase, and with a division of responsibility the chances of fidelity are not increased. The conditions of official life in Pennsylvania in recent years have alienated public confidence so far that the best man in office has hardly grace enough to save a whole department from suspicion. If the laws clearly recognize and safeguard the possibilities of improper use of the records, and if, in addition, their administration is as conscientious as we expect, success may be looked for in Pennsylvania's great work of registration. But unless the laws are sufficiently explicit, the most conscientious administration cannot prevent improper or mischievous use of the public health records. From the testimony of a competent registrar, we are led to believe that wherever the privacy of such records is not expressly guarded by law, they are open to public inspection as freely as the lists of registered voters. In his chairman's address to the Section on Hygiene and Sanitary Science of the American Medical Association, Fulton gives the results of an inquiry addressed to some 40 registrars of vital statistics in this country. In three States the records are properly safeguarded: Minnesota, Maryland, and New Jersey. In three cities the commissioner of health can withhold information contained in the records. These cities are Providence, Rochester, and Savannah. On the other hand, in Indianapolis, Cleveland, Detroit, St. Paul, Milwaukee, St. Louis, Washington, New Orleans, and Memphis, anyone may consult the records, with or without reason. In some of these cities it is admitted that the records are constantly used for improper purposes, and sometimes for scandalous purposes. In Philadelphia a memorandum is made and the purpose of the inquiry is noted whenever the records are consulted, but the Bureau of Health does not claim any authority to refuse information asked for. The practice in New York, Chicago, and Boston seems to be as lax as in Philadelphia, if not looser. In the States of New York and Michigan, the records are open and no questions are asked. Fulton's inquiries related only to open requests for copies of records of births and deaths. Apparently he did not know that citizens are anywhere allowed to search the records with their own hands and eyes, but this can be done, it seems, in many places where the laws require only that the records shall not be damaged or altered by the investigators. Records are regularly purchased of some health departments by advertising agencies. One registrar said: "I do not know how it is in your State, but here I know that registrars in various parts of the country are under salary or commission by various firms to deliver regularly records of vital statistics for commercial purposes." In one city, we are told, "an employe of the health department was found to be regularly selling to a quack the names and addresses of persons for whom sputum examinations were made in the laboratory." Another city not only fails to preserve the privacy of its records, but is unable to prevent the filing of records which are maliciously false—"records of both birth and death of unacknowledged" (falsely imputed?) "children of distinguished Americans, including a president of the United States. Attempts to regulate the use of the records have been defeated in Washington, Indianapolis, Rochester, and New Orleans." The information on which Fulton's report is based came from but 28 registration offices, and in view of this small number the exhibit is very striking. The inveterate delinquency of American cities and States in the matter of hygienic memorandums is partly explained, if not extenuated, by the existence of these abuses, and at the outset of the work about to begin in Pennsylvania, every reasonable assurance should be given that the dangers to which such records are liable have been recognized, and that the defenses are as strong as it is possible to make them.

Publicity as an Agent of Reform.—One might criticise this part of Fulton's paper as not sufficiently outspoken. In the light of publicity, the evils which he describes would be remedied speedily, and the privacy which the records deserve would be secured. It is fair to assume that the registrars who have furnished this information wish to put an end to the abuses, otherwise they would have withheld information. In some cities it is generally understood, both by the medical profession and the public, that the records of birth and

death may be utilized in commercial channels. The courts have affirmed right of access to the records for such purposes, and apparently the lay mind is not shocked by this state of affairs. Hardly anyone can be blunt, however, to the viciousness of some of the abuses revealed in this address, but on these grossly immoral practices the author's statements are veiled. The same reticence is noted in his reference to a very heinous bit of graft encountered in his own experience, a crime so exceedingly vicious that an honest man must have been tempted to proclaim it without any reservation. The health department of a western city, it is said, extorted money from a stranger whose child died of diphtheria while visiting the city. Without warrant of law, the city health department refused permission to remove the body, and the father was obliged to bury his son in a strange land. The father was informed, it is said, that a permit to remove could be obtained for a price, but was afraid or unwilling to make the criminal barter. Subsequently the father returned to the western city, paid the needful price to the confidential agent of the health department, received the permit, and returned to Maryland with his son's body. While this health department had no legal right to refuse a permit in the first place, the commissioner of health had no right to permit the disinterment in the second place, for a city ordinance forbids the disinterment of one dead of diphtheria within ten years of the date of death. In the vernacular of crime, there may be a proper name for this kind of graft, but the word, if there be such a word, must indeed be a base one. It is a long way beneath the more hideous crimes of passion, and among the crimes of cupidity, none can be more revolting than this kidnap and ransom of a stranger's dead child. Is it not the business of any man having knowledge of such an outrage to give the matter full publicity?

Mortality of Michigan during October.— There were 2,838 deaths returned to the Secretary of State for October, or about 200 fewer than in the preceding month. The deathrate was 13.1 per 1,000 population, somewhat higher than the rate for October, 1904, which was 12.0. By ages, there were 691 infants under 1 year, 219 children aged 1 to 4, and 747 deaths of elderly persons over 65. Important causes of deaths were as follows: Tuberculosis of lungs, 163; other forms of tuberculosis, 27; typhoid fever, 102; diphtheria and croup, 57; scarlet fever, 11; measles, 2; whooping-cough, 13; pneumonia, 97; diarrhea and enteritis of infants, 337; cancer, 141; accidents and violence, 175. There was a very marked increase in the number of deaths from typhoid fever, and the number of deaths occurring from this cause, 102, was the largest reported for any month since the year 1900. Diphtheria and croup also increased, while diarrheal diseases, as usual at this season, showed fewer deaths. There were no deaths from smallpox. One death from chickenpox was reported from Coldwater township, Branch county.

AMERICAN NEWS AND NOTES

GENERAL.

Havana's Yellow Fever Cases.—No new cases of yellow fever were reported last week. Six suspects have been discharged from the hospitals. Seven cases are being treated, and four suspects are under observation.

New Sergeants for the Hospital Corps.—The Surgeon-General of the Army will within the next two weeks act upon the examination papers of some 60 candidates for the position of sergeant, first class, of the hospital corps. There are 39 vacancies in the position.

Cuba to Lift Quarantine.—The Quarantine Board has decided to recommend to the Secretary of the Treasury that he immediately abolish the quarantine regulations against New Orleans, Mobile and other Southern States ports. This action will undoubtedly be confirmed.

Personal.—Major William O. Owen, medical department, on duty at the Presidio of Monterey, Cal., has been placed on the retired list on account of disability. Another officer of the medical department will be ordered home from the Philippines, the Surgeon-General having been advised that Lieutenant Charles N. Barney, assistant surgeon, has been pronounced suffering from tuberculosis. He will go to Fort Bayard, N. M.—Secretary Wilson has appointed **Dr. A. D. Melvin,** of Illinois, as chief of the Bureau of Animal Industry, to succeed Dr. Salmon, who resigned some time ago.

For Pure Food.—It was announced that a plan to federate the forces working for national pure food legislation has been perfected as a result of the joint conference of representatives from the National Consumers' League, Federation of Women's Clubs, American Medical Association, and State Food Control officials which called on President Roosevelt in behalf of national pure food legislation last week. The plans include the gathering of facts about food adulteration from every source to be presented to the committees of Congress this winter. Specific instances of adulteration in brands of food which are found in one State and manufactured in another will be collected and put into the hands of Congressman Hepburn and Senators McCumber and Heyburn, who have had charge of the fight for pure food legislation in the House and Senate.

Hospital Ship for North Atlantic Fleet.—The Navy Department continues to receive recommendations in favor of having a hospital ship with the vessels of the North Atlantic fleet, says the *Army and Navy Register*. A ship of this type is available for service, being kept in "ordinary" at the Mare Island navy yard. There have been a number of examples of the value of such a ship during the past year, such as the epidemic of measles at Guantanamo and the outbreak of typhoid fever on the Kearsarge and other ships while cruising on the European station. In this latter instance, it was difficult to have the officers and men suffering from such an infectious disease admitted to a hospital. It was only by the hardest kind of hard work on the part of the surgeons that the obstacles and prejudices were overcome and the patients admitted to treatment on land. Another consideration of importance is the transportation of the sick from a fleet as large as that which is mobilized in southern waters each winter to the naval hospital at San Juan, for instance, or from Guantanamo to Pensacola. It seems something less than humane to transport patients in tenders, tugs or torpedo boats, when the accommodations are of the crudest sort, subjecting the sick to positive hardship.

EASTERN STATES.

Boston Mortality Report.—The total number of deaths reported to the Board of Health for the week is 215, as against 212 the corresponding week last year, showing an increase of 3 deaths, and making the deathrate for the week 17.85. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 39 cases, 2 deaths; scarlatina, 23 cases, 1 death; typhoid fever, 18 cases, 3 deaths; measles, 156 cases, 2 deaths; tuberculosis, 47 cases, 25 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 36, whoopingcough 2, heart disease 23, bronchitis 6, marasmus 4. There were 11 deaths from violent causes. The number of children who died under 1 year was 41, under 5 years 57, persons over 60 years 43; deaths in public institutions 62.

PHILADELPHIA, PENNSYLVANIA, ETC.

Homeopathic Society to Get a Charter.—The Homeopathic Medical Society last week decided to incorporate itself under the laws of the Commonwealth. A committee was appointed to take the necessary steps to obtain a charter.

To Test Vaccination Law.—To test the constitutionality of the compulsory vaccination law, proceedings will be instituted by the citizens of Penns township in Snyder County, Penna., courts. The illness of some vaccinated children and popular disbelief in its efficiency are the cause of the move.

Health Order Hits Sunday-school.—The Sunday-schools of Pottsville will be depleted of nearly a third their number, due to the decision of the State Health Commissioner that Sunday-school pupils must be vaccinated as well as the public school students. The infant departments,which include many children under the age of 6, will be specially affected by the decision.

Dr. Coplin is Named as Health Director.—Dr. William M. L. Coplin, professor of pathology and bacteriology in Jefferson Medical College, is the new Director of the Department of Public Health and Charities, succeeding Dr. Edward Martin, resigned. The position pays $10,000 a year. Dr. Coplin was one of the commission of three, appointed by Mayor Stuart to organize the city's Bureau of Bacteriology. His associates were Dr. John Guiteras, now of the University of Havana, and the late Dr. E. O. Shakespeare.

Blow at Drug Trust.—A verdict for the plaintiff fixing the damages at $20,738 was rendered by the jury in the suit of C. G. A. Loder, an independent druggist against the National Druggists' Association, The Philadelphia Wholesale Druggists' Association, and the Philadelphia Retail Druggists' Association. Mr. Loder brought suit for $100,000, under the Sherman act, alleging that a conspiracy existed among the defendants to ruin his business. Under the provision of the Sherman act he is entitled to triple damages or $62,214. The case was heard before Judge Holland, in the United States Circuit Court.

SOUTHERN STATES.

To Fight Tuberculosis.—Responses to the appeal recently sent out by the Maryland Association for the Prevention of Tuberculosis for $6,000 to carry on the work of the association during the new fiscal year, are being received in a most encouraging manner.

WESTERN STATES.

An Antisuicide Crusade.—Mayor Tom Johnson, of Cleveland, O., alarmed at the official report that there have been 86 suicides in Cleveland in the last nine months, has appointed a commission, whose duty it will be to attempt to dissuade would-be suicides from taking their own lives. Every man or woman in Cleveland, who is contemplating suicide is invited to write a letter to the antisuicide commission and tell their troubles. The members of the commission will then make an effort to remove the trouble.

Law against Patent Medicines to be Enforced.—An analysis of all patent medicines is being made by the Board of Health of Los Angeles, to determine which contain poisons or alcohol; when completed, the report will be published. There is a law in California which requires that all sellers of proprietary medicines shall label packages with the name of the poison contained in the preparation. Failure to label packages is a misdemeanor for which a severe penalty is provided. A reasonable time will be allowed to conform to the rules of the law and failure to label packages will result in criminal prosecution. Attention of the city attorney of St. Louis, Mo., has been called to the violation of city ordinances regarding patent medicine advertisements, some of which are regarded as obscene. The legislative committee of the St. Louis Medical Society has appointed a committee to cooperate with the city attorney in an attempt to enforce a strict observance of the ordinances regarding advertising.

FOREIGN NEWS AND NOTES

GENERAL.

Children in French Sanatoriums.—Since 1887 60,000 children have been treated in the 15 sanatoriums on the coast of France for the care of delicate, strumous, or rachitic children, the object of such sanatoriums being the prevention of tuberculosis.

The Roman Medical Society, under the presidency of Caccialupi, has elected delegates to the Congress General of Sanitation, called by the Medical Parliamentary Bulletin to meet in November of this year. In addition, 500 lire ($100) was devoted to the needs arising out of the recent damages and injuries due to the earthquake in the Calabrian provinces.

Against Vivisection of Dogs.—Measuring seven miles in length and signed by 630,054 persons, a petition is to be presented to the British Parliament next session asking that a bill may be passed for the prohibition of the vivisection of dogs, and a memorial on the subject has been presented to the King by the National Canine Defence League entreating his favor.

Seventy Thousand Japanese Died.—The Japanese Minister of War, speaking at a banquet, said that Japan at one time in the course of the war had 1,200,000 troops under arms. Of this number, said the minister, 70,000 died and 310,000 were wounded or became sick, but only 15,000 died from sickness and 9,800 from wounds after coming under treatment.

OBITUARIES.

Rufus H. Bartlett, aged 50, November 21, from typhoid fever, at his home in Chicago, Ill. He was graduated from Rush Medical College, Chicago, in 1879. He was a member of the Chicago Medicolegal Society, the Chicago Pathological Society, and the American Medical Association.

O. S. McLemore, aged 66, November 23, from blood-poisoning, at his home in Greenwood, Miss. He served during the Civil war as a member of Harvey's Scouts; after the war locating in Leflore county, where he practised until a few years ago.

Alphonse Gladu, aged 60, November 20, at his home in Lafayette, La. He was graduated from the University of Victoria College, Coburg, Ont., Canada, in 1867, and had practised in Lafayette for about 40 years.

Asabel G. Hopkins, aged 86, November 22, at his home in Muskegon, Mich. He was graduated from the Eclectic Medical Institute, Cincinnati, Ohio, in 1877. He served in the Thirteenth Michigan Infantry during the Civil war, from which he was honorably discharged on account of disability.

Thomas H. Butler, November 25, was shot and killed in his office in Monticello, Miss. He was graduated from the Hospital College of Medicine (medical department of Central University), Louisville, Ky., in 1898.

Alfred B. Hallowell, aged 28, of Ashbourne, Pa., November 25, suddenly, from heart disease, at the home of his father in Bethayres. He was graduated from Hahnemann Medical College, Philadelphia, in 1900.

Clarence Bartow, aged 26, ambulance surgeon of the Roosevelt Hospital, was killed while on duty, November 25. He was graduated from the College of Physicians and Surgeons in 1905.

Edmund Bennett, recently, from heart disease, at his home in Barnegat, N. J. He was graduated from Jefferson Medical College in 1855.

Alex B. McKinnon, aged 58, October 28, from diabetes, at his home in Bellingham, Wash. He was graduated from the New York University, New York City, in 1886.

Emma D. L. Burd, aged 61, November 22, at her home in Yonkers, N. Y. She was graduated from the University of the State of New York, in 1891.

W. R. Biggers, of Culpeper, Va., suddenly, from paralysis, at the Astor House, New York. Dr. Bigger was about to take a trip abroad for his health.

F. A. Benham, November 19, at his home in Elkhart, Ind. He was graduated from Hahnemann Medical College and Hospital, Chicago, in 1862.

Milton W. Warfield, aged 78, November 26, at his home near Lisbon, Md. He was graduated from Jefferson Medical College, Philadelphia, in 1850.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended November 25, 1905:

STEPHEN WYTHE, contract surgeon, will stand relieved from duty at the depot of recruits and casuals, Angel Island, Cal., and will then report for annulment of contract.—First Lieutenant ROBERT E. NOBLE, assistant surgeon, is granted leave for one month.—Major WILLIAM F. LIPPITT, surgeon, is granted leave for four months, to take effect upon his being relieved from duty at San Juan, P. R.—F. HOMER WOLVEN, contract dental surgeon, is granted leave for fifteen days, from December 20.—First Lieutenant EDWARD P. ROCKHILL, assistant surgeon, will report December 29 to Lieutenant-Colonel George H. Torney, Deputy Surgeon-General, president of the Examining Board at the General Hospital, Presidio of San Francisco, for examination for advancement.—First Lieutenant RAYMOND F. METCALFE, assistant surgeon, upon his arrival at San Francisco, Cal., will proceed to Fort Leavenworth for duty during the absence of First Lieutenant Carroll D. Buck, assistant surgeon, upon whose return to Fort Leavenworth, Lieutenant Metcalfe will proceed to Columbus Barracks for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended November 25, 1905:

J. A. GUTHRIE, surgeon, orders of November 8, modified; granted sick leave for three months.—R. E. LEDBETTER, passed assistant surgeon, detached from the navy yard, Norfolk, Va., and ordered to the Glacier.—J. P. TRAYNOR, assistant surgeon, ordered to the Naval Hospital, Boston, Mass.—J. MILLER, assistant surgeon, detached from the Lawton and ordered to duty at Midway Islands.—G. G. HART, acting assistant surgeon, detached from the Glacier and ordered to the naval recruiting station, Buffalo, N. Y.—F. W. TYREE, acting assistant surgeon, detached from duty at Midway Islands and ordered to duty at the naval training station, San Francisco, Cal.—S. G. EVANS, surgeon, ordered to the naval recruiting rendezvous, Denver, Col., December 1.—J. T. MILLER, acting assistant surgeon, detached from the Naval Hospital, Sitka, Alaska, and ordered home to wait orders.

Changes in the Public Health and Marine-Hospital Service for the week ended November 22, 1905:

GEORGE T. VAUGHAN, assistant surgeon-general, granted leave of absence for four days from November 15, 1905.—P. H. BAILHACHE, surgeon, granted leave of absence for 10 days from November 20, 1905.—H. W. SAWTELLE, surgeon, granted extension leave of absence for 20 days from November 23, 1905.—W. P. MCINTOSH, surgeon, 21 days leave of absence granted from November 15, 1905, amended to read 21 days from November 18, 1905.—M. J. ROSENAU, passed assistant surgeon, granted leave of absence for 14 days from November 22, 1905.—H. B. PARKER, passed assistant surgeon, granted leave of absence for 20 days from December 15.—J. F. ANDERSON, passed assistant surgeon, leave of absence granted for one month from November 1, 1905, amended to read 18 days from November 1, 1905.—G. M. CORPUT, passed assistant surgeon, directed to proceed to Pascagoula, Miss., for special temporary duty.—T. D. BERRY, passed assistant surgeon, leave of absence temporarily revoked and directed to proceed to Biloxi, Miss., for special temporary duty.—B. S. WARREN, passed assistant surgeon, granted extension leave of absence for one month from December 3, 1905.—L. P. H. BAHRENBURG, assistant surgeon, to report to chairman of board of examiners at Washington, D. C., December 4, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon; upon completion of this duty to rejoin station.—J. T. BURKHALTER, assistant surgeon, to report to chairman of board of examiners at Washington, D. C., December 4, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon; upon completion of this duty to rejoin station.—J. S. BOGGESS, assistant surgeon, to report to chairman of board of examiners at Washington, D. C., December 4, 1905, for examination to determine his fitness for promotion to the grade of passed assistant surgeon; upon completion of this duty to rejoin station.—J. M. JACKSON, acting assistant surgeon, granted six days leave of absence from November 5, 1905.—H. B. MOHR, acting assistant surgeon, granted leave of absence for 30 days from December 1, 1905.—E. M. SMALL, acting assistant surgeon, granted leave of absence for 14 days, beginning December 7, 1905.—JOHN FRICK, acting assistant surgeon, granted leave of absence for 30 days from December 1, 1905.—KARL S. KENNARD, acting assistant surgeon, granted leave of absence for 14 days from November 27, 1905.—H. H. STEARNS, acting assistant surgeon, granted leave of absence for 21 days from December 11, 1905.—B. S. TARBELL, acting assistant surgeon, granted leave of absence for 10 days from November 21, 1905.—S. W. RICHARDS, pharmacist, granted leave of absence for 23 days from November 23, 1905.

Board convened to meet at Washington, D. C., December 4, 1905, for the examinations of assistant surgeons. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General J. M. Eager, Passed Assistant Surgeon John F. Anderson, recorder.

SOCIETY REPORTS

AMERICAN RÖNTGEN RAY SOCIETY.

Sixth Annual Meeting, Held in Baltimore, Md., September 28 to 30, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 891.*]

Röntgen Ray in Carcinoma.—GEO. H. STOVER (Denver) uses a ray of good mellow quality that will penetrate the tissue. The ray may be allowed to affect the surrounding tissue to a reasonable distance, but should not be placed too near the skin, because of rays close to the wall of the tube that are of high destructiveness. All healthy parts should be protected. He rays three times a week for 10 minutes each time, tube distance being 8 in. to 10 in. He uses shields on all treatment tubes. He advised röntgen-ray treatment of primary, nonoperative and recurrent nonoperative carcinomas; when there is an equal chance between röntgen and surgical measures, advise operation and ray afterward.

Röntgen Ray in Military Surgery.—C. F. STOKES (United States Navy) described the equipment employed in naval hospitals and on board ship, and cited a number of cases in which the röntgen ray was used to good advantage.

Treatment of Leukemia.—J. F. SMITH (Chicago) added two cases to 10 previously reported, and reviewed the results obtained in the entire series. The action of the röntgen ray seemed to be of two kinds—the local influence on the spleen and glands characterized by inflammatory reaction, if treatment is pushed vigorously, and later by the breaking down and disintegration of gland tissue, and the formation of leukotoxin, which either has an inhibitory action on the manufacture of leukocytes by the bone marrow or it destroys the leukocytes already formed. In no case did the splenic tumor disappear entirely. With a discontinuance of the röntgen ray, the disease, at varying periods, returns. Acute cases are not benefited at all by the treatment. Chronic cases respond more rapidly than subacute cases. The probability is that the ray holds the disease in abeyance, but does not cure the patient.

Röntgen Treatment of Hodgkin's Disease, Leukemia and Polycythemia.—HENRY PANCOAST (Philadelphia) emphasized the necessity of careful study of the effects of röntgen-ray exposures on metabolism, particularly in connection with the treatment of the diseases under discussion. He has found that the effects of the röntgen ray on leukemic tissue are not the same as those on the skin in a röntgen-ray burn, or an epithelioma breaking down under treatment.

Technic of Calculus Diagnosis.—RUSSELL H. BOGGS (Pittsburg) emphasized the necessity of being familiar with the densities that may appear on the plate and being able to interpret them correctly. In over 200 cases examined, there were only two unsatisfactory results. The diagnosis from the plate should never be attempted until the plate is perfectly dry. He said that it is not difficut to make a radiograph that will show the calcium oxalate and phosphatic calculi, but if the patient is large, it requires a great deal of accuracy to show the necessary detail and make a correct diagnosis. The röntgen ray is the most efficient means for diagnosing kidney stones, but experience is necessary in the use of the method to make it valuable. Two radiographs should be taken, and the shorter the exposure, the better, because there is then no motion of the parts. When the rays are intense enough to make a picture in less than 30 or 40 seconds, and the tube used is so much lower in vacuum, it will give greater detail and differentiation. The radiograph should be made while the patient holds his breath, using a large amount of current with all the inverse discharge cut out. By using a rheostat in series with the primary of the induction coil, the milliamperage can be kept at a certain point. The bowels are emptied thoroughly first, and no food or fluid is allowed for some time before the examination. The tube is placed about two inches from the plate.

Discussion.—HENRY PANCOAST (Philadelphia) called attention to two sources of error in diagnosing kidney or ureteral calculi. First, a deposit of salol in the bowel and the presence of phleboliths in the pelvic veins, both of which give shadows resembling those thrown by calculi. J. F. SMITH (Chicago) said that calcareous lymph-glands and calcareous deposits in the pelvic ligaments have also been known to complicate the diagnosis of calculi. HENRY HULST (Grand Rapids, Mich.) mentioned a case in which a fracture of the transverse process of one of the lumbar vertebras gave a shadow that was at first mistaken for a calculus until a full history of the injury that caused the fracture was obtained. M. K. KASSABIAN (Philadelphia) cautioned against mistaking calcified lymph-glands around the lower portion of the ureter for calculi. He advised inflating the urinary bladder slowly as an aid to diagnosticating stones in the lower ureter. CHARLES LESTER LEONARD (Philadelphia) said that when there is a stone in the ureter there is always a passive enlargement of the kidney. That fact is an aid in making a diagnosis of stone in the ureter. SINCLAIR TOUSEY (New York) cited a case to illustrate that sometimes the stone is on the side opposite to the one indicated by the clinical symptoms, as containing the stone. In such cases the röntgen ray is of great value in locating the stone. Radiographs for stone should include both kidneys and ureters in order to make such mistakes impossible.

[*To be continued.*]

AMERICAN ACADEMY OF MEDICINE.

Thirtieth Annual Meeting, Held in Chicago, November 9 and 10, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 892.*]

The report of the committee on teaching hygiene in the public schools; and the present teaching of domestic science and nature study in public schools, so far as these branches include teaching hygiene, was read by HELEN C. PUTNAM (Providence, R. I.), the other two members of the committee being Edward Jackson, Colorado, and Geo. G. Groff, Pennsylvania. Over 70 classes in domestic science in 18 different cities were visited, and about as many in nature study, in elementary, high, normal and special public schools. Last year, in its report on the laws and on nearly 100 textbooks in physiology and hygiene, written for children since 1882, the committee selected the latest and best books for special examination, to learn the possibilities and aims of these books. For the same reasons, in reporting the teaching of hygiene through domestic science and science teaching, the best programs of work were outlined, with brief details of the differences between these and the larger number of less efficient programs. The actual practice of principles of hygiene in domestic science and in the actual observation of biologic details and physical phenomena in the teaching of the sciences—called nature study in elementary schools—were briefly compared with the method of memorizing from books and talks. The larger range of work covered in the former classes was also noted. The committee reserved its recommendations until it had reported on the other direct methods of teaching hygiene in the public schools.

President's Address: Altruism in the Medical Profession. — WINFIELD S. HALL (Chicago). The

higher the order of altruism, the fewer there were who attained to it. Voluntary sacrifice of life in order that other lives might be saved was the highest order of altruism. This height of sacrifice had been attained by a comparatively small number only; a number, however, that should include the names of many unknown heroes who had gone to their deaths while ministering to the sick in plague-stricken places, leaving no record of their heroism. The speaker cited examples from the ranks of the medical profession, covering a period from the founding of the profession to the present time. Enduring fame in the medical profession could be won through altruism only. If fame rested upon altruism, then would such names as William Stokes, Samuel D. Gross, and Nathan Smith Davis have a fame which would endure through the ages. These men were actuated by sacrifice of self for others and their names would have enduring fame. Organized for the purpose of advancing the standards of medical education, of advancing the boundaries of medical science, of elevating the profession and of preventing disease, the work of the American Academy of Medicine had been altruistic from the time of its organization to the present. The field of its activities was ever widening, and always along altruistic lines. If he were asked to make a general recommendation, it would be that the Academy accepted as its field of endeavor the altruistic responsibilities and activities of the medical profession, definitely outlining a program of research to be prosecuted along various lines, as education, school hygiene, State medicine, ethics, etc. This research should be followed by carefully directed and persistent efforts to accomplish that which the research revealed to be advantageous to society.

Recreation in Its Effects upon the Nervous System.—WILLIAM JAMES HERDMAN (Ann Arbor, Mich.) stated that the practical methods by which suitable recreations were to be selected to meet the requirements of special classes or individuals would vary as taste, occupations, and opportunities varied. From the complexity of occupations in which people engaged there resulted the greatest variety of channels through which the store of nervous energy was depleted. Outdoor plays and games, requiring some skill, such as boating, fishing, swimming, skating, horseback riding, gardening, tool work, and the like, were of much more recreative value than any of the artificial gymnastics which had no purpose nor incentive beyond the movement itself. For the brain worker the way was open to innumerable recreations, and the opportunity for choice and the possibility of varying their character at will, would make the problem of healthful living an easy one if any man would but cultivate a sufficient variety of interests, so that when one channel of activity was for any reason closed to him, as a relief from necessary work, he had but to choose another. The practical result in this was seen when the statistics of health and longevity of the brain worker and of the muscle worker were compared. The researches of Beard and others had shown that brain workers not only lived from 14 to 20 years longer than muscle workers, but that their health was more uniformly good and their stature of larger average. When mankind was once emancipated from the conception that honest work was contemptible drudgery, and learned to recognize the pleasures and recompense it had in store when rightly apprehended, which meant that the work selected must be suited to individual capacities and tastes, and when greed and selfishness gave place to a spirit of mutual helpfulness, the problem of recreation would be solved.

The Physiology of Recreation.—GEORGE W. MCCASKEY (Fort Wayne, Ind.) said that the primary and predominant factor in practically all forms of recreation was the psychic one. Although the influences of the mind over the body were recognized in a general way, it was fully comprehended by few, if any. The sudden change from a state of extreme depression and misery, with perfectly distinct physical suffering, to one of buoyancy and exultation, with entire forgetfulness of self as a result of a change of emotion, was a not unfamiliar experience in the lives of most people. As an illustration of the broad effects of mental impression in general, he mentioned the case of an attorney under his observation, whose digestion after considerable improvement remained more or less distressing in spite of all he could do for his relief, which included the treatment of a local stomach disease by suitable methods, careful regulation of diet, gymnastics, and a liberal amount of outdoor exercise. This gentleman would go to a little lake 40 miles away, and the very first meal that he would eat there, long before there could be any possible effect of exercise, atmospheric change, etc., would be digested without the slightest disturbance or even consciousness on his part, and this would continue until his return to the city, when the old conditions would be immediately resumed. If the various forms of recreation were closely scrutinized, it would, he thought, be found that those diversions and amusements which produced the promptest and most brilliant effects upon both the mental and physical states of those who participated were precisely those in which the psychic impression was the strongest. The first requisite in what might be termed successful recreation was a complete diversion from self, a complete submergence of self-consciousness, which inhibited that everlasting introspection of our physical selves which was the foundation of half the morbidity of the world. How this could best be done was a problem for the individual, and depended upon his age, sex, social status, intellectual development, and other factors which went to make up the complete ego. He next invited attention to the purely physical or mechanical aspects of many forms of recreation; in other words, the factor of muscular exercise, and said that the systematic introduction into our lives of such recreation as was suited to individual needs should be the rational aim of all, and a proper understanding of the physiologic laws and facts which underlay the whole subject could not be otherwise than helpful. He concluded with the admonition of Virgil, that "rural recreations abroad, and books at home, are the innocent pleasures of a man who is early wise."

[*To be continued.*]

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 893.*]

Intraperitoneal Tuberculosis. — F. F. LAWRENCE (Columbus, Ohio) in a paper on this subject, drew the following conclusions: (1) Intraperitoneal tuberculosis is frequently a local disease; (2) it probably occurs much more frequently in the female than in the male; (3) in a large majority of cases it is primarily visceral and the general peritoneum is secondarily involved; (4) the surgical treatment is rational, sometimes agreeably surprising in results, and again bitterly disappointing; (5) in this, as in many other surgical conditions, early diagnosis and early operation will bring more certain results; (6) in this condition the greatest obstacle to overcome is the idea that it is a secondary condition; (7) no case of intraperitoneal tuberculosis should be denied the benefits of operation, no matter how extensive, as long as there is no positive pulmonary or pleuritic involvement, for the reason that some apparently hopeless cases fully recover; (8) when there is a tuberculous peritonitis, a sequel of tuberculous tubes, ovaries or appendix, the primary focus should always be removed; (9) in these tuberculous cases the mesenteric glands have not

been found frequently involved, and when they are, operation accomplishes very little good; (10) in tubercle of tubes and ovaries the adhesions are usually firm, sometimes, though not usually, very vascular, and not infrequently involve loops of the small intestine; hence the greatest care is necessary to avoid serious injury to bowel and at the same time separate completely all adherent surfaces and provide complete drainage; (11) drainage is the great factor in recovery, when properly carried out.

Pyloroplasty with the McGraw Ligature.—J. HENRY CARSTENS (Detroit, Mich.) said that many cases with disturbances of digestion cannot be diagnosticated or relieved by medication. These should be subjected to an exploratory celiotomy. Gastroenterologists should not treat patients for months and years if they cannot make a positive diagnosis or cure a patient. After reasonable efforts the patient should be sent to the surgeon for relief. The McGraw ligature is a valuable means of relieving stricture at the pylorus and the resulting dilation of the stomach. This method of operating is easy and quick; the danger is very small, and the operation is preferable to those heretofore used in benign contractions of the pylorus. It is a great deal better than gastroenterostomy, as one restores as nearly as possible the normal condition. Quite a number of gastroenterostomies have been reported, with a most gratifying result in some of the cases, but the difficulties encountered, the trouble with the vicious circle, frequently call for a double operation. The McGraw elastic ligature method should be the operation of choice. In conclusion, the author stated that (1) any stomach troubles are due to mechanical means; (2) these cases can only be relieved by surgery; (3) many cases cannot be properly diagnosticated in the present state of our knowledge; (4) obscure cases that have been subjected to various methods of treatment without benefit should receive the benefit of an exploratory celiotomy.

Ovarian Cystoma.—L. P. LUCKETT (Terre Haute, Ind.) reported a case of ovarian cystoma upon which he had operated. The tumor originated from the left ovary, was attached by a broad pedicle, which was tied off in sections. The uterus and right ovary were found to be normal. The fluid and tumor were estimated to have weighed between 70 and 80 pounds. The patient made an excellent recovery.

Surgical Treatment of Nephritis.—ALEXANDER HUGH FERGUSON (Chicago) presented a further report on the surgical treatment of this disease. He reported seven cases upon which he had operated, with two deaths. Case I.—Capsulectomy and nephrotomy; return of symptoms; no second operation; still improved. Case II.—Chronic nephritis and pregnancy; unilateral capsulectomy and nephrotomy, with recovery. Case III.—Chronic, painful, left interstitial nephritis; capsulectomy and nephrotomy, followed by recovery. Case IV.—Nephritis; unilateral capsulectomy and nephrotomy, with recovery. Case V.—Nephritis; unilateral capsulectomy and nephrotomy; death. Case VI.—Bilateral nephritis; bilateral capsulectomy; unilateral nephrotomy; multiple punctures on the other side; death. Case VII.—Double recapsulectomy; multiple punctures; patient progressing toward recovery.

Closure of Ureterovaginal and Vesicovaginal Fistulas.—MAURICE J. ROSENTHAL (Fort Wayne, Ind.) reported a case and concludes that a considerable area of scar tissue and vaginal mucosa may be inverted into the bladder without producing ill-effects. Ureteral fistula embedded in scar tissue may be inverted into the bladder and continue to discharge its urine without becoming stenosed. Even large vaginal fistulas, where part of the bladder walls are lost in scar tissue from a previous hysterectomy, may be successfully operated by denudation and suture through the vagina without disturbing the relations of the bladder or any adhesions of pelvic viscera which may have formed in the scar.

Sprained Ankle.—ROBERT CAROTHERS (Cincinnati, Ohio) drew the following conclusions: 1. No one is exempt from a sprained ankle, although some are more prone to it than others. 2. That in severity, a sprained ankle will range from a trivial accident to one of extreme severity and everlasting. 3. That the outer side more often than the inner side of the ankle is the seat of trouble. 4. That the diagnosis, which is ordinarily made with ease, is at times made with difficulty, and occasionally a röntgen-ray examination is required to make the diagnosis certain. 5. That the treatment by immobilization with a plaster-of-paris cast is unsatisfactory and at times injurious. 6. That the treatment instituted by Cotteral, the socalled adhesive plaster strappings, advising and urging the patient to walk on the injured foot, the early removal of these straps, followed by massage, gives the most satisfactory and best results. 7. That the old cases are to be, under anesthesia, converted into acute sprains and treated in the same manner.

[*To be continued.*]

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 893.*]

Etiology and Prevention of Yellow Fever.—JOHN GUITERAS (Havana, Cuba) confined his remarks to new points that have arisen in the struggle with yellow fever during the year, which have been evolved by investigations. The French Commission from the Pasteur Institute, experimenting in Rio Janeiro, had produced a case of yellow fever by applying to a non-immune mosquito the eggs laid by an infected mosquito. This raised a very interesting question as to the transmissibility of yellow fever by the progeny of infected mosquitos. The speaker thought, in Havana, that they had by experimentation settled this matter, that an infected mosquito could not transmit infection through its progeny or eggs. He was inclined to believe, from a perusal of the experiments of the French Commission, that there was some mistake. Marchoux, the French experimenter, acknowledged that he had only one such case. He worked in an infected locality, and it was possible, Guiteras thought, that the man was accidentally bitten by another infected mosquito without Marchoux knowing it. There was another argument against the transmission of yellow fever by the progeny of infected mosquitos. It seemed to him that it would have been impossible to have eradicated yellow fever in Havana as they had done if the theory of the French Commission of the transmission of the disease by the progeny of infected mosquitos was true. In getting rid of yellow fever in Havana, they began to attack the epidemic in the beginning, so that it was comparatively easy to wipe out the disease in that city. This would have been impossible if the progeny of infected mosquitos had been also infected. Another interesting point to which Marchoux called attention was that one source of infection was to be found in young children affected with a mild form of yellow fever. Guiteras said this was not new, as Blair, Chaille, and himself had pointed this out in their investigations at Key West and in Havana, and they had shown that there were many cases of mild yellow fever among children that were unrecognized, who became sources of infection by the mosquito. It was a study of the problem of yellow fever in young children in the yellow fever zone that led him to call attention to and insist upon the great danger of mild cases of yellow fever. He had been calling attention to this for many years, not only in cases of young children, but also in young adults, especially of the colored population, who were apt to develop mild cases of the dis-

ease. These he had always considered the most dangerous transmitters of the infection. In the early diagnosis of yellow fever special attention was directed to the high percentage of hemoglobin found in yellow fever cases, which he said was an important differential diagnostic point between this disease, typhoid fever, malaria, and influenza, three affections that are frequently confounded with yellow fever. In influenza, typhoid fever, and malaria, the percentage of hemoglobin is low —70, 75, perhaps 80. In malaria and typhoid fever, on the second day of the disease, one notices a decline in the percentage of hemoglobin in the blood. On the other hand, in yellow fever the percentage of hemoglobin is high, very often 100, sometimes above 100, during the first three, four, and five days of the disease, and rarely below 90. If the percentage of hemoglobin went below 90, and the case proved to be one of yellow fever, he considers that there is a complication, or the patient previously suffered from malaria. Another diagnostic point is albumin in the urine. Albumin in the urine is a characteristic sign of yellow fever. He insisted more than he had ever done before upon the importance of this symptom, and upon a certain interpretation that must be given to the presence of albumin in the urine. After a careful study of many kinds of fever in Havana, he had found that albumin in the urine was more common in other infectious diseases than he had thought. It is common in cases of influenza and of typhoid fever, but not so common in malaria. It is only occasionally found in cases of malaria. Albumin in the urine is found in cases of dengue. The special point he brought out was that the quantity of albumin found in the urine in cases of yellow fever was out of all proportion to the other symptoms present.

Consideration of Some of the Problems and Difficulties of Bacteriologic Diagnosis.—BERT R. RICKARDS (Boston) discussed some of the everyday problems and difficulties met with in making bacteriologic diagnoses. Each disease discussed was considered: (1) In relation to any special points connected with the preparation of the specimen submitted; (2) in regard to those problems which have to do with accuracy in diagnosis; (3) with reference to results and their relation to the clinical aspect of the case.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A MEDICAL MEDLEY.

The following report of a case was written by a subscriber, after reading every line of a large illustrated dictionary of medicine. The condition of mind of this physician bears witness to the sad condition of medical lexicography:

Some time since a pimelotic, devalgate, oxyrhine individual with a setigerous face, wearing a prothesis ocularis and having a pince nez suspended by a short concatenatum, came to consult a doctor. He stepped into the office of an anargyrous physician whose practice was largely confined to ptochiatria. Advancing with a peculiar festination and adjusting his perspicilia, he began thus—exhibiting the characteristic Yankee rhinolalia. "I will proceed to expound my symptomatology. My nasarium is always turgescent; I am troubled with somniloquence, degmus, tabescence, segnitia, cecutience, and hematophobia." Having delivered himself with such bombastic phraseology, there was a considerable cerebral detumescence. The doctor first completing a thorough contrectation and a gastrodiaphany and by the use of a catagoglossum having effected a discriminating glossoscopy replied, "In this case you are right. However, I deplore such autodiagnosis, especially in such a medical sciolist as you. Your approaching cecity will inevitably tend to a chronic meconophagism with a terminal cacothanasia. I fear such a prognosis will be a powerful dacryagogue." The man then further explained that his disease was caused by worry over the condition of his wife and baby. "My uxorial consort was ill continually from the initial matutinal nausea of the first trimester until the time when with conquassant tormina she was delivered and then in addition she developed a galactopyretus in a few days. The baby was handicapped, due to a faulty omphalolysis performed by a medicaster who knew little of cyesiology. Further, an irremediable dystithia supervened which interrupted myzesis and required premature ablactation, thus changing the child from a sububer to an exuber. What will be your treatment?" "YOUR disease" answered the physician, "is a semilincident one, and is not, therefore, endeictic of a recidivity. This indicium is to be met with a medicamentum of lapactic, roberant, epulotic, detergent, catagmatic, abluent, and emulgent powers. I will not pander to your evident pharmacomania, and I wish to avoid therapeutic neophilism. Perhaps I can effect a jugulation by a febrifugal maneuver. Observe a short jejunum, take a hot pediluvium and a diurnal aprication. Apply adeps anserinus freely to the jecoral region to dissipate any myristication; but after all we must rely on the general physiautocracy. Go to the contiguous pharmacopolium and get this polychrestus which I have prescribed—you will find it a veritable catholicon. My fee is $10.00." Highly incensed at this rapacity the man retorted, "I most assuredly will not render you any monetary return for such a melange of poecilonymous verbigeration and sophomaniacal hyperlogia. Have you taken a physagogue, you insignificant spanopogon? Your onomatopoiesis is provocative of frequent stenagmata and oscitations." Under such torrefaction the doctor suffered an ebullition of his anger and he replied: "You are rather pachycephalic not to understand what I have said. Your macrocheilia betrays a certain ethiopification. Do you take me for a hippiater or are you unfamiliar with medical deontology?" With this he made a suppedaneous application to the man's pygidium which produced a suggillation of apostematous propensities and landed its recipient on the pavement below with a descendent anfractuosity whence he proceeded with a decided claudication.

THE GENERIC NAME (SPIRONEMA VUILLEMIN, 1905 [NOT MEEK, 1864, MOLLUSK] -MICROSPIRONEMA STILES AND PFENDER, 1905) OF THE PARASITE OF SYPHILIS.

BY

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AND

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The parasite which Schaudinn found in syphilitic patients was first classified by him as a member of the genus *Spirochæte* Cohn, 1872; this name was simply an amended spelling for *Spirochæta* Ehrenberg, 1834.

Vuillemin (1905, June 5, pp. 1567–1568) removed Schaudinn's organism from the genus *Spirochæta* and proposed for it the genus *Spironema*, a change in classification which Schaudinn has accepted.

The generic name *Spironema* is preoccupied in Zoology, having been used by Meek in 1864 for a genus of mollusks. It is accordingly not available for the protozoon of syphilis, and under Article 34 of the International Code of Zoological Nomenclature, we herewith propose the generic name *Microspironema* as substitute, with *Microspironema pallidum* (Schaudinn, 1905) Stiles and Pfender, 1905, as type species.

ORIGINAL ARTICLES

RESULTS OF THE OPEN-AIR TREATMENT OF SURGICAL TUBERCULOSIS.[1]

BY

W. S. HALSTED, M.D.,

of Baltimore, Md.

Planned and partly written more than ten years ago, this paper was not completed until last autumn (1904), when the private clinical material seemed large enough and to have been observed long enough to make the report convincing. Even now my list of private cases of surgical tuberculosis is not a long one. It is not to be expected that people accustomed to luxury, and, particularly, when in poor health, should relish the prospect of a winter in a boarding-house at Saranac. I am, therefore, under great obligations to the patients who have so courageously and with such implicit trust yielded to my very earnest solicitations to exile themselves for a winter at least. Today we cannot well realize the amount of faith which this required 15 years ago, when not a single precedent could be cited, when one could indicate no case of surgical tuberculosis which had been treated in even a most desultory out-of-door fashion, and when patients, encouraged to believe that they would get well if they remained at home and indoors, asked me to explain how mountain air, inhaled ever so deeply, could reach the bone.

The sanatorium of Dr. Trudeau, at Saranac Lake, had been in existence only about four years when, in 1889, soon after my call to the Johns Hopkins University, I first met him, and one afternoon listened for hours, charmed by the story of his life, his work, and his dreams for the future. He eagerly welcomed the suggestion that possibly all cases of tuberculosis, irrespective of the situation of the lesion, might be benefited by the treatment which he believed was proving to be of great value for pulmonary tuberculosis. The milder the case, or, in other words, the more nearly perfect the patient's immunity, the greater, presumably, was the prospect of cure. Hence, cases of bone and lymph-gland tuberculosis, which, under various names, had for tens of centuries been regarded as more or less curable, and certainly as infinitely less to be dreaded than "consumption," seemed eminently proper ones for the open-air treatment.

There is abundant evidence from France, and especially from England, as to the genuineness of the cures of struma and of rickets by the laying on of the King's hand. The practice can be traced in England to Edward the Confessor (+ 1066) and in France to Phillip the First (+ 1108) *Le Roi te touche, Dieu te querit.* From the official register it appears, for example, that 90,798 persons suffering from the "King's evil," were touched by Charles II (1660-1664 and 1669-1682).[2] John Browne, Chirurgeon in Ordinary to his Majesty, the author of four treatises (1684) on the subject, gives a figure even larger in his Charisma Basilicon, or the Royal Gift of Healing Strumæ, or "King's Evil," Swellings by Contact, or Imposition of the Sacred Hands of our Kings of England and France, given them at their Inaugurations.

Shakespeare refers to the custom (Macbeth, Act IV, Scene 3):

> DOCTOR.—Ay, sir: there are a crew of wretched couls
> That stay his cure; their malady convinces
> The great assay of art; but, at his touch,
> Such sanctity hath heaven given his hand,
> They presently amend.
>
> * * * * * * *
>
> MACDUFF.—What's the disease he means?
> MALCOLM.—'Tis called the evil;
> A most miraculous work in this good King;
> Which often, since my here-remain in England,
> I have seen him do. How he solicits heaven,
> Himself best knows; but strangely-visited people,
> All swoln and ulcerous pitiful to the eye,
> The mere despair of surgery, he cures;
> Hanging a golden stamp about their necks,
> Put on with holy prayers: and 'tis spoken,
> To the succeeding royalty he leaves
> The healing benediction.

The cost of these golden stamps in certain years was more than 3,000 pounds, sterling; so great that in Elizabeth's reign silver coins were substituted for the gold. Many of the best known English surgeons, Gaddesden, Gale, Clowes, Bannister, from the thirteenth to the seventeenth century, testify to the marvellous results of this practice.[1] Is it not very likely that the exposure to all weathers, day and night, the life in the open, led by the afflicted on their long pilgrimages to Norway, France, England, effected the cures of the King's evil and deserved all the glory enjoyed by the monarchs endowed with the miraculous touch?

Though the knowledge of opsonins was a little indefinite in the early Adirondack days, it was evident that, in a general way, improvement in nutrition, whatever that signifies, is responsible for the subsidence of the disease. After my talk with Dr. Trudeau, a year passed before the patient destined to be the first to make the true experiment in the treatment of surgical tuberculosis presented himself. But in the meantime we were accumulating evidence of a less conclusive kind on the "bridge" of the Johns Hopkins Hospital. The open-air treatment of surgical tuberculosis possibly began with the admission of the first tuberculous patient to the surgical wards of this hospital. He was wheeled in his bed to a spot on the roof of the long corridor. A rough trundle-bed had been constructed for the purpose of transporting beds easily from the wards to the bridge and to the clinics.[2] Although at first the surgical beds on the bridge afforded amusement for most except those whose duty it was to trundle them, very soon the benefit to the patients was so definite and evident that even certain nontuberculous patients, particularly those convalescing from other infections, were also treated to fresh air. Just the other day, for example, a child about 11, operated upon for appendicitis, had a septic postoperative temperature, ranging from 101° F. to 106° F., for nearly three months. Whether general infection or an

[1] Read at the First Annual Meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, May 18 and 19, 1905.

[2] Gurlt: Geschichte der Chirurgie.

[1] Gurlt, l. c.

[2] The idea and the design for this trundle we brought from the great clinic of Volkmann, in Halle, where it was used to transport beds from the wards to the amphitheater, and from ward to ward.

undiscoverable local focus of infection was responsible for her temperature has never been determined. Her hæmoglobin sank to 25%. Finally, when her life was almost despaired of, she was transported to the bridge and, seemingly from that moment, her convalescence and prompt recovery began.

It is a real joy to patients, this life in bed on the bridge. It relieves the monotony of the confinement, and they discover that it gives appetite and sleep and vigor. After a severe surgical operation, patients, if restless and sleepless, often find that the day out of doors in bed refreshes and soothes them and insures a peaceful night and a morning minus the headache incident to an anodyne. And what a boon it must be to the typhoid convalescents, to those suffering from the so-called post-typhoid septicæmia. The main rectangular corridor is 12 feet wide and more than 1,300 feet long; hence, the length of the veranda or "bridge," its roof, is about a quarter of a mile. I have intended for years to ask the distinguished designer of the hospital, Dr. J. S. Billings, if he had in mind any such possible use for the bridge when he planned it. This treatment of patients with surgical tuberculosis has been carried on uninterruptedly for the past 16 years; and now, every day, with few exceptions, winter and summer, the bridge is strewed with the sick.

But it is from my private patients that I have learned the almost incredible value of the true out-of-door living in the treatment of surgical tuberculosis.

I have treated no patient, the hospital cases excepted, who would not or could not live out of doors in the manner prescribed.

There follows a brief abstract of all the private cases, and, hereupon, the fuller histories of the first four of these, which latter were the pioneer patients, the experimental cases, and have been under observation for many years. They were also serious cases whose progress has been watched with unusual concern and satisfaction:

CASE I.—Pott's disease with sinuses. Enormous waxy liver. In bed, very ill, and supposed to be dying when he consulted me in 1890. Transported in private car to Saranac Lake. Restored to fair health, married, father of three children, lived 12 years, died of nephritis. (Fuller history follows.)

CASE II.—Child, aged 15. Family history of tuberculosis. Hip disease a year and a half. Large abscess in or about joint February, 1893. Iodoform injections; rigorous out-of-door treatment at home in Maryland and mountains of Pennsylvania for seven years; then January, 1900, to Adirondacks, where, in five weeks, she gained nine pounds. On her return she looked really well, for the first time since my first examination. Brace and crutches were discarded, and riding, driving, walking, dancing, and social pleasures were freely indulged in with true relish after the long, weary years of life in a chair on the piazza. But day after day, and night after night our patient's strength was taxed (1900 and 1901) and the hours on the piazza became fewer and fewer, and finally none. Then, in less than two years from the time "cured," (December, 1901) she noticed a little swelling and stiffness above the right wrist, for which she soon consulted me. Her general condition was poor, almost bad.

Diagnosis.—Tuberculosis of tendon sheaths. At operation a very active and extensive process from palm to upper third of forearm was revealed; thousands of fresh tubercles in sheaths and muscles were carefully removed. Patient went eagerly and promptly after the operation to Saranac, where, in the first month, she gained 16 pounds. The winter was spent in the Adirondacks and the summer in the Austrian Tyrol. May, 1903. Patient enjoys perfect health. She walks with a hardly noticeable limp. Flexion permitted to a right angle at affected hip, although the head of the femur has disappeared. The slightly expanded end of neck occupies the acetabulum. The function of hand and wrist is perfectly restored. Results like this, very rare in the past, will be common in the future. (Fuller history follows.)

CASE III.—Mrs. ——d, aged 28, March, 1894. Sister died of pulmonary tuberculosis, aged 36. Is very delicate and neurotic. Fluid in right knee-joint. Typical tender points. Iodoform injections, at my suggestion, by the late Professor Dabney, of Charlottesville, Va. Life out-of-doors in Virginia conscientiously carried out. June, 1894, no improvement. Adirondacks urged, but not feasible. Injections continued by Dr. Dabney. October, 1895, disease progressing rapidly. Resection considered. November 5, 1895, patient presented herself in Baltimore for operation. She coughed and had fever. Examination of lungs revealed apical involvement. Consented to go to the Adirondacks. Pulmonary hemorrhage en route. Weight, 86 pounds. Normal weight, 104; greatest weight, 112 pounds. Arrival at Saranac, examined promptly by Dr. Trudeau. His prognosis guarded, but rather unfavorable. On subsequent examinations it proved that the disease, though incipient, was still advancing; prognosis more decidedly unfavorable. For several months no improvement, then a slight gain, and in August, 1896, she weighed 95 pounds, a gain of nine pounds in about nine months. Circumstances made Adirondacks too difficult. The mountains of western North Carolina were suggested, but patient was so much encouraged that she returned to Virginia. There she slowly but surely lost ground. Eventually, October, 1897, she made her home in the North Carolina mountains. The lesson learned at Saranac was of great value here. She lived the true, open-air life faithfully.

In September, 1898, I found astonishingly great improvement in the condition of lungs and knee, and in a few months discontinued the plaster cast. In May, 1899, weight 97 pounds. In January and February, 1900, she visited in Virginia and lost much ground. Possibly developed a slight pleurisy. Returned to North Carolina and gradually regained what was so rapidly lost. November, 1900, knee still better. January, 1901, motion in knee returning. Then a second visit to her home in Virginia again; and promptly, a pleurisy; she became so ill that it was difficult to return to North Carolina. January, 1903, examination. I could hardly believe what I saw. The right knee-joint looked perfectly normal, except for a very slight fulness on either side of the ligamentum patellæ.

Under Dr. Thayer's care this patient has gained more than 20 pounds within a few months. He is unable to find a trace of the pulmonary disease which at one time was so active as seriously to menace her life. (Fuller history follows.)

CASE IV.—Miss ——l, aged 38. Tuberculous family (sister, uncle and aunt). Hip-joint disease; initial stage. Tuberculin reaction. Modified open-air treatment in Pennsylvania for eight months. Through misunderstanding, considerable exercise was taken. Disease made such definite progress that I became alarmed and urgently advised Adirondacks. Immediate and great improvement in general and local condition at Saranac Lake. Brace and crutches discarded three years after first examination. Motion at hip-joint almost perfect. Unless very careful comparisons with the other hip are made there is no indication of impairment of function. Even the apparent shortening (adduction) which the

brace could not overcome and which persisted for nearly three years, has vanished. Only the reaction to tuberculin remains. (Fuller history follows.)

CASE V.—Miss ——m, aged 14. In September, 1900, fell, striking right hip. Bruise over right trochanter. Attended school regularly. Consulted me about four months later for limp and occasional pain in right knee. Patient seemed in good health, but had lost a little in weight and perspired easily. There was about 1.5 cm. apparent lengthening of the right leg, but no difference in circumference of thighs and legs on the two sides. Hardly demonstrable limitation of motion in any direction; little if any rigidity of the adductors of the thigh. Extreme hip movements caused pain in the knee of the affected side. Tuberculin was administered three times at her home. The reaction was very slight but definite, becoming more pronounced as the dose was increased. Definite pain in the hip itself was experienced for the first time a day or two after the exhibition of the third dose of tuberculin.

February 13, 1901, admitted to the Johns Hopkins Hospital. Supplied with brace and treated on the "bridge" until May 13, 1901. While in the hospital she was entirely free from pain except for occasional brief twinges in hip and knee.

From the hospital, patient went to Atlantic City for a few weeks and thence to the Adirondacks for the remainder of the summer. During the following winter it seemed so difficult to arrange for patient's departure to the Adirondacks that she was permitted to live in town, spending her days, however, out-of-doors on a balcony. In the spring she had lost so much in weight and her general condition was so unsatisfactory that I almost insisted upon a change. Tuberculin again administered was followed by a prompt reaction, the temperature reaching 103° F. A winter in the Adirondacks completely restored our patient to health.

May, 1905, two years after the institution of treatment a cane was substituted for the brace. In a few months the cane was discarded and patient has led the active life of a young society girl ever since. She has no pain nor limp and seems perfectly well.

CASE VI.—Mrs. J——n, aged 34. Admitted October 4, 1902. Diagnosis, sacroiliac tuberculosis. Two years ago pleurisy in left side. No night sweats and no shortness of breath.

Present illness began in April, 1902. Patient felt slight twinge in back on getting into carriage. Next day had severe pain in region of sacroiliac synchondrosis. Since then patient has suffered constantly.

Examination: Considerably emaciated. Gums pale. No tenderness on pressure over spines of vertebræ. Over right half of sacrum is a slight fulness and over this some tenderness. Tenderness also in sciatic notch and along sciatic nerve. Little if any tenderness over Poupart's ligament on right side, except on very deep pressure. In August, 1902, in Virginia, patient's ovaries and appendix were removed.

October 16, operation, cocaine, Dr. Halsted. Aspiration of tuberculous abscess over sacroiliac articulation. Iodoform emulsion injected.

November 1, operation, ether, Dr. Halsted. Exploration of right sacroiliac joint. Excision of the walls of a tuberculous abscess and of a portion of the sacrum. A large abscess was discovered in the pelvis, communicating with the one above. The walls of the pelvic abscess were cleaned as well as possible, but some portions were inaccessible from this opening.

February 3. Since operation, patient has been kept out-of-doors in bed, but her weight, which is normally 135 pounds, is now only 98. She has been most carefully instructed as to the life out-of-doors, and has promised to follow directions implicitly. Discharged.

April 8, 1904. Patient returns for examination. She is in perfect health and weighs 150 pounds. Since leaving the hospital, two years ago, she has lived out-of-doors faithfully in all weathers; has slept indoors, but with windows wide open. The sinus leading to the pelvis is closed. There is no sign of disease in the pelvis or at the site of the incision in the back. She complains of nothing except that on standing she has slight pains along the course of the sciatic and external popliteal nerves. Extreme flexion of thigh sometimes produces this pain. Patient is not annoyed by it.

CASE VII.—Miss B——e, aged 16. Admitted to the Johns Hopkins Hospital, March 25, 1904. About three months ago patient noticed that her neck on both sides was swollen, and believed the swelling to be due to "cold." The "puffiness" soon subsided, leaving "knots" in its place. These have grown rapidly ever since. There has been no pain nor tenderness and, patient believes, no loss in weight; she confesses to some loss of strength. The voice has become husky. Patient is becoming drowsy, and has tendency to sleep continually. No cough.

Examination: On both sides of the neck are large masses of discrete glands, varying in size from a pea to a madeira nut. Together they would probably equal a cocoanut in volume. Left axilla contains six or seven glands; the right seems free. The left epitrochlear is palpable. No enlargement of glands of groin or popliteal space. No masses to be felt in abdomen. Spleen not palpable. Tonsils markedly enlarged. Circumference of neck at level of hyoid bone, 34 cm. On the back of the right hand is a scar from incision for the removal of a small growth, believed at the time to be a ganglion, but which proved to be a solid mass. There is now an elongated, semifluctuant swelling apparently connected with the tendon sheaths. A small gland removed for diagnosis proved to be tuberculous. It was proposed to patient and her friends that the out-of-door treatment be tried and, in case it failed, operation be undertaken. The patient being indisposed to undergo the rigorous out-of-door life, Dr. Follis, the house surgeon, excised, with cocaine, the tuberculous glands of the left neck and left axilla.

April 10: Patient discharged, having promised to live systematically out of doors. Wound healed per primam.

Readmitted May 12, 1904. Since discharge patient has lived out of doors, day and night, without interruption. Though she has had only one month of this treatment, the glands on the right side of the neck have almost entirely disappeared. Only one can be felt, and that exceedingly small. On the back of the left hand, however, at the site of the old scar and running along the tendon sheaths, there is evidence of a tuberculous process.

May 13: Excision of tuberculous tissue about the extensor tendons over the left wrist and dorsum of hand, by Dr. Follis. The disease was found to be quite extensive.

June 6: Patient discharged. Condition excellent. No enlargement of glands of neck. On the operated side, however, is a keloidal, disfiguring scar.

CASE VIII.—M——s, aged 25. Admitted April 11, 1904. Tuberculosis of right knee. About three years ago, after prolonged standing, experienced first pain in the right knee. He was treated for acute rheumatism for six months, the knee-joint being aspirated 25 times. The fluid withdrawn was dark and turbid, but never bloody. On one occasion an injection of carbolic acid solution (1 to 16) was used. Patient's knee gave him little trouble apparently until September, 1903.

Examination.—Joint much enlarged. Patella floating. No redness, heat, nor especial tenderness. Leg can be flexed to about a right angle. April 13, tuberculin administered. Marked local and general reaction. April 25, arthrotomy, under ether, by Dr. Follis. A considerable amount of purulent-looking tuberculous fluid was evacuated and the joint thoroughly irrigated with a solution of mercury bichloride (1 to 10,000). The cap-

sule was found thickened and œdematous, but there was no evidence of bone foci nor destruction of cartilage, nor caseous tissue. On June 4, Dr. Follis persuaded patient to go to Saranac Lake in the Adirondacks, and arranged for his admission to Dr. Trudeau's sanatorium. Discharged today.

April 11, 1904, patient readmitted to hospital. Since his discharge he has been continuously at Saranac Lake. The knee has been fixed in a leather splint. Patient has gained ten pounds since leaving hospital. He has no cough nor night sweats, and appetite is good.

April 14, 2 mg. of tuberculin administered, followed by severe reaction.

Examination of knee. The joint is spindle-shaped, there being considerable atrophy of the thigh muscles. The patella is movable, and there is little or no fluid in the knee-joint. There are no points of especial tenderness on pressure, but attempts to flex the joint beyond perhaps 15 degrees cause great pain. The findings are somewhat disappointing, but patient is not discouraged, and agrees henceforth to live out-of-doors at night, as well as in the day time, at his home in Montgomery, Ala. Discharged March 18.

October 16, 1905, patient readmitted to the hospital. Since March he has lived out-of-doors night and day in Montgomery, Ala., and has noticed from the beginning gradual improvement in the condition of the knee-joint. He looks in robust health, has had no pain in knee or elsewhere. Has used crutches and a leather splint.

Examination.—The knee seems perfectly cured. Flexion is permitted without any pain to an extent almost normal. Except for the scar and the barely perceptible fulness in its neighborhood, for which the scar is probably responsible, the joint in appearance is perfectly normal.

October 13, 2 mg. of tuberculin are followed by sharp reaction, the temperature rising abruptly to 102°.

CASE IX.—Miss ——n, aged 17. Consulted me last March. Below the parotid in the common situation on the jugular vein was a mass of matted glands, larger than a big lemon. They had increased in size rapidly during the few weeks prior to this consultation. Not wishing to alarm the young lady unnecessarily, I did not give tuberculin at once but sent her to the seashore with a skilled attendant for out-of-door treatment. In about a month she returned for inspection. The mass had increased in size and become fluctuant in the most prominent part, and the skin over it was inflamed and at one spot slightly thinned. Tuberculin administered was followed by a sharp reaction. About to sail for Europe, I doubted very much the wisdom of postponing operation, and debated the matter in my mind for several days.

Argument.—If an operation were performed, it would not make the out of-door treatment unnecessary or even shorten it. If the skin should break, the resulting scar would be much less than the operative one. The rupture of the abscess would not be attended with any bad results, nor would it, that we know, prolong the open-air treatment or create local conditions less likely to respond to this treatment than if the skin were unruptured. If ultimately an operation should be required, it would almost surely be of less magnitude and at a time when the patient was more robust. Moreover, it transpired that our patient had, at the seashore from which she had just returned unimproved, lived only five or six hours daily in the open air. So we decided to give the open air a fairer trial.

She went to the coast of Maine and lived out-of-doors day and night for about four months. A few days ago, on her return to town, I examined her and to my joy found that only one of the enlarged and inflamed glands was palpable and this no larger than a French bean. The redness of the skin had entirely disappeared and I do not believe that any one from the appearances could have designated the side which had been affected. To surgeons whose *daily bread* not long ago was *tuberculous glands of the neck* (Cohnheim) such a resolution foretells a revolution in treatment.

CASES X AND XI.—Two cases of tuberculosis of the urinary bladder, adult males. Operated upon by the author at the Johns Hopkins Hospital in 1892 and 1893. In one, the entire mucous membrane of the bladder was thickly studded with tubercles; in the other, the involved area was small and the disease incipient. Both cases have been quite constantly under observation since their discharge, and both are in good health. The one with the severe and extensive lesions was able to lead the out-of-door life quite constantly. He is well. The other, with the comparatively trivial lesions, has trifled with the treatment and is not perfectly well, although very much better than when he was operated upon about 15 years ago. The histories of these cases are not at hand, so I am unable to report them in full and to give exact dates.

THE MORE COMPLETE HISTORIES OF THE FIRST FOUR CASES.

CASE I.—In February, 1890, the writer was summoned to see Mr.——n, who at the time was so ill that his life was despaired of by his relatives. The patient, aged 28, received a severe fall when at the age of 3, to which was attributed the illness and spinal curvature, which thereafter speedily developed. At the age of 14, incident to a second fall on his back, an abscess developed rapidly and discharged in the right groin. It soon closed, but only to reopen and close again at intervals ever since. In the winter of 1888 and 1889, abscesses appeared and opened spontaneously in the left groin and above the crest of the left ilium. Thereupon the patient's health declined rapidly until March, 1890, when my first visit was paid him.

At this time he had sharp lower-dorsal kyphosis, an enormous liver and three sinuses, one on each side, below Poupart's ligament, and one above the crest of the left ilium. For several weeks the patient, considerably emaciated, had experienced chilly sensations, and occasionally a real chill, with high fever. He was evidently suffering from retention under tension of the products of inflammation, which, I believed, from rather indefinite symptoms, would point over the right ilium. As he was very feeble and exceedingly nervous, as the indications for immediate operation were not perfectly clear, and as his life at home involved considerable excitement, I urged him to go at once to Saranac Lake in the Adirondacks, intending to visit him later and to liberate the pus if the symptoms should persist. It required very little argument to convince this highly intellectual and accomplished man that it was well worth while to make the experiment. He was transported on a bed in a private car from Baltimore to Saranac Lake; this patient was a pioneer, and possibly the very first case of bone tuberculosis deliberately treated by the open-air method. In the Adirondacks, attended by an excellent masseur, he lived in a tent, and almost immediately after arrival, an improvement in his general condition began, although there were periods when the daily fever would be considerable.

In October, 1890, I visited him at Paul Smith's, where he had located his tent, and performed a slight operation to liberate the pus on the right side above the crest of the ilium. Two years, with occasional visits to his home in Baltimore, were spent in the Adirondacks. In this time the patient was literally transformed in appearance. Weighing less than 100 pounds on arrival, he gained nearly 40 pounds from April, 1890, to November, 1891, and on his return to Baltimore he affirmed that he had never felt better in his life. His good health continuing, he became engaged, and in about two years he married. After his marriage he spent a part of two or three winters in the Adirondacks, with great benefit to his health. Occasionally I found it necessary to dilate

one or more of his sinuses in order to liberate their pent-up discharges. On July 29, 1902, the patient died, the immediate cause of death being an exacerbation of the nephritis, which had existed for 12 years at least. The liver, which was very large and extended below the umbilicus at my first examination, steadily increased in size during the subsequent 12 or 13 years. In the last four or five years of his life he suffered on two or three occasions from attacks of acute nephritis, precipitated apparently by the toxæmia resulting from obstruction in one or other of the sinuses.

This was a life clearly rescued and prolonged by the Adirondacks and Dr. Trudeau. This patient had such confidence in the ability of these mountains to restore him at any time that he lived not only a most unhygienic but actually reckless life at home, repairing to Saranac Lake only when his condition sufficiently alarmed him. Three superb children survive him, to bless the Adirondacks and the physician there who made their introduction to this world possible. Consideration for his wife and children, he often told me, would not permit him to make his home in the Adirondacks. A few days after his death his sister wrote me that "of the large circle of acquaintances made in the Adirondacks, only one of those who were suffering with tuberculosis is alive today. My brother, although apparently the illest of all, survived them. In other words, I believe the treatment promises more for bone trouble than for pulmonary tuberculosis." I quote this, of course, merely to give the impression of an intelligent lay observer. That this patient could have been rescued elsewhere than in the Adirondacks is quite likely, but having tested the mountains of Virginia, the sea coast of New Jersey and Maryland, he had faith only in the Adirondacks. One Christmas, about two years after his introduction to the Adirondacks, he returned to Baltimore, and, though wearing a heavy overcoat on a mild winter day, complained bitterly of the cold. "I am wearing today an overcoat for the first time this winter," said he, "although the thermometer has been as low as 20° below zero in the Adirondacks. Up there one is insensitive to the severest cold, but here one shivers on a mild day." His masseur, walking with him, had already made the same remark to me.

CASE II.—Miss ——n, aged 15, consulted me for the first time in February, 1893. For about 18 months she had suffered with pains in her right hip and knee.

Tuberculosis on both maternal and paternal sides was conspicuous in the family history, but the patient had been perfectly healthy until the onset of the present trouble.

Examination: Right thigh much flexed and slightly adducted. All motions of hip-joint greatly restricted. There was so much fulness about the right hip that an abscess was suspected, and a needle aimed at the joint was readily introduced into a space believed to be or to communicate with the joint cavity. The point of the needle could be moved freely, as if in an abscess, and from one and a half to two ounces of a glycerine emulsion of iodoform was at the next consultation injected without meeting resistance. Patient was kept in bed in a large, freely-ventilated room, with extension, from February until June, 1893. During these four months, five or six iodoform injections were made. After the first two or three injections it was difficult to find the abscess cavity. A light Bruns' splint was applied, and, faithfully following my urgent advice, the patient lived out of doors thenceforth; extension was kept up at night. For the ensuing five years she spent from six to eight hours daily in the open air. The summers of these years were lived in the low mountains near Wilkesbarre, Pa. Patient's general health was fairly good most of the time, but she was far from robust, and her appetite was unsatisfactory. The 8 or 10 pounds which were gained each summer in the mountains of Pennsylvania were lost in the winter.

In June, 1898, patient was admitted for a few days to my service in the Johns Hopkins Hospital, for measurements and a skiagraph. The summer of 1899 was spent at Jamestown, R. I. No gain in weight was made at the seashore and patient returned to her home near Baltimore unimproved, and out of conceit of the seaside. In January, 1900, patient was again admitted to the Johns Hopkins Hospital for careful examination subsequent to a period in which greater liberties in walking had been permitted. It was deemed wise to make an exploratory incision before permitting patient to dispense entirely with her crutches. The result of this operative examination was most satisfactory. The head of the femur had been entirely absorbed, but the neck was intact and perfectly normal, its free end occupying the remains of the acetabulum. A narrow, deep groove was cut anteriorly into the neck for its entire length, but not the slightest evidence of disease was discovered. The slight shortening which had been observed on Bryant's line was evidently due solely to the loss of the head of the femur. The capsule of the hip-joint was intact and motion between the articulating inner end of the neck and the acetabulum was remarkable in its freedom. Nature had accomplished what a surgeon by operation could not possibly have done. A surgical operation, even the most conservative, is necessarily destructive, even if nothing more is attempted than the removal of inflammatory products or of tissues already destroyed. Patient was discharged February 7, having been detained in the hospital, after the operation, only 2½ weeks.

January 8, 1900, the day before the exploration of the hip, the red blood-corpuscles were 3,250,000; the white, 6,000; the hæmoglobin, 52%.

January 28, 10 days later, and 9 days postoperation, the hæmoglobin was 65%. February 3, hæmoglobin, 65%.

Comparing the measurements made by me in June, 1898, with those made independently by my house surgeon, Dr. Cushing, 18 months later, it is interesting to note that the relative differences are precisely the same. This would indicate that the disease had made no progress whatever and that the measurements were exceedingly accurate.

June 7, 1898. Measurements by W. S. Halsted. Apparent difference in length of the legs, none. From anterior superior spine to trochanter, on projected vertical line:

	Left.	Right.
(a) Vertical line (Bryant's)	2.2 cm.	1.9 cm.
(b) Ant. Sup. Spine to int. malleolus	83.9 cm.	80.9 cm.
(c) Top of trochanter to ext. malleolus	84.1 cm.	81 cm.
(d) Length of femur	44.6 cm.	44.1 cm.

January 17, 1900, two days before the exploration of the hip. Notes by H. W. Cushing. Apparent difference in length, none.

	Left.	Right.
Ant. Sup. Spine to int. malleolus	83 cm.	80 cm.
Trochanter to Ant. Sup. Spine (Bryant's line)	4.5 cm.	4 cm.

No muscle spasm. Internal and external rotation only slightly limited if at all. Extension to straight line and flexion permitted to 45° or more, not withstanding the prolonged fixation of the joint.

The measurements indicate abduction. The apparent upriding of the right trochanter is in part due to the abduction. That there is so little measured difference (0.5 cm.) in the length of the femur, notwithstanding the growth of the patient, might suggest a thickened right trochanter. But the loss of the head of the femur, together with the abduction, should sufficiently account for the 1.9 cm. shortening in Bryant's line. How shall we interpret the fact that the difference (3 cm.) in the length of the lower extremities is almost entirely in the leg, unless we assume that the disease stimulated, as it sometimes does, the growth of the bone on its confines? The circumference of the calf was the same on the two sides, whereas there was a difference of 4 cm. in the circumference of the thighs, 15 cm.

above the patella. The shortened leg was larger and the atrophied thigh was longer than expected.

From the hospital the patient went to the Adirondacks for five weeks, and while there gained 11 pounds. She learned for the first time the true meaning of living out of doors, and was so conscious of the great and prompt benefit received, that she regretted the long doubtful years lived on the piazza at home. It is but just to myself to state that at the first consultation, and often subsequently, I had suggested and even urged the Adirondacks, but was unable when questioned as to the relative merit of localities, to affirm that the Adirondacks alone promised relief, or more certainly promised it than the mountains elsewhere. I could only answer that the Adirondacks had been tested more thoroughly and more scientifically than any other region in this country, and, what was most important, the patient residing there would be under Dr. Trudeau's supervision, and would learn to lead the proper life.

On her return from the Adirondacks the crutches were abandoned, and our patient promptly found great enjoyment in life, riding, driving, walking, dancing, and indulging freely in the pleasures of society. Finding the out-of-door life irksome and incompatible with the new life, into which after the long confinement, she was entering so naturally and with so much relish, the hours on the piazza became fewer and fewer, until finally in the winter (1900–1901) there were none. Day after day and night after night, during this winter, our patient's strength would be tested to the extreme limit of endurance. The summer of 1901 was, in greater part, passed in Maryland. About the first of December (1901) I was consulted concerning a little swelling and a little stiffness about the right wrist-joint, which had been observed for about two months. Tuberculosis of the tendon sheaths being diagnosticated, our patient, who had lost in weight and strength, was at once admitted to the Johns Hopkins Hospital and promptly operated upon.

There was much œdema of the tendon sheaths. Fresh, translucent tubercles thickly studded the connective tissues and muscles of the forearm, particularly the tendon sheaths, from the palm of the hand to the upper third of the forearm. A very careful dissection of the tissues involved and excision of the disease was made. December 18, about two weeks after operation, the patient was discharged, and about January 1, 1902, eagerly started for the Adirondacks. Arrived at Saranac, she began to improve in health immediately, gaining 16 pounds in the first month. The remainder of this winter and the following spring were passed at Saranac, the best of health being enjoyed. The summer was spent in the Austrian Tyrol.

April 8, 1905. Patient has enjoyed perfect health, almost without interruption, since her return to the Adirondacks in January, 1902. For the past two and a half years, she has lived at her country home, near Baltimore. Today she is the picture of health. The affected forearm, wrist and hand present a normal appearance, except for the scar, and perform their functions quite normally. Patient would be rarely reminded of the fact that her right hip-joint was once the site of serious tuberculous disease were it not for a very slight limp, suggesting the use of a cane when she is tired.

This case teaches us that a brief period of time is of great importance in the treatment of tuberculous joints in fast-growing children, because of the shortening which results, particularly from disuse. In this case, the shortening from disease, represented by the difference in the height of the trochanter, is only .5 cm., whereas the difference in length of limb from trochanter to malleolus is 3.25 cm.

CASE III.—Mrs. ——d. First consultation March 16, 1894. Married two years before, at the age of 26. In November, 1894, lost a sister, aged 36, of pulmonary tuberculosis.

About the first of March, 1894, patient "felt a slipping sensation" in the right knee. History of traumatism could not be elicited. She at once consulted the late Dr. Dabney, professor of medicine in the University of Virginia, and by Dr. Dabney was referred to me.

Examination: March 16, 1894. A delicate-looking, very slender, nervous, and emotional young woman; has always enjoyed good health until about two weeks ago, when she began to worry about her right knee. There is slight limitation of motion; a little disability; some fluid in the joint; and apparent thickening of the capsule; two or three typical tender points. The lungs and other organs are reported normal.

Diagnosis, tuberculosis of the right knee.

I advised Dr. Dabney to fix the knee in plaster, and to make iodoform injections into the joint, and urged the patient to lead at her home in the South, the Adirondack life, which I described to her. Four injections were made by Dr. Dabney from April 7 to May 18.

June 15. Second consultation. Finding the knee unimproved, I advised change of residence to the mountains, preferably the Adirondacks. Mountains nearer home, altitude 1,900 feet, were visited, because residence in the Adirondacks was not feasible at this time. Dr. Dabney made a fifth iodoform injection, June 20, and a sixth, July 12. In August he died. The seventh, eighth, ninth and tenth injections were made by me in Baltimore in October and November, 1894, and January and March, 1895. About October, 1895, I advised resection of the knee, as the disease was advancing, as the patient's health was becoming decidedly impaired, and as a winter in the Adirondacks was deemed impossible by the patient and her husband. Patient returned to Baltimore, November 4, 1895, for operation. For two or three weeks patient had coughed occasionally. November 5, I carefully examined the lungs and feared that both apices were becoming involved. November 6, a second examination confirmed my fears. The operation was consequently postponed, and the patient urged to go at once to the Adirondacks. November 8, she expectorated a little blood just before starting for the Adirondacks. At this time her weight was 86 pounds. Her normal weight was about 104, and her greatest weight, 112 pounds.

Soon after her arrival at Saranac Lake, Dr. Trudeau made several careful examinations and feared that the disease, although incipient, was rapidly advancing, and gave an unfavorable prognosis. For several months there was no improvement, but the patient held her own and finally began to gain in weight and in August, 1896, weighed 95 pounds. She then felt compelled to leave the Adirondacks, contrary to Dr. Trudeau's advice and my earnest solicitations. I suggested the higher mountains of western North Carolina as an alternative, but patient was so much encouraged that she decided to go again to the mountains nearer her home in Virginia. Slowly but certainly losing ground, she eventually, in October, 1897, went to the western North Carolina mountains. Having learned in the Adirondacks how she should live and what the out-of-door life meant, she lived out-of-doors in all weathers faithfully, and became very fond of the life.

In September, 1898, I found great improvement, both in her general health and in the condition of the knee. Early in 1899, the patient's casts were discontinued. In May, 1899, patient located permanently in Hendersonville, N. C. The altitude of her private residence there is about 2,250 feet. Her weight at this time was 97 pounds. Full of hope of ultimate recovery, she visited, without my consent, her relatives in Virginia in January and February, 1900, and as she wrote me, "lost considerable ground." On returning to Hendersonville, it was two or three months before she regained what she had lost.

In November, 1900, I had the pleasure of seeing my patient and finding her general condition somewhat improved and her knee disproportionately so.

January, 1901, patient writes that the knee is surely becoming less stiff.

A little later patient ventured, against my most urgent warning, another visit to her home in Virginia, to see her aged mother whose health was not good. She had an attack of "pleurisy" while at home and only with difficulty could return to Hendersonville.

Some months later, January, 1903, she writes from Hendersonville that she weighs only 85 pounds, that her "health is extremely frail," but that the knee is "vastly improved." She "can bear some weight on it" and goes "about the house with only one crutch." "Creaking and grating in the joint if exercised still noticeable to sense of hearing and touch. Motion very nearly normal."

September 28, 1903. Met my patient, by appointment, on a railway train and examined the knee-joint. In appearance the joint, except for a very slight fulness on either side of the ligamentum patellæ, showed nothing abnormal; the patient flexed and extended her knee rapidly and without the least apprehension. Flexion of the left or sound knee could be carried only 5 or 6 degrees further than of the right. There were no tender points. That such a restoration of function could take place in this knee, at one time so seriously involved, I would have believed hardly possible. It was the more remarkable because the patient's general health was very poor indeed. She was highly neurotic, suffering from tongue and stomach neurosis, and weighed only 76 pounds. I had no opportunity to examine the lungs, but was assured that she had neither cough nor expectoration, and rarely if ever had a night sweat. Her respiration was not rapid as she sat quietly in the car, nor was there anything in the voice or facies to indicate implication of the lungs.

There can be little doubt that this patient's life was saved by the Adirondacks and the North Carolina mountains. She believes that she gained much more rapidly in the former than in the latter region. The almost disastrous results of the two trips to her home in Virginia were probably not due so much to the journey, which was not a long one, as to the change of residence, for she had repeatedly taken hard, all day drives in the mountains without demonstrable evil effects.

How remarkable, too, and significant, is the observation that, notwithstanding the gradual and great loss of strength and weight, the tuberculous process in both the knee and the lungs was not only arrested but has left no sign.

Under Dr. Thayer's care this patient has gained more than 20 pounds within a few months; he is unable to find a trace of the pulmonary disease which at one time was so active as seriously to menace her life.

CASE IV.—Surg. No. 13010. Miss ——l, aged 38. First examination February 7, 1902.

Family History.—Father and mother living. One uncle and one aunt on mother's side died of pulmonary tuberculosis. A sister had a discharging sinus from one hip, but was cured while still a child. Digestion has never been very strong, and, until the age of 8, patient could not eat breakfast without vomiting immediately. At 12, her stomach performed its functions fairly well, but patient has always found it advisable to be abstemious. Has never had a chronic cough nor hæmoptysis, nor observed any unusual shortness of breath. A year ago, could mount ordinary hills on a bicycle without fatigue. Menses have always been regular. Has had hay-fever for 18 successive summers. Several of the finger-joints and one ankle are enlarged from "chronic rheumatism."

Present Illness.—Five months ago, in September, 1901, making a false step, patient fell backward, down three steps, striking the left hip. A slight subcutaneous extravasation of blood appeared over the left trochanter, and for about a week this bruised spot was tender. There was no limp nor pain on walking, and the incident was for the time forgotten; but about January, 1902, the left hip seemed a little stiff and occasionally felt slightly sore. These symptoms the patient tried to dissipate by walking. After about a week's exercise of this kind, a tenderness over the trochanter manifested itself. Improvement followed two days' rest in bed, but when walking was resumed, the discomfort returned. The pain, described as being dull, to use the patient's words, would "run from hip to knee," and was usually worse at night; "it felt as though a cord were stretched too tightly from the hip over the knee." A few weeks before admission, a decided limp manifested itself. Patient has never been awakened by sharp pains at night, has never had night-sweats, but for the past month has been conscious repeatedly of chilly and feverish sensations. For a year past, her health has been a little below what she considered normal, her appetite has been impaired, she becomes readily fatigued, and has lost a few pounds in weight.

February 12, 1902. *Physical Examination.*—Patient is a slender, delicate-looking woman, but is tall, erect and well formed. Thorax and abdomen negative. The inguinal glands are very slightly enlarged on both sides.

The Hips.—Inspection reveals a very slight apparent shortening of the left leg, possibly 0.5 cm., and little else. The back is flat, and there seems to be no abnormal flexion of either hip.

MEASUREMENTS OF THE HOUSE SURGEON.

Ant. Sup. Spine to Ext. Mall.	Trochanter to Mall.	Ant. Sup. Spine to Trochanter.
Left side, 85 cm.	81.5 cm.	3.7 cm.
Right side, 85 cm.	81.5 cm.	3.2 cm.

The 0.5 cm. difference in the length of Bryant's line, if correct, I believed to be due, in part at least, to the abduction of the right and adduction of the left leg.

All the motions of the affected left side seem to be normal if they are made gently and with suitable traction. Even sudden motions are not definitely resisted, except abduction and extreme adduction and internal rotation. Flexion and extension are perfect. Hyperextension seems about equal on the two sides.

Except for the apparent shortening (adduction), the slight rigidity of the adductor muscles, and the tenderness over the trochanter, there are no definite signs of irritation in or about the left hip-joint. There seems to be a little thickening of the left trochanter.

Measurements made by the writer differed in no essential particular from those given above. To determine accurately the distance from the top of the great trochanter to the malleolus, a tape measure seems to the writer to be unreliable, because one cannot make proper allowance for the distance the muscles permit one's finger on each side to press in over the trochanter toward the digital fossa. With a wooden measure, which we have constructed somewhat on the plan of a shoemaker's foot rule, this source of error is excluded.

April 11, 1902. Examination by writer. (a) Apparent shortening, 1.3 cm.; gluteal fold, 1 cm. lower. (b) From spine to top of trochanter on projected vertical line (Bryant's), no shortening. (c) From anterior sup. spine to ext. malleolus, no shortening.

Rotation out 6° to 7° less on left than on right side. Rotation is about 4° less on left than on right side. Adduction very slightly restricted, hardly demonstrable; rigidity of adductor muscles. Flexion and extension normal. Possibly slight impairment of hyperextension. Exceedingly indefinite reaction to 2 mg. and 4 mg. of tuberculin. After 9 mg. of tuberculin, the temperature

rose to 101° F., and patient complained slightly of headache and general malaise. The tuberculin at this particular period happened to be weaker than usual, and 9 mg. was a not uncommon dose. Patient was discharged today, having been under observation for 63 days. Treatment, extension by weights and pulley at night, and brace during the day.

The days were passed on the bridge. Patient intended to continue in all its details, the treatment instituted. This she did most conscientiously and intelligently under the care and heartiest cooperation of Dr. Joseph S. Miller, but as she has since then repeatedly assured me, she had no conception of the true out-of-door life as it is lived in the Adirondacks under Dr. Trudeau's supervision.

October 30, 1902. Readmitted to hospital for examination. Since first visit has had very little pain in hip in the day time, but at night has been occasionally awakened by it, particularly by sudden jerkings.

Examination: November 6, 1902, the motions at the hip-joint are decidedly less free than at first examination, eight months ago. Flexion, which was then about normal, is stopped at 85°. Rotation, in both flexed and extended positions, is much restricted, particularly rotation outward. There is pronounced spasm of the adductors now, whereas at first rigidity was barely demonstrable. The trochanter is more sensitive to pressure, particularly behind just below the posterior superior angle and along the posterior surface. The circumference of both thigh and calf is 6 cm. less on left side. Four milligrams of tuberculin produced marked general reaction and temperature of 102° F. The change for the worse in the local and also general condition is so definite that our patient decided, without hesitation, to go at once to the Adirondacks.

March 20, 1903. Readmitted to the hospital for examination after a winter in the Adirondacks. The change in patient's general appearance is very striking, although she has gained in weight only five pounds. From the appearance of her face and neck and body I was quite sure the gain in weight had been greater. Patient's voice is stronger and her flesh much firmer. There has been of late no pain whatever in the hip, and rarely any discomfort.

Measurements. Apparent shortening .5 cm. Flexion permitted easily to right angle is checked only by stiffened knee. Inward rotation about equal on the two sides. Outward rotation less by 3° to 5° on affected side. Abduction limited about 2°. Adduction same on both sides. There is no fixed flexion. No riding up of trochanter; indeed, it is a little lower perhaps (adduction) on the left side. Hyperextension not permitted.

November 15, 1904. The 18 months since the previous examination have in greater part been spent in the Adirondacks. Six of these months, lived at home, seemed to result in no improvement, although patient faithfully carried out the Saranac regime. The local improvement is so definite that I have decided to permit patient to discard the brace and to walk a little on the affected leg, notwithstanding a definite reaction, both general and local, to 2 mg. of tuberculin. The rise in temperature, however, was very little, only to 100.5° and sustained for less than two hours. It then dropped promptly to normal.

Examination: There is now for the first time no apparent shortening and only the slightest rigidity of the adductor muscles. The difference in the motions of the right and left hips is too indefinite to be recorded. Patient has complained a little of late of peculiar feelings in both hips, somewhat "rheumatic" in character, and rather more pronounced in the right than left hip. During the past year she has had two or three rather severe attacks of indigestion.

March 7, 1905. Since last examination and discarding of the brace the patient has been getting on famously, notwithstanding a severe fall on the affected hip a few weeks ago. She has gained three to four pounds in six months, which is a great deal for her. Altogether the gain in weight since patient first consulted me has been 17 pounds. The entire three years, except the nights, have been lived out of doors. The crutches are now discarded and the patient is permitted to walk with only a cane.

The lessons taught by the forecited cases, especially the later ones, can hardly fail to awaken positive enthusiasm in others as it has in us. The recent observations tinge, however, the retrospect with regret that we could not have foreseen the great advantage—I hardly venture to say necessity—of the night out-of-doors, as well as the day. The Cases, Nos. VII, VIII, and IX, which have made the most rapid strides are those which have slept out-of-doors, and, curiously, happen to be those which were not treated in the Adirondacks or any Sanatorium. These are the only patients of the series who have spent the entire 24 hours in the open. In one, Case VII, a month of this life in Virginia sufficed to dissipate completely a large mass of tuberculous glands in the unoperated side of the neck. Case VIII, one of knee-joint tuberculosis, conveys, it seems to me, a very significant lesson. After a winter in the Adirondacks, the entire day out-of-doors, and a gain in weight of 19 pounds, little, if any local improvement was demonstrable. It is quite likely, however, that we were unable to interpret properly, or even to discover the local changes. But after a few months, only three or four of the night and day treatment in the heat of midsummer in Montgomery, Ala., complete recovery and almost complete restoration of function have taken place. It seems to be a fact that most tuberculous patients who are taking the out-of-doors treatment under advisement progress more rapidly in cold weather than in hot, and our patient tells us that the weather in Montgomery was hot, at times very hot, while he was there in the open, night and day.

In Case IX, three months of the 24-hours-a-day treatment, on the coast of Maine, dissipated a mass of actively inflamed and softened glands of the neck, the skin over which had rapidly reddened and thinned during the 6-hours-a-day treatment at the seashore further South.

I shall say nothing about *climate*, nor even discuss the relative merits of localities. I am merely emphasizing the importance for some patients of the 24-hours-a-day out-of-doors. When the thermometer registers 20° below zero, a night out-of-doors is not an agreeable prospect, and may be a difficult problem; and so occasionally there might arise the question, is it better to have from 8 to 10 hours of the day in the open in a cold climate or 24 hours in a more temperate one?[1] The advantages of a speedy recovery are so evident that they need not be urged. A rapidly growing boy with tuberculosis of the knee-joint might lose a great deal in the length of the affected limb unless the cure were rapidly effected. I have had

[1] In the recital of Case III, describing the almost disastrous effects upon this patient of visits from the North Carolina mountains to her home, I may have conveyed the impression that a certain part of Virginia is unsuitable for tuberculous patients. But here the fatigue of the railroad journey, the excitement of seeing friends constantly, of living with relatives, and perhaps numberless little things may have been responsible for the serious interruptions of the convalescence.

such a case under observation. The proper treatment of this case was attended with such difficulties that I consented to a modified and less rigorous form of life out-of-doors. The disease made no progress and in less than four years seemed cured, but the boy had in the meantime grown perhaps 9 or 10 inches. The affected epiphyses had not kept pace with the normal ones on the opposite side and the boy has perhaps 5 inches shortening and incomplete mobility. If I could have foreseen such excessive growth or had known the merits of the 24-hour day, I must have insisted upon the full time in the open.

Furthermore, the prospect of *years* of treatment, in a sanatorium, or away from home, or at home on a roof in the city, or simply camping day and night in the country, is dispiriting and not readily consented to by patients or friends. But a few months or a year of such a life, coupled with almost a guarantee of recovery might be anticipated with relish, and regarded as an outing combining duty and pleasure and immeasurable profit.

I shall be much interested to learn the present views of Dr. Trudeau and others upon the relative value of localities. Several of my patients who had faithfully lived out of doors, at home and abroad, showed the first positive signs of improvement, both general and local, after a winter in the Adirondacks. Dr. Trudeau, in one of his letters to me many years ago concerning my patients at Saranac, exclaims: "The more I go, the more convinced I am that it is of little use to merely tell people to live out-of-doors. They must be provided with accommodations which enable them to live out-of-doors easily and comfortably. Special buildings must be planned and constructed for the purpose. Some day you will have to carry into effect your plans for an infirmary for cases of surgical tuberculosis. These patients should sleep out-of-doors all night and live out-of-doors all day, being provided with every comfort and convenience." And several of my patients, after living awhile at Saranac Lake, have written to me that, notwithstanding the most detailed instructions from me and from patients who had taken the Adirondack cure, they had not until then learned the true meaning of the real life out-of-doors. One should, if possible, have the benefit of the proper influences, of place, of people, and, most important, of the true physician, in order to acquire the stimulus necessary to the faithful carrying out of the treatment.

I should have the greatest confidence in the efficacy of massage in the treatment of these cases.

And as to the diet; is it necessary or wise to stuff our patients? A non-tuberculous individual is usually more vigorous if he is not over-fed. There is at least opportunity for the exercise of considerable discretion in the matter of feeding. I have particularly in mind a wealthy child, whose days were spent out-of-doors, and who developed tuberculous glands, notwithstanding a huge appetite and the liberal indulging of it; and another, reported in this series, whose seriously involved knee and lungs recovered completely, notwithstanding a gradual loss of weight from 104 to 76 pounds.

Tuberculin, which for nearly 14 years has been our main reliance for diagnosis, has never assisted us in deciding when to discontinue fixation and to permit use of the affected joint. A definite reaction could probably be obtained today in all of our "cured" cases. We have in no instance failed to get this reaction when crutches were about to be discarded, and in two individuals it was prompter on release from the treatment than at its institution.

That most cases of surgical tuberculosis will recover without operation if they are given a fair opportunity in the open air, I am convinced, nor should I be surprised if it proved to be, in general, an easily curable disease. My hardest task in the treatment of these cases has been to persuade the relatives and friends and, alas, the physicians of patients, of the necessity of taking so much trouble, of instituting a disturbance of the even tenor of the family's existence or of involving themselves in such unanticipated expenditure. I have submitted the pros and parried the cons with the parents for hours, and until so weary of the battle that I have vowed never again to misplace so much energy. But interest in the subject, as great occasionally as in the particular patient, has usually stimulated a renewal of the attack.

Unless acquainted with the lamentable results usually obtained in the treatment of cases such as these herewith presented, one can hardly comprehend what has been accomplished by the open-air treatment of them and realize what assurances it holds for the future. How eagerly we should welcome an achievement which properly curtails the indications for the practice of surgery, a therapeutic measure so crude and often so mutilative. In the huge multitude of cripples from the ravages of tuberculosis we find overwhelming proof of the inadequacy of past and present methods of treatment. How different is the story just related. In not one instance did the disease make the slightest appreciable advance after the treatment was inaugurated. The restoration of function is perfect in all save one (Vid. Case II) and in this it is excellent. Had this patient been given the benefit of the night as well as the day out-of-doors the treatment, begun in 1892, might have terminated in one year or two instead of seven.

Great interest is now being manifested abroad in the fresh air treatment of children afflicted with surgical tuberculosis, but of its power for the cure of this disease there appears to be only a meagre conception, the treatment consisting, as a rule, of a very free circulation of air through the wards in the daytime, but not at night. The importance of *rapid cures* has not been emphasized, nor has the possibility of such marvelously prompt results as *the continuous out-of-door treatment* furnishes, been recognized.

The surgeon's duty is not done when he advises his tuberculous patient to live out-of-doors. He must, if the patient's means permit, and if other localities promise decidedly more than home, send him away and entrust him to a physician or companion who will assume the responsibility of insuring a continuous out-of-door life.

Public opinion, which has compelled the sceptical physician to transfer his case of appendicitis to the proper surgeon, will soon hold the surgeon responsible

for bad or even indifferent results in tuberculous disease of the hip, the knee, the peritoneum.

The work of Dr. John W. Brannan and his associates in establishing and conducting the Sea Side Hospital for Children on Coney Island deserves the fullest recognition and encouragement.

The literature pertaining to this subject was admirably presented by Dr. Herbert L. Burrell, in a discourse at the annual meeting of the Massachusetts Medical Society, June 10, 1903.

ACTION OF THE RÖNTGEN RAYS UPON THE BLOOD: AN EXPERIMENTAL STUDY.*

BY

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Within the last two years the röntgen rays have attracted a great deal of attention in connection with the treatment of leukemia, both splenomyelogenous and lymphatic. The number of reported cases is constantly multiplying, and in some the results obtained are brilliant. Practically all of the cases appearing before January, 1905, are collected in the papers of Dock[1] and Schirmer,[2] whose analyses show that in all instances a reduction in the number of the leukocytes occurs in leukemia under the influence of the röntgen rays, the count at times reaching normal, with a corresponding decrease in the size of the enlarged spleen or lymphatic glands. In what manner these changes are produced remained uncertain until the publication by Heineke[3] of the results of his experiments on the lower animals.

Heineke showed that the röntgen rays exert a selective action on the lymphoid tissue in general, the lymphocytes in the lymph-glands, follicles of the intestine, spleen, etc., being destroyed; the nuclei are broken up into fragments and spheric masses, which are taken up by phagocytes. In rabbits he found these changes most marked after 8 to 12 hours from the beginning of the exposure, the alterations having disappeared within 24 hours.

Milchner and Mosse[4] studied the action of the röntgen rays on the bone marrow of rabbits. They exposed one femur, the remainder of the body being protected, in four animals, the duration of the exposure varying from 50 to 250 minutes; a hard tube was used with the anode at a short distance from the part to be treated. The animals were killed and the marrow examined in cover-glass smears and in sections. A great diminution in the number of the white blood cells, both of the lymphoid and myeloid groups, was found. Of the granular cells which remained, it was noted that their granules were very much decreased in number.

In his second communication, Heineke[5] considers the changes produced by röntgen rays in the internal organs in greater detail, and also gives the first experimental work on the peripheral blood. As in his first report, he used hard tubes at a short distance. He finds the splenic pulp poor in cells, the lymphocytes and polynuclear leukocytes being almost lacking. In examining the peripheral blood, mice and young guineapigs were not used, as they are not uninfluenced by the daily withdrawal of sufficient blood. In larger animals the skin necrosis which occurred made the results rather unsatisfactory. After exposure in medium-sized rabbits the erythrocytes and leukocytes were counted daily, the hemoglobin estimated, and stained preparations made. The red cells showed no change in number or form for the first 12 days; in the third week, when the dermatitis appeared, the number decreased slightly. Parallel findings with the hemoglobin are reported. In one rabbit exposed to the rays for five hours the leukocytes showed a slight fall, which began on the second day. After exposures lasting 20 hours, there was a marked diminution in the number of white cells to less than 1,000 per cmm. from the second day. In stained specimens of the blood after long (20-hour) exposures, the polynuclear leukocytes preponderated greatly after the second day. After the lapse of several days the lymphocytes almost entirely disappear from the blood, while the number of polynuclear and large mononuclear forms show scarcely any change. Later the relative number of the lymphocytes increases. No abnormal cell forms were observed. The decrease of the lymphocytes is explained by the action of the rays on the lymph follicles.

Aubertin and Beaujard[6] find that complete exposure of animals causes an immediate leukocytosis. In a mouse, for example, the leukocytes numbered 19,200 at the end of an exposure lasting 15 minutes, an increase of 12,000 cells per 1 cmm. Exposure of 10 hours' duration in a guineapig produced a leukocytosis which began during the exposure, was highest (21,000) three hours afterward, then diminished rapidly, to return to normal at the end of eight hours. The rise was due almost entirely to an increase in the number of the polynuclears. After a single exposure, evidences of histolysis in nucleus, protoplasm, and granules were noted. Exposure of a femur in a rabbit caused a leukocytosis, followed by a leukopenia. Repeated exposures to a part caused a leukocytosis after each exposure, the increase taking place in the polynuclears alone at first, myelocytes and nucleated reds appearing later; cells in process of histolysis were more numerous, those affected being the mononuclears usually. The bone marrow of the exposed femur (in a rabbit given five exposures daily of 15 minutes' duration each), presented a marked decrease in the granular cells, the nucleated reds being apparently unaffected. With 10 exposures daily, of 25 minutes each, the condition just described is exaggerated. The myelocytes are more abundant, the erythrocytes decrease in number, show poikilocytosis and polychromatophilia, and the nucleated reds increase (25 to 100 leukocytes). Finally a leukopenia ensues. The marrow is similar to that found with fewer exposures.

Helber and Linser[7] have worked with longer exposures. They find that the leukocytes in the peripheral blood are greatly reduced in number; in fact, they have obtained a total absence of leukocytes in some instances.

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Thus, of six rabbits, the leukocytes fell to 0 twice after exposure to the röntgen rays lasting 70 to 100 hours, twice to 200 to 600, and twice to 600 to 1,700 per 1 cmm. In seven rats exposed from four to seven hours the number of leukocytes fell to 0 to 2 cells four times, and in the remaining animals it was below 1,000. One rabbit and one rat were killed as soon as the blood became free of leukocytes, and the internal organs were examined to determine, if possible, whether a retention of the white cells in any part of the body could explain the finding. In the rabbit the result was entirely negative; the spleen and intestinal follicles contained very few lymphocytes, the marrow was greatly impoverished, and the entire organism was almost devoid of leukocytes. In the rat the picture obtained was the same, except that the splenic follicles and bone marrow showed a considerable number of well stained white blood cells. In spite of a continuation of the exposure, a slight increase in the count was noted, followed by a second decline to 1,000 to 2,000 cells. In all of their animals the small lymphocytes were diminished first with a relative increase, but

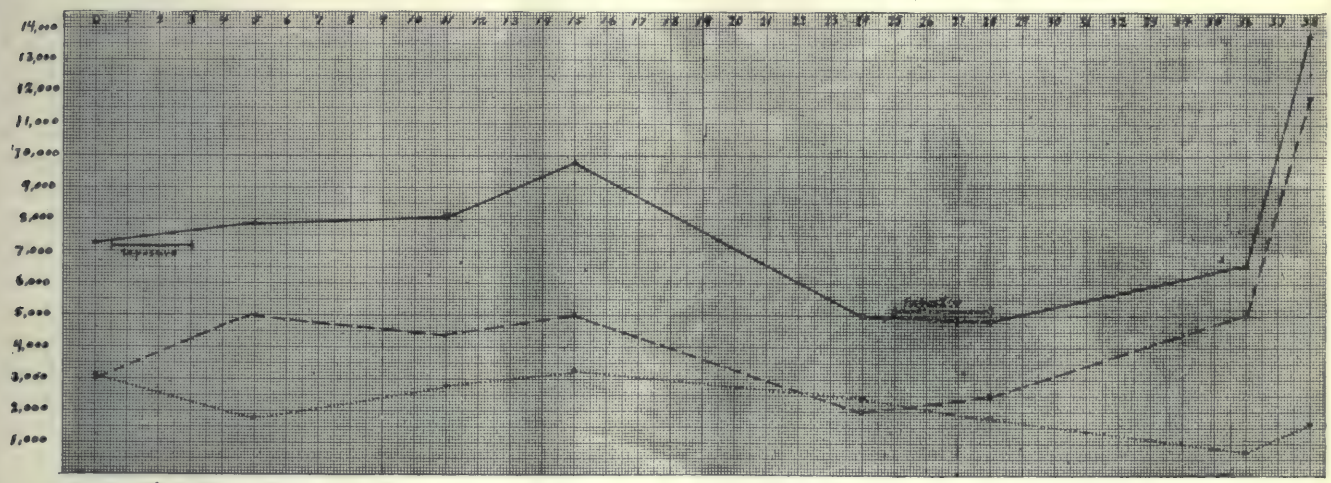


Chart to represent the action of the röntgen rays on the leukocytes of the rabbit. The time in hours is given by the numerals above. Continuous line, total number of leukocytes. Broken line, polynuclear amphophiles. Dotted line, lymphocytes.

an absolute decrease in the polynuclears. As to the staining of the cells, they observed that the nuclei of the lymphocytes remained pale with Jenner's mixture; frequently nucleus and protoplasm were no longer separable. The nuclei of the polynuclear cells were very pale or entirely wanting, the cell being recognized only by the presence of a few granules. In the remaining leukocytes no marked alteration in the reaction to the stain was seen. In the red blood cells no change was seen at first. Later a slow but steady decrease in number was found, with a corresponding alteration in the number of the blood plates and in the percentage of hemoglobin (no dermatitis). Coincident with the fall in number there was more or less polychromatophilia with a few granular erythrocytes.

The present experiments were undertaken with the view of studying the more immediate effect upon the blood of moderately long, continuous exposures to the röntgen rays. For this purpose rabbits and rats were chosen. In all, two rabbits and twelve rats were used, the rabbits being subjected to repeated exposures, while the rats were exposed only once each. The exposures were all made by Mr. V. J. Willey, who kindly furnished me with all available data. Unfortunately it has been impossible to measure accurately the dosage of the rays which the animals have received, a defect which is also present in all of the work reviewed above. The results, therefore, are purely qualitative, though one may guess roughly at the quantitative effects. So far as possible, medium hard or hard tubes have been used with the anode at a short distance. In the rabbits the exposures have usually been made over the upper left side of the thorax and the lower left side of the abdomen, the rest of the body being screened from the rays; in only one instance was the animal exposed all over. With rats, on the other hand, complete exposures were always given.

Early in the course of the work, exposures to the röntgen rays of short duration were tried with the rabbit, *i. e.*, lasting 15 minutes to 30 minutes. One hour after an exposure of 15 minutes (medium tube; distance of anode from skin, 5.5 inches; spark gap, 1 inch; current, ½ ma.) the number of leukocytes had risen from 9,600 to 12,060; two hours later they had fallen to 9,840, and eight hours after the exposure was stopped, the count was 8,800. The slight rise which followed the exposure was due almost wholly to an increase in the number of polynuclear amphophiles. With a half hour exposure (hard tube; distance of anode from skin, 6 inches) to the lower left thorax and upper left abdomen, the subsequent increase in the number of leukocytes was less marked; there was a rise from 8,000 to 9,720 one hour after the end of the exposure, the increase again being caused by the polynuclears. The count again returned to the original level and remained stationary until 8 hours after the exposure; 10 hours after, the whites numbered 9,052; at 12 hours, 10,880; and at 14 hours, 12,708. The absolute number of the various forms of leukocytes remained practically stationary excepting the polynuclears, which rose in number with each successive rise in the total count. Short exposures were then abandoned, and the animals were subjected to the rays for longer periods, varying from 2½ to 3¼ hours.

Using, then, exposures of moderate length (2½ to 3¼ hours) fairly uniform and definite changes were found to occur in the leukocytes, which may best be studied by referring to the accompanying chart, on which the results of blood-examination,* with exposures to the röntgen rays on two successive days, are plotted.

It may be noted that the total number of leukocytes per cubic millimeter was 7,250 before the first exposure. The rabbit, a male weighing 1,818 gm., was given an exposure over the lower thorax and upper abdomen of the left side, of 2½ hours' duration (medium tube ; anode 7 inches from skin; spark gap, 4 inches; 6 amperes through primary coil; penetration = 6 mm. of aluminum). Two hours after the termination of the treatment the count was 7,820; practically no change. Eight hours after the exposure was ended, there was still really no change, the whites numbering 8,088. At the end of 12 hours a slight increase was noted, 9,776 cells per 1 cmm. being found. The leukocytosis following the exposure, described in the mouse and guineapig by Aubertin and Beaujard, was not obtained, while a slight increase in the count occurred several hours later.

Though the total number of leukocytes shows little variation during the first 12 hours following a single exposure to the röntgen rays, there is nevertheless a well-marked alteration in the absolute number of the different kinds of white cells. Thus, two hours after ending the exposure there is a marked fall in the number of lymphocytes from 3,053 per 1 cmm. (before the treatment) to 1,779. At the same time the polymorphonuclears show an increase from 3,040 to 5,000, a little more than the decline in the lymphocytes. Six hours later there is an increased number of lymphocytes in the peripheral blood, 2,807, rising to 3,343 twelve hours after the completion of the exposure; with the first rise in the lymphocytes there is a small drop in the polynuclears (4,386), the total count remaining about the same, while later on, when the number of whites in the circulation is somewhat greater, the polynuclears also show an increase.

On the second day (24 hours after the first exposure) the leukocytes numbered 5,000 per cubic millimeter, the lymphocytes being slightly in excess of the polynuclear amphophiles, a condition which Brinckerhoff and Tyzzer[8] found to be normal in the rabbit. The same animal was again exposed to the röntgen rays (medium hard tube connected with 24-plate static machine; distance from anode ca., 7 in.; 2 in. spark gap; penetration of 8 mm. of aluminum), the treatment this time lasting 3 hours; it was given over the lower thorax and upper abdomen of the left side, as before. Fifteen minutes after the treatment was stopped enumeration of the leukocytes showed 4,844, practically the same as before the exposure was begun, but somewhat less than on the preceding day. Eight hours after ending the exposure there were 6,576 whites, and 10 hours after, they had risen to 13,776. During this time changes took place in the differential count similar to those described above, but somewhat more marked. When the exposure was ended the lymphocytes amounted to 1,835 in a cubic millimeter (2,421 before exposure); 8 hours from the termination of the treatment they had declined to 741, while at the end of 10 hours (13 hours from the beginning of the treatment) 1,622 lymphocytes were found, the total number of whites having also shown a considerable increase.

No noteworthy changes were found in the number of the red blood cells or in the percentage of hemoglobin. The blood plates were not counted.

The histologic characters of the leukocytes were studied after using the Wright stain. Departures from the normal were not noticed immediately after the first exposure. Following the treatment on the second day, however, some alterations were evident. In the preparations taken just at the end of this (second) exposure a few lymphocytes were discovered, in which the nuclei were apparently breaking up into fragments or spheric masses, presenting a picture similar to that described by Heineke in the spleen and intestinal follicles; their number was, indeed, few, for only 3 such cells were seen in counting 541 leukocytes. In the same specimen 3 amphophilic myelocytes were encountered. Many of the polynuclear amphophiles presented poorly staining nuclei. In the differential count of the blood taken 8 hours subsequent to the second exposure no changes were found in the form of the lymphocytic nuclei after the examination of a large number of cells, though some of them stained less deeply than normal. The myelocytes had risen to 8 in counting 555 cells, and distinct changes were evident in the staining properties of the polynuclear amphophiles; the basophilic granules no longer stained, while the acidophiles were definitely reduced in number, so that the cells suggested strongly those described by Milchner and Mosse in the bone marrow. Two hours later there were 4 myelocytes in 540 cells counted; the alteration in the polynuclears was somewhat less marked.

Stained specimens revealed no special abnormalities in the erythrocytes, nor were nucleated forms met.

Rats, it seems, from the experiments performed by Dr. Warthin, as well as from those of Heineke, and of Helber and Linser, are more susceptible to the action of the röntgen rays than rabbits. They are more readily killed by exposure to the rays and the changes produced in the lymphoid tissue in general, and in the blood are more marked. In studying the action of the röntgen rays on their blood, the attempt has not been made to examine the blood repeatedly; the animals have been killed with chloroform at stated intervals, the carotid opened while the heart was still beating, and dry preparations and leukocyte count made. Autopsy was then completed, and the organs were sent to Dr. Warthin for examination, and the findings will be reported later by him.

The examination has been limited to the leukocytes in the rats. An account of the normal number of white blood cells per cubic millimeter in this animal, with the relative number of the various forms of leukocyte, I have been unable to find. From the few examinations of normal rat's blood which I have made, together with scattered counts gathered from different sources, the number would seem to vary normally between 5,000 and 11,000 cells per 1 cmm., though the number of counts

* The blood for counts and smears has been obtained from the ear veins in the case of the rabbit

collected is too few to speak with certainty on this point. The mononuclears and the polynuclears are the two forms which are of greatest importance to us; the former are, normally, considerably in excess of the latter. Hirschfeld[9] has given a good description of the different kinds of white blood cell in the "calico" rat; the leukocytes of the white rat seem to be similar, as would be expected. He has shown that the polynuclear cells, unlike those of the rabbit, possess neutrophilic granules.

Four hours was the length of exposure with nearly all the rats. In the first experiment 5 of them (Nos. I to V) were exposed to the röntgen rays (medium hard tube connected with 24-plate static machine, 360 revolutions per minute; anode ca. 8 inches from animals; spark gap 2 inches; penetration = 16 mm. of aluminum). At the conclusion of the exposure Rat I (male, weight 75 gm.) was chloroformed; the leukocytes numbered 3,064, of which 82% were small lymphocytes and 12% polynuclear neutrophiles. While there is probably a leukopenia, the relative proportion of the cells shows no marked alteration and histologically no change was found. The leukocytosis of Aubertin and Beaujard is absent. Rat II (female with embryos, weight 202 gm.) was killed 8 hours after beginning the treatment; 2,000 leukocytes per cubic millimeter were found. The differential count showed about 30% of small lymphocytes with nearly 55% of polynuclears. A few masses resembling poorly staining nuclei without protoplasm were seen, the size varying from that of a polynuclear neutrophile to a body about an eighth that size. Twelve hours from the beginning of the exposure Rat III (male, weight 125 gm.) was examined; the blood contained 2,664 whites. A very marked decrease in the lymphocytes was discovered in making the differential count, less than 2% being found, while more than 95% of the leukocytes were polynuclear neutrophiles. Rat IV (male, weight 78 gm.) was not killed until 48 hours had elapsed from the commencement of the four-hour exposure. In this animal the most striking changes in the leukocytes were found. There was extreme leukopenia, only 176 leukocytes being found per 1 cm. As would be expected, a great paucity of leukocytes was encountered in the examination of the stained specimens. In going over about one and one-half three-quarter-inch square cover-glasses only 29 leukocytes were found; of these 25 were polynuclear neutrophiles and the remaining cells could not be classified. Not a lymphocyte was seen. The polynuclear cells stained fairly well. It had been planned to kill Rat V (male, weight 56 gm.) 96 hours after the treatment; unfortunately the animal was found dead in the cage. Death must have occurred some time between 80 and 96 hours after exposure. Rigor mortis was present. Autopsy revealed no macroscopic alteration other than a small amount of pale yellowish fluid, slightly turbid, with small grayish-white flakes in the lower part of the peritoneal cavity; there were no fresh adhesions.

Rats VI to X were exposed to the röntgen rays four hours (medium soft tube connected with 24-plate static machine, 420 revolutions per minute; anode ca. 8 in. from animals; 1½ in. spark gap; penetration = 8 mm. of aluminum). They were killed 4, 8, 12, 24, and 72 hours after the beginning of the exposure. Suffice it to say that the changes in the differential count were similar to those taken at corresponding times in Rats I to V but less marked. In general the leukopenia was also less pronounced. This may have been due partly, at least, to the fact that a medium soft tube was employed.

Rats XI and XII received a five-hour exposure (medium tube; 4 inch spark gap; 6 amperes through primary of coil; penetration = 16 mm. of aluminum); they were killed 96 hours later. The leukocytes were not counted. I am indebted to Dr. Warthin for letting me obtain the specimens. If one may judge from the stained blood, a marked leukopenia must have existed; the differential count also bears this out, the proportion of lymphocytes being greatly diminished and the polynuclears predominating.

Comparatively slight alterations in the appearance of the stained cells have been met; indeed, from the very intense changes in the lymphocytes and polynuclears described by Heineke, and which are also shown beautifully in Warthin's specimens, one is surprised to find so few cells showing abnormalities. Occasionally one finds a lymphocyte with few, or, more rarely, many granules in the protoplasm; the latter stain like the nucleus, and the larger ones are about the size of the eosinophile granules of the rabbit. These cells are rather more abundant in some of the specimens, but as they are also found in the blood of apparently normal rabbits and rats, they are in no way specific alterations. Because of the similar reaction to the stain, possibly the granules are derived from the nucleus.

From the foregoing results, the following conclusions concerning the immediate action of the röntgen rays upon the blood of rabbits and rats may be drawn:

1. The röntgen rays cause a marked diminution in the absolute number of leukocytes in the peripheral circulation.

2. Preceding the leukopenia, there may be a moderate rise in the number of leukocytes 8 to 12 hours after the exposure, the increase being due largely to the greater number of polynuclear cells in the circulation (observed only in the rabbit); the same condition may be found just at the end of the exposure, subsiding rapidly.

3. The lymphocytes are especially susceptible to the action of the rays; they are affected first and most intensely.

4. Alterations in the histologic characters of the lymphocytes and polynuclear amphophiles may be found in the rabbit, similar to those described in the lymphoid tissue and bone marrow.

5. Hard tubes produce the most marked changes in the leukocytes.

6. No noteworthy numeric or histologic alteration takes place in the red blood cells within the first few hours following exposure; the percentage of hemoglobin is not essentially affected within the same time.

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SPEECH TRAINING AS A FACTOR IN THE DEVELOPMENT OF THE FEEBLE MIND.[1]

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Speech bears somewhat the same relation to the mind that the hammer and saw bear to the carpenter. It is the mind's most effective and most important tool. It is not only the vehicle in which the products of the mind are transferred and delivered, but it is essential also to the the creation of these products, to their crystallization, collection, and classification. Thought, in its highest sense, therefore, cannot exist independently of speech. Hence it is that if you deprive a person of speech you deprive him at the same time of his most effective means for mental development, and it also follows that if you train and perfect his speech you must greatly improve his mentality. In the normal child mental development and speech development progress simultaneously. Neither can be said to precede the other. The child thinks and speaks. If he does not speak when he thinks we at once suspect that there is something wrong with the organs of speech, and if he also fails to make use of the other forms of expression, such as gesture and pantomime, we even doubt his ability to think.

If there is no mechanical obstruction to speech in the peripheral organs, and if the hearing apparatus is intact, the character of the speech is our best index to the operations of the mind, and the educability, so to speak, of the speech will be in direct proportion to the educability of the mind. Thus the study of the speech of the feeble-minded becomes a valuable aid in the diagnosis and prognosis of their condition. Defective speech is both a physical and mental sign of feeble-mindedness, but it is by no means a pathognomonic sign, and it may be a cause and not a result of the feeble-mindedness.

In 1896 I published a report of a case in point.[2] A boy of 19 had been unable to speak intelligibly. It was thought by his family and physicians that his defective speech was due to an organic cerebral defect, and their prognosis was therefore unfavorable and even hopeless. However, some mechanical obstructions to the normal action and development of the peripheral organs of speech were removed, and the faulty mental and physical speech habit subsequently corrected by training, or rather supplanted by correct habits, and this one time feeble-minded youth is now a shrewd and successful business man. The case cited is not an isolated one, but it is typical of a fairly large class. To the casual lay observer they appear to be upon the border line of hopeless imbecility, and even to experts, such as I have the honor of addressing today, their classification is exceedingly difficult and oftentimes impossible, except after a more or less extended course of experimental training. That there are certain mental and physical signs of degeneracy I grant, but these are not always sure signs, and they serve only as aids to the diagnosis.

A child's educability depends more than anything else upon his desire to be educated. The desire to speak is inherent in every normal person, and if this desire is not gratified, the desire to be educated will be diminished or blunted. What is the use of knowing things if you cannot communicate them? The child that will not be educated will retrograde and become feeble-minded. Being out of harmony with his environment, his moral nature will become perverted. He will grow destructive and show other signs of degeneracy and imbecility. He does this because he does not understand his surroundings, and he is not himself understood by those about him. He elicits the sympathy of the household, and his every wish is anticipated and granted without even the asking. Under these circumstances, of course, education becomes an impossibility. There is no necessity for the child to talk and there is no inducement for him to learn to know things. He is what we call a spoiled child, and he differs but little in his actions from the imbecile. I have five such children under my care at the present time, ranging in age from 3 to 8. They all illustrate the difficulties of diagnosis and prognosis, and I shall, therefore, give you a brief synopsis of their history as taken from my notes:

CASE I.—George H., aged 3, was referred to me by Dr. Wharton Sinkler. Does not talk at all. Was an 8-months' baby, instruments being used in delivery. Comes of a neurotic family, in which there is a history of tuberculosis and insanity. Had two operations for the removal of adenoids. The lower jaw hangs far down. Has difficulty in chewing and swallowing, drools and seems to be unable to close his mouth. Very nervous and home training is a failure. There is evident paresis of the muscles of mastication, deglutition and articulation, and there is but little to indicate that the child is not an imbecile. He has been under treatment for a year. He is gaining control of the paretic muscles, can keep his mouth closed for short periods of time, has ceased to drool, and is learning to talk with fairly good articulation for the words that he knows.

CASE II.—Sarah M., aged 5; does not understand or use spoken language. Can say, at dictation, a few words such as mamma, papa, baby, but never uses them voluntarily, and shows no appreciation whatever of their meaning. When spoken to she is perfectly indifferent and shows no signs of comprehension. Physically, the patient is somewhat below par. She is well formed, but undersized, weighing only 3 pounds at birth. Two older sisters at birth weighed only 2 pounds and 6 pounds respectively. In her first year she had measles, pneumonia, and two attacks of whoopingcough, and in her fifth

[1] Read at the twenty-ninth annual meeting of the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded Persons, June 1, 1905, Vineland, N. J.

[2] Therapeutic Gazette, December, 1896, "Speech Defects: Their Causes and Treatment."

year, bronchitis and grip, with an acute unilateral otitis media. Takes cold easily and each attack is attended by more or less congestion in the region of the drum membranes. Did not walk until she was 2½. There is a history of tuberculosis on both the father's and the mother's side. She shows some appreciation of music, but no appreciation of words. She has an ugly disposition and when corrected she will fight and makes disagreeable faces.

CASE III.—Edward S., aged 3, normal birth, and bottle fed. Had grip followed by acute purulent otitis media, large faucial and pharyngeal tonsils removed by Dr. Milligan, of Pittsburg, before referring the patient to me. Has drooping eyelids, a chicken breast, and a weak heart. General health below par. Makes no attempt to talk, either spontaneously or at dictation, and shows no appreciation of the meaning of words. Strong evidences of at least partial deafness. Disposition bad, and home training a failure.

CASE IV.—Joseph D., aged 8, has had muscular innervation since birth, which was premature, and was the result of a forceps delivery after the death of his mother in a uremic convulsion. It was not supposed that the child could live, or even be born alive, but the desire of the family to have the baby baptized was the reason for the unusual delivery. Was a small and delicate baby, had whoopingcough and several convulsions during the first three years. Had peculiar gait and drooled.

CASE V.—Robert H., aged 5, was bottle fed, weak, and poorly nourished. Had frequent colds in the head and throat. Nostrils occluded by an irregularly shaped septum and adenoids, which called for operation. Had never talked, and showed but little appreciation for the meaning of words. Had poor memory, was self-willed, and did not take kindly to any form of instruction.

From the history of these five cases it will be readily understood how difficult and even impossible it was to determine offhand their exact mental status. These children were all suffering from arrested speech development, and as a consequence there had also been either a corresponding arrest of mental development or an abnormal mental development, the outward signs of which differ but little from those of imbecility. In but one or two of these cases could I give an undoubted favorable prognosis. The prospects for speech development and mental development were by no means promising, because there were marked symptoms of a lack of cerebral integrity, and there were no ready or direct means of eliminating this possibility.

In the first four of the cases reported the patients have been under treatment for more than a year and the results have been most satisfactory. It will be remembered that only one of the children made any attempt whatever to talk and his speech was a mere jargon, but now they are all talking freely and their speech is quite intelligible. Moreover, they are gradually freeing themselves from the charge of feeble-mindedness or imbecility. They are no longer disagreeable and unruly, but on the contrary, they are of a genial disposition and mentally alert.

In the fifth case, although the child appeared at first even more promising than the others, there has developed, in the course of his training, some evidence of faulty cerebration, such as a weak memory and weak powers of concentration. His hearing, as was the case in two of the others, is slightly defective, and it was impossible to determine, without a preliminary course of training, whether or not the lack of speech development was due to this fact. Three of the children are partially deaf, and their improvement in speech has been due largely to the improvement in their hearing power and their mental improvement is due to the fact that they can now hear, understand, and make themselves understood by means of normal speech. Aside from the direct mechanical means that were employed for the restoration of hearing, their treatment has consisted entirely in the training of their faculties of speech, and this is the most effective and satisfactory course to pursue in all such cases.

Our whole system of education, beginning at the cradle, has been developed to meet the requirements of the normal mind, and it is wholly inadequate to the requirements of the abnormal or feeble mind. It must be remembered also that the mind is the product of a complex physical organism, and that speech itself is, in part at least, a product of this same organism. Even the so-called peripheral mechanisms of speech, in the developmental period, are under direct control of the cerebral mechanisms, and the muscles employed in the articulation of speech sounds have been called the mental muscles. As Max Müller has said, "To think is to speak low, and to speak is to think aloud." It follows, therefore, that the training of speech should occupy an important place in the curriculum of schools for the feeble-minded.

I am aware that not all the inmates of your training-schools are susceptible to this sort of education, but I am convinced that those who are educable, even to a moderate degree, should have the benefit of a thorough trial in the line of vocal and speech development, and this work should be done by skilled specialists. It is not enough that your teachers have a smattering of elocution and know something of phonetics, but it is important that they should have some knowledge of physiology and psychology. They should be able to judge of the mental and physical capabilities of their pupils, and to understand their point of view.

THE VALUE OF CHLORETONE AND SULFONAL IN THE TREATMENT OF INSOMNIA.

BY

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CHLORETONE.

Chloretone on trichlorbutylalcohol ($CCl_3(CH_3)_2COH$) is produced when caustic potash is slowly added to equal weights of chloroform and acetone. It is a white crystalline powder having a camphoraceous odor. It dissolves in about 100 parts of cold water, but is more soluble in hot water. It is very soluble in alcohol, ether, and chloroform. Dilute acids and alkalies are apparently without effect upon it.

It was first investigated by Dr. E. M. Houghton, of Detroit, and Dr. T. B. Aldrich,[1] of Baltimore, who reported on its hypnotic value in 1899. During the last two years there have been few reports upon it.

Physiologic Effects.—When swallowed it produces a feeling of warmth in the stomach, and more or less anesthesia of the mouth, throat, gullet, and stomach. According to Dr. Hollen[2] and others, it passes into the

blood unmodified, and is there decomposed, the chlorin and methyl radicle acting immediately upon the nervous tissues. It is thought to have a special selective affinity for the brain, as in several instances that organ has been found to contain more chloretone than any other organ of the body. It does not depress the centers of the medulla, while according to Abel, of Johns Hopkins, and Cushny,[3] of Ann Arbor, it is nearly an ideal anesthetic for use in experimental surgery, physiology, and pharmacology.

Hollen[2] states that its hypnosis is not marked by depression of the nervous system. The temperature, respiration, and pulse-beat are not modified, and it is free from bad effects upon the digestive organs.

Rudolph,[4] of Toronto, found that it had little or no effect upon the pulse, respiration, or blood-pressure for hours, but that eventually, if the dose has been large enough, these become depressed and the animal dies, the heart-beat ceasing before respiration. The body temperature is also profoundly depressed.

Impens[5] concluded from a series of experiments upon animals that chloretone was two and a half times more toxic than chloral; that in large doses it reduces the respiratory effort and volume of respiration; that it paralyzes the vasomotor centers and thereby induces a marked fall of blood-pressure, which at times is as much as 43%, and that doses sufficient to produce sleep depress the heart and lower the body temperature.

Rasely[6] has used it in hundreds of minor surgical operations as a substitute for cocain, and found it to produce complete anesthesia without depression or exhilaration. He employed a saturated aqueous solution along the line of incision.

It appears to be harmless when given subcutaneously in small doses or when an aqueous solution is applied to a fresh wound, while in both cases it produces a local anesthetic effect which is said[7] to be fully equal to that of a 2% solution of cocain. Dr. E. A. Lee further observes that, unlike cocain, it does not produce any constitutional effect or local ulceration or sloughing.

Hirshman,[8] of Detroit, found it prevented nausea and vomiting during anesthesia, when given in .65 gm. to 1 gm. (10 gr. to 15 gr.) doses about half an hour before operation. In a series of 60 cases, in 30 of which the patients received the drug, only three had nausea and one vomited. Of the 30 who did not receive chloretone before the anesthetic, 24 were nauseated and vomited.

Hypnotic Value.—Cappelletti[9] used it as a hypnotic in 25 insane patients. Sleep was induced by it in from 37 minutes to 2½ hours, and lasted from two hours to five hours, according to the dose. The sleep was tranquil. From 1 gm. to 1.5 gm. (15 gr. to 23 gr.) was sufficient, as a rule, but in very restless subjects 2 gm. (30 gr.) was given. The pulse and respiration did not appear to be notably affected by the drug, and the reawakening was not accompanied by unpleasant symptoms. The digestive system was, as a rule, unaffected, and the same could be said of the secretions. In only one case were untoward symptoms observed to follow, viz., drowsiness, headache, and diplopia.

Dr. Wade,[10] of the Maryland Hospital for the Insane, treated 18 patients with good effect. He gave as much as 3.2 gm. (50 gr.) without any unfavorable results. In cases of agitated melancholia the results were "all that could be desired," and also in cases of motor excitement of acute maniacal attacks. In all the cases it produced drowsiness and quietude, followed in a short time by sleep of a natural character, free from bad dreams and bad after-effects. He recommends that it be given in not less than 1 gm. (15 gr.) doses, the succeeding doses being gradually increased.

In 71 cases Brownrigg gave 1 gm. to 1.3 gm. (15 gr. to 20 gr.) of chloretone, repeated once or twice when necessary at hour intervals. In 18% of the cases sleep followed within 15 minutes; in 29.5% sleep followed in from 15 to 30 minutes, so that in about half the cases sleep was induced within the first half hour. In nearly a fourth of the cases three or four doses had to be given to induce sleep. He found that the average duration of the sleep induced by chloretone was four and a half hours. He observed no permanent untoward effects, but there was a tendency to anesthesia and drowsiness for some hours after waking. The pulse was apt to be somewhat depressed, both in volume and frequency, though often no change could be noticed by the finger, even after repeated doses.

Lermitte,[12] after administering chloretone to 15 patients, found that the average time taken to act was 32 minutes, the average period of induced sleep was 5 hours and 4 minutes; maximum time to act, 55 minutes; minimum time to act, 20 minutes; maximum period of sleep, 5 hours and 55 minutes; minimum period of sleep, 3 hours and 15 minutes.

Dr. A. A. Stevens,[15] of Philadelphia, used it in over 50 subjects and obtained the best results from it in cases of insomnia unassociated with organic disease, but its action was often favorable in chronic heart and kidney disease. No depression of the circulation was observed after its use, even in chronic heart disease. In 5 cases of neurasthenia a single dose would generally produce a refreshing sleep, lasting from 6 to 8 hours; 2 gm. (30 gr.) was the most he gave at a single dose. In several cases of gastric cancer and one case of gastric ulcer the results were very disappointing and morphin had to be substituted to induce sleep. He regards it as a safe hypnotic of moderate power.

Sinkler has spoken favorably of chloretone in epilepsy and Dr. McCarthy[13] has found that in 1 gm. (15 gr.) doses given at night for epilepsy, excellent results were obtained and it often succeeded when bromids failed.

Dr. F. W. Hammond[14] found, in a case of epilepsy, that .3 gm. (5 gr.) acted as effectively as 2 gm. (30 gr.) of bromid. Under its use the appetite improved and the digestive disturbances occasioned by three years of bromids disappeared. Lee[7] found it effective in a severe case of senile chorea, and regards it as a splendid hypnotic.

Dr. Hutton[16] and Dr. Still[17] have found it effective in seasickness in .65 gm. to 1 gm. (10 gr. to 15 gr.) doses repeated.

Large Doses.—Dr. R. W. Wilcox[18] had a patient who took 6.9 gm. (108 gr.) and slept for three days without any serious consequences.

Dr. Donald[19] had a morphin habitué, who took 7.8

gm. (120 gr.) of chloretone within 24 hours, followed by almost continuous sleep for six days without any apparent bad effects.

Mode of Administering.—It may be given in capsules or in the dry powder which is usually considered as not disagreeable.

SULFONAL.

Sulfonal or diethylsulfonedimethylmethane $(CH_3)_2C(SO_2C_2H_5)_2$, (Binz) is an oxidation product of ethyl mercaptan with acetone. It is an odorless and almost tasteless white powder of prismatic crystals, soluble in 15 parts of boiling water, 450 of cold water, and 50 of cold alcohol (Porter). It is supposed to owe its activity to the two ethyl groups which it contains. Accordingly, greater sleep-producing powers have been claimed for trional and tetronal, the former having one methyl group replaced by ethyl and the latter having two methyl groups replaced by ethyl (Tirard[1]).

Physiologic Effects.—Leech[2] found that sulfonal has a slightly local dilating influence on the bloodvessels of coldblooded animals. Cramer[3] states that it does not influence either amylolytic changes due to saliva, nor does it retard gastric digestion.

Gordon,[4] of Aberdeen, found that strong solutions of sulfonal, saturated or half-saturated, considerably delayed digestion, and the stronger the solution, the greater was the delay of digestion. Weak solutions, one-sixteenth to one-eighth of a saturated solution, had little effect either in accelerating or delaying digestion, but when a solution of one-fourth of a saturated solution was employed, delay in digestion took place. Strong or weak solutions had no marked effect in retarding putrefaction.

Professor Leech[2] observes that sulfonal belongs to a chemic series which possesses the power of depressing the functions of the higher cerebral centers and of producing either sleep or that complete insensibility to external impressions known as general anesthesia; that by their further action the motor and reflex centers are weakened and eventually the vasomotor and respiratory centers and the cardiac ganglions lose their power, the nervous centers being affected in the inverse order of their development.

Dr. Charles[5] observed that sulfonal lowered the arterial pressure, while Raynor[6] finds that it not only lowers the arterial pressure, but weakens the heart's action, the respiration and the vasomotor control, while the body temperature is reduced.

In diabetes it is said to diminish the quantity of sugar, polyuria and thirst, and in pulmonary tuberculosis, greatly to diminish the night-sweats.

In death from sulfonal, there is found a widespread fatty degeneration, sometimes affecting the heart; but usually the liver and kidneys.[6]

Hypnotic Value.—Bolton[8] has found sulfonal good in the insomnia of mild cases of insanity, but injurious in acute cases. Nor did he find it efficient in cases of severe physical pain. It has been favorably reported[9] in some cases of cardiac asthma, angina, senile dementia, general paralysis, mania, melancholia, pleuropneumonia, paranoia, hysteric insanity, epilepsy, status epilepticus, alcoholism, cerebral exhaustion, hypochondriasis, arthritic gout, and morphin habit. But its greatest serviceability seems to be in cases of simple or nervous insomnia. Drs. Fuerbringer and Schwalbe,[10] of the Berlin City Hospital, also found this to be the case. They carefully observed its action on 50 patients, 23 of whom were suffering from nervous insomnia; in 21 of these the full effect of the drug was obtained. In the other 27 cases some organic trouble was the cause of the insomnia, such as pulmonary tuberculosis, carcinoma, and valvular disease of the heart without compensation. It was found that only 44% were effectively influenced. In none of the observations did they discover any untoward effects on the temperature, pulse, or respiration. In most of the cases the temperature was taken immediately, and the pulse and respirations counted. Their doses ranged from 1 gm. to 2 gm. (15 gr. to 30 gr.). Sachs,[11] of New York, also found it generally effective in nervous insomnia. Dr. Rabbas[12] found that when given in doses of 2 gm. to 2.6 gm. (30 gr. to 40 gr.) to very much excited patients, an apparently natural and uninterrupted sleep resulted, which lasted from six to eight hours, and sometimes longer. He reports that even after doses of 4 gm. (60 gr.) taken at short intervals and alternating with smaller doses, 2 gm. to 3 gm. (30 gr. to 45 gr.), it did not affect the system in the least injuriously. In fact, no untoward after-effects were ever observed even after its continued administration. Appetite, digestion, respiration, and heart action seemed in no way interfered with.

Dr. Kiernan, of Chicago, has found it excellent in nervous insomnia when given in small doses combined with fluid extract of conium. He gives .65 gm. (10 gr.) of sulfonal with .6 cc. (10 m.) of the fluid extract of conium put into three capsules, and taken two hours apart before retiring.

Untoward Effects.—Sulfonal was long regarded as a safe hypnotic until records of its peculiar after-effects, such as drowsiness, giddiness, headache, and ataxic gait became very familiar; and, later still, accounts of its peculiar influence upon the urine, of weak and rapid pulse, of prolonged coma, and even death following large doses. Its continued use, even in medium doses, has been found liable to result in anorexia, indigestion, constipation, or diarrhea, albuminuria, ischuria, oliguria, hematoporphyrinuria, or an erythematous rash; also feebleness of the limbs, ataxia, ptosis, and even ascending paralysis have been attributed to its use.

Drs. Garrod and Hopkins[9] found that most of the patients who suffered from hematoporphyrin in large quantities, producing dark-red urine (normal urine contains traces of it) were women who had taken sulfonal weeks, months, or even years without any apparent ill effects. Abdominal pain and vomiting were prominent symptoms, and death in collapse frequently followed shortly upon the onset of the symptoms, which may only develop after the drug has been discontinued.

Drs. Harris, Anderson, and Nolan,[9] reported three fatal cases in women. In one case sulfonal had been taken for four years; in another the symptoms only began ten days after the drug had been stopped. Tube casts were found present in each case, and the trace of iron normal to the urine was gone.

Dr. Bolton[8] believes that the prolonged use of sulfonal frequently produces marked intestinal catarrh, while he found ten cases of hematoporphyrinemia to one of hematoporphyrinuria following the use of sulfonal.

But notwithstanding the very numerous reports of disaster from the use of sulfonal, it is generally considered harmless if the bowels are kept free by aperients and the kidneys continue to act in a normal way. It is probable that idiosyncrasy and pathologic conditions are largely responsible for its untoward effects in many cases.

Large Doses.—Dr. R. Percy Smith[13] reports the case of a demented woman who took 19.4 gm. (300 gr.) in two doses, a day apart. Nothing but drowsiness and a "lost-soul" feeling resulted. With the use of apomorphin and purgatives she recovered.

Dr. A. E. Hind[14] reports the case of a woman of 27, who took 23.6 gm. (365 gr.) with suicidal intent. When found, she was comatose, but after gastric lavage and the use of strychnin and digitalin, she finally recovered.

Dr. Ernest Neisser[15] reported the case of a boy of 15, who took 112 gm. (3½ oz.) of the fine powder at one dose, followed by a copious draught of water. He slept continuously for five days, but did not return to full consciousness until the seventh day. On the ninth day he left the hospital in apparent good health.

Mode of Administering.—An ordinary hypnotic dose of sulfonal, given in powder, may not induce sleep for several hours or more, but when 1 gm. to 2 gm. (15 gr. to 30 gr.) are taken in solution, sleep usually follows in from 15 to 20 minutes. It should be dissolved in one-half to two-thirds of a tumblerful of boiling water, and allowed to cool sufficiently to permit of drinking. The dose can be reduced, say from 2 or 3 to 1 gm. (30 or 45 gr. to 15 gr.) with the same effect as the larger dose, for a day or two. According to Lauder Brunton, 2, 3, or 4 gm. (30, 40, or 60 gr.) of sulfonal does not seem to produce sleep any more effectually than 1.3 gm. (20 gr.). Tolerance is not easily established, and when it does occur, a break will reestablish its efficiency. It may be given in hot milk, soup or toddy.

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THE APPROXIMATE MEASURES OF THE UNITED STATES PHARMACOPEIA.*

BY

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If any apology were needed for reviving the discussion on popular dose measures,[1] it is to be found in the fact that the members of the Committee on Revision have, unnecessarily perhaps, included a table of approximate measures in the recently issued eighth decennial revision of "The Pharmacopeia of the United States of America."

From the fact that the monographs and other statements that are contained in the Pharmacopeia are generally accepted as being authoritative, at least insofar as they relate to the preparation and the administration of medicinal substances, we would be led to suppose that considerable thought and study had been devoted to a careful consideration of the necessity, or at least the desirability, of including a table of approximate measures, and that if included, the equivalents would represent, at least approximately, the actual as well as the relative capacity of the spoons in common use, with a view of correcting any errors, in the generally accepted equivalents, if they existed.

Under the heading "Approximate Measures," the Pharmacopeia asserts that "these are used by physicians and pharmacists to designate doses of liquid medicines," and further directs that the following values for approximate measures should be used:

4 cc.=1 fluidram =1 teaspoonful.
8 cc.=2 fluidrams=1 dessertspoonful.
16 cc.=4 fluidrams=1 tablespoonful.

It will be noted that the equivalents that are given as metric quantities while nearly 10% higher than the exact equivalents for apothecaries' fluid measure, have the same relative proportions, and that otherwise this table does not differ from similar tables that were published upward of a century ago.

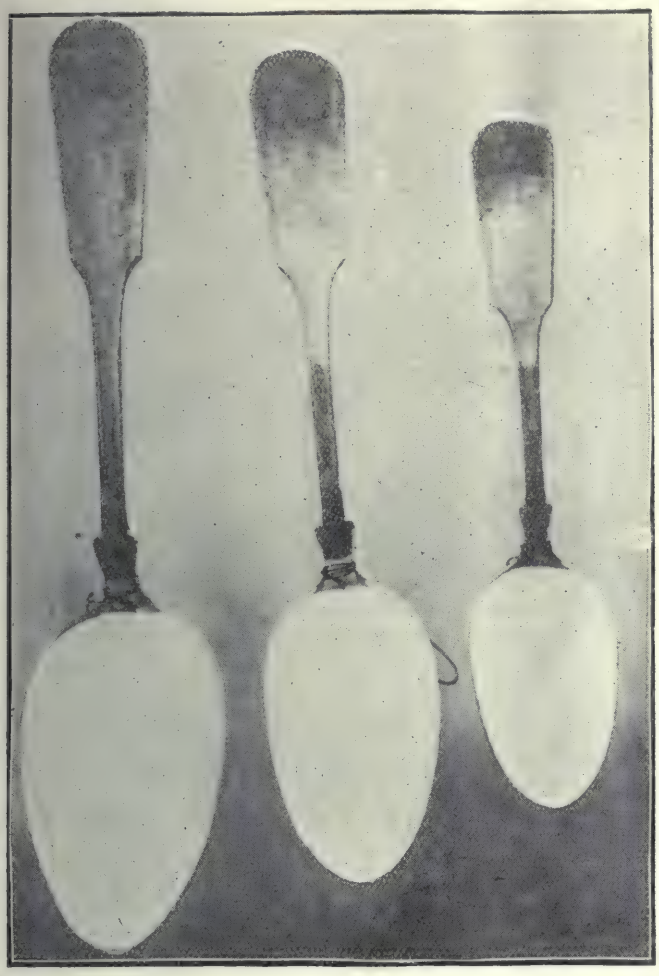
To the ordinary observer, it would appear that the official table is based on the popular assumptions that a tablespoon has the equivalent capacity of four teaspoons, and that the metric system of weights and measures is a part of, or is in some way related to or dependent on, the weights and measures now generally used in this country.

That both of these assumptions are fallacious has re-

*Read at the meeting of the American Pharmaceutical Association, at Atlantic City, September 4-9, 1905.

peatedly been pointed out, but they nevertheless persist, and are largely responsible for the slow progress that the metric system of weights and measures has made among English-speaking people.

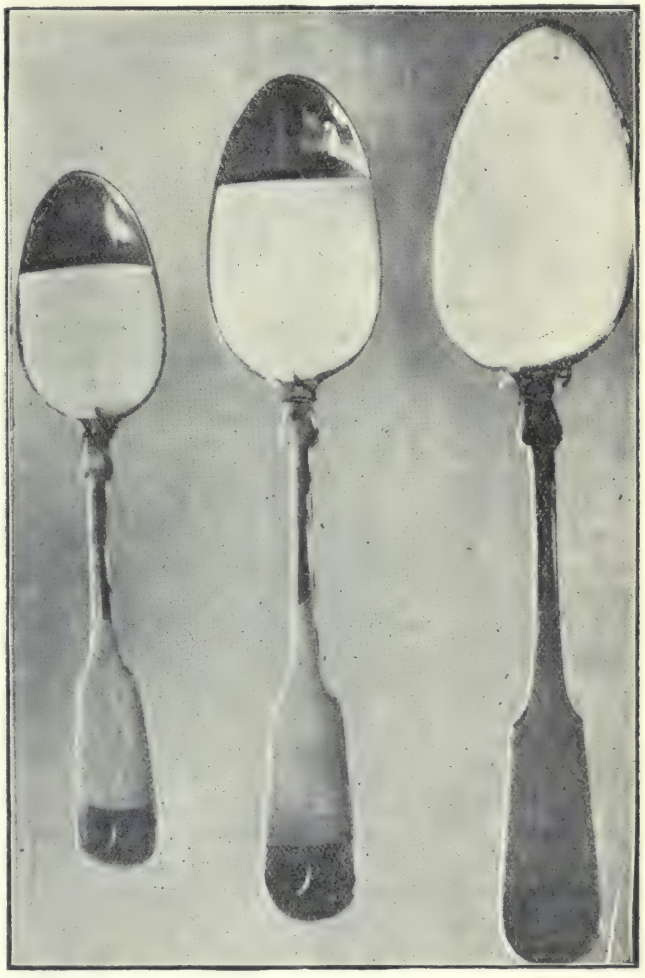
That these assumptions should be endorsed in such an authoritative work as our own Pharmacopeia is particularly unfortunate, and especially so in view of the admittedly high scientific character of the remaining portions of the work. The inconsistency in this connection is particularly evident when we remember that a large number of drugs and preparations are directed to be standardized, and in some cases are not permitted to vary more than the fraction of 1%, while in this table of approximate measures the Pharmacopeia itself directs equivalents that are known to vary from 20% to 60% from the normal. That attention has repeatedly been directed to this apparent discrepancy in the size of spoons is evidenced by a review of recent pharmaceutic or medical literature. Some three years ago[2] a series of experiments carried out at the German Hospital, Philadelphia, appeared to demonstrate conclusively that the various sizes of spoons in general use at that time did not, even approximately, correspond to the usually accepted equivalents of capacity, 1, 2, and 4 fluidrams, and that the generally accepted ratio of 1, 2, and 4 was not correct. It was further demonstrated that there is less variation in the size and actual capacity of the several kinds of spoons than is usually supposed, and that the ratio of the actual capacity corresponds very closely to the ratio of equivalents of capacity used in France, where the capacity of the several spoons is considered as being the equivalent of 5 cc., 10 cc., and 15 cc.



15 cc. 10 cc. 5 cc.

A review of the results obtained at that time was reported to the American Pharmaceutical Association, at the meeting in Philadelphia, in 1902,[3] and that association endorsed the conclusions arrived at by resolving "that in connection with the use of the metric system the following equivalents be recommended: One teaspoonful equals 5 cc.; one dessertspoonful equals 2 teaspoonfuls, or 10 cc.; one tablespoonful equals 3 teaspoonfuls, or 15 cc."

At the meeting of the American Medical Association, in New Orleans, in 1903, the section on pharmacy, materia medica, and therapeutics, adopted a set of resolutions practically to the same effect. In addition to this, the French equivalents for spoonful quantities have been accepted by not a few medical practitioners and medical authors as being not alone approximately correct, but particularly convenient in their everyday work.



1 fluidram. 2 fluidrams. 4 fluidrams.

Despite the reported evidence, despite the endorse-

ment of at least two National associations, and despite the practices that are known to have been followed in countries where the metric system of weights and measures has been used for upward of a century, the members of the committee on revision of the United States Pharmacopeia have adopted, and expect us to follow, a series of approximate measures for metric quantities that is neither decimal in character nor approximately correct.

To be positively assured of the correctness of the observations made some years ago, and also to be in a position to demonstrate absolutely the exact capacity of spoons, it was decided to make permanent casts of the capacity of a number of the several kinds and sizes of spoons in common use.

As a preliminary, experiments were made with a variety of materials for making the casts, such as wax, cacao butter, paraffin, modeling clay, plaster-of-paris, and a number of plastic masses of varying composition. A slow-setting dental plaster was finally decided on as offering the quickest and best method of securing a satisfactory cast of the bowl of a spoon, and this material was subsequently used in all experiments.

The method of procedure is simple: The bowl of a spoon, carefully washed and perfectly dry, is coated with a thin film of oil or grease and is then filled with the requisite quantity of dental plaster, that has been mixed with sufficient quantity of water to give it the consistency of cream. The spoon must be carefully supported until the plaster has set sufficiently to retain its shape, after which it may be put in any desirable warm, dry place to set further and to harden. After being thoroughly dried, the cast can be dipped in either melted wax or in melted paraffin, and may then be immersed in many of the ordinary liquids, being quite impervious to moisture. To facilitate weighing, a piece of silk may be securely fastened in the plaster while the cast is being made. The resulting cast, by the attached thread, may be suspended from the arm of an analytic balance and weighed either in air or immersed in any desired liquid, the difference between its weight in air and its weight in any given liquid indicating the weight of the liquid displaced. With distilled water, at ordinary temperatures, this weight also represents the exact volume of the water displaced and thus indicates absolutely the exact capacity of any given spoon, at any given point.

There are, it is true, several possibilities of error, the attached string and the difference in the density of water at different degrees of temperature, but as these errors would manifest themselves only in the second or third decimal places, and as no attempt has been made, at this time, to extend the figures beyond the first decimal point, this possible error may safely be ignored.

In this connection it will not be necessary to give a detailed account of the exact equivalents that were obtained; suffice it to say that, in a general way at least, they fully corroborate the results previously reported, and that we are now in a position to assert positively that spoons, as sold at the present time, do not correspond, even approximately, in capacity to the quantities indicated in the official table of approximate measures. Teaspoons, evenly full, have a capacity of from 4.6 cc. to 5.5 cc.; dessertspoons will hold from 8.4 cc. to 10.4 cc.; and tablespoons from 12.8 cc. to 15.6 cc.

Many of the newer styles of dessert and tablespoons have a slight curve to the upper edge or rim of the bowl, and all spoons will, when filled as they ordinarily are, hold from 10% to 20% more than the quantities indicated here. The accompanying diagram illustrates better than a lengthy description, the actual as well as the relative capacity of average teaspoons, dessertspoons and tablespoons.

The important fact, however, and the fact that has been repeatedly discovered by observing medical practitioners, is that the teaspoon has a much greater capacity than is usually accorded it, and that the relation between the teaspoon and the tablespoon is not as one is to four, but is very much more nearly as one is to three.

That this particular ratio is not a new one, and that it is has been quite fully recognized abroad, is evidenced by the fact that both the French Codex as well as the Belgian Pharmacopeia direct that 5 cc. be accepted as the equivalent of a teaspoonful, and that 15 cc. or three times that quantity be considered as the equivalent of a tablespoonful.

In conclusion it may be permissible to recapitulate, briefly, some of the reasons why 5 cc., 10 cc. and 15 cc. should be more generally adopted as the equivalents for tea, dessert and tablespoonfuls. Probably the most important reason is, that these figures represent decimal quantities and are readily multiplied to, or divided into full round numbers. The same equivalents are used in other countries, where the metric system of weights and measures has been thoroughly well established. The quantities indicated more nearly represent the exact as well as the relative capacity of the several kinds and sizes of spoons that are sold and used at the present time.

Assuming that spoons are and will continue to be used as medicine measures, the American Medical Association as well as the American Pharmaceutical Association have endorsed the decimal quantities, and, last but not least, the general adoption of these figures, as dose units, would tend further to demonstrate that the metric system of weights and measures is something distinct and apart from the conglomerate of weights and measures that is so persistently adhered to by the proverbially overconservative English-speaking people.

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[2] American Journal of Pharmacy, 1902, pp. 120, 218, and 495.
[3] Proc. Am. Ph. Asso., Vol. 1, p. 408.

Statistics of Variola in Brazil, Etc.—In the city of Bahia during the epidemic of 1897 there were 1,676 deaths from variola alone. The people adopted general vaccination, and the epidemic declined the following year; in 1899 there were only 10 deaths, and in 1900 none; in 1902 there were 2 deaths, and in 1903 only 1 death from this cause. In Rio de Janeiro in 1903 there were 805 deaths from variola; in 1904, owing doubtless to the great antipathy of the people here to vaccination, the number of deaths from this cause reached the large figure of 3,566, and up to date this year there have been 221 deaths from variola. In Pernambuco in 1904, 909 persons died from this cause, and up to August 1, 1905, there were 2,600 deaths from variola.

ASEPTIC MANAGEMENT OF THE UMBILICAL CORD.[1]

BY

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Pediatrist to Samaritan Hospital, Etc.

In this, the aseptic era in the history of obstetrics, it seems passing strange that so little attention has been paid to the aseptic management of the umbilical cord. So far as my observations have gone, the treatment as applied today is about the same as that which was in vogue prior to the time of our knowledge of bacterial infection.

In 1737 we find this statement by Brackin in "The Midwife Companion": "Never squeeze the blood into the child's body, but tie with a double thread (waxed), placed one inch from the belly, and then cut and wrap in a soft rag. When the cord withers, make a new ligature and then you will be secure against a hemorrhage."

In Burns' "Principles of Midwifery," published in 1843, the author states that excoriations of the navel, inflammations, and superficial festerings are to be treated by opening the bowel with a brisk purge, keeping the parts clean, and by a bath with port wine. If neglected, gangrene and erysipelatous inflammation may result.

Rieck, in 1900, recommends the use of alcohol and sterile gauze as a dressing, and this seems a very short

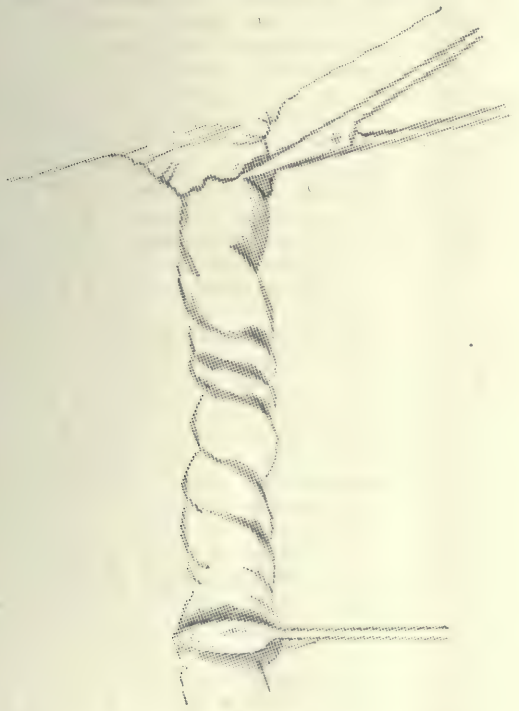


Fig. 1.

step in advance of his more ancient predecessors with their clean rags and port wine.

However, in 1899, Robert L. Dickinson, of Brooklyn, advised amputating the cord after ligating the vessels with sterile silk or catgut.

C. S. Bacon, of Chicago, in 1902, gives a brief review, mentioning Dickinson's valuable suggestion, which at that time he had tried so seldom as to be unable to recommend it, but of which he expresses the opinion that it would some day supersede all other methods.

Eroess, of Budapest, in 1891, published the results of a careful study of the cases in the Budapest clinic. He found that the process of separation was pathological in 68% of cases, and that fever in the newborn was due to



Fig. 2.

navel infection in 45% of cases, also that very serious illnesses, and sometimes death resulted from infection through this source. Rotch believes phlebitis and arteritis umbilicalis is a septic infection of the stump, the infection beginning as an inflammation of the perivascular cellular tissue, and that it is sometimes followed by septic embolus with all its subsequent dangers and possibilities. According to Bacon, the sterile separation of the cord is slower than when a slough is produced by bacteriologic growth. This, no doubt, agrees with the observation of others, and corresponds with my experience; but it is in no way an argument in favor of the older methods.

We are all familiar with the miracles asepsis has wrought in surgery! Is it worth while to try and apply this same principle to the treatment of the umbilical cord in the newborn? Most busy practitioners seem to think the usual method of treating the cord is sufficient and quite satisfactory. I must admit that the great majority of newborn children appear to do well under the regulation sterile pad and mass ligation, but have we investigated carefully enough? Are not the statements of Eroess and Rotch, as quoted, sufficient arguments to direct attention to the dangers of infection through the umbilical cord?

It is not my purpose to review the literature on this subject, but I would like to refer to the following statement of Koplik. He says:

[1] Read before the Philadelphia Obstetric Society, September, 1905.

The umbilical stump is an open wound receptive of infection, and the great danger is that the septic process may involve the vessels and general septicemia result.

The umbilical cord may be normal in appearance and still at autopsy the perivascular tissue is found infiltrated and the arteries containing thrombi.

After death there has been found in infants with an apparently normal cord, parenchymatous inflammation of the liver, kidney, and spleen, with foci of suppuration in the joints.

It does not require much argument to convince men with surgical training and tendencies, the importance of treating the umbilical stump according to the accepted aseptic principles, but to the general practitioner (who, after all, does the bulk of the obstetric work in all communities) any new method which seems to be more time consuming than the one to which he is accustomed does not seem to appeal.

A few moments of consideration, however, should convince the most sceptical that the method to be described is simply and easily applied and, in reality, is time saving, for when the cord is once amputated aseptically, it retracts within the umbilical ring and requires very little if any attention thereafter. The following method, which I have been using for over three years, is practically the same as recommended by Dickinson.

As soon as the child is born the umbilical cord is clamped with a hemostat about three inches from its abdominal attachment; another hemostat is then placed a short distance from the first one toward the placental end of the cord, and the cord is then cut between. The child is now wrapped in its aseptic receiving blanket and placed to one side, and the whole attention is given to completing the delivery of the mother, including possible repairs of perineum, etc. After the third stage of labor is completed, which usually takes 10 minutes or more, we give our attention to the umbilical cord. In the short time required to complete the delivery of the mother, the vessels in the cord as a rule have ceased pulsating.

The cord and abdominal wall immediately surrounding it are carefully washed in 1 to 4,000 mercuric chlorid solution. The hemostat is then grasped in the left hand, and a pair of scissors in the right hand follows the skin amniotic junction until this is severed completely in its entire circumference. Care must be taken not to cut too deeply, as the vessels of the cord are usually very close to the amniotic covering. If they should be cut, no serious hemorrhage will result, as the circulation has, as a rule, by this time practically ceased through these vessels.

So soon as the vessels have been exposed, the amniotic covering and the Wharton's jelly is stripped away in a direction from the abdominal walls and a ligature consisting of a piece of very fine (No. 0) sterile catgut is then thrown around the vessels, and the cord is severed close to the ligature.

The stump is washed in mercuric chlorid solution, dried with a piece of sterile gauze, and dusted with any good antiseptic dusting powder. The baby should not be put in the tub for about a week, but should be given a lap bath; the stump must be washed frequently in a boric acid solution, and a small amount of dusting powder used with the usual sterile pad and the abdominal bandage.

I have used this method for over three years and have never seen any complications arising therefrom. The old infected and rotting stump is done away with, and, aside from the question of its importance to the child, I believe that one source of possible infection to the lying-in mother can be thus eliminated.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 25, 1905. [VOL. XLV, NO. 22.]

1.—The Influence of Liver Congestion and Cirrhosis on the Splenic Connective Tissue.—From a study of 38 cases meeting the needed conditions as to age, date of autopsy, wellmarked liver lesions and freedom from complicating infections made to determine the causes of the increased splenic firmness in hepatic congestion and cirrhosis. H. A. Christian found that in 28 (73.6%) there was an increase in connective-tissue framework following chronic passive congestion and cirrhosis of the liver. In some of the ten cases in which there was no increase in the connective tissue, the liver was equally firm, showing that the consistence is partly dependent on vascular distention, and partly to connective-tissue increase. This connective-tissue increase is mainly in the reticular tissue of the pulp, and with little or none in the white fibrous and elastic tissue. In some cases of cirrhosis, in addition to the pulp reticulum proliferation, there is an increase in the connective tissue about the smaller splenic arteries and in the malpighian corpuscles. The increased firmness of the spleen found in congestion and cirrhosis of the liver is probably only in part due to simple mechanical hindrance to its circulation.

2. Etiology of Pigmentous Sarcoma of the Choroid.—J. Hirschberg believes that malignant tumors, and pigmentous sarcoma of the choroid in particular, are due to various causes in differing types of the disease. He has before published reports of cases in which the sarcoma appeared to originate in congenital patches of pigmentation, and gives an account of a case in which a congenital circumscribed pigment spot in the iris gave rise to a melanotic sarcoma in the same region of the ciliary body of the affected eyeball. These facts, he remarks, agree with the pathologic observations of congenital pigment nevi of the cutis, changing as life advances into melanotic tumors, and with the theory of Cohnheim that congenital peculiarities of cell groups or persistencies of embryonal germs constitute the real predisposition to later development of malignant tumors.

3. A Case of Melanosarcoma of the Choroid.—Lewis H. Taylor. See *American Medicine*, Vol. X, No. 14, p. 557.

4. Yellow Fever.—L. Sexton deprecates any therapeutic nihilism in the treatment of yellow fever. The constitution of the patient, he says, has a great deal to do with the plan of treatment in this disease. The plethoric, strong-bodied young person can take with advantage one 5-gr. dose of phenacetin or acetanilid and use ice-caps to the back and front of the head. With a weak heart the coaltar derivatives, of course, would be prohibited. As a rule Sexton prefers the hot foot-bath treatment, of one hour duration, following the initial chill, keeping the patient covered with light blankets to retain the steam and to encourage elimination by the skin. Hot toweling, with hot drinks and alcohol rubs, should follow the bath, to keep the pores open. This is the usual treatment in hot climates in preference to the cold treatment. Elimination by the bowels is just as important. A supplementary enema or glycerin suppository may be required. The action should be kept up by enemas or suppositories daily, as there is a great tendency to the formation of gas in the bowels in all yellow fever patients. It is harmful to put food to be digested or medicines into a severely inflamed stomach. The best plan is absolute starvation in all cases for from three to five days, except only drinking water. To prevent anuria, from which most patients die, the kidneys must be kept functionating by water diuresis. Water, plain or medicated, iced or hot, must be given every hour or two while the patient is awake in order to have the de-

sired effect. As the toxin attacks the heart, after the first two or three days, absolute rest in the recumbent position is imperative as long as the depression lasts. The patient must not even turn in bed, and strychnin should be given hypodermically to strengthen the heart.

5. Postoperative Pelvic Exudates.—W. F. B. Wakefield. See *American Medicine*, Vol. X, No. 6, p. 220.

6. Hernia of the Tube without the Ovary.—Frank T. Andrews. See *American Medicine*, Vol. X, No. 6, p. 221.

7. Some Complications of Pregnancy Treated Surgically.—Francis D. Donoghue. See *American Medicine*, Vol. X, No. 12, p. 472.

8. Nervous and Mental Manifestations of Prepernicious Anemia.—F. W. Langdon. See *American Medicine*, Vol. X, No. 7, p. 261.

9. The Tuberculosis Problem in Los Angeles.—G. H. Kress has analyzed the statistics of tuberculosis and points out that with the climatic and topographic conditions the least favorable to pulmonary tuberculosis, it has nevertheless the second highest deathrate in the United States. The reason of this he finds in the inflow of needy tuberculous patients and their poverty-enforced modes of living. The solution of the problem he considers will be found in compulsory notification and fumigation, proper regulation and inspection of lodging houses, sanitary building requirements, municipal dispensary for the tuberculous, an enforced antispitting ordinance, disinfection of conveyances and a municipal sanatorium on a self-supporting basis and a hospital for the tuberculous patients. The danger is not as yet extreme, but will become so with further neglect.

10. The Transplantation of Organs. — Alexis Carrel, after noticing former work in this line, reports progress in experiments by himself and Dr. Guthrie at the Hull Laboratory of the University of Chicago in the autotransplantation and homotransplantation of organs. At first, difficulty was experienced in adapting the organs to the new blood supply by vascular anastomosis, but after a new method of suturing had been perfected, the operation became comparatively easy. A few of the results are given. The kidney has been transplanted into the cervical region of a dog, and a comparative study of the urine from the transplanted and the intact kidneys made the third day after the operation. The heart of a dog has been transplanted on to the carotid and jugular of another dog. The heart was beating and the blood circulating through it. With Dr. Guthrie, he established an arterial circulation through the right inferior thyroid vein of a dog which had symmetric hypertrophy of the thyroid glands. Marked changes occurred, and it thus appears that the reversal of the circulation in only one vein of a gland may alter the physiologic process. It is possible that we may thus add to our knowledge of the pancreas, spleen, etc. Carrel suggests that organ transplantation may become of importance in a clinical point of view; that perhaps myxedema, idiocy, etc., may be thus modified, and that even heteroplasty with organs of the higher apes may be of practicable advantage. Much more animal experimentation, however, will be required before the method can be utilized on man. While it is impossible to say yet what practical results will be obtained, he thinks it possible and even probable that it will open up new fields in therapeutics and biology.

11. Transperitoneal Ligation of Renal Vessels.—George Walker concludes, from a study of the subject, that with the ordinary methods of performing lumbar nephrectomy there is danger that the operator may squeeze out tuberculous or malignant material, and thus cause a general infection. He gives his reasons for this belief in detail, and in order to prevent such a possibility proposes the following operation: "Do a laparotomy, push the intestines to one side, incise the posterior peritoneum, expose the renal vessels, put a double ligature around each of them, cut between and free the distal end for a short distance. In passing the ligatures it is well to include a certain amount of the immediately surrounding tissue, so as to pass around and ligate the lymph tract, which is not visible, but which runs alongside of and very near to either the artery or vein. The peritoneum is then closed posteriorly, and the anterior abdominal wound sutured in the usual manner. The patient is then turned on his side, and the usual lumbar nephrectomy is done." He notes the objection that the procedure produces two separate wounds, but thinks that the opening of the peritoneum under proper precautions does not add to the mortality of the operation. On the other hand, he believes that removal of the kidney through the laparotomy wound or performing a simple transperitoneal nephrectomy would probably be more dangerous than removing it by the lumbar route.

Boston Medical and Surgical Journal.

November 23, 1905. [Vol. CLIII, No. 21.]

1. Use of the Biograph in Medicine.—W. G. Chase reports the work he has accomplished with this form of photography and discusses its educational value by which the medical teacher may reproduce the movements of rare cases. The writer has series of pictures showing epileptic seizures, nystagmus, the motions of rhythmic idiots, etc. A novel application is the pocket biograph, in which the prints are bound in book form. The biogen or instrument used in one-cent vaudeville parlors is especially adapted for showing rare cases to students. When the pictures are magnified to life size on a screen, the very action of the muscles may be studied. [H.M.]

2. Measuring and Graphically Plotting Spinal Curvatures, etc.—G. W. Fitz describes a method neither complicated nor expensive, the scoliometer consisting of a sheet of transparent celluloid with rectangular graduations and with two level glasses set at right angles to each other for determining the level of both horizontal and vertical lines of the graduation. A flesh pencil is used to spot the tips of the vertebral processes, the angles of the scapulas, etc. He details the method of reading and recording deviations in all parts of the trunk. [H.M.]

Medical Record.

November 25, 1905. [Vol. 68, No. 22.]

1. Differential Diagnosis of Ectopic Gestation.—Brooks H. Wells first reviews the history of modern conceptions of this condition, which was but little understood until Parry's classic monograph appeared in 1867. He then discusses the differential diagnosis, adopting the following classification of the various forms of extrauterine pregnancy: 1. Early, unruptured. 2. Early, with rupture and free hemorrhage. 3. Early, with rupture and extraperitoneal bleeding and hematocele. 4. Advanced with living child. 5. Near or after term; child dead. Under the first heading, abortion, anteflexion or retroflexion of the gravid uterus, pyosalpinx, hydrosalpinx, ovarian cyst and ovarian or tubal newgrowths must be excluded. The second group must be differentiated from attempted abortion, acute gonorrheal endometritis, rupture of a rudimentary horn of a bicornate uterus, rupture or perforation of stomach, appendix, or other abdominal viscus, and tumors of the ovary or tube with twisted pedicle. In considering cases of the third class, hematocele, pelvic inflammation and abscess, cornual pregnancy, and malignant disease of the tube or broad ligament must be eliminated. Cases of the fourth type may be tuboabdominal, or tuboligamentary or subperitoneal, and must be distinguished from normal pregnancy with a thin-walled uterus, or pregnancy in a rudimentary horn. Diagnosis of the

fifth class is often difficult in the posterior ligamentary form when several months have elapsed since the death of the fetus, and malignant ovarian tumor, tuberculous peritonitis, and fibrocyst of the uterus must be ruled out. The differential aids in each category are described and their practical application is pointed out.

2.—Some Facts Concerning the Early Diagnosis of Pulmonary Tuberculosis.—John H. Pryor states his conviction that pulmonary tuberculosis is rarely recognized at an early and proper time for successful treatment, has been decidedly strengthened. This conclusion is corroborated by the fact that a hospital, which was created under a law providing that only incipient cases could be admitted, has never contained more than a third of the number of cases that could be accommodated. Inquiries submitted to a number of sanatoriums in the United States to learn the percentage of incipient cases received, reveal the fact that the average percentage of all patients under treatment which could be designated as early and favorable, varies from two to thirty. An analysis of all cases treated at the New York State Hospital shows that 60% was received. In attempting to account for this state of affairs Pryor says that one reason is that the patient does not seek medical advice early enough. This is especially the case among the poor, who also often receive incompetent counsel when they do go to a physician or dispensary. Another reason is the faulty education in medical schools and the recent tendency to give prominence to laboratory methods at the expense of the skill of the clinician. The classic symptoms, almost invariably presented in combination, are loss of appetite, chlorosis or anemia, loss of weight, cough, with or without expectoration, hemorrhage, and fever. It is extremely rare that all of these are associated at an early time. They are likely to be present at a later stage. This is particularly true of patients who have had rest, nourishing diet, and open-air treatment. Many times, under these conditions, few or no symptoms are apparent, and yet the disease may be progressive.

3. A Submucous Resection Operation for Deviation of the Nasal Septum, with the Description of Several New Instruments.—Lee Maidment Hurd describes this operation, which he considers preferable to the older methods of Asch, Gleason, Roe and others for correcting deviations of the septum. The advantages of the submucous operation are that it gives uniformly good results, it does not require a general anesthetic, and the dressings are simple and painless. The procedure consists in incising the mucous membrane over the deviation in a curve with the concavity backward. The flap of mucous membrane and perichondrium is elevated and the cartilage is scratched through with a curet until the mucous membrane of the other side is reached. This layer is then also separated from the septum and the portion of the latter forming the projection is excised with Ballenger's swivel knife. If bone must also be removed, the author's special down-cutting forceps is used. The mucous flaps are allowed to fall together and are kept in apposition for a few days by light packing. The author pays great attention to securing proper cocainization of the parts, and states that the operation may take from 10 minutes to an hour.

4. Conservative Gynecology.—Charles Greene Cumston inveighs against unnecessary hysterectomy and ovariotomy, and says that although it has been upheld that many affections, which are a despair to medicine, are easily recovered from by surgical treatment, in reply to this it may be said that at the present time many diseases which were the triumph of surgery can be cured by medical treatment, and that not infrequently hot vaginal irrigations, revulsion, rest in bed, and simple means are quite sufficient for avoiding an operation which has been advised. The pathogenesis of infection being better known, has revealed the fact that the uterus is invariably the primary starting point, and that inflammation of the ovaries, salpingitis, and generally speaking all the various inflammations of the adnexa, are merely the consequence of a metritis or some uterine infection, which has developed from most varied causes. Whether the infection extended by the way of the lymphatics, as it is the present tendency to admit, and as seems to be proved by the evolution of the process, or has followed the veins, as certain authorities still uphold, it has been demonstrated that, if a curetment is done and a careful antisepsis of the uterine cavity carried out, not only will the lesion of the uterus be cured, but the infectious phenomena by propagation are capable of subsiding little by little, and finally completely disappear.

New York Medical Journal.

November 18, 1905. [Vol. lxxxii, No. 21.]

1. See *American Medicine*, Vol. x, p. 725.

2. Tuberculosis of the Bones.—Carl Beck discusses the skiagraphic and therapeutic factors in tuberculosis of the bones and joints, with special reference to the iodoform treatment. He says that the röntgen rays have become an invaluable ally for studying tuberculous areas and for directing and controlling the influence of our therapeutic means. Often at an early stage the diagnosis of osseous or articular tuberculosis cannot be made except by the röntgen method, and after the focus is detected, the skiagraph gives valuable hints for the mode of treatment. If a focus is recognized at an early stage we are often able to perform conservative operations which not only save life and limb, but also preserve functional ability. The treatment par excellence for these cases is the intraarticular injection of iodoform glycerin. Beck says that during 23 years' observation he remembers very few cases of localized tuberculous synovitis which did not get well under the injections, provided they were employed at an early stage. The only joint he excepts is the hip. He uses the simple emulsion, containing iodoform 10 parts and glycerin 100 parts. The amount injected is 10 cc. of the emulsion in children and 20 cc. to 30 cc. in adults on an average. As a rule, the injection is repeated every week until there is considerable improvement. [C.A.O.]

3. Splenectomy.—J. H. Carstens has made a thorough search of the literature of this subject, both in this country and in Europe, and has tabulated the cases found. Many of these records are very old. Of 739 cases, 521 recoveries are reported. Of the ruptured spleens, 122 cases are on record, with a mortality of 32%. Malarial hypertrophied spleens show a mortality of 24%, but the greatest mortality is shown in cases of leukemia, sometimes pseudoleukemia, where there is a death record of 45 cases out of 56. [C.A.O.]

4. Transposition of Viscera.—B. M. Randolph reports such a case in a boy of 9. The heart is on the right side, normal in size and contour, its long diameter extending from above obliquely downward and to the right. The liver is on the left side, and occupies the situation corresponding to that usually occupied by this organ on the right. The maternal grandfather of this boy presents the same phenomena. [C.A.O.]

5. Examination of the Middle-ear.—E. Danziger enters a plea for a routine examination of the middle-ear on the part of the general practitioner. He emphasizes that increasing pain, fever, and a red, bulging drum make an early incision necessary in order to prevent complications, especially in the otitis of scarlet fever, when the proper treatment forestalls irreparable harm. [C.A.O.]

Medical News.

November 25, 1905. [Vol. 87, No. 22.]

1. Treatment of Bronchitis in Children.—J. E. Winters calls attention to the fact that in no other organ

is so complex a variety of structural elements involved in an inflammation as in bronchitis. He discusses the anatomy of the bronchial tubes with reference to the progressive effect of congestion and inflammation on the various parts. Up to the fifth year there is a tendency to dangerous extension into the smaller bronchi. Prognosis and intelligent therapeutics are based on alterations in the inner vascular plexus. The inception of bronchitis is distention of this plexus. The basement membrane is thrown into folds, the epithelium desquamates in from 4 to 24 hours, and if the distention is uncontrolled there is exudation and increased secretion from the mucous glands. Sudden distention of the inner plexus may prove fatal before the stage of mucopurulent secretion. To forestall extension is the pith of treatment. By the cutaneous capillaries, by the interstitial mucosa, and by cardiac inhibition the initial lesion may be abridged. Irritation may be abated by warm air. The crib should be flannel-lined and in the center of the room. A quick, hot bath may precede flannel envelopment of the patient. In severe cases, aconite is most efficient. Spirit of camphor is most valuable in lessening secretion. Mustard plasters are of priceless value for tenacious mucus. To empty the bronchi, emetics and postural treatment are best. When the tubes are blocked, oxygen inhalation must be continuous. An efficient remedy for harassing cough is oleum ricini, 10 drops every hour. Steam inhalations are inferior to warm air, increasing susceptibility to cold. [H.M.]

2. A Piseometer for Determination of Abdominal Rigidity.—T. W. Kilmer states that with the instrument described it is possible to obtain data valuable in diagnosis and in keeping case records. It is impossible to have any normal index of resistance on account of variations from abdominal fat, and the condition and position of the patient. What we can tell is whether an abdomen is more rigid than at a previous examination. A spring in the instrument is gauged to show how many pounds pressure it requires to press the plunger a given distance into the tissue. The length of the plunger can be varied to suit the individual, but must be of the same length for each examination of the one patient. The instrument must be warmed before placing it against the skin. [H.M.]

3. Ulcer of the Duodenum.—C. G. Cumston finds perforation a frequent complication, often preceded by no symptoms. The ulcer is generally in the first part of the duodenum, near the pylorus, on the anterior aspect. Nearly always a rapidly generalized peritonitis occurs, usually fatal. If localized, the pus collects under the liver or in the iliac fossa. A fistula may occur through the abdominal wall. There is no symptomatology belonging specially to the ulcer. The writer is aware of no case in which diagnosis has been made before perforation. The commencement is sudden, and the pain severe; sometimes there is a sensation of being torn. Vomiting begins with the peritonitis. Usually the collapsus remains marked, hiding the inflammatory reaction. Constipation is the rule, with other symptoms suggesting intestinal occlusion. The writer discusses the differential diagnosis from hemorrhage, occlusion, and diabetic coma. If digestive disturbances precede perforation, the seat of the initial pain should be seriously considered. Laparotomy is the only treatment. Cases operated on in the first 12 hours are the ones crowned with success. The initial shock should be allowed to pass first. [H.M.]

4. Care of the Aged and Infirm in the Tropics.—M. G. V. Martinez discusses the difference between pathologic and physiologic old age. In the latter, functional activity has simply diminished. Old age comes on more quickly in hot climates, commencing among the Filipinos between 45 and 50, although the physiognomy may indicate that certain persons are younger than they really are. It generally begins with a weakening of the memory. Other signs that characterize it generally begin between 50 and 60, as loss of hair and teeth, wrinkling, etc. The more advanced the senile involution the more the predisposition to sudden death, and to morbid processes of slow course. Fresh air is as necessary as for infants. The head and face should not be covered in sleep, clothing of greater warmth should be worn, the amount of food should be restricted, loss of teeth should be made good. The food should be nutritious in character. Mild outdoor exercise, as gardening, is beneficial. Short baths at the natural temperature of the water, and occasional hot baths to remove the thickened epidermis, are valuable. Prolonged intellectual labor should be abstained from, and after 60, sexual union avoided. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Serum Treatment in Exophthalmic Goiter.—S. Kuh[1] believes that while athyreoidin is not an infallible remedy it is an excellent palliative. The marked change in the subjective condition is very striking. Patients taking it are less nervous and the appetite improves. The remedy influences the pulse probably as much as any other drug used for tachycardia. In the patients in whom he has employed it, weight increased; none of them were put to bed; most of them continued their household work. It is not probable that the results from serum can be permanent. Patients will have to keep on taking it or return to it from time to time. [H.M.]

Functional Kidney Diagnosis.—In spite of antagonistic reports by many others, P. F. Richter[2] still considers cryoscopy of the urine of each kidney obtained by ureteral catheterization as the best single method in determining the kidney's functional ability. Valuable aids and controls are obtained by some other tests, and best among these are the determination of the electric conductivity and the sugar excretion after phloridzin injections, but it is the best single test of them all, especially if a number of precautionary measures which he mentions are followed. Most important of these is the length of time the ureteral catheters should remain in place; to overcome differences in secretion, occurring even in healthy kidneys, and possible reflex polyuria, they should be retained for two hours. Cryoscopy and phloridzin injection should not be performed at the same time, as the latter produces a polyuria. He does not allow the existence of any danger in either ureteral catheterization or phloridzin injections, even though such have been reported. The diet is of little importance for the tests, excepting when comparative tests are to be made, and then it were best to examine before eating or after a simple meal containing little albumen and very few salts. [E.L.]

Can a Mother Suffering with Scarlet Fever Nurse Her Child?—The case which Salge[3] takes to satisfy his contention was a woman of 17, who suffered an attack of scarlet fever, when her child was 10 days old. The temperature for five days varied from 39° C. to 40° C., at which time it began to fall by lysis and on the ninth day was normal. Before the onset of the disease the woman secreted 1 liter of milk daily; until the fourth day of the disease the child received sufficient milk from the breast, but after that time it was necessary to give additional nourishment; on the seventh day of the disease the mammary glands failed to secrete entirely, but the author notes that during the fever

[1] Medicine, September, 1905.
[2] Medicinische Klinik, 1905, i, 493.
[3] Berliner klinische Wochenschrift, No. 36, 1905.

period the patient took very little nourishment. On the eleventh day of the disease the mammary glands began to secrete again and on the twenty-sixth day of the disease the mother was able to supply for her child all the necessary nourishment. The weight of the child increased from 3,480 gm. at the time of the onset of the mother's fever to 4,650 gm., seven weeks later; at the age of 6 months it weighed 7,000 gm. Although there are severe cases of acute infectious diseases met every now and then which preclude the possibility of the mother nursing the child, yet from the results of the case reported, Salge takes the ground that there are many more cases of acute infectious fevers that can nurse their children with impunity. Salge holds that the milk of a mother suffering with scarlet fever will protect the child from the disease during the first six months of life. With regard to the streptococcic infection from which these children are so prone to suffer through the ingestion of the milk, he is inclined to think, occurs only in those cases where the mother suffers a severe sepsis. A mother suffering with tuberculosis should not be allowed to nurse her child. [J.F.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Status of Lumbar Anesthesia.—Bier and R. Dalla Vedova[1] regard this of permanent value, while restricting its use to certain groups of selected cases. It should be thought of in connection with the aged, whose general infirmity makes less advisable the employment of ethyl ether or chloroform. And in the surgery of the battlefield, or in veterinary medicine, we are glad to have this means available. In experimental surgery the laboratory has gained much by this procedure. While 10% of cases has terminated fatally, the advantages of technic give but 4% of unsuccessful operations. Schieffer announces that studies on dogs show that trauma produces less shock to those under general cocainization than not. This agrees with the experiments of Klapp, on animals under the effects of ethyl ether. At present the opinion of experienced observers is against the use of medullary anesthesia in children or infants. [T.H.E.]

Congenital Dilation and Hypertrophy of the Colon.—A. Muelberger[2] reports the case of a boy of 13, who had been suffering from birth from a constipated condition of gradually increasing severity. Under treatment, the condition would improve temporarily, but would return again after treatment was stopped. The same occurred under the author's care, and finally an acute illness set in, consisting of violent vomiting, diarrhea, abdominal pains, fever—pointing to an ulcerative colitis. The patient died, and autopsy revealed a greatly enlarged colon and sigmoid flexure. On laying open the gastrointestinal tract, a normal condition was found to within 20 cm. of the ileocecal valve. From this point to the anus the mucous membrane was replaced by a reddish, rough, ulcerated tissue. The longitudinal muscular layer was twice its normal size, the circular layer twice again the size of the former, the submucosa was composed of dense connective tissue, which also replaced the muscularis mucosa and tunica propria. In the literature on Hirschsprung's disease, only two cases are recorded in which the small intestine was at all affected as in this case. The author warns against making a diagnosis in every case of obstinate, long-continued constipation, even if associated with fecal tumor. As an aid in diagnosis he recommends the use of the röntgen ray, associated with high injections of bismuth emulsions. If the diagnosis is made early, treatment, either medical or surgical, may accomplish some permanent results. [B.K.]

A New and Dangerless Method of Treating Intussusception.—K. Israel[1] has treated two patients by his new method, curing both, even though they were in a very dangerous state. The method consists in delivering the intussuscipiens, suturing its serous coat to the parietal peritoneum, opening it, pulling the intussuscepted piece out, resecting it and perforating an end-to-end anastomosis. Its advantages are: The almost certain prevention of infected material entering the peritoneal cavity, thus removing the operation's greatest danger; a good view of the invaginated structures is gained. In one of the cases the intestinal lumen, which had been narrowed by the invagination, recovered its normal size spontaneously, thus showing the recuperative power of such intestines. He advises the use of this method in all types of intestinal strictures, producing an artificial intussusception in them before operation. Other advantages are, that any amount of intestine can be removed and a firm suture can be applied. [E.L.]

Talma's Operation for Cirrhosis of the Liver.—W. Hessert[2] states that Talma's operation is not curative in the advanced stages, but in 40% of selected cases may ameliorate the ascites and hemorrhage. Cases in which the liver was enlarged gave a lower mortality and higher percentage of improvement than cases of atrophic liver. Cirrhosis associated with enlarged liver, jaundice, fever, and some ascites, is best treated by cholecystostomy and drainage of the bile tracts. Many cases greatly improved differed in no way from some not improved by the operation. Suture of the omentum between the layers of the abdominal wall gives a lower mortality and a higher percentage of improvement than merely a suture of the parietes. Splenopexy may supplant omentopexy. Drainage increases the danger of septic peritonitis. The operation is not indicated for ascites due to other causes than cirrhosis, and is contraindicated in the presence of renal or cardiac disease, and when there is not sufficient functional liver substance to maintain life. [H.M.]

The Radical Treatment of Cancer of the Rectum.—John A. Hartwell[3] makes an extensive report upon this subject, and 46 cases are recorded, 26 in males and 20 in females. The youngest was 23, and the oldest 70; 12 cases died from operation, of which number 7 were due to infection. Recurrence caused death in 5 cases between 1 and 2 years; 4 died from recurrence between 2 and 3 years; 1 case was still living after 9 years and 8 months; another, after 4 years and 6 months; 2, after 3 years and 6 months; 1, after 3 years and 2 months; 10 other cases were still living after a lapse of between 1 and 3 years. Complete colostomy is the method which satisfactorily prevents sepsis and thus lowers the operative mortality. This should be done by intermuscular method beneath the rectus sheath, as it gives, in most cases, better control than the already impaired sphincter. To completely eradicate the disease, it is necessary to sacrifice the rectum from above the growth downward, including the anus. An early diagnosis is possible in most cases. [J.H.W.R.]

Intervention in Appendicitis.—Burci[4] attacks Ceccherelli, who had taken issue with the statements of Pellegrini, who advises surgical action within the first 48 hours of the attack, and more especially if the attack can be shown to be a second outbreak of the disease, for the tissues will almost certainly become necrotic and constitute a grave source of trouble. In this discussion, the state of surgery in Florence becomes an acute point of difference. [T.H.E.]

[1] Il Policlinico (Rome), September 24, 1905.
[2] Zeitschrift für klinische Medicin, Bd. lvii, p. 374.

[1] Münchener medicinische Wochenschrift, 1905, lii, 812.
[2] Medicine, September, 1905.
[3] Annals of Surgery, September, 1905, p. 399.
[4] Il Policlinco (Rome), September 24, 1905.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Missed Labor and Missed Abortion.—J. Oliver[1] considers it doubtful whether any true case of missed labor has ever been observed, the fetal remnants finally extruded, probably have been from a full-time ectopic pregnancy. Early extrauterine death constitutes the most typic form of missed abortion possible. Other forms are merely delayed, not missed. The retention of the dead embryo depends, no doubt, upon some obscure nerve influence, which alters the physicochemic state of the uterine tissue, impairing its irritability. Of the conditions which determine the placental site, we are ignorant. The retrograde changes in the villi in these cases may extend to this site also. During a pregnancy, one embryo may perish. Treatment in missed abortion must be directed toward reanimating the uterine tissue, when expulsion of the dead contents will occur. Potassium and calcium ions are of great service, the most reliable salts being potassium chlorate and calcium chlorid. With the potash, it is well to give nux vomica and arsenic, and with the calcium, either strychnin or arsenic. If these remedies fail, the cervix should be dilated and the ovum removed piecemeal. [H.M.]

Danger of the "Inverted Position" in Uterine Operations.—C. Lauenstein[2] discusses the ordinary dangers of this position during operations, and the best methods to prevent them. He discovered a new, even if rare danger, and points out a method of forestalling it. He operated on a young woman for what he had diagnosed to be an ovarian tumor, a prior examination having failed to reveal gonococci in the vaginal secretion. The operation, consisting of supravaginal amputation of the uterus and bilateral salpingectomy, was performed with the head of the patient low; the vagina had not been previously packed. The operation required a half hour only, and there was no apparent reason for the fatal termination, which occurred within 24 hours. The postmortem examination showed this to have been due to acute sepsis induced by diplococci and staphylococci entering the abdomen from the vagina, while the patient was in the "head low" position. The discharge entered the peritoneal cavity through gravity and suction; it would have been prevented from doing so if the vagina had been made sterile and then tamponed. [E.L.]

Appendicitis and Pregnancy.—J. C. Webster[3] believes appendicitis in pregnancy is often overlooked when the symptoms are not pronounced. Pregnancy does not favor primary appendicitis, but it increases the liability to an exacerbation when there has been previous inflammation. The more advanced the pregnancy the greater the risk. The mortality following perforation is very high. Increase in size of the uterus is apt to cause bursting of the abscess cavity. Appendicitis soon after labor is in some cases due to mechanical changes in the uterus and adnexa. The infection resulting may be diagnosed as puerperal. There is no interference with gestation in slight attacks or even in severe ones without suppuration, but in abscess and peritonitis there is a tendency to emptying of the uterus and to fetal death. In some cases a living fetus is expelled. The diagnosis is often uncertain. Local abscess may simulate ectopic gestation. A woman likely to become pregnant should have her appendix removed if she has had a definite attack. If not diagnosed until gestation, it is advisable to operate as early as possible. The most troublesome cases are those in which drainage must be employed, as adhesions to the uterus are apt to form, or hernia may occur. If there is premature emptying of the uterus there is risk of infection of the genital tract by the discharge. In acute cases in advanced pregnancy, accouchement forcé should be followed by abdominal operation. When appendicitis occurs during labor, the operation should be soon after delivery. Abdominal operation should also be performed if the disease develops in the puerperium. [H.M.]

[1] Edinburgh Medical Journal, August, 1905.
[2] Münchener medicinische Wochenschrift, 1905, lii, 805.
[3] Surgery, Gynecology, and Obstetrics, July, 1905.

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

Paths of Infection in Pulmonary Tuberculosis.—The relative frequency of infection by the respiratory and the intestinal tracts in cases of pulmonary tuberculosis is a mooted point that appears very difficult of determination. Von Behring's dictum in regard to the frequency of primary intestinal lesion is wholly accepted by but few observers, although his assertions are, in part at least, by no means without support. The statement of W. H. Welch,[1] in his address at the National Association for the Study and Prevention of Tuberculosis, that the view of v. Behring, though it could not be maintained, was likely to prove of great value in stimulating investigation, is receiving abundant confirmation. Among the recent contributions to the subject are those of Calmette and Guérin[2] and of Vallée.[2] The first-named writers experimented with goats, either by infecting the udders of those which were suckling their young or by causing animals of various ages to ingest tubercle bacilli. From these studies in connection with other ascertained facts, relating particularly to experimental anthracosis by the digestive tract, they conclude that in the great majority of cases pulmonary tuberculosis is not contracted by inhalation, but as asserted by v. Behring, by the penetration of bacilli into the wall of the alimentary canal. They reject, however, the statement of v. Behring that tuberculosis of the adult results from the late evolution of an intestinal infection contracted in infancy. On the contrary they find that, at least as far as animals are concerned, adults, more readily than do the young, contract pulmonary tuberculosis from intestinal infection. A point of great clinical importance deduced from this study is that persons with ulcerating pulmonary tuberculosis who swallow their sputum are constantly reinfecting themselves by way of the intestine, these reinfections successively producing new foci of tuberculosis in portions of the lung not previously involved. To guard against this the sputum of persons with pulmonary tuberculosis should be frequently examined and as soon as bacilli appear therein, the patient should be warned against swallowing this material. Such persons should carefully rinse their mouths with boiled or filtered water before each meal, and if possible, after each expectoration. The writers assert that these views conflict with none of the ordinary rules of hygiene for the prophylaxis and cure of tuberculosis; they show only that the role of the inhalation of dust in the propagation of

[1] *American Medicine*, Vol. ix, No. 22, p. 892.
[2] Annales de l'Institut Pasteur, October 25, 1905.

tuberculosis has manifestly been exaggerated and that dried materials containing tubercle bacilli are infectious, not because they are inhaled, but because they are swallowed. Vallée concludes from experiments with calves that of all the modes of infection, ingestion is that which most surely gives rise to tuberculosis of the bronchial and pulmonary lymph-nodes. He is convinced that tubercle bacilli may pass through the intestinal mucosa into the lymphatics without leaving a trace of their passage, and later lodge and multiply in the bronchial lymph-nodes, and that we should regard pulmonary tuberculosis as frequently due to the ingestion of sputum or of food containing tubercle bacilli. Such findings as are here briefly detailed cannot be overlooked. Those who still believe in the great preponderance of pulmonary infection by inhalation, while not yet called upon to renounce such views, should, we believe, admit that regarding the question, the last word has not yet been said. The problem is exceedingly difficult to decide, but it is being worked out. In the meanwhile the practical suggestions of Calmette and Guérin may well be impressed upon those persons whose sputum contains tubercle bacilli.

REVIEW OF LITERATURE

A New Form of Parasite in the Red Blood Cells of Moles.—G. S. Graham-Smith[1] describes a hitherto unnoted parasite which he found in the blood of 10% of 100 moles. The parasites stain well by Leishman's method, but slightly better by Giemsa's stain. They are rod-shaped bodies of irregular contour and variable length, found commonly in the red cells, but occasionally are free in the plasma. They are in some instances wedge shaped or club shaped, the ends are larger, and they are all curved. They stain unevenly, and the majority contain no chromatin. The length varies from 0.1 μ to 1 μ. In one mole approximately 1% of the red cells was infected, in the others a very much smaller percentage was involved. Many of the cells contained large numbers of the parasites, the highest count being 79. In some of the animals, smears from the liver, spleen, kidney, and lungs showed infected cells.

The Isolation of B. Typhosus from Water.—H. S. Wilson[1] says that in the examination of water for suspected typhoid bacilli, there should be employed side by side the method of Hoffmann and Ficker, and some method of chemic precipitation, this combination seeming to offer the best chance of isolating the organism. He describes his alum precipitation process, which gives satisfactory results in tests, many of which are detailed. To the infected water in a glass vessel, the solution is added in the proportion of 0.5 gm. of alum to the liter of water. When the precipitate forms, the vessel is shaken and measured quantities withdrawn and centrifugalized for 15 minutes at 2,000 revolutions per minute. The precipitate is mixed with 1 cc. of the fluid, which is allowed to remain in the tube, and then spread over the surface of one or more Drigalski-Conradi plates, which are incubated at 42° C. for 24 to 48 hours.

Certain Aspects of Experimental Glycosuria.—F. P. Underhill[2] details experiments upon dogs to determine the nature of the action of piperidin, nicotin, pyridin, and other substances, when painted upon the pancreas. He says the experimental diabetes resulting therefrom is not due to an irritant action upon the pancreas or an "insult" to it; the action of the drugs is not specific nor is their pharmacologic action necessarily related to their chemic structure. These substances exert an influence upon the respiratory center, producing dyspnea. This condition, however induced, calls forth a marked hyperglycemia and glycosuria without the intervention of drugs. It is likely, therefore, that this experimental diabetes involves defective oxidation of carbohydrate material. The considerations presented, however, are inadequate to explain the phenomenon of adrenal diabetes, the action of adrenalin being unique.

Influence of Thyroid Feeding upon Poisoning by Acetonitril. — Reid Hunt[1] reports experiments definitely showing that the thyroid gland can neutralize a poison, a fact which does not appear to have been before recorded. Acetonitril, the toxicity of which is believed to be due to hydrocyanic acid, was given to white mice, and followed by thyroid feeding. The fully controlled results showed an antagonistic action of thyroid to acetonitril; the cause of this is not clear. It is probable that investigation of the manner in which neutralization occurs will throw light upon the function of the thyroid. A noteworthy feature of further experiments was that proteids increase the susceptibility of mice to acetonitril; feeding with parathyroids also produces this effect.

Diseases Precursory of Carcinoma.—After reviewing briefly the diseases which are frequently followed by carcinoma, von Bergmann[2] notes that recently interest has become manifest in the fact that "psoriasis linguæ et buccalis" may be starting points of cancer. He feels certain that this disease has no relation to a preceding syphilitic infection; if the psoriasis were etiologicly connected with syphilis the disease would necessarily be a late manifestation of lues in which gumma is the predominant lesion. Beneath many of the white patches of psoriasis the papillas and the mucous glands are intact, but the epithelial layers are thickened. There are exceptions, however, sections made from similar patches show the papillas lengthened and thickened. Von Bergmann cites an instance of a papilloma on one side and a carcinoma on the other side of the patch. He points out that Lesser has already stated that epithelioma sometimes arises as result of the disease, "xeroderma pigmentosum," hence epithelioma may be seen as early as the twelfth year. Primary epithelioma of the extremities, without preceding alteration in the skin as result of scars, fistulas, tracts, eczema, ulcers, seborrhea, warts and moles, never occurs. Moles more frequently give rise to sarcoma, but carcinoma may also take origin from these growths.

Pathology and Prevention of Secondary Parotitis.—R. T. H. Bucknall[3] says that secondary parotitis occurs as a complication of many acute diseases, some chronic diseases, and postoperative states. The swelling of the gland may subside, or may go on to suppuration, which occurs in half the cases. The mild cases all terminate favorably, as do the suppurative ones, if opened early. The author reviews the various theories as to the pathogenesis of secondary parotitis, favoring that of ascending duct infection. He recounts six cases in support of this theory. In order to prevent the occurrence of secondary parotitis, special attention should be paid to the cleansing of the mouth in febrile diseases and in connection with operations. The anesthetic apparatus should be sterile. Mouth breathing should be avoided, and attention should be directed to the condition of the stomach and bowels. Treatment of the condition should be directed along the same lines, with the possible addition of a sialagog. If suppura-

[1] The Journal of Hygiene, October, 1905.
[2] Journal of Biological Chemistry, Vol. i, No. 1, October, 1905.
[1] Journal of Biological Chemistry, Vol. i, No. 1, October, 1905.
[2] Berliner klinische Wochenschrift, No. 30, 1905.
[3] The Lancet, October 21, 1905.

tion is suspected, fluctuation should not be awaited, but a free, early incision with cleansing of the abscess cavity should be performed. [B.K.]

Discrimination of Physiologic Albuminuria from that of Renal Disease.—In these experiments A. E. Wright and G. W. Ross[1] have adjudicated the question of renal impairment by determining whether the kidney is or is not capable of elaborating out of the blood a concentrated saline solution. In Table I are given the results in eight cases of physiologic albuminuria. They show that the excretory quotient is high in this condition, and fully equals that of normal persons. The authors are led to the conclusion that this form of albuminuria is due to a transudation of lymph into intact tubules. By increasing the coagulability of the blood by means of calcium salts, they show that the albumin can be greatly diminished or wholly abolished. In renal diseases, however, as another table shows, the administration of calcium salts has no effect on the albuminuria, although the coagulability of the blood is increased. This fact may be taken advantage of in the differential diagnosis between the two conditions. When the patient possesses a normal excretory quotient, and the albuminuria can be affected by increasing the coagulability of the blood, the kidney may be assumed to be free from organic disease. [B.K.]

Clinical Significance of the Influenza Bacillus.—G. Jochmann[2] says that the influenza bacillus of Pfeiffer plays various other roles beside that of causing the epidemic form of influenza. It is often found parasitic on the tonsils, both in health and in other infectious diseases; also in the cavities of tuberculosis and bronchiectasis, without disturbing the clinical pictures of these conditions. It is capable of producing catarrhal bronchitis and lobular pneumonia in the course of measles, diphtheria, and pertussis, without causing any symptoms warranting the diagnosis of influenza complicating these diseases. In pertussis, a bacillus, morphologically and biologically indistinguishable from Pfeiffer's organism, is found with such regularity that it may probably be regarded as the causative agent for the cough. In endemic influenza, the bacillus is found more rarely and in less numbers than in the pandemic and epidemic forms. It is therefore probable that this organism is not the exclusive cause of endemic grip. In such cases it may be supposed that similar predisposing factors (climatic and others) give simultaneously to various pathogenic organisms the opportunity of developing their virulence. [B.K.]

The Urine in Fevers, Icterus, and Diabetes.—C. Klieneberger and R. Oxenius[3] say that in the course of febrile diseases a toxic albuminuria or cylindruria, or both, may arise, caused by the action of toxins on the kidneys. These changes in the urine are not influenced by the fever or by the severity of the general symptoms. Therefore, there is no such thing as a febrile albuminuria, in the sense that the fever is the cause of the renal phenomena. The same changes may occur in the course of icterus or diabetes. They are usually transitory, and do not in themselves justify the diagnosis of "nephritis." The various infective processes influence in various ways these urinary changes. Even in those infections that frequently lead to a diffuse nephritis, this diagnosis cannot be made from the primary changes in the urine. The urinary phenomena in icterus and diabetes are more marked than in most febrile diseases, and possess a special character. Granular and cellular casts are to a certain degree indications of degeneration of the renal epithelium. Hyaline casts are subject to great variation, and cannot be regarded as indications of renal injury. At times waxy casts may occur without the presence of nephritis. Occasionally there may occur a sudden excretion of quantities of casts and cells, with or without albuminuria; only a consideration of other clinical phenomena and further course will determine whether this is due to a nephritis or some circulatory disturbance. [B.K.]

Etiology and Pathogenesis of Pernicious Anemia.—C. H. Bunting[1] reviews the conditions which have been regarded as causal, and the pathologic findings. It does not seem necessary to assume any specific predisposition of the bone marrow, rather a general lack of resistance. The Ehrlich-Lazarus theory supposes some hemolytic substance, such as has been demonstrated in the bothriocephalus anemias. The writer thinks the toxic substance is probably of intestinal origin, producing hemolysis and faulty hyperplasia of the marrow. The symmetric lesions in the cord, as also the atrophy of the gastric tubules and the capillary hemorrhages, point to a circulating toxin. He finds from laboratory observations that megaloblasts are normal to adult bone marrow. There is a definite arrangement of leukocytic and erythrocytic cells in nests and groups, the megaloblasts forming the proliferating center corresponding to the position held by myelocytes in the leukogenetic centers. Peripherally to the megaloblasts are nucleated red cells of a smaller type, but with vesicular nuclei; with these, and outside, are normoblasts with pyknotic nuclei, and at the extreme periphery mature red cells. The mature cells are constantly pushed toward the periphery by division of cells at the center, thus lying nearest the capillaries. The effect of a stimulus depends on whether it acts on the cells of the circulation or those of the marrow. In large hemorrhage after exhaustion of the supply of mature red cells, the normoblasts are next called out to supply the deficiency. On the other hand, with a circulating toxin there is destruction not only of the red cells in the circulation, but even of normoblasts, as suggested by the large number of naked nuclei found in the circulation. The marrow responds in the emergency, with either normoblasts or megaloblasts, according to the extent of the destruction. In pernicious anemia, toxin analogous to ricin may be present, and we understand why with few normoblasts and more megaloblasts the prognosis is grave. [H.M.]

The Fate of Proteolytic Digestive Ferments in the Intestinal Canal.—From experiments on rabbits and dogs, J. Grober[2] concludes that the ferments secreted in the intestinal tract are not reabsorbed, but are destroyed in the canal. Pepsin is gradually destroyed by the alkalin reaction of the intestinal contents. In herbivorous animals trypsin is destroyed by the acid reaction of the rectal contents. The feces of man contains neither pepsin nor trypsin; if peristalsis be hastened the latter appears first, and pepsin later. Intestinal worms seem to possess specific antiferments against the proteolytic ferments of the digestive tract. [B.K.]

Glioma of the Adrenal Gland.—H. Kuester[3] describes tumors of the adrenal gland obtained from two patients. The tumors were both malignant, arising in the medulla, and in one instance had produced metastases in the liver; in this case both adrenals were affected. He considers both masses primary, a bilateral developmental error evidently having occurred. The metastases were produced by way of the circulation. He describes the macroscopic and microscopic appearance of the tumors, as both possessed an unusual, hitherto undescribed structure, but resembled each other very closely. They were characteristic in having a large number of nuclei, rich in chromatin; very little protoplasm, this being replaced by a network of very fine fibers; also a tendency of the nuclei to form rosets. Kuester is cer-

[1] The Lancet, October 21, 1905.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 470.
[3] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 340.

[1] Johns Hopkins Hospital Bulletin, June, 1905.
[2] Deutsche Archiv für klinische Medicin, Bd. lxxxiii, p. 309.
[3] Virchow's Archiv, 1905, clxxx, 117 and 553.

tain that these growths cannot be classed among either carcinomas or sarcomas, and that because of certain points in their construction, in which they resemble glia tissue, they should be considered identical with tumors made up of neuroepithelial cells. He therefore considers them gliomas of the adrenal body. J. Wiesel,[1] who has made a special study of adrenal glands and their abnormities, considers the tumors as having been derived from the "formative cells of the sympathetic nervous system," the normal adrenal medulla being constructed of these cells and being a part of the sympathetic nervous system. [E.L.]

Chemic and Histologic Investigations in Leukemia, Treated by the Röntgen Ray.—J. Lossen and P. Morawitz[2] find that, as the leukocytes return to normal numbers under the influence of the röntgen ray, the excretion of uric acid also falls from its previously excessive to its normal value. They believe this points to a diminution in the formation of new leukocytes. Under röntgen-ray treatment, the leukocytes in the circulating blood may not only return to their normal relations, but may even go beyond that point, and present the picture of socalled aplastic leukemia. The authors, therefore, believe it possible that the rays may, in certain cases, give rise to an anatomic hypoplasia of the blood-forming organs; they report a case tending to support this view. [B.K.]

Differentiation between B. of Escherich and B. of Eberth.—A. Altobelli[3] reports a series of experiments to show different action in bouillon to which has been added sodium chlorid and fatty acids. The very important reactions to the influences of malic, tartaric, and citric acid, containing the alcoholic "OH," and of acetic, proprionic and oxalic acid, without it, lead to the conclusion that these two microorganisms are of separate and distinct families. [T.H.E.]

Syphilis and Spirochæta Pallida.—J. Nicholas, M. Favre and C. André[4] give the results of their researches concerning the relation of *Spirochæta pallida* to syphilis. From 16 chancres they had only 4 positive results; out of 14 cases of secondary manifestations they found the spirochæta in 8 cases; in 7 examinations of enlarged lymph-nodes, they had only 1 positive result. Concerning the chancres, the organism is found chiefly in the older lesions. The enlarged lymph-nodes are usually infected with various cocci, which may account for the absence of spirochætas. The characters which the authors assume for the true pathogenic spirochæta are: (1) A multiplicity of compact spirals, (2) a low degree of refractive power, and (3) feeble staining properties. The spirochætas found in syphilitic lesions, however, often present variations from the typic form. The authors review the literature on the subject, and draw several conclusions. The frequency with which the spirochæta is found in syphilitic lesions during the contagious stage, its presence in lymph-nodes and the blood, and its demonstration in the pemphigus lesions of hereditary syphilis, all point to the pathogenicity of the organism for this disease. Against this view is this fact of its inconstancy and variability, also the failure to demonstrate it more frequently in the blood, and its occurrence in nonsyphilitic lesions. As to the last objection, however, it is probable that the organism found outside of syphilis was *S. refringens*, and not *S. pallida* of Schaudinn. [B.K.]

Hemolysis and Agglutination by Staphylococci.—The experiments of Fränkel and Baumann[5] concerned themselves with pathogenic (27 varieties) and saprophytic (9 varieties) of staphylococci. All of the former, in contradistinction to the latter, were capable of inducing hemolysis; the first traces of this property were observed in many of them as early as the end of the first day; the acme was reached about the sixth to seventh day; filtrates did not possess the property to the same extent as cultures. If the cultures were kept on ice they retained this property for a long time, but in the oven it began to diminish after 14 days. Repeated subcutaneous injections into rabbits of staphylolysin produced in them an antihemolysin, which was capable of checking the hemolytic property, when added to staphylococci. The hemolytic property is traceable to haptophonous and toxophonous constituents, which act at different temperatures. Another method of differentiating the two varieties of staphylococci were found in the agglutinating reaction; three different serums were employed. While all pathologic bacteria were agglutinated at a very high dilution with a serum prepared from a pathogenic bacterium, the saprophytes were agglutinated only in very weak dilution, and vice versa. [E.L.]

Immunity.—G. Boeri[1] sums up as follows: 1. Natural immunity is part of the general power of the organism to protect itself against its environment. This may extend beyond the power to resist bacteria to the power to resist other poisons, mineral or vegetable. 2. This may be accomplished with substances like pyridin, or the compounds of hydrargyrum, but the plumbic salts do not so yield. Both passive and active immunity of this kind is possible. 3. This immunity is manifested not only by absence of immediate toxic effects, but by the nonoccurrence of secondary anemia, or hemoglobinemia, as after poisoning by pyridin. 4. The solubility of the toxic substance does not enter the problem. 5. After partial immunity, the peritoneal channel is the most open to infection, and the gastrointestinal the least, while hypodermic injection occupies middle ground. 6. Nonbacterial immunity requires months of preparation. 7. It has many qualitative differences, thereby being distinguished from biologic antagonisms. 8. But these immunities to nonbacterial infection are dangerous to the organism. Under this head comes the tolerance to morphin or cocain. 9. Such immunities are not accompanied by a general cytohemolytic increase of resistance. 10. These studies are of value in the understanding of the failure of remedies to act after prolonged administration. [T.H.E.]

Is Blood of the Same Species Preserved after Transfusion?—G. Schultz[2] first determined, by experiments on rabbits, that blood, defibrinated by gentle agitation, could be transfused from one rabbit to another, without any danger to the recipient. A mortality of 50% resulted, however, from the use of blood, that had been pressed out of a firm coagulum. After death, blood clots were found in the heart. This coagulation has been shown to be due to the presence of thrombokinase, resulting from the expression of destroyed erythrocytes. The author's further experiments show that, after a loss of blood, the number of the erythrocytes is restored more rapidly, when the loss is replaced by defibrinated blood, than when normal salt solution is used. It was found that a quarter to a third of the erythrocytes in the transfused blood are lost. This is probably due to the fact that their vitality is injured in the process of defibrination, and they rapidly disintegrate. The phenomena observed after transfusion might be explained by a rapid disintegration of the transfused erythrocytes, and a rapid regeneration of the blood. There is no evidence, however, of such disintegration, and the regeneration would have to be very rapid indeed, to account for the quick rise in the erythrocyte count after transfusion. The author, therefore, concludes that carefully defibrinated blood from another animal of the same species is in greater part preserved after transfusion. [B.K.]

[1] Virchow's Archiv, 1905, clxxx, 117 and 553.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 288.
[3] Il Policlinico (Rome), August 27, 1905.
[4] Lyon Médical, October 1, 1905.
[5] Münchener medicinische Wochenschrift, 1905, lii, No. 20, 937.

[1] Il Policlinico (Rome), August 13, 1905.
[2] Deutsche Archiv für klinische Medicin, Bd. lxxxiv, p. 541.

American Medicine

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The Finances of New York Hospitals.—A work now being carried out in New York City gives promise of aiding in the settlement of certain questions intimately associated with the growing difficulties in financing her hospitals. In March of this year a special commission on Hospital Needs and Hospital Finances was appointed by the New York Association for Improving the Condition of the Poor. The character of the intended work is shown by the fact that Drs. Wyeth and Brannan and such laymen as Seth Low and Frederick Cleveland are upon the committee. The first results of their efforts have been published[1] in the form of tentative reports of three subcommittees on hospital economy, hospital support, and hospital accounting and reporting. These reports have been submitted to the various hospitals of the city with requests for criticisms and suggestions, which will be considered by the entire committee in making up a final report. Suggestions along the line of four general questions which are stated would also be welcomed from interested parties outside of New York. The reports contain many points that, if rightly decided, cannot fail in bringing hospitals under a more efficient business management and thus aid materially in their administration. For instance, we believe great possibilities lie in the idea of cooperation and joint purchase of supplies by all the hospitals of the city, as recommended by the committee on economy. Of equal importance is the suggestion that in each hospital there be an executive officer with authority to enforce methods in all departments, which would mean a minimum of expenditure. We trust a final report of the committee will soon appear, in order that the adopted plan may be tested in New York, and also serve as a basis for similar work in other cities.

Our national carelessness is the explanation given by the *Literary Digest* for our dreadful record of accidents. In reviewing an article by G. E. Walsh upon accident-preventing devices in America (*Cassier's Magazine*), it is shown that we stand first in the world in the accident record, and that the rule seems to apply to all trades and professions. The proportion of miners killed, for instance, is nearly treble that in France, and about double that in other European countries. For every five men killed by accident in the United States there are only three in all nations of Europe combined. Our railroads alone kill 21 people every day. The remarkable fact is brought out that we lead the world in the invention of accident preventing devices and adopt fewer of them than any other country. Indeed, many of the inventions travel to Europe for recognition and adoption. It is claimed that our workmen will not use the safety devices, as something childish, but prefer to run the risk like men. This is true, but it is also true of European workmen. Indeed, the old story of the safety lamp in mines shows that accustomed dangers are forgotten or minimized.

Permanent "museums of security," such as that in Amsterdam, Walsh says, should be established. In these there are on constant exhibition every conceivable device for lessening risk to life from accident. They will educate the public, and the workmen will gradually be brought to the point of demanding protection. It is suggested that employers be held to a stricter accountability and be compelled by law to safeguard employes, as in Europe, but it can be replied that American workmen will not submit to restrictions easily imposed in Europe. They are free agents, with a right to kill themselves, if they please, or injure others. No man is his brother's keeper here, and this is probably the real basis for our national disregard of the rights of others. It is more than carelessness. The surgeons of the country see all these accidents, and carefully investigate each case. It seems reasonable to suggest that they should be able to see the causes and suggest remedies. Knowing more of the matter than any other

[1] Charities and the Commons, November 11, 1905.

body of men, can they not take some concerted action which would make life more safe in America?

American disregard for human life is the fact which seems to impress European visitors more profoundly than any other characteristic. Since we claim to be the most democratic people on earth, it seems remarkable that with more power in our hands than any other nation, we are unable to safeguard ourselves to anything like the extent accomplished by monarchic nations of the enlightened parts of Europe. The medical profession is vitally interested in this matter because we are brought into professional relations with the injured victims, and, moreover, the services rendered in a large percentage of the cases are demanded as a gratuity. Even when rich corporations are held legally responsible the surgeon not infrequently comes out at the little end of the horn. The Interstate Commerce Commission reports that there were 6,224 railroad collisions in the past year, and that these, with other railroad accidents, killed nearly 4,000 passengers and employes and injured over 55,000—a record which would cause a revolution in Great Britain. The deaths and injuries from automobiles are steadily mounting to alarming proportions. Even American football has assumed a form which would not be tolerated in Europe and is causing so many accidents that mothers are beginning to feel nervous about sending their boys to college. In no other civilized nation are murders so frequent and numerous and so seldom punished by the biblical course, and the frequency of lynching is positive proof that the people feel that the legal methods they have evolved to protect themselves are not efficient. Surely there is "something rotten in Denmark."

The limitations of personal liberty are at the root of the evil of our personal perils from accident and disease. The intense feeling of freedom which the Revolution created was carried to the point of an assertion of liberty to enslave others. The free-born American citizen not infrequently believes he has the right to spread infectious diseases as much as he pleases, and naturally resists all sanitary restrictions more vigorously than the people of Europe. We find this feeling in every walk of life, even to the point of "the public be damned." It is the same feeling of independence which has so hampered the organization of the medical profession into a compact union powerful for good. No one wants to surrender any of his liberty by becoming a subordinate unit of some organization. It is perfectly natural, then, that we should suffer from the undue liberty of others if we claim the same rights ourselves. For purely selfish reasons, corporations take advantage of this liberty and rarely consider the rights of the public, unless it is to their interest to do so, or unless the public compels recognition of their reciprocal rights. Protection from accident and disease, therefore, depends upon laws which restrict our liberty to injure others. Such laws will always be opposed, and the correction of the present evils will be a slow matter. They depend upon their enlightenment of public opinion, and the medical part of the public can take the initiative in teaching the rest. Not only can they organize themselves into compact masses, each unit subordinate to the good of the whole, but they can spread the gospel of regard for the rights of others. Only by restricting our own powers for injuring others, can we expect others to have less power to injure us. In this direction, possibly we may find a solution for that dreadful mortality from preventable accident and disease, which is now a blot upon American civilization.

Fireless cook stoves is the somewhat misleading title of a report last February by Consular Clerk Geo. H. Murphy at Frankfort, Germany, dealing with an apparatus described by Mrs. Back, wife of the director of the industrial school in that city. It is well known that foods need not be kept at 212° to be properly cooked, for at moderate altitudes where boiling takes place at less than 212° it is possible to cook foods. It was found also by experiment that it was not necessary to boil our foods the long time we consider needful. If they were merely brought to the boiling temperature for a few minutes and the pot then covered and removed to a closed box constructed with linings of hay or felt so as to retain all the heat, the cooking went on just as well, or better, than on the stove. Not only was there a corresponding saving of fuel, time, and labor, less wear and tear of cooking utensils, fewer kitchen odors, and less household cares, but most of the foods were found to be better cooked at this lower temperature and presumably were softer and more digestible. Even roasts or baked meats could be removed from the ordinary stove after being thoroughly heated, and the cooking finished in the "hay box." All covers being tightly closed, the aromas remained in the food, so that there was a distinct gain in savor. The time required was, of course, somewhat longer than on the stove—varying from two to three hours—but the process went on without any care, as there was no danger of burning. The whole process is so economical and efficient that it occasions some surprise to know that, though the method was exhibited at the Paris Exhibition of 1867 as the "Norwegian Automatic Kitchen," and that though constant efforts to introduce it have been made ever since, no progress was made until quite recently, when it was taken up with

enthusiasm in several of the Continental cities. It appears to be such a distinct advantage as to health and economy that it deserves very general trial in America.

Fireless cooking in the army has been described in the last report of the Commissary General. As early as last April, Murphy's report was taken up and the method given a series of trials at the army cooking school at Fort Riley, Kansas, and also in New York. Though the apparatus was crude, the results were highly successful. More elaborate experiments are to be made in the immediate future. The Commissary General even says that there is no question as to the superiority of this method of cooking, in comparison with the old, not only from the retention of the aroma, but from economy of fuel. It is easily seen that, as fuel is always scarce in the field, the system should find immediate favor if a fire for only a few minutes will supply enough heat to cook a company dinner. Indeed, it is found that the articles can be heated in the morning just before camp is struck, placed in the boxes, which are loaded on the wagons, and the self-cooking continued on the march. As soon as the new camp is reached, the boxes are opened and a hot dinner is ready at once. It was at first thought that the apparatus would be too heavy and cumbrous for practical purposes, but such defects will be remedied in time if the system is all that is claimed for it. We cannot expect such a revolution in household methods to become widely adopted at once. The average cook will have nothing to do with newfangled ideas and contrivances, so that we can expect her—and him, also—to stick to the methods in use for thousands of years. But there is no reason why the intelligent women of the middle classes, who are compelled to do their own housework, should not take up a matter which will relieve them of so much work and worry. Think of the pleasure of cooking the dinner on a gas stove for five minutes, removing it to the automatic cooker, turning off the gas, then going to do some shopping, and upon arrival home to find in the "hay box" a nice hot dinner, which has cooked itself! A self-minding baby would complete the paradise.

The proportion of children in the United States has been studied by Prof. Walter F. Willcox, and the data are published in an interesting bulletin of the Census Bureau. Not only has the proportional number of children under the age of 5 been steadily decreasing since 1810, but also the number in relation to the number of women who are between the ages of 15 and 49—the child-bearing period. In 1860 there were 634 children to every 1,000 women, but in 1900 there were but 474, indicating a steady decline in the birthrate. This result is said by General Francis A. Walker to be due to immigration, though in what way is not properly explained, for the same decline is found in Australia, where immigration is not as great as here. Indeed, no reasonable cause has been given, it is merely a phenomenon which has been going on since prehistory. The smallest number of children is found in Massachusetts, omitting the District of Columbia, which is really a city, and all the cities have less children than in the surrounding country. There is less difference between the city and country in the North than in the South, where the country rate is very large and the city rate quite small. Moreover, the negro birthrate shows the same decline as that of the white population. The foreign-born women show a higher rate than natives, and this seems to be a remarkable phenomenon which has been noticed in many parts of the United States, though never satisfactorily explained. There is nothing said as to the proportionate number of children born who survive to marry and reproduce, but from other statistics, we are safe in asserting that this proportion is steadily rising all over the civilized world. In savage or barbarous life, the deathrate of infants and children is dreadfully high. It seems that we are steadily approaching a future ideal state in which nearly all, if not all children born will be raised to healthy adult life, and that the birthrate is naturally adjusting itself to this end. Yet the reason for the greater reduction in American-born women as compared with the immigrants, is yet to be explained. There is something about life in America which makes women shun the cares of bearing and rearing large families—perhaps, as once before explained, they may have found, like the Canadians, that the old large families cannot now be supported. At any rate, it is nothing to worry about. We will never suffer for population; nor, on the other hand, need the obstetricians dream of a lost art—quite yet.

The present warfare against nostrums should not blind us to the grand work being silently accomplished by quite a number of lay journals in various parts of the country. Of course prophets are needed now and then as of old to awaken the public conscience, but the good accomplished is too often evanescent. Permanent results are more likely to be caused by the living example of those whose acts speak louder than their words. Medical associations are now showing their appreciation of the more noisy crusaders, but it would be a most gracious act to hunt up and endorse the journals which have long been silently practising what is now preached. Some of them are obscure country papers which are doing the good work at great pecuniary loss. They are the real journalistic heroes, for the small jour-

nals of the country, as a rule, are dreadful offenders against public morality in their publication of vicious frauds. Attention has been directed to the *New York Times*, whose motto of "all the news that's fit to print" is not a bit of self-laudation, but a policy designed to raise the standard of public morality. Incidentally, it has been silently excluding, one after another, its nostrum advertisements, until it is already an example for many medical journals. The request for information as to anything objectionable, which still remains or which might slip in through oversight, is pleasant reading, after looking over the horrible local sheets from which the country doctor is so often compelled to get his news. Medical societies in their enthusiasm to laud the prophets should also find time to express their appreciation of the real reformers—the journals who, without the blare of trumpets, but by the mere influence of their quiet example, are accomplishing so much for public health as well as public morality. The religious papers, too, have awakened here and there to the harm they have been doing—unawares to be sure, but, nevertheless, harm. One of these, whose main object seemed to be to attack the army canteen, appeared to be kept alive by such fraudulent advertisements. It doubtless in time will see the error of its ways in both directions.

The Young Men that Go to the Bad.—Dr. Christian, senior physician of the New York State Reformatory at Elmira, has kindly given us the following data concerning 12,877 prisoners indefinitely sentenced. The average age of the young men is about 20.5. Concerning the ancestry, so far as could be obtained, 10.25% had parents either insane or epileptic. Drunkenness was clearly traced in the ancestry in 32.19%, doubtfully in 10.60%, and 57.21% were reported as temperate. In 13.82% of the cases the parents were without any education, 33.34% could simply read and write, 48.15% had an ordinary common school education, and 4.69% had a "high school or more" education. As to the prisoners themselves the following are the figures:

EDUCATIONAL.

Without any education, illiterates	2,040 or 15.84%
Simply read and write (with difficulty)	5,974 or 46.17%
Ordinary common school	4,305 or 33.34%
High school or more	558 or 4.65%

INDUSTRIAL.

Servants and clerks	2,820 or 21.12%
Common laborers	7,300 or 57.19%
At mechanical work	2,194 or 17.04%
Idlers	563 or 4.65%

CHARACTER OF ASSOCIATIONS.

Positively bad	7,113 or 55.23%
Not good	5,300 or 41.15%
Doubtful	186 or 1.27%
Good	278 or 2.35%

NATURE OF OFFENSES.

Against property	11,631 or 90.30%
Against the person	1,150 or 9.17%
Against the peace	96 or .53%

Relative Criminality of Young Americans and of Foreigners.—There is much that is suggestive in the comparative statistics of the young men at the Elmira Reformatory as regards their nativity. In the average these are the figures concerning the 1,336 present inmates:

Foreign born of foreign born parents	381	28.5%
American born of foreign born parents	590	44. %
American born of foreign and American born parents	58	4.5%
American born of American born parents	307	23. %
	1,336	100.0%

Thus 72.5% of the inmates are either immigrants or the sons of immigrants, and if we add half of those of mixed American and foreign born parents the total runs to three-fourths of all, leaving the American born of American born parents to supply the remaining fourth. This is certainly a strong argument against free immigration, and especially if we consider the statistics concerning the heredity and general physical and mental condition of the young men.

The Physical Condition of 1,700 Inmates of the Elmira Reformatory.—Upon admission the average age was 20.5. The general physical condition was determined by the height in proportion to the weight, the general muscular development, and the presence or absence of pathologic changes. From this basis, 363 were said to be in good condition, 1,115 in fair condition, and 222 in poor condition. The teeth were also examined; in 292 cases they were in good condition, in 972 fair, and in 436 decidedly poor. Organic heart diseases existed in 56 cases; in the majority of these the defect was clearly traced to endocarditis from a former acute rheumatic attack. Tuberculosis existed in various forms in 164 of these men. There was a family history of tuberculosis in 368 cases; the disease existed in the relatives as follows: In the father, 86 cases; in the mother, 75; in brothers, 63; in sisters, 46. Forty-five gave a history of tuberculosis among the relatives of the father and 53 a similar history from the maternal side. Defective hearing was present in 119 instances and defective sight in 382. That nearly half of these young men had venereal diseases is a striking fact and shows that some more effective method is needed of fighting these infectious diseases and the social conditions which produce them, than has yet been devised. Of the 1,700, those who actually had the infection at the time of examination or gave a previous history of infection, were as follows: Gonorrhea, 555; chancroids, 164; syphilis, 82; venereal warts, 6; total, 807. Forty-one men had inguinal hernias; 310 were considered as mentally defective; these were not insane but are so classed, because they were simple mentally, imbecile, etc.

A Reformatory that Tries to Reform.—Five years ago corporal punishment (which had been confined to less than 10% of the Elmira Reformatory inmates) was abolished. Everyone concerned now admits that the change has worked for good. The difficulty was to find a substitute. Reduction in grade was impossible because the worst offenders were already at the bottom of all grades. Reduction of food allowance was foolish and defeated its own object. Solitary confinement breeds insanity. The superintendent hit upon the device of forming three grades, the lowest numbering about 50 out of a total population of about 1,400. A kind of reformatory within the reformatory is formed for these lowest offenders. Thirty days of perfect demeanor entitles a third grade man to promotion, which means restoration to the general life and activity of the institution. Failing of this he remains secluded indefinitely from all except those of his own class. Few remain over a month, and none beyond two or three. Even the most hardened and troublesome men soon become exceedingly anxious to get out of this comfortable but humdrum sort of a place, and put forth efforts to that end as surprising as they are pleasing.

Any day the edifying spectacle can be seen of men, who heretofore prided themselves on their criminal records and general toughness, and who would regard corporal punishment or physical restraint, like handcuffing, as a tribute to their greatness, and who would seek conflict with authority as a means of becoming heroes in the eyes of milder men, scrubbing the floor or darning socks all day and treading lightly and speaking softly in the hope thereby of getting a chance once more to enjoy life by taking part in the military and trade school work.

It is gratifying to find that 588 men were sent out on parole in 1904, and remunerative employment was obtained for all. Of these, 331 absolute releases were granted to men who had retained employment for six months or more, reported regularly, etc. At the end of the year, 340 other men, out on parole, were reporting regularly and doing well.

The American Quick Lunch.—The bare announcement some time since of the projected establishment in London of an eating house with an American quick lunch attachment gave staid John Bull a severe attack of nervous anacidity. The daily and comic papers made much of the incident, creating the impression that such invasion generally was regarded as of more serious import than would be the appearance in British waters of a hostile navy. Even the *Lancet* considered it wise for physicians to warn their patients against this dietetic Mephistopheles. We suppose that if the mysteries of the automat, where one does not even need to wait for the familiar order of "a one side, draw one, a hot mince" to be returned by the elevator, were explained to the Londoners, nothing short of a parliamentary edict of exclusion would meet the emergency. Apropos of this scare, a most reassuring point is emphasized by the Philadelphia *Ledger* in a sensible view of the matter that may well be heeded also by the American patron, or defamer, of the quick lunch establishments: "The opinion of many English, French and German persons who have never visited this country, that Americans are physical wrecks, is confirmed because we have a refreshment system which relieves us of the necessity of waiting an unconscionable time for a poached egg and a piece of toast. The truth is that the American quick lunch may be a simple and wholesome diet. Many persons prefer to spend their leisure elsewhere than in a crowded restaurant, and if they may have a refresment order filled at once, they regard it as a blessing. They are not required to bolt their food merely because it is served as soon as they seat themselves. The distinguishing feature of the quick lunch is that the articles that are most in demand are ready for almost instant service, and there is nothing to prevent a man from lingering at table." Whether he has a short or a long time in which to secure a light lunch, the ordinary mortal is so constituted that digestion is more apt to progress normally if he spends his surplus luncheon time after eating instead of occupying it in fuming at slow cooks and waiters while his order is being prepared. Actual eating may be slow or rapid in any type of restaurant.

AMERICAN NEWS AND NOTES

GENERAL.

Personal.—Dr. A. H. Andrews has been elected to the professorship of otology and rhinolaryngology at the Chicago (Ill.) Eye, Ear, Nose and Throat College.

Yellow Fever at Havana.—Four new cases reported, bring the total under treatment to date to 19 cases. Two persons were discharged as cured. Three new suspected cases are under observation.

Epilepsy Prize.—At the annual meeting of The National Association for the Study of Epilepsy, held in New York, November 29, Dr. Spratling announced that the Association offered a prize of $300 for the best essay on the etiology of epilepsy. Physicians in any country may compete. The award will be made in November, 1906, but all essays submitted must be sent in by September 1. Details as to conditions governing the award may be obtained from Dr. Spratling, Sonyea, N. Y.

Patent Medicine Order Deferred.—A circular has been issued to collectors of internal revenue by Commissioner-General Yerkes, of the International Revenue Service, postponing until January 1 next, the order requiring internal revenue taxes to be paid on certain preparations sold as remedies but containing a preponderance of alcohol. The order will not apply to druggists until April 1. An incomplete list of the medicines which fall within the commissioner's ruling, made public at the bureau, contains the following: Peruna, Hostetter's stomach bitters, Duffy's malt whisky, De Witt's stomach bitters, Dr. Bouvier's buchu gin, Dr. Fowler's

meat and malt, kudros, rockandry cough cure, Cuban gingeric, Atwood's la grip specific, Gilbert's rejuvenating iron and herb juice.

American Academy of Medicine.—Dr. Donley C. Hawley, of Burlington, Vt., has been elected president. The 1906 meeting will be held June 2 and 4 at Boston, Mass.

A New Serum for Rheumatism.—It is said that a report will soon be issued through the New York Academy of Medicine on the discovery of a new serum in the experimental laboratory of the Cornell University Medical School, which will mark an advance in the treatment of certain forms of rheumatism. The discovery is one of the latest results of investigations in experimental physiology and pathology carried on by a staff of ten under direction of Professor Buxton.

The System of American Hospital Economy.—Arpad G. Gerster, in discussing this subject in the *Medical Record*, December 2, 1905, compares the daily cost per patient in different hospitals in this country and in Europe, the result showing that in America the outlay is very much greater. These facts serve as arguments in favor of the view that in order to meet successfully the conditions now existing when the large hospitals usually show an annual deficit, retrenchment is the proper remedy, and not an appeal for greater liberality on the part of the comparatively few philanthropists, who furnish most of the funds for the hospitals. Analyzing the conditions which underlie the extravagance and waste in hospital management in this country, he emphasizes the necessity for more active participation in the executive control by the members of the medical staff. In the great hospitals of Hamburg, Berlin, Vienna, and Budapest, the essential features are that the position of the lay superintendent of American hospitals is occupied by one or more salaried medical directors, the attending staff is very limited, so that the service is a permanent one with salaried visiting physicians and surgeons, and the house staff also is composed of paid assistants, whose positions are permanent. In this way all of those concerned are able to give the necessary time to details of economic management, and also acquire the experience necessary to carry them out with effect. The present American plan of conducting hospitals resembles that in use in medieval Europe. Restriction in the number of those who attend at hospitals is essential to economic improvement and is urgently required also to effect a betterment in the care of the individual patient.

EASTERN STATES.

Superintendent of New Leper Colony.—To become superintendent of the new State Leper Colony, to be established on Penikese Island, near New Bedford, Mass., Dr. Louis Edmonds, of Harwich, has resigned as associate medical examiner of Barnstable County. At present there are five lepers, two Chinese and three Portuguese, who will go with Dr. Edmonds from Harwich, where he has been attending them for a year.

Free Tuberculosis Exhibit.—As the result of the efforts of the Boston Association for the Relief and Control of Tuberculosis, a free tuberculosis exhibition is to held in Faneuil Hall, Boston, December 28, under the auspices of the Massachusetts State Board of Health. During the period of the exhibit, apparatus and demonstrations of methods to be used for the prevention and cure of the disease will be presented in detail, and literature in several different languages will be distributed and explained. Every effort will be made to make the exhibit popular. Arrangements have been made for the display of the entire New York City exhibition, which occurs at a previous date.

NEW YORK AND VICINITY.

The five medical schools of New York will this year take care of about 2,148 students. The number of matriculates in the two postgraduate institutions of the city the New York Post-Graduate and the New York Polyclinic, varies so much throughout the year that the total enrollment of last year is the only basis for an estimate of their attendance. In 1904-1905 this amounted to 897, several hundred more than that of any other American city and making New York a good second to Paris and Vienna. The undergraduate registration for this year amounts to 1,251,441 going to the College of Physicians and Surgeons, 447 to the University Medical School, and 363 to Cornell's medical department. The new entrance requirements adopted by the Physicians and Surgeons in 1903 and the increase of the tuition fee the following year have resulted in a reduction of the number of students in that institution. This, however, the experience of other colleges has shown to be in all probability only temporary. One fact has been noticed by the authorities of all the colleges. In prosperous times, such as the country has been enjoying for some years, the number of medical students tends invariably to diminish and in hard times it increases.

PHILADELPHIA, PENNSYLVANIA, ETC.

Decrease in Typhoid.—There were 109 new cases of typhoid fever reported to the Philadelphia health authorities last week, a decrease of six compared with the number the previous week. There are five new cases in the Twenty-second Ward, which receives a filtered water-supply, due, the medical inspectors say, to the raw Schuylkill water that was furnished that territory two weeks ago while repairs to a broken filtered water main were being made.

Medical Department of the Newark (N. J.) Public Library.—It is reported that the physicians of Newark are getting into shape their plans for the medical library association lately organized. While the medical library is an independent organization the privileges granted to the general public will not be abridged, as it is to be a department of the Newark Public Library. The association has adopted a constitution providing for an initiation fee of $3.00, and dues of $3.00 per year. The following officers are elected: Dr. Charles J. Kipp, president; Dr. Henry L. Coit, vice-president, and Dr. Frank W. Pinneo, secretary and treasurer.

Contagious Diseases to be Reported.—A circular letter of instructions has been sent out by the Pennsylvania State Commissioner of Health to every physician, giving a list of the diseases which they are required to report to the Board of Health of the city or borough in which the disease occurs. The list is as follows: Actinomycosis, anthrax, bubonic plague, cerebrospinal meningitis, chickenpox, cholera, diphtheria, epidemic dysentery, erysipelas, German measles, glanders, hydrophobia, leprosy, malarial fever, measles, pneumonia, puerperal fever, relapsing fever, scarlet fever, smallpox, tetanus, trachoma, trichiniasis, tuberculosis, typhoid fever, typhus fever, whoopingcough, and yellow fever. The socalled "membranous croup," "diphtheric croup," or "putrid sore throat," is to be reported as diphtheria, and the socalled "scarlatina" and "the scarlet rash" as scarlet fever. Blanks for reporting such diseases can be obtained by applying to Department of Health, the State paying postage for these notices.

SOUTHERN STATES.

Health Board Resigns.—The Louisiana State Board of Health, Dr. Edmund Souchon, president, have resigned in a body, and the resignations were forwarded to Baton Rouge. It is said this action was precipitated by the action of Governor Blanchard in calling upon the

Grand Jury of Orleans Parish to investigate how yellow fever got into Louisiana. The board declared that no attempt was made to suppress the facts as to yellow fever here when convinced of its existence.

WESTERN STATES.

The Merit System.—On November 1 all charitable institutions of the State of Illinois came under the new civil service law.

Hookworm Disease.—The State Board of Health of California will take active steps to prevent the importation of hookworm disease from Porto Rico, where it is so prevalent.

A Colored Hospital.—A new hospital for the needy members of the colored race has recently been opened at Cairo, Ill. It will also conduct a training-school for colored nurses.

Thanksgiving Lift for Hospital.—As the Thanksgiving offering to the association which supports St. Luke's Hospital at St. Paul, Minn., D. C. Shepard and his son, F. B. Shepard, lifted the debt of St. Luke's Hospital of $35,000.

Opening of North Dakota Medical College.—The Medical Department of the North Dakota University, Grand Forks, opened September 26 for the fall term. The university laboratories, equipment, and instruction have been so arranged that the B.A. degree of the institution will admit students to the junior year in the medical college.

New Law in Wisconsin Regarding Accidents.—A new law, which went into effect November 1, provides that it shall be the duty of any physician to report any accidents to any person whom he shall be called on to care for professionally when such person is thereby incapacitated for pursuing his usual vocation for a period of at least two weeks. The cause, nature, and results of such accident, the place where and the condition of the person at the time it occurred shall be fully described in the report of said physician. The returns of such accident shall be made by the physician and by the public officer, and the fees therefor and the penalties for noncompliance on the part of either the physician or the public officer, shall be the same as in cases of births and deaths.

FOREIGN NEWS AND NOTES

GENERAL.

Mortality among London Children.—In 1904 one out of every seven London children under the age of 12 months died.

Nobel Prize Awards.—The Nobel prizes committee is understood to have decided to award the prize for medicine to Prof. Robert Koch.

Patent Medicines.—Norway, it is claimed, forbids the newspapers to publish advertisements or in any other way to further the sale of any and all patent medicines.

The Russian Red Cross corps which served through the recent war in the East is now being disbanded. It is said that there were 4,500 people enrolled as surgeons and nurses.

Plague in Yokohama.—Bubonic plague is raging in Yokohama, according to officers of the steamship Dakota, and possibly no more vessels will be given a clean bill of health until the scourge is wiped out. Four deaths had resulted from this disease before the steamship Dakota sailed, and many reports of sickness were received.

Shall Physician Charge for Consultation by Phone?—A discussion has arisen in the Prussian medical chambers as to whether a fee, and the amount, shall be charged when a physician is consulted over the telephone. In Pomerania the same fee is charged for medical advice given over the telephone as when a patient visits the physician's office. It is thought that other organizations will adopt the same rule.

OBITUARIES.

Ambrose L. Ranney, aged 57, December 1, at his home in New York City. He was graduated from Dartmouth College, Hanover, N. H., in 1868. He was an authority on nervous diseases and was the author of several books on nervous diseases and anatomy. He held chairs of anatomy and nervous diseases in various colleges. He was a member of the Academy of Medicine, of the Neurological Society of New York, and the New York County Medical Society.

Kate S. Sterling, of New York City, December 1, in the New York Hospital. She was graduated from the Woman's Medical College of Pennsylvania, in 1886. She conducted a clinic in the New York Infirmary, and successfully served on the staff of the Babies' Hospital, and the Hospital for Ruptured and Crippled Patients. She was a member of the County Medical Society, and of the board of managers of St. Luke's Hospital.

Claude L. Silverwood, aged 34, December 4, from an overdose of morphin, at his home in Kingwood, W. Va. He served in the Ohio National Guard, and at the outbreak of the Spanish-American war he was commissioned first lieutenant in the Second West Virginia Volunteer Infantry.

B. H. Lemon, November 28, was found dead in his bed as the result of a paralytic stroke, at his home in Thorold, Ontario. He was graduated from the College of Physicians and Surgeons of Ontario, Toronto, Ont., in 1885.

Ernest J. Meiere, aged 75, December 5, from pneumonia, at his home in Cripple Creek, Colo. He was graduated from the New York University, medical department, New York City, in 1869.

James E. Thompson, aged 32, November 27, at his home in Delhi, La. He was graduated from Tulane University of Louisiana, medical department, New Orleans, La., in 1901.

R. B. Martin, aged 65, of Rocky Mount, La., was shot and instantly killed on Black Bayou.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended December 2, 1905:

Captain SANFORD H. WADHAMS, assistant surgeon, leave granted October 25 is extended one month.—JOHN D. MILLIKIN, dental surgeon, is relieved from duty in the Philippines Division, and will proceed on the transport to sail from Manila about December 15 to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders.—Sergeant First Class THOMAS G. BRISTOW, now at San Francisco, Cal., is relieved from further duty in the Philippines Division, and will be sent to Fort Adams to relieve Sergeant First Class Henry B. Staley. Sergeant First Class Staley will be sent to Fort Slocum for duty.—Captain THOMAS S. BRATTON, assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits at Chicago, Ill., to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco, Cal., and take transport to sail from that place about January 5 for Manila, P. I., where he will report to the commanding general, Philippines Division,

for assignment to duty.—Sergeant First Class WILLARD E. BURCH, depot of recruits and casuals, Fort McDowell, will report for duty aboard the transport Buford.—JOHN D. BROOKS, contract surgeon, is granted leave for 30 days from about December 15.—Major W. F. LIPPITT, surgeon, is granted leave from December 19 to January 5.—Major WILLIAM O. OWEN, surgeon, having been found by an Army retiring board incapacitated for active service on account of disability incident thereto, his retirement from active service, November 23, 1905, under the provisions of section 1,251, R. S., is announced. He will proceed to his home.—First Lieutenant CONRAD E. KOERPER, assistant surgeon, in addition to his present duties will report at Washington Barracks for temporary duty at that post.—Captain RALPH S. PORTER, assistant surgeon, having arrived on the transport Buford, will report to the commanding general, department of Luzon, for assignment to duty.—First Lieutenant WILLIAM A. DUNCAN, assistant surgeon, having arrived on the transport Buford, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.—H. NEWTON KIERULFF, contract surgeon, having arrived on the transport Buford, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.—Colonel CHARLES B. BYRNE, assistant surgeon-general, having been relieved from duty as chief surgeon of the division, will report to the commanding general, department of Luzon, for assignment to duty as chief surgeon of that department.—Captain WESTON P. CHAMBERLAIN, assistant surgeon, will proceed to Fort William McKinley, Rizal, for duty.—Captain RALPH S. PORTER, assistant surgeon, will proceed to Fort William McKinley, Rizal, for duty.—Captain SANFORD H. WADHAMS, assistant surgeon, now at Torrington, Conn., on leave, is relieved from further duty at Alcatraz Island, Cal., and will proceed to Fort Slocum for duty.—J. SAMUEL WHITE, contract surgeon, leave granted October 11, is extended one month.—The advancement from the grade of first lieutenant to that of captain of Wilson T. Davidson, assistant surgeon, with rank as captain from November 26, 1905, is announced.—WILLIAM J. ENDERS, contract surgeon, is granted leave for one month and 10 days from about December 7.

Changes in the Medical Corps of the U. S. Navy for the week ended December 2, 1905:

A. STUART, passed assistant surgeon, detached from the Pensacola and ordered to command the Naval Hospital, Sitka, Alaska.—R. A. BACHMANN, passed assistant surgeon, commissioned passed assistant surgeon from March 20, 1905.—J. P. TRAYNOR, H. F. STRINE, passed assistant surgeons, commissioned passed assistant surgeons from May 8, 1905.—J. L. NEILSON, passed assistant surgeon, commissioned passed assistant surgeon from October 4, 1905.—R. C. RANSDALL, assistant surgeon, appointed assistant surgeon from November 24, 1905.—H. G. BEYER, medical inspector, ordered to the Wisconsin.—J. L. NEILSON, assistant surgeon, detached from the Naval Hospital, New York, N.Y., and ordered to the Naval Hospital, Newport, R. I.—H. SHAW, assistant surgeon, detached from the Naval Hospital, Boston, Mass., and ordered to the Southery and to additional duty at the Navy Yard, Portsmouth, N. H.—E. A. VICKERY, assistant surgeon, ordered to the Illinois, December 4.—B. H. DORSEY, assistant surgeon, detached from the Illinois, December 4, and ordered home to wait orders.—J. L. BELKNAP, assistant surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Brooklyn.—L. H. Wheeler, assistant surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Asiatic Station, sailing from Seattle, Wash., December 16.—J. STEPP, passed assistant surgeon, detached from the Southery, and ordered to the Don Juan de Austria.

SOCIETY REPORTS

AMERICAN RÖNTGEN RAY SOCIETY.

Sixth Annual Meeting, Held in Baltimore, Md., September 28 to 30, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 933.*]

Treatment of Lupus and Rodent Ulcers.—G. P. GIRDWOOD (Montreal) cited cases of tuberculous lupus in various stages and of varying duration, one case having existed for 32 years. All had been treated surgically and by applications, but without avail. All have been cured by the röntgen ray or relieved to such an extent that a cure is almost certain in a comparatively short time. When dermatitis was produced, healing went on more rapidly than in cases not burned, and it continued to go on without any further treatment. All his cases were treated at a distance of 10 inches and for 10 minutes at a time. The number of interruptions to the current was about 3,000 per minute. The coils used were of the 18-inch and 30-inch variety; 110 to 220 V.; two to six A.; mechanical electrolytic break; no condenser, in most of the cases; 440–660 Watts.

Treatment of Nonmalignant and Nontuberculous Skin Lesions.—W. S. NEWCOMET (Philadelphia) cited cases to show that in most cases of this kind the röntgen ray is beneficial.

Pathologic and Physiologic Effects of Röntgen Rays.—J. RUDIS-JICINSKY (Cedar Rapids) exposed guineapigs and rabbits to intense radiation daily, first for 10 seconds, and later for 10 minutes, with a tube distance of six inches or less. After 20 exposures the guineapigs partly lost their hair, and after 34 exposures there were two cases of very bad necrobiosis, the condition being aggravated when a very low tube was used backed by a spark gap of four inches and a very strong current. The longer this procedure was carried out, the lower became the resistance of the animals. Autopsy was done on two animals, and the findings were described at length. There was degeneration in the posterior horns and tracts of the spinal cord gray matter; hemorrhages in the cord; fibrous hyperplasia in the skin, and walls of the bloodvessels. Usually after a few exposures, even when the skin is intact, there is found a more or less profuse exudate of a clear, lemon-yellow fluid, of a specific gravity of about 1,060, distinctly alkaline in reaction, which crystallizes readily on exposure to the air, and when injected subcutaneously into mice, this fluid invariably produces death within 48 hours. It irritates healthy skin, acting as a caustic. With the diminution of this fluid, the healing process begins.

Discussion.—GEO. E. PFAHLER (Philadelphia) exhibited a röntgen-ray filter consisting of a disc of sole leather about 6 in. in diameter and four times the thickness of the skin. A piece of pure silver may also be used. This disc is placed directly over the opening in the diaphragm. It effectually prevents tanning or burning of the skin. The leather disc is soaked in water before being used, so as to resemble skin as closely as possible. HENRY HULST uses tin foil, aluminum, or some other substance for a filter, selecting the substance to be used with reference to the effect he desires to obtain. GEO. H. STOVER (Denver) uses aluminum foil. F. F. STRONG (Boston) neutralizes the superficial effect of the röntgen ray by exciting the Crooke's tube by means of Tesla's high-frequency currents, ionizing the area in the vicinity to be treated. Since he has been using this method, he has been able to treat deepseated tumors effectively without producing a burn. He also demonstrated a unipolar röntgen-ray tube to be used for treating lesions situated on the walls of cavities and for treating the center of tumors. G. C. JOHNSTON (Pitts-

burg) exhibited a new mercury interrupter, and BURDICK showed a developing machine run by water power.

Officers Elected.—The following officers were elected for the ensuing year: President, Henry Hulst, Grand Rapids, Mich.; vice-presidents, Russell H. Boggs, Pittsburg; C. E. Skinner, New Haven, Conn.; E. G. Williams, Richmond, Va.; and E. W. Caldwell, New York. Secretary, Geo. C. Johnston, Pittsburg; treasurer, L. E. Custer, Dayton, O.; executive committee, K. Dunham, Cincinnati, P. M. Hickey, Detroit, and J. F. Smith, Chicago. Chicago was selected as the next place of meeting.

AMERICAN ACADEMY OF MEDICINE.

Thirtieth Annual Meeting, Held in Chicago, November 9 and 10, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 934.*]

Recreation as a Sociologic Factor.—DONLY C. HAWLEY (Burlington, Vt.) said that while work was necessary and ennobling, and was the law the universe obeyed, refreshment of the strength and spirits after toil was likewise a necessity, which found expression in the natural cravings of the social instinct and in the general desire for diversion and amusement. The social instinct demanded satisfaction, and would find it in recreation and amusement, which was either beneficial and uplifting, or injurious and degrading. Teachers should realize the importance of recreation and use the opportunities which their positions afforded in influencing the children under their care to seek recreation which recreates, and amusements which would bring the most perfect joy.

The Relation of Recreation to Education.—MR. R. K. ROW (Supt. Schools, Berwyn, Ill.) presented a brief statement of the recognized psychophysical theories of play, and then discussed the special educative functions of recreative activities. Out-of-door games, plays, and recreations were the best means of physical education. He referred to the forms of recreation which involved considerable intellectual activity, and said cooperative games promoted social education. They developed the qualities of leadership, self-reliance, self-control, and the spirit of cooperation in social groups. Recreation was a very large and vital factor in esthetic education. Recreative activities had also important ethical functions.

Ceremonials and Festa in the Recreation of Larger Groups of Individuals.—BAYARD HOLMES (Chicago) said that the value of the pageant had been well recognized by every organization which had aimed to secure a control over public opinion and public life. The educational and social functions of the pageant could not be confined to any one class or age. It had a use for every class and for every member of society. For the youth, the occasion was one of unequal liberty and freedom from restraint. For the young adult, it furnished the occasion for prenuptial amenities. For those in the prime of life, abundant opportunity was given for the display of success in any and every activity of life. The social, the economic, and the political success could be ostentatiously exhibited without the odium of effrontery or vulgarity. Even the aged might receive the scanty satisfaction of an honorable decline. But the extension of the influence of the pageant and the communal festivity reached farther, and cultivated and encouraged every joy-giving activity of life.

Medical Features of the Papyrus Ebers.—CARL H. VON KLEIN (Chicago) presented an exhaustive and scholarly history of the Papyrus Ebers. He described the papyrus, the style of writing, mentioned its age, the date of transcription, the contents of the papyrus, and gave a description of the diseases mentioned in it and their treatment. He likewise mentioned the transcription of the papyrus from hieratic to hieroglyphics, and from the latter into a Latin glossary. He called attention to the various medical papyri now in existence, and referred to the similarity of ancient Egyptian medicine in the Mosaic. He discussed postbiblical medicine in its relation to the time of Hippocrates, following up with the Mishna and Homer, giving a complete history of prehistoric medicine from about 5,000 years before the Christian era down to the time of Hippocrates, with a translation of the same into English by the author.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 935.*]

Appendicitis.—R. E. HOUGHTON (Richmond, Ind.) followed with a paper on the history, the differential diagnosis, pathology, and etiology, medical, and surgical treatment of this disease, and presented a plea for an abatement of the use of the knife in place of treatment by remedies, in view of the statistics and results.

Shall the Profession or the Laity be Responsible for the Deathrate in Appendicitis?—J. C. O'DAY (Oil City, Pa.) said that every physician, when confronted with a case of appendicitis, should frankly tell the patient the nature of his trouble; explain to him, honestly and candidly, the disposition of his disease; that no one can tell what an inflamed appendix will do, and that there is no safety till the offending organ has been removed. If the patient then decides to postpone operation, he, not the surgeon, should be responsible. If this were done, he thinks we would hear no more complaints of, "Why did not the physician advise operation before it was too late?"

[*To be continued.*]

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 936.*]

Yellow Fever in Mexico.—EDUARDO LICEAGA (Mexico City) discussed this subject under the following heads: Isolation of the patients; disinfection of the home occupied by the patient; destruction of the mosquito larvas. Since they had instituted modern methods in the City of Mexico, yellow fever has been diminished to a marvelous extent. He predicted that at no distant date this disease will be completely exterminated, as has been done in the island of Cuba.

The Cause, Course, and Treatment of Beriberi.—HAMILTON WRIGHT, beriberi research commissioner, London School of Tropical Medicine, referred to previous publications on this subject. The cause of the disease appears to be a bacillus which gains entrance to the alimentary canal in contaminated food and drink, choosing for its active site the stomach and small intestine, *i. e.*, chiefly the pylorus and the duodenum. The disease begins in necrosis of the mucosa; congestion; small-celled infiltration; seemingly an extracellular toxin is formed which poisons the peripheral terminations of the fibers in the systems of neurons, inducing symmetric, bilateral, sensimotor, cardiac, and vasomotor paralyses. A description of the symptoms, of the microorganisms which seem to be the cause of the disease, and the course of the disease is given, together with a working theory of the cause, and nature, and treatment. Reference to preventive measures, such as care in the disposal of feces, etc., with statistics in jail beriberi before and after the adoption of such measures are given.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

ACCURATE INFORMATION AS TO THE ARMY CANTEEN DESIRED.

We have received the following letter, which is so illustrative of many, that we consent to insert it in our columns:

SCOTTDALE, PA.

To the Editor of American Medicine:—You don't seem to be able to get to the bottom of the canteen question. You are not capable of speaking authoritatively on the question because you have not thoroughly investigated it. You speak on reports that have been made; and by whom? One trouble is that army officers love their whisky too well. There is too much drunkenness and debauchery among the officers of the army, as illustrated by the recent Taggart trial in Ohio. A man of your caliber ought to be careful in speaking on a subject about which he is not informed. Yours,

O. I. HESS.

To which we reply:

DEAR DR. HESS:—The editorial appearing in *American Medicine* of November 18, 1905, a marked copy of which you send with your courteous letter, was written by an army surgeon of a score of years of active service and rich experience all over the United States, in the Philippines, etc., and who is not writing to secure possible political office. He is personally, as is the editor of *American Medicine*, a thoroughgoing believer in the cause and a practiser of temperance. We both think that alcohol is one of the greatest of many sources of disease, suffering, crime, and death. From the criticism of your letter, I gather that you have had a larger experience in army organization and reform than the writer of the editorial. You also think your judgment and ethical standards better than his, and your first-hand knowledge of the facts. We would not be so impertinent as to doubt your statements as regards yourself. We would suggest, however, that as we are deeply interested in the abolition of the abuses of alcohol and the elevation of the United States Army, we must say that nothing seems to stand so much in the way of these reforms as the attitude of mind which your letter illustrates. As to the habits of army officers, we have known a great many of them, and we have found them at least the equals of physicians in gentlemanliness, character, and ethical conduct.

Respectfully yours,

EDITOR, AMERICAN MEDICINE.

WOVEN GAUZE PADS.

BY

FREDERIC GRIFFITH, M.D.,

of New York.

To the Editor of American Medicine:—The question of how to give a student nurse the requisite amount of practical training fitting her to become of real use to the doctor's patient when out of sight of a hospital is one of increasing importance. The routine work of the hospital, calling as it does for service beyond that which ordinary lay help can give, consumes so much of a nurse's time that at the end of the course it is rare to find one who is well equipped in the practical knowledge of all that a capable nurse should know. The graduates themselves are very well aware of their deficiency in this respect and coming classes must ere long raise strong objection to that which is manifest even to the most casual observer. Until general hospital work can be further specialized—which means the obtaining of none but high-class competent lay help (only obtainable by paying good wages in return for that which now falls to the nurse as part of her regular duty) and doing away with the trundle-bed in the basement with food and washing idea of compensation, which policy is still common in some of our hospitals—there can be little relief. Any shift which will lighten certain of these imposed duties until the real cause for complaint is met must be recognized and adopted. Sewing pads and making sponges is one of the greatest time-consuming occupations and the credit of developing a method whereby sponges and pads of all sizes and thicknesses may be woven, thus saving the nurse's labor, belongs to a Viennese, the proprietor of a small cotton goods mill in one of the Austrian provinces, whom I met during the summer just past. The gauze pads may be woven singly or in blocks of united squares and require but to be snipped apart with scissors and turned inside out to be ready for use. The principle involved in their manufacture is a simple one calling for the use of but two shafts in the loom for each layer of gauze required in the finished pad. A woven selvage margin unites the several gauze layers of the finished product.

PERUNITIS (PERUNA-ITIS) OR HARTMANITIS?[1]

BY

GEORGE E. MALSBARY, M.D.,

of Cincinnati, Ohio.

Assistant to the Chair of Practice, Medical College of Ohio; Medical Department, University of Cincinnati.

In September, 1904, I was called to see a woman just past the meridian of life, whom I found suffering from multiple neuritis. The nerves of the lower extremities, the upper extremities, and some of the nerves of the head were successively involved. There was no history nor evidence of exposure to cold, rheumatism, nor exhaustion to act as etiologic factors.

Finally, after ruling out other causes of the disease, it became evident that the patient must have been taking alcohol in some form, notwithstanding the fact that she was a refined lady and an earnest advocate of temperance, who would not knowingly indulge in any form of alcoholic beverage. I asked her what she had been drinking. She was shocked. She disclaimed being a tippler, either in public or private. I asked her what medicine she had been taking. She stated that she had not been under the care of a physician. Further examination into the history of the case revealed the fact that the patient had been using "Peruna" for a long time, taking the nostrum under all sorts of pretexts.

After explaining the case to the patient, she readily consented to stop the "Peruna" cocktails. As stated, first one nerve then another was attacked. Finally, after about three months' treatment with the usual remedies for multiple neuritis, the woman apparently recovered.[2]

The case is interesting from a nosologic standpoint. When practicable, it is customary in medicine to seek an etiologic classification of diseases. Since the only apparent cause of the disease in this case was "Peruna," would it be proper to call it peruna-itis or perunitis? Or should we honor the discoverer or concocter of the nostrum and name it Hartmanitis?

Eddyism in Texas.—In Texas, so far removed from the headquarters of this cult, local members of the Committee on Public Policy and Legislation of the State Medical Association felt compelled to compromise with the element before the Senate Committee of the last Legislature.

[1] A case reported to the Cincinnati Academy of Medicine, October 23, 1905.

[2] In this case there has since been a relapse, as is so common in this disease, showing that the recovery was not complete.

ORIGINAL ARTICLES

REPORT ON THE COMPARATIVE STUDY OF VARIOUS FORMS OF TUBERCULOSIS.[1]

BY

MAZYCK P. RAVENEL, M.D.,

of Philadelphia.

Assistant Medical Director of Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis; some time Bacteriologist of the State Livestock Sanitary Board of Pennsylvania; Director, and Member of the Executive Committee National Association for the Study and Prevention of Tuberculosis, United States of America.

Four years have passed since the London Congress on Tuberculosis, at which the wellknown paper of Koch was read in which he took the ground that human and bovine tuberculosis were different diseases; that human tuberculosis could not be transmitted to cattle, and that the converse, if true at all, was of so rare occurrence that it could be practically neglected in the struggle against the great plague. Koch's previous views had been that the two diseases were identical, and that bovine tuberculosis was transmissible to man, a view which had been generally accepted, and on which many laws for the control of bovine tuberculosis had been based.

In 1896, Theobald Smith for the first time called attention to certain differences between bacilli from bovine and human sources, followed by a more complete study of the question in 1898, at which time he felt justified in classing human and bovine bacilli as separate types or races. Not knowing that the matter was engaging the attention of Koch and Schutz, nor that a paper on the subject was to be presented at the London congress, I had, at the laboratory of the State Livestock Sanitary Board of Pennsylvania, in conjunction with Drs. Leonard Pearson and S. H. Gilliland, for some time been conducting an extensive study of the comparative virulence of the tubercle bacillus from human and bovine sources, the results of which were presented before the London congress. I found, as Smith had before me, that there were certain fairly constant differences in the cultural, morphologic, and tinctorial characters of tubercle bacilli from human and bovine sources. More striking, however, was the difference in virulence, cultures from bovine sources showing a vastly greater pathogenic power for all experimental animals except guineapigs and swine, which proved so susceptible to both races of bacilli that little distinction could be detected.

Since the London congress, much study has been devoted to the subject, which has, beside its scientific interest, a vast importance from the economic standpoint, as well as its bearing upon public health.

At that time I had already begun the study of cultures isolated from cases in which there seemed reason to suspect primary intestinal infection, believing that this would be the most direct method of proving the transmission of bovine tuberculosis to man, and some of these cultures were included in the report made before the London congress. Up to that time all of the cultures, the virulence of which had been tested, belonged to the human type. On my return to America, however, I began inoculations of one culture, designated BB, which showed an intense virulence for guineapigs and rabbits. So marked was this that bovine animals were inoculated with it, and for all it showed the most intense virulence. The results obtained were as follows:[1]

CALF NO. 26,596, weight 132 pounds. Tested with tuberculin, but gave no reaction. On December 4, 1901, 5 cc. of a suspension of the fifth and sixth generations of Culture BB was injected into the right jugular vein. On the next day the temperature had risen to 103.2° F. After a slight remission it rose to 103° F. on the seventh day after inoculation, and continued to rise each day, reaching 106.4° F. by the fourteenth day, after which it fell slightly until death, which took place on December 21, 17 days after inoculation. The animal showed marked illness during life, the respirations reaching 68 per minute.

Autopsy.—The lungs and the related glands showed macroscopically the most marked disease. Both lungs were thickly studded throughout with remarkable uniformity with miliary nodules, giving a sandy feel under the finger. The left was pneumonic, owing to the position of the calf for some time before death. Portions of the right were in a similar condition, sinking when placed in water. The bronchial and mediastinal glands were much enlarged and soft, and in the former small areas of caseation were found.

The liver was large, soft and friable. Several nodules were visible on the surface, though not perceptible to the touch. The spleen showed very slight changes. The kidneys were normal.

CALF NO. 26,597, weight 202 pounds. Tested with tuberculin, and gave no reaction. On December 4, 1901, 5 cc. of a suspension of Culture BB of the fifth and sixth generations was injected into the peritoneal cavity. The temperature rose to 105.2° F. by the eighth day after injection, remaining very nearly the same until four days before death, when it began to fall, and reached 103° F. on the day before death, which took place on December 31, or 20 days from the time of inoculation.

Autopsy.—Great emaciation. Loss in weight, 37 pounds. The lungs were largely involved, though not uniformly. The central and posterior portions showed many areas deep red in color and solid to the feel. These were thickly studded throughout with minute grayish nodules.

The suprasternal lymph-glands were as large as goose eggs, and contained cheesy areas. The mediastinal glands were much enlarged, one being 6 inches in length by 2 inches in diameter. The peritoneal cavity contained about six quarts of straw-colored fluid. The peritoneum was everywhere enormously thickened and practically converted into a tuberculous mass. In several places it was a half inch thick and fibrous. The omentum was also enormously thickened and bound over the surface of the liver. It contained a great number of nodules, dense and fibrous, many with caseous centers. The liver was firmly adherent to the diaphragm, and on section showed many nodules. The spleen was firmly attached to the surrounding parts by a mass of partly organized fibrin, which contained many cheesy nodules. On section it appeared to be normal.

COW NO. 45,030, about three years old, and weighing 660 pounds. On January 22, 1902, 2.5 cc. of a suspension of Culture BB of the seventh and eighth generations was injected into the right jugular vein and the same amount into the peritoneal cavity. The temperature rose to 103.2° F. on the second day, then fell slightly during the next six days, after which it rose steadily, reaching the maximum, 107° F., three days before

[1] Presented before the International Congress on Tuberculosis, in the Second Section, Surgical Pathology, Paris, October 2 to 7, 1905.

[1] These experiments were reported, with the exhibition of the specimens, before the Pathological Society of Philadelphia.

death, after which it fell slightly, the animal dying 17 days after inoculation. The lungs were mostly involved, both being thickly studded throughout with miliary nodules. Most of the left lung showed interlobular emphysema, while the inferior portion was much congested. On the omentum were numerous dark red spots which could be felt between the fingers. The spleen was adherent to the diaphragm, and there were many punctate hemorrhages on the surface. The liver and kidneys showed no gross changes.

History of Culture.—Designation BB. Obtained from a child of 17 months. Death was due to tuberculous meningitis.

Autopsy.—Lungs normal, except posterior part of the right upper lobe, which was consolidated, red on section and had excess of connective tissue. Bronchial and mediastinal glands were not enlarged. Spleen, liver, and kidneys showed pearly tubercles. Two feet from the lower end of the ileum was an ulcer 1 cm. by 2 cm., the long diameter transverse to axis of gut. Nodules were seen on the peritoneal surface. Four small ulcers, two above and two below, were found in the ileum. Mesenteric glands were enlarged, cheesy, and some purulent. Meninges showed yellow tubercles, most marked along the longitudinal fissure, in the choroid plexus, and over the cerebellum. The mesenteric glands were used in obtaining the culture.

A second culture, designated U, also isolated from the mesenteric glands of a child, while not showing distinctly bovine characteristics, has exhibited virulence far in excess of that usually found in human cultures. This culture had been tested on guineapigs and rabbits and had been passed as being human in type. Its cultural characteristics and morphology correspond to the human type. Its excessive virulence was first shown when it was selected for some feeding experiments on puppies, in which it soon produced infection and death. Sometime afterward, wishing to produce a slow tuberculosis in a dog, this culture was again employed, and much to our surprise, showed a marked virulence, killing the dog with generalized tuberculosis in 36 days. After this it was inoculated into a calf weighing 74 pounds. The culture used was the twelfth generation on glycerin agar.

The animal soon showed signs of illness; the breathing became rapid and labored. Extreme weakness and depression came on and the calf laid down much of the time. Forty-five days after inoculation it was killed, death seeming imminent.

Autopsy.—Weight 82 pounds. Condition fair. The anterior lobes of both lungs were thickly studded with minute nodules, averaging 1 mm. in diameter. Blocks from these lobes sank in water immediately. Both lungs were dense and solid to the feel throughout. The posterior lobes were air bearing for the most part, but contained many solidified areas, which could be seen on the surface as well as on section.

The bronchial and mediastinal glands were enlarged and wet. Scrapings from cut surfaces show an enormous number of tubercle bacilli. In the mediastinal glands many yellowish nodules were seen. The pleuras were normal. The liver was enlarged and firm to the touch. No distinct nodules could be seen by the naked eye, but throughout the substance, yellowish areas were found in large numbers. The surface appeared marbled.

The spleen was enlarged and very firm, but no nodules could be detected. The kidneys showed numerous whitish areas on the surface, which were found to extend quite deeply into the cortex. On section, many yellowish nodules were seen. The tissues of the kidneys were much stained with bile, and the pelvis contained a gelatinous or viscous material showing the same pigment. The peritoneum was normal.

Microscopic Examination.—The solidified portions of the lungs contain large areas which are not air bearing, the alveoli being completely filled with leukocytes and epithelium, or epithelioid cells. The small bronchi are filled by an exudate made up largely of leukocytes. The central portions of the nodules stain poorly, and fragmentation of the nuclei of the cells is seen, but no distinct caseation can be found. In sections stained with carbol-fuchsin, innumerable tubercle bacilli are seen. In other parts of the lungs which are still air bearing, minute nodules are found in large numbers, having the same general characteristics as those just described. Throughout the sections many tubercle bacilli are seen, and in the nodules they are in clusters. In the liver, no typic tubercles are found, but there are many minute nodules made up of round-cells, and on the borders of these a considerable number of giant-cells with peripheral nuclei occur. Sections stained with carbol-fuchsin show large numbers of tubercle bacilli clustered in these areas.

The spleen shows round-cell infiltration, giant-cells and many tubercle bacilli.

The white areas in the kidney described above show a round-cell infiltration and large numbers of tubercle bacilli. The bronchial glands show areas of beginning caseation, a few giant-cells, and innumerable tubercle bacilli.

History of Culture U.—Obtained from a child, aged 3, whose death was due to tuberculous meningitis.

Autopsy.—Lungs and bronchial lymphatic glands full of miliary tubercles. Anterior mediastinal glands much enlarged. Spleen extensively involved; liver less so. On the abdominal surface of the diaphragm were a number of flat, yellow nodules. Mesenteric glands were enlarged, and contained old, yellow, cheesy nodules. One small tubercle was found in the right suprarenal. Purulent and cheesy nodules were found in meninges and encephalon. The cultures were obtained from the mesenteric glands.

The pathologist, Dr. Hand, was unable to decide with certainty as to the origin of this case.

A third case has recently been reported to the Pathological Society by Dr. Fife and myself, details of which are here given.

The subject was a male child a few days less than 2 years. It was the sixth child born of healthy parents. Five brothers and sisters were living, apparently in perfect health at the time of the death of the patient, but since his death, one sister who took care of the patient has shown evidence of cervical adenitis. On the mother's side, the grandfather, an uncle, and an aunt have died of pulmonary tuberculosis. During the first 18 months the child was seldom taken out of the house. After birth it was fed for seven weeks at the breast, then on diluted cow's milk, which constituted the chief nourishment for the rest of his life. The milk was bought without care from corner groceries; it often contained a dirty sediment, and was very rarely pasteurized. He had several attacks during the first part of his life of what appeared to be enteritis or enterocolitis. Between these attacks the bowels were alternately constipated and loose, though the periods of diarrhea were much the longer. At 13 months, a marked swelling of the child's abdomen was noticed, which became more and more marked, and received various diagnoses. Emaciation, prostration, and anemia became marked. The abdomen was tender and very tense. The cervical and inguinal glands were enlarged. In the left lumbar region there was a tumor mass which was slightly movable, though the condition of the child's abdomen did not permit of a thorough examination. Bronchopneumonia developed just before death.

At the autopsy a large mass was found in the left lumbar region and one or two smaller nodules at the right of the umbilicus. Considerable difficulty was experienced in opening the abdomen, because of adhesions. The omentum was bound down to the intestines and contracted. The liver was slightly adherent to the diaphragm. The intestines were so firmly matted together and so strongly attached to the stomach and omentum, that it was impossible to disentangle them. The tumor mass which had been felt through the abdomen was found to consist of mesenteric and postperitoneal glands, in which the loops of the small intestines were inextricably entangled. All of the mesenteric glands outside of this tumor were enlarged, and some were caseous. The mesentery throughout was thickened. There were several small nodules in the great omentum, and a few tubercles in the liver, spleen, and diaphragm, which were mostly superficial. No enlargement of the anterior mediastinal or bronchial glands was observed. The lungs showed lesions of bronchopneumonia.

From one of the glands in this tumor mass pure cultures were isolated by passage through guineapigs.

The cultures showed from the first the characteristics of the bovine bacillus. The bacilli were short and thick, and stained evenly. Guineapigs inoculated under the skin with 1 cc. of a suspension equal in opacity to a 24-hour old culture of typhoid in bouillon, succumbed after an average of 42 days. Rabbits inoculated with the same dose, and in the same manner, survived for 87 days. While for these animals the virulence was somewhat lower than is common with bovine bacilli, the lesions after death were very marked, and such as are found after inoculation with the bovine bacillus.

A calf weighing 211 pounds, was then inoculated with 5 cc. of a similar suspension of the bacillus, of the the third generation on blood-serum. It soon became ill and showed marked fever; the temperature rising to 104° F. within 10 days of the inoculation. It fluctuated between 102° F. and 104° F. for some days, showing, however, a tendency to become higher. About the fourth week it reached 107° F., and remained between 105° F. and 107° F. for nearly a week, when it began to fall somewhat, but remained high until the death of the animal, which took place after 36 days.

Autopsy.—The animal was emaciated. The abdominal cavity contained a small amount of bloody serum. The liver was pale and fatty, and showed on its surface a few nodules which penetrated beneath the capsule. The lungs were red and firm throughout. There was considerable emphysema. Evenly distributed throughout both lungs were innumerable miliary tubercles from 1 mm. to 4 mm. in diameter; the larger ones mostly caseous. The spleen and kidney were free from tubercles to the naked eye. Microscopic examination showed tubercles in all the organs excepting the spleen, which was accidentally lost. The liver contained many areas of caseation, with round-cell infiltration. The lungs and kidneys showed many giant-cells. From the effect on animals and from the cultural characteristics we have no hesitation in pronouncing this culture to have been of the bovine type.

In this country Dr. Theobald Smith has also isolated a bovine culture from the mesenteric glands of a child by passage through guineapigs. This child was breast-fed for three months after birth, then fed on milk and water in varying quantities. The anatomic diagnosis on autopsy was "generalized tuberculosis, peritonitis (mesenteric and postperitoneal lymph-nodes), tuberculous ulcers on small intestines, perisplenitis, perihepatitis (fibrous and fibrinous), fibrous and fibrinous pleuritis, miliary tuberculosis of lungs, edema of lungs."

The mass of mesenteric lymphatic glands was the source of the bacilli isolated, a suspension being made of the cheesy masses in normal salt solution, which was then injected into guineapigs. From two of the inoculated guineapigs, cultures were isolated on blood-serum. The first growth was very feeble and for five months the multiplication in subcultures was scant. It was only after some nine months that growth on glycerin agar was obtained. Microscopically the bacilli were straight or slightly curved, and resembled the bovine type. Inoculations into rabbits and guineapigs showed a virulence slightly below that usual in bovine bacilli. The culture was inoculated into two bovine animals between 12 and 18 months old, one into the thorax and one into the abdomen. The first of these soon showed signs of disease, the temperature rose to 105° F., and once as high as 107.3° F. The animal was emaciated, and by the fourth week was very weak and thin. Thirty-eight days after inoculation it was killed. On autopsy the disease was found to be confined chiefly to the thorax, in which there was a large tuberculous mass, involving the anterior mediastinum and the pericardium. Sections showed a general tuberculosis with tubercles in the liver and spleen.[1]

Dr. Smith remarks that there is no uncertainty as to the capacity of this culture to produce general tuberculous lesions in cattle. Another culture isolated from the mesenteric lymph-nodes of a child about the same time by Dr. Smith was of the human type throughout, though the type of disease in the two children from whom these cultures were isolated was practically the same.

At the Bureau of Animal Industry in Washington the late Dr. deSchweinitz also found bacilli of the bovine type in two cases of human tuberculosis, both of which were of the mesenteric glandular type, the details of which I am unable at the present time to give.

The question has been the subject of study by two government commissions, one appointed by the English Government, and one by the Imperial Board of Health in Berlin. The latter has made two reports. They have confirmed the findings of Theobald Smith in recognizing certain points of distinction between tubercle bacilli from man and from cattle, which justify their being classed as two races or types, which they call "typus humanus" and "typus bovinus." They have isolated 56 strains from mankind, of which six have proved to be of the bovine type. The details of their experiments may be found in their proper publications, and it will not be necessary to go into them in this paper. The chief point for our purpose is the fact that the bovine bacillus was found in cases of human tuberculosis. All of the cases from which the bovine bacillus was isolated were primary in the intestinal tract, and in three the disease was confined to the mesenteric glands and the intestines. In two of the remaining cases there was general miliary tuberculosis, and in the third there was tuberculosis of the spleen and pleura, in addition to

[1] For complete details see Journal Medical Research, Vol. xiii, No. 3, p. 275.

tuberculosis of the mesenteric glands. The German experimenters say that in one of these cases a mixed infection was found, the bovine type of bacillus being found in the mesenteric glands, while the human type was isolated from the spleen. They also claim to have isolated a culture from the mesenteric gland of a woman, who died from perforation of the intestines, in which both types were found. Basing their conclusions on these findings, they put forward the theory that the general disease is probably never due to the bovine bacillus, but to infection by the human organism. The bovine infection, which they acknowledge, they believe remains localized and does not produce any bad effects on the general health.

In striking contrast to these views is the Interim Report of the Royal Commission, appointed to inquire into the relation of human and animal tuberculosis in England, which I quote:

"We have up to the present made use, in the above inquiry, of more than 20 different 'strains' of tuberculous material of human origin; that is to say, of material taken from more than 20 cases of tuberculous disease in human beings, including sputum from tuberculous patients, and the diseased parts of the lungs in pulmonary tuberculosis, mesenteric glands in primary abdominal tuberculosis, tuberculous bronchial and cervical glands, and tuberculous joints. We have compared the effects produced by these with the effects by several different strains of tuberculous material of bovine type.

In the case of seven of the above strains of human origin, the introduction of the human tuberculous material into cattle gave rise at once to acute tuberculosis, with the development of widespread disease in various organs of the body, such as the lungs, spleen, liver, lymphatic glands, etc. In some instances the disease was of remarkable severity.

In the case of the remaining strains, the bovine animal, into which the tuberculous material was first introduced, was affected to a less extent. The tuberculous disease was either limited to the spot where the material was introduced (this occurred, however, in two instances only, and these at the very beginning of our inquiry), or spread to a variable extent from the seat of inoculation along the lymphatic glands, with, at most, the appearance of a very small amount of tubercle in such organs as the lungs and spleen. Yet tuberculous material, taken from the bovine animal thus affected, and introduced successively into other bovine animals, or into guineapigs, from which bovine animals were subsequently inoculated, has, up to the present, in the case of five of these remaining strains, ultimately given rise in the bovine animal to general tuberculosis of an intense character, and we are still carrying out observations in this direction.

We have very carefully compared the disease thus set up in the bovine animal by material of human origin with that set up in the bovine animal by material of bovine origin, and so far we have found the one, both in its broad general features and in its finer histologic details, to be identical with the other. We have so far failed to discover any character by which we could distinguish the one from the other; and our records contain accounts of the postmortem examinations of bovine animals infected with tuberculous material of human origin, which might be used as typical descriptions of ordinary bovine tuberculosis."

An experiment has been carried out by Professor Hamilton, of the University of Aberdeen, and Mr. Young, who attempted to infect 20 calves with the human tubercle bacillus. They report, "That of 19 calves experimented upon, 15 undoubtedly had human tuberculosis transmitted to them by food, respiration, or inoculation. The diagnosis was made by gross and microscopic examination, as well as by the inoculation of guineapigs."

It seems unnecessary to go into further details of experiments along these lines, and I will only mention the work of Chauveau, Orth, de Jong, Shottelius, Febiger and Jensen, Max Wolff, Thomassen, Nocard, Arloing, etc. The work of some of these authors is open to a certain amount of criticism, since they worked with mixed tuberculous material, and not with pure cultures. Admitting these objections, however, their work has shown conclusively that human tuberculosis can, at times, be transmitted to the bovine race.

STUDIES OF OTHER MAMMALIAN TUBERCLE BACILLI.

We have followed Theobald Smith in the classification of mammalian tubercle bacilli into two types, the human and bovine, which may be taken to represent the two extremes. Smith did not make this classification with the idea of excluding other types, although it has not been shown by anyone so far that other species of mammalia act as the host of a variety of tubercle bacillus so constant in characteristics as to justify its designation as a separate type under the name of its host. This is a fertile field of study, and although from time to time we have had reports of the occurrence of tuberculosis in a large variety of animals, I am not aware of many studies in which the culture has been isolated from these cases and carefully compared with existing types. The history of infection in animals is generally very difficult to obtain with certainty, so that we are unable to say just what modification has taken place by residence in the host which we may have under examination.

Smith has isolated and studied, so far, cultures from three cats, a horse, a dog, swine, and a coati (*Nasua Narica*). His swine cultures have been typically bovine. The cultures from all of his cats have been bovine in type from a morphologic standpoint, and two of them have shown a virulence corresponding to the bovine type; the third a virulence much greater than the average human culture, though not so high as the other two. One of these cats had been much associated with a tuberculous person, from whom the infection was presumably derived. The culture, however, as already stated, did not correspond to the human bacillus, and gave the reaction curve of the bovine type. The culture from the horse was found to be intermediate in virulence between human and bovine.

At the Laboratory of the Pennsylvania State Live Stock Sanitary Board we have isolated one culture each from the hog, the horse, the deer, and the paradoxure. The history of the hog proves almost certainly that the source of infection was cattle, and the culture was typically bovine in morphology and in virulence, killing guineapigs in an average of 20 days, and rabbits in 69 days after subcutaneous inoculation. The horse had been stabled with 12 tuberculous cows, from which the infection was almost certainly derived. This culture was not completely studied, but was bovine in type. The material from the paradoxure and deer was sent me

through the kindness of Dr. C. Y. White, from the Zoological Gardens, of Philadelphia. The source of infection in them could not be traced. The culture obtained from the paradoxure was of the human type, both as regards morphology and virulence. Guineapigs succumbed only after 65 days, while rabbits remained in good health, gained weight, and when killed after 199 days, showed no trace of tuberculosis, the point of inoculation not even being discernible. The culture obtained from the deer was typically bovine in morphology as well as virulence. Guineapigs were killed in 38 days, and rabbits succumbed after 50 days with generalized tuberculosis involving the lungs, spleen, and kidneys.[1]

This field of inquiry has, in my judgment, so far not given us any precise data on which to base an opinion. Apart from the effect on animals, we have at present absolutely no means of determining the origin of any given culture of tubercle bacillus, nor do we know how long a residence in some particular host is required to change the type of the organism. It is probably much easier to change from a higher to a lower type as regards parisitism and virulence than to effect the opposite result. Several instances of the latter are on record, and indicate that the change takes place quite readily. Nocard produced the avian type from the human by residence in collodion sacs inserted into the peritoneal cavity of chickens; Möller, in the course of a year, produced an entirely new type by inoculation of the blind worm with human bacilli; a new type also was found by Dubard in fish which had fed on human sputum. It has also been a matter of frequent observation that chickens are refractory to human tubercle bacilli; but a certain proportion become infected, and from these subsequent successful inoculatious may always be had. In this we have evidence of marked change in character taking place in a single generation. I may call attention to the fact that the differences between the human and avian tubercle bacillus are much more striking than those between the human and bovine. The adaptation from a mammal to a fish appears a much greater step than that between any two species of mammals. Of the change in the opposite direction, I know of only one instance. In an experiment by Dr. Pearson and myself, a human culture was passed through a series of calves. The first received 925 cc. of a suspension of the culture and lived 106 days. The second calf was inoculated with 16 cc. of an emulsion of the bronchial gland of the first, and died after 48 days. The third calf received 13 cc. of an emulsion from the omentum of the second animal, and died in 23 days. The other two were inoculated in the same manner and lived 24 days. From the last of the series a pure culture was recovered by passage through a guineapig, which was bovine in type. No conclusions can be based on a single experiment, and although every effort was made to exclude errors, and the calves were all tested with tuberculin before injection, it is within the range of possibility that one of the series was infected with bovine tuberculosis, and thus vitiated the value of the experiment. It is also of much interest to note that this culture was twice examined by Theobald Smith[1] by his reaction method, and both times it corresponded closely to the curve given by bovine cultures. It was isolated from human sputum, and has in every other way shown the characteristics of the human type. It is possible that the case from which it was isolated was one of bovine infection, and that passage through bovine animals restored it quickly to its original type.

Interpretation of Results.—What interpretation is to be put on the facts before us? In many of the experiments the disease transmitted to the bovine species has been comparatively slight, not becoming generalized, nor causing death of the animal. The bacilli in these cases evidently have belonged to what we have described as the human type of bacillus. It must be borne in mind, however, that in a very large proportion of the cases of bovine tuberculosis occurring under natural conditions, the disease follows the same nonprogressive and nonfatal course. In the other experiments, in which a bacillus typically bovine in every respect is found in the tissues of persons, we are driven to one of two conclusions: Either that the human bacillus is, under certain conditions, identical with the bovine in morphology as well as virulence, or else that the persons from whom these cultures were obtained were infected in the first place by bovine material. The latter is the explanation generally accepted. The fact that in the majority of these cases the infection is primary in the intestines and that most of the subjects have been children, goes far to prove that milk has been the medium of infection. Theoretically, there is no reason why the bovine bacillus should not be readily transmitted to man. It has for all other mammalia on which it has been tried a virulence greatly exceeding that of the human tubercle bacillus. It would certainly seem a remarkable anomaly for man, who is one of the most susceptible of all animals to tuberculosis, to be immune to the most powerful virus known. In the whole range of communicable diseases, we have nothing at all comparable to this state of affairs, should we admit it.

The converse proposition does not seem difficult to understand. Almost every species is more resistant to human tuberculosis than to bovine, the only exception being those animals which are so exceedingly susceptible to both forms of virus that little distinction can be drawn between them. We have then cattle, who act as the host for the most virulent tubercle germ known, resistant to the human germ, which has very much more feeble pathogenic powers than that to which they are accustomed. Is it not possible that the bovine race has acquired a certain immunity against tuberculosis, which enables it to resist the more feebly virulent germ?

The scope of this paper has not permitted me to make a thorough review of the experiments which have been carried out in the elucidation of the problems presented. Our chief interest will always lie in the relation of the animal tuberculoses to human health. Of these, bovine tuberculosis is by far the most important. I have therefore limited myself largely to the consideration of work bearing most directly on this subject. Much remains to

[1] In all the tests on animals mentioned a uniform dosage of 1 cc. of a suspension of the culture, in normal salt solution, equal in opacity to a 24-hour culture of typhoid, was used, the inoculations being made under the skin of the abdomen.

[1] Transactions Association American Physicians, 1903.

be done in the final settlement of the questions involved, and in placing the proper relative valuation on points already proved. In this work the clinician and the laboratory man must work in conjunction—neither can attain the end in view independently of the other.

In the light of our present knowledge the following conclusions seem to be justified:

1. The division of mammalian tubercle bacilli into two types, human and bovine, first proposed by Theobald Smith in 1898, has been amply confirmed. These types have cultural, morphologic, and tinctorial characteristics by which they may usually be recognized. The chief point of difference, however, is found in the very much greater pathogenic power of the bovine type. Bovine bacilli are, however, met which have low pathogenic power.

2. No other species of mammal has been shown to harbor a variety of tubercle bacillus so constant in its characteristics as to justify its classification as a third type.

3. Other species suffering from tuberculosis derive their infection from man or from cattle.

4. The human tubercle bacillus, as a rule, has a low pathogenic power for cattle, but cultures are not infrequently found which are virulent for the bovine race.

5. The bovine tubercle bacillus has the power of invading the human body and producing the lesions of tuberculosis.

6. We are at present unable to state the exact proportion of cases in which bovine tuberculosis is transmitted to man, but in view of the evidence at hand we must regard the disease in cattle as the source of a certain part of human tuberculosis, and any relaxation in our laws and precautions against bovine tuberculosis would be most unwise.

INTRACORPUSCULAR CONJUGATION IN THE MALARIAL PLASMODIA AND ITS SIGNIFICANCE.*

BY

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Introduction.—The method of sexual reproduction of the malarial plasmodia in the mosquito, which has been so brilliantly demonstrated by many investigators, suggests the query as to whether or not an analogous process occurs during the life cycle of the parasites in man. So far as I am aware, but little work has been done in this direction, the only contribution upon the conjugation of the parasites in man being the important papers of Ewing,[1,2] although the process is mentioned by Mannaberg. Ewing, however, came to the conclusion, from his investigations, that while conjugation of the malaria plasmodia undoubtedly occurred in the red blood-corpuscles of man, it was by no means constant, and probably of no essential importance in the human life cycle of the plasmodia. He observed the process in the tertian and estivoautumnal varieties of the parasites, but had no opportunity of studying it in the quartan type.

Since reading Ewing's contributions upon this subject I have studied intracorpuscular conjugation in many hundreds of specimens of malarial blood, both in fresh and stained preparations, these studies covering a period of nearly five years, and I believe that I am justified in stating, as the result of this work, that this form of conjugation, far from being rare, is of very frequent occurrence in all the varieties of malarial plasmodia, and that it is of vital importance in their human life cycle.

While I do not believe that the facts warrant the assertion that sporulation cannot occur without previous conjugation, it is without doubt true, that conjugation is essential to the maintenance of malarial infection in man, and that in those instances in which it does not occur, the plasmodia undergo asexual sporulation for a limited time and then perish, thus leading to spontaneous recovery which, as is well known, is frequently observed in malarial infections. These studies also prove that in latent malarial infection conjugation is almost never observed, and therefore we are justified in assuming that the severe acute malarial symptoms observed clinically are only present in those cases in which conjugation is. In other words, autoinfection in malaria can only be maintained when conjugation is present and its disappearance is the explanation, partially at least, of spontaneous recovery or the cessation of the clinical symptoms.

To Ewing belongs the credit of first calling the attention of American observers to this phenomenon, and I shall quote verbatim from his writings in reviewing his work. In describing this process he says[3]:

In four cases of tertian infection I have encountered appearances which seem to admit of no other explanation than that of conjugation of malarial parasites. In a considerable number of other cases similar appearances were found, but much less frequently. A great many red cells showed double infection with young rings. In many instances these rings were entirely separate, each exhibiting a single large granule of chromatin. Many cells, however, contained two rings which were clearly fused together along one segment of the ring, and two large chromatin granules were then invariably found at different points in the rings. The fused parasites usually differed in appearance. One was a large, delicate ring with a thin bow, and chromatin granules of moderate size, while the other was a coarser body with thickened bow, and exhibiting a large chromatin granule. These differences between the two conjugating parasites could not always be found.

In this early stage Ewing found no evidence of the fusion of the chromatin granules, and therefore of the nuclei. Continuing his description of the process, he says[4]:

On examining the parasites in later stages of development, most of them were found to have lost the ring form, and to have spread out into a large number of threads, with nodal thickenings, variously curled in the red cell. These threads evidently represented the pseudopodia of a very active ameboid stage. The chromatin masses were now subdivided into 10 or 12 granules, but in the majority of the cases the masses were far apart, and showed no tendency to unite. In many cells, however, the ameboid figures were less marked, and the masses of

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chromatin lay side by side, united by a little achromatic substance. Later some parasites were found in which the two groups of chromatin granules lay in immediate apposition, surrounded by achromatic substance.

As will be seen in the description of this process which follows, the bodies described by Ewing as showing the division of the chromatin into several scattered granules, collected into two groups, situated far apart, were really not conjugating parasites, but rather, in all probability, parasites in which conjugation was complete, and the chromatin undergoing division prior to sporulation. Intracorpuscular conjugation is always completed before the appearance of pigment within the parasites, and it is impossible to distinguish parasites in which conjugation has occurred from those in which it is absent, after the beginning of pigment formation. The division of the chromatin into two or more distinct masses of granules in the larger tertian plasmodia is a normal step in the development of the spore stage, and is always seen in the developing parasite whether conjugation has occurred or not. It should not, therefore, be regarded as an evidence of conjugation, and the bodies later described by Ewing as nearly full grown cannot be identified as conjugating organisms, for the same appearances are presented in nonconjugating plasmodia.

Ewing describes, somewhat in detail, certain differences in the conjugating parasites, consisting largely in the relative size of the two organisms and their staining reactions. These differences, even as described by him, are comparatively slight, and he states that they cannot always be recognized. From my own observations I have been unable to confirm his observations as regards any essential difference in the morphology of the conjugating bodies, for while in rare instances, one of the organisms may appear slightly larger than the other, may have a larger mass of chromatin, and stain more intensely, in the vast majority of instances the two conjugating parasites are of exactly the same size, and cannot be distinguished one from the other, in any way. The compact deeply-staining form, which Ewing considers as probably essential to conjugation, and which does not commonly assume the ring shape, is of comparatively infrequent occurrence, and is simply a young parasite which happens to conjugate with one which is in a slightly more advanced stage of growth.

The careful study of intracorpuscular conjugation as it occurs in all the varieties of the plasmodia of malaria will demonstrate that, in practically every instance, no distinction can be made between the two conjugating parasites, and that in the vast majority of cases, conjugation takes place between two distinct ring forms of the same size.

As regards the significance of this process Ewing is undecided. He says [5]:

It would seem that a process so fundamental as the conjugation of individuals, if it occurs at all, ought to be an invariable feature of every active infection, but there is not sufficient evidence on which to base any such claim. The four cases referred to as furnishing numerous clear examples of conjugation were selected on account of the abundance of the conjugating forms, but in many other cases less numerous though equally distinct examples were seen, indicating that the process is of very frequent occurrence. On the other hand, it must be admitted that the majority of specimens from routine cases fail to show any distinct traces of the process; from which it may be concluded that conjugation is not an essential feature of the growth of the parasite.

In a later contribution he says [6]:

The extent and significance of this form of conjugation it is difficult to determine. In the cases in which it can be profitably studied, parasites are very abundant, and in most cases few indications of the process can be detected. It is, therefore, probably not essential to sporulation, and when parasites are scanty the chances of finding typical examples of conjugating pairs are greatly reduced, but the peripheral blood may not be a complete index of the process in the internal viscera. The large size of the sporulating forms developed from conjugating pairs suggests that this process is intended especially to favor the multiplication of the species in the human host. It seems probable that conjugation occurs in the first generations of the infection, and becomes less frequent as the disease progresses, the infection in the human host thereby tending to limit itself.

In the sections of this contribution treating of the frequency of the occurrence of this process, and its significance, I shall discuss more at length the foregoing statements, but it may be noted in passing that Ewing recognized the probability of the importance of the process in relation to autoinfection, and that its cessation resulted in the limitation of the malarial infection.

In the investigation of this subject it has seemed to me that the following points should be definitely determined, if possible: The morphology of the parasites during intracorpuscular conjugation; the frequency of its occurrence; the variety and clinical types of malaria in which the process occurs most frequently, and the significance of the process.

Material.—As regards the material which has been available for this investigation, I may say that it has consisted of nearly 300 cases of malaria presenting clinical symptoms, observed at the United States Army General Hospital, at San Francisco, Cal., while I was director of the bacteriologic laboratory there, together with over 100 cases of latent malarial infection observed at the same place; a series of 75 cases of latent infection in native Filipino children studied at Camp Stotsenburg, and 52 cases of acute malarial infection observed in soldiers and civilians in and around that post.

Of the acute cases studied at San Francisco almost all of them were in soldiers returning from the Philippines, and were recurrences of old malarial infection, while nearly all the acute cases seen at Camp Stotsenburg were initial attacks. From this data it will be seen that the process of conjugation has been studied in three classes of cases: Initial attacks of malaria, recurrent attacks, and latent infections.

Both fresh and stained preparations of the blood have been used, for while the process is best observed in stained specimens of blood, in a few instances I have been so fortunate as to observe the process of conjugation in the fresh specimen, and for that reason both the fresh and stained blood has been studied. The process of conjugation has been studied in all the varieties of malaria, including the quartan type, but it is seen most often and typically in the estivoautumnal infections.

The staining method which I have found to give the

best results is a slightly modified Wright's method, suggested by Dr. H. R. Oliver, of San Francisco, and the staining solution is prepared and used as follows:

Add .5 gm. of sodium bicarbonate to 100 cc. of distilled water, dissolving thoroughly, and then add 1 gm. of methylene-blue (Grubler's) and heat for an hour in an Arnold sterilizer after the steam is up. After heating, allow the solution to cool. Make a 1 to 1,000 solution of yellow aqueous eosin (Grubler's) and add this while stirring, to the cooled methylene-blue solution, in the proportion of 500 cc. of the eosin solution to 75 cc. of the blue solution. This should be done in a large porcelain dish. After letting the mixture stand for a few moments, filter through a small filter paper and save the residue, which should be dried in a hot-air oven and preserved.

The staining solution ready for use is then prepared as follows:

Take .3 gm. of the residue, which is a greenish crystalline powder, and add it to 100 cc. of pure methylic alcohol (Merck's reagent). This should then be filtered and to 80 cc. of the filtrate, 20 cc. of methylic alcohol added. The solution is now ready for use.

To stain, add a few drops of this solution to the preparation to be stained and let stand for two minutes, then add enough distilled water to cause a slight metallic scum to form on the surface of the fluid; then let stand for from two to five minutes, wash the preparation in running distilled water, and examine at once or mount in Canada balsam.

The Morphology of Intracorpuscular Conjugation: Estivoautumnal Infections.—I shall describe the process in detail as seen in this variety of malaria, as here it is seen most typically. In fresh specimens of blood I have seen conjugation several times, but it should be remembered that it is but rarely that the process can be observed in such specimens. As is well known, it is very common in specimens of blood from patients suffering from estivoautumnal infections to see red cells containing two or even more ring forms of the plasmodia; such parasites, however, are not always conjugating forms, although I believe that conjugation follows sooner or later in most of them. We must admit that in some instances the two parasites develop independently, so far as we can determine, for I have seen red corpuscles containing two plasmodia at different stages of development, and this is not uncommonly observed in tertian infections. In the fresh blood, conjugation commences with the gradual approach of the two parasites until finally they lie in apposition, the ameboid processes of the adjoining segments of the rings apparently merging, so that in a few seconds there is no distinction between the parasites at the point of apposition. Gradually more and more of the protoplasm of the parasites blend until at last, usually after a period of from 10 minutes to half an hour, conjugation is complete and only one parasite can be distinguished in the cell. Of course, in the fresh blood none of the structural elements of the parasites can be seen, so that the entire process appears to consist merely in the apposition of the plasmodia and their gradual union. It would appear as though, after the apposition of the two parasites, the limiting membrane of the organisms ruptured at the point of apposition and thus allowed the protoplasm of the two rings to unite, producing one organism.

Stained Preparations.—In stained preparations all the various stages of the process of intracorpuscular conjugation can be easily distinguished as the morphology of the parasites is thus rendered visible. In preparations stained by the method described, the ring form of the estivoautumnal parasite is seen to consist of three portions: The protoplasm, which stains blue; the chromatin mass, which stains a bright red, and the achromatic substance of the nucleus, containing the chromatin mass. The mass of chromatin is situated, before conjugation, at some portion of the periphery of the ring, generally at its most narrow part, but after conjugation is complete the united masses of chromatin lie within the ring, surrounded by the achromatic substance, outside of which lies the blue-stained protoplasm. For clearness in description, the process of intracorpuscular conjugation

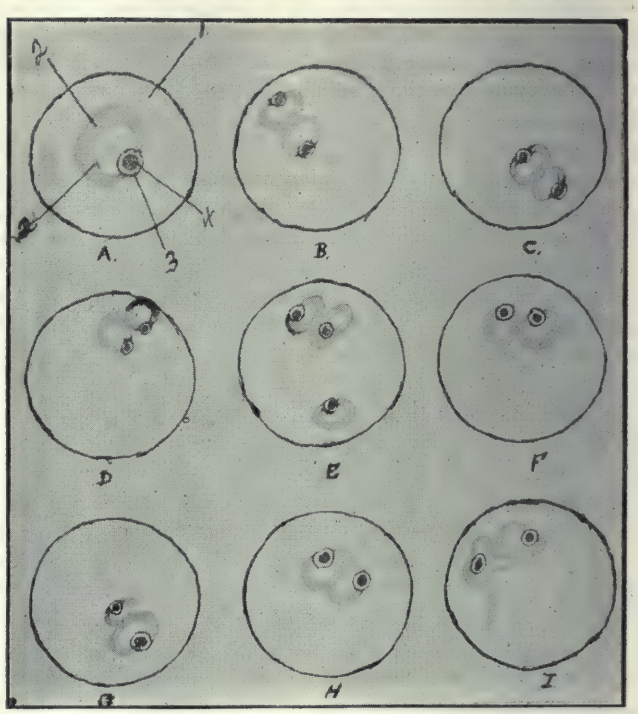


Fig. 1.—First stage of intracorpuscular conjugation (apposition of the protoplasm). A, diagram of stained estivoautumnal plasmodium: 1, red blood-corpuscle; 2, protoplasm of parasite; 3, achromatic substance; 4, chromatin. B to H, showing apposition of the protoplasm and situation of chromatin granules. E shows a conjugating pair and a single parasite. I, conjugation in tertian parasite showing ameboid process.

may be divided into three stages, but it should be remembered that there are many slight morphologic departures from the typical picture, which, so far as a clear understanding of the process is concerned, it is unnecessary to describe. In all the specimens, parasites are seen exhibiting the various stages of the process, but it is only observed when the young hyaline parasites are present.

First Stage.—The first stage of intracorpuscular conjugation consists in the apposition of two hyaline ring forms, and in stained preparations it will be observed almost invariably that apposition of the two parasites occurs at some portion of the ring remote from the chromatin masses. In other words, conjugation begins with the union of the protoplasm of the parasites, and

not by nuclear union. The chromatin masses may be situated at any portion of the individual parasite, but it is extremely rarely that they lie in apposition at this stage, and when they do, I believe that the parasites containing them are not true conjugating bodies.

Careful examination demonstrates that at the portion where the rings are in apposition there is a direct union of the protoplasm, as the blue stain is uniform at that point, and there is no evidence of the outline of the rings nor of overlapping.

I have been unable to detect any difference in the conjugating bodies as regards the staining reactions, but not infrequently one may appear slightly larger than the other, the reason for which I have already mentioned. The chromatin masses are always of the same size at this stage and stain a brilliant red, and both rings are distinct, except at the point of apposition. The various appearances presented are represented diagrammatically in Fig. 1.

Second Stage.—The second stage of this form of conjugation results in the complete union of the protoplasm of the two parasites, thus making the distinction into two ring forms impossible. By this union, the two chromatin granules become situated in the protoplasm of one parasite, and they may be placed opposite one another or at any portion of the periphery of the parasite, sometimes almost in apposition. The complete union

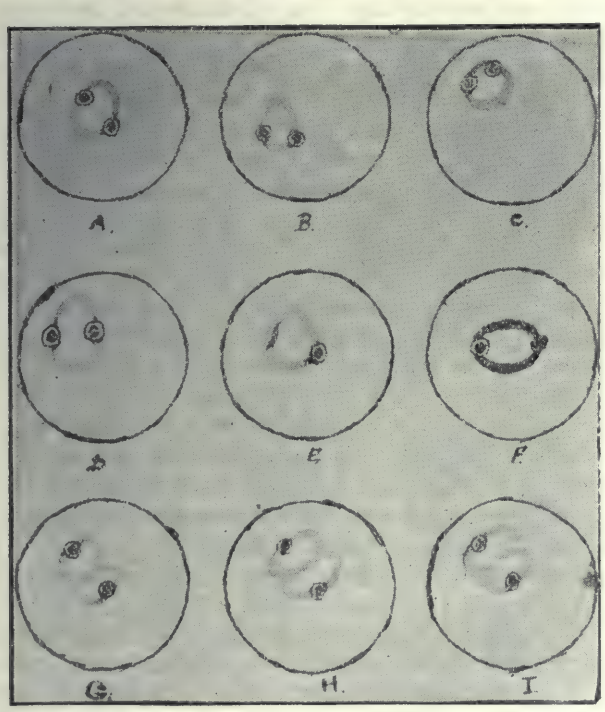


Fig. 2.—Second stage of intracorpuscular conjugation (union of the protoplasm). A to F, illustration of protoplasmic union, showing situation of the chromatin clumps and the loss of distinction into two rings. G to I, illustrating the union of the protoplasm of the two parasites leading to the formation of one ring by attenuation of a portion of the protoplasm when apposition occurs.

of the protoplasm of the plasmodia results in a more or less perfect ring-shaped organism, slightly larger than either of the original parasites, containing two masses of chromatin surrounded by achromatic substance, which are situated at some portion of the periphery of the ring, but not in apposition. Various stages of the union of the protoplasm of the two parasites may be observed, but the most common method appears to be by a gradual disintegration of the central portion of the adjoining segments of the rings until only a thin strand

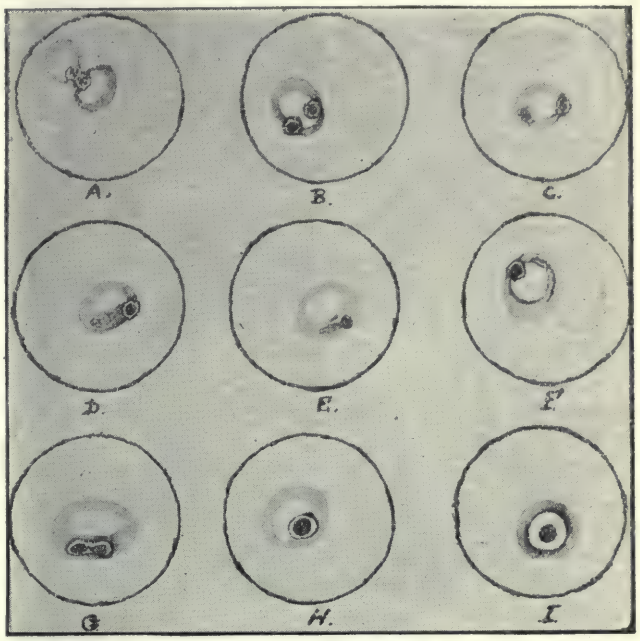


Fig. 3.—Third stage of intracorpuscular conjugation (nuclear union). A, false conjugation; primary apposition of chromatin. B, showing situation of chromatin clumps near together. C, D, E, various stages in the approach and union of the chromatin clumps, when situated far apart. F, showing the spreading out of the chromatin of one clump in process of reaching and uniting with the others. G, union when chromatin clumps are near together. H and I, situation of the chromatin clump after union is complete.

of protoplasm stretches across what eventually becomes one ring-shaped organism. This, of course, occurs upon the disintegration of the minute portion of protoplasm. This method of union is represented in Fig. 2.

It will be seen that after this union is complete, the clumps of chromatin may be opposite one another, or situated at irregular intervals in the protoplasm of the parasite.

Third Stage.—This stage of the process is characterized by the union of the chromatin masses, with the apparent exclusion, in many instances, of a very minute granule of chromatin before union is complete.

In many specimens, it will be noticed that the chromatin in one of the clumps instead of being collected in a compact mass, is separated into very fine filaments or granules, and distributed over a segment of the ring, thus bringing it nearer to the other mass of chromatin, which is compact in formation. This is the first stage of nuclear union, and is seen only when the chromatin masses are opposite one another or some distance apart. In rare instances, both masses of chromatin show thinning into filaments or granules.

In cases in which the chromatin clumps are near together, union is effected by a lengthening of the masses until they meet, while in the first instance mentioned, the thinned mass of chromatin apparently travels around the intervening segments of the ring

until it meets the other mass and unites with it. This movement is probably brought about by protoplasmic currents, which carry the chromatin in the desired direction.

After the union of the two masses of chromatin, which occurs almost always at some portion of the periphery of the organism, the chromatin takes up a position within the ring, generally perfectly central, and is surrounded by a well-defined achromatic zone, and this again by the protoplasm. The appearance of the chromatin after union is that of a very compact circular mass, which stains a brilliant red by the staining method described.

In many specimens a very small, dark-red grain of chromatin may be seen lying at some distance from the nearly united masses of chromatin, and it appears to have been thrown off from one of the chromatin clumps. Whether or not this is an essential part of the process of nuclear union, as it is in many of the protozoa, I have been unable to determine. However, it is by no means always present.

In all stained specimens showing the process of intracorpuscular conjugation the stages described can be easily recognized, and may, I believe, be interpreted as follows: The conjugating parasites unite at some portion of the peripheral protoplasm, the two chromatin granules remaining separate; gradually the protoplasm of the organisms unites, this union being followed by the union of the chromatin masses and the achromatic substance of the nuclei, and thus conjugation is completed.

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[2] Clinical Pathology of the Blood, 1903, p. 454.
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[4] Loc. cit.
[5] Loc. cit.
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[To be concluded.]

WHAT IS A POISON?

BY

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We have learned by observation that there are substances which, when swallowed in minute amounts, are capable of seriously injuring or killing living beings. Such substances are known to everybody as poisons. We know by experience that there are substances essential to life and health that can be swallowed in large amounts not only without injury, but with decided benefit to the taker. These constitute our chief articles of diet. Between these extremes lies a third class in which large amounts are dangerous, but in which small quantities are comparatively harmless. Of these some are used as foods, some as condiments, some as beverages, some as medicines, and there are people who call many of them poisons. This last group is the cause of much conflict of opinion. The growing tendency to call everything a poison that self-interest or bias wishes to cast opprobrium upon is a noteworthy trait of human frailty. The therapeutic nihilist classifies all drugs used in medicine as poisons. He thus seeks to carry to the minds of others the implication that they cannot be beneficial but must be injurious. Prohibitionists classify all alcoholic beverages as poisons, and some of them go so far in their condemnation as to declare that alcohol is so dangerous that it is sinful to prescribe it as a remedy. The opponents of tobacco are quite sure that it is a dangerous poison and that it is sapping the vitality of nations and crippling the vitality of the unborn. Antivivisectionists are positive that antitoxins are poisons, and antivaccinationists declare, with all the vigor at their command, that the vaccinator inoculates the systems of his patients with septic and other foul poisons. Socalled dietetic reformers tell us that coffee and tea, salt and pepper, spices and meats, are all poisons that should be eschewed by every sensible man and woman in the world. Many of the advocates of pure food measures denounce the protection of perishable foods from decomposition and from the development of disease germs by the aid of antiseptics as a poisoning of the food. They look upon borates, benzoates, and salicylates as poisons. Amid this babel of voices stand the laws of States and nations making the use of poisons in foods into misdemeanors or felonies. Druggists must comply with poison laws that forbid the sale of poisons except under certain restrictions and neither they, the judge, the jurors, the lawyer, the legislators, nor anyone else, can tell what are to be considered poisons and what innocuous substances until an accident occurs that ties them up in the meshes of the uninterpretable law. In multitudes of cases tried within our courts, medical men hazard opinions on what constitutes a poison, without due thought or study of the matter, and not thinking that they may be aiding in the establishment of a precedent on which the lives and liberties of others may hang. On the doctor's idea of what constitutes a poison may turn the decision of a judge or a juror that will bring penalties and odium on the innocent. On his ideas of what constitutes a poison may depend his treatment of some patient in his care. A false conception may make him injure instead of benefit his patient. The liberties and rights of whole nations may be shackled by false notions on this subject and the progress of science handicapped by the restrictions of legislation brought about by overzealous reformers. It is only a few centuries since that none but apothecaries dared to sell sugar, and they were compelled to dole it out in such doses as a mentally terrorized medical profession ventured to prescribe.

No one will deny that for an average man such substances as the toxalbumins, hydrocyanic acid, aconitin, atropin, strychnin, nicotin, morphin, digitalin, arsenic, and mercuric chlorid are poisonous when given to human beings in doses of a single grain or over. Some of them we know will kill an adult in doses much smaller than this. These are the kinds of substances that the majority of people think of when the word poison is mentioned in their hearing. No one ever questions the propriety of calling these by that name whether in the courts or in the streets. If we dilute any of these substances, or such of them as are used as therapeutic agents, until a teaspoonful of the mixture contains less than an average therapeutic dose, is the mixture a poison? If we use water, sugar, or starch with which to dilute, will the combination be a poison? If we take one of the most toxic of

the nonmedicinal and dilute it below the point where it affects the body in any way, is it still a poison? Is there any one of the poisons we have named that cannot be diluted down to a point where it becomes as harmless as the diluting medium? When thus diluted, would it still be a poison? In my estimation there can be but one reasonable answer to each of these questions, and that answer is an emphatic negative. A teaspoonful of sugar or water containing a mean medicinal dose of strychnin, arsenic, or morphin is not a poison. It is a medicine. A high dilution of abrin or of a toxin in which there is less than enough appreciably to affect the taker is not a poison. Every known poison is capable of being diluted to a point where it becomes as harmless as sugar, starch, or water. To deny this seems to me like flying in the face of all experience and courting a position that is wholly untenable for the medical profession. If poisons retain their power for evil in every possible dilution, then the practice of medicine must stand before the bar of reason as the practice of a crime. To administer as remedies substances that are ever potent for injury, whatever the dilution, cannot be defended. It might be contended that poisons are poisons in all dilutions to normal tissues, though not so to pathologic. If this is true, then we ought to possess some means of limiting their activities to diseased tissues only. When we treat an unsteady heart with digitalin or convallamarin, we ought to have some way of protecting every other tissue of the body that is bathed in the blood which contains these poisons. We ought likewise to have some means of protecting patients from the maladministration of such poisons, when imperfect and faulty diagnoses have been made, and we ought to refrain from administering potent drugs for their supposed tonic effects upon convalescents.

There are a number of substances the absence of which from the human body would mean death. They are essential to our existence as living beings. Some of them are exceedingly potent, and if administered greatly in excess of our bodily needs would assuredly prove disastrous. One of these is oxygen. At the ordinary pressure of the atmosphere but little, if any more than the body is capable of disposing of can, enter. By an increase of pressure the lungs are forced to take up more and supply an excess to the arteries. M. Paul Bert, the French savant, in a communication to the Paris Academy of Sciences, showed that by increasing the pressure this substance manifested decidedly toxic properties. Sparrows placed under a pressure of three and a half atmospheres of oxygen were seized with violent convulsions and quickly died. The same results occurred under a pressure of from 17 to 22 atmospheres of common air. Dogs were quickly killed with pressures of five atmospheres of oxygen, and on analysis of the animal's blood it was found that only twice the normal quantity of this gas was present. Is the blood in our bodies so laden with poison that it is poisoning us half as much in its normal condition as would put us into convulsions and kill us by a continuance of the condition? If a diluted poison is still a poison, then why does not the oxygen of our blood quickly manifest its toxicity? The fact is that normal blood is in no sense poisonous in spite of the fact that it continually contains half of a fatal dose in its composition.[1]

Another toxic substance, that exists in the body as an essential of life as we know it, is phosphorus. It is found in practically every part of the body existing as phosphorus in combination with the organic constituents, as glycerin-phosphoric acid, and as inorganic phosphates. Nuclein probably contains more than any other constituent of the body, samples of which, on analysis, have been declared to contain as high as 10% of this element in their composition. Foster[2] tells us that, "The element phosphorus seems no less important from a biologic point of view than carbon or nitrogen; it is as absolutely essential for the growth of a lowly being like Penicillium as for man himself." Will any person contend that the phosphorus that has thus united with the tissues of the body is acting as a poison? Will they hold that the organic compounds of phosphorus that gave up these phosphorus atoms to the cells were poisoning the blood when present as pabulum? If two such poisons as oxygen and phosphorus are not poisons, when within the limits of the body's normal power of disposal, why claim that any other substances are poisons when within the same limits? There is never the slightest evidence of any fatty degeneration due to a normal supply of phosphorus to the tissues, however it may be supplied. It is only when the amount of this element within the body has transcended the physiologic limit that mischief begins. Not the slightest evidence of destruction or degeneration of cell structure makes its appearance until this point has been passed.

Still another poisonous element that has every indication of being essential to life and wellbeing is fluorin. Dr. Howell[3] tells us that "It seems to be a necessary constituent of protoplasm." Is there anything to justify the supposition that poisons are always poisons, whatever the dose, in this wide distribution of fluorin in animal and vegetable tissues? Can an element that is an essential constituent of the cells of all sorts of organisms be acting as a poison in such cells? Can we fairly infer that it has the slightest toxic effect when present in the blood stream before being taken up by the tissues? Is there any reason why we should doubt its power for danger to the organism if present in amounts greater than that organism could readily utilize or quickly excrete? When ionized in solution, before absorption by the tissues, would it not have acted disastrously if the amount present had greatly exceeded the ability of the organism to get rid of it?

We come next to a fourth chemic element that has lately been experimentally proved to be a constant constituent of nearly every organ of the body, and to be present, in minute amounts, in practically every kind of food and drink. It is not likely that any person will question the poisonous character of arsenic. The long-continued researches of M. Armand Gautier concerning the ubiquity of this element has revealed the fact that it plays an important role in the human body, and that meat, fish, eggs, milk, bread, many vegetables, potatoes, wine, beer, salt and water always contain it.[4] Fish seem to have the largest supply of any food. The British Royal Commission appointed a few years ago to

investigate the epidemic of arsenic poisoning from which the English people suffered through their beer supply, found that it was not possible to produce beer absolutely arsenic free. So widespread is its distribution that they discovered that everything used in the manufacture of this beverage contained it. The malt, the hops, the purest spring water that could be procured, were all found to contain it. They were therefore, much to the surprise of many, compelled to suggest a minimum quantity beyond which it should not go.[5] Can any person imagine that the arsenic present in our tissues, or circulating in the blood stream, is exerting the slightest injurious effect upon us? Can anyone doubt the ability of this same arsenic to produce poisoning if increased to an amount much beyond bodily requirements and of the body's powers to excrete an excess, quickly? It is not a poison within proper limits. It is most assuredly a poison when it gets beyond these limits.

Leaving now the consideration of the chemic elements, let us turn our attention in the direction of some of the toxic compounds of the body. Most students of human physiology are well aware of the existence in saliva, milk and urine of potassium sulfocyanid. Why this poisonous body should appear in these secretions has led to a good deal of speculation regarding where it originated and what is its function. The explanation of its presence is curiously connected with the birth of organic chemistry. When, in 1828, Wohler showed that by merely boiling ammonium cyanate, urea was produced, he made the first step toward showing how highly probable it is that most of the nitrogen in the human body exists in cyanogen compounds. Pflüger[6] collected many facts that led him to attribute the properties of living proteid to the presence in it of the radical cyanogen. Foster[7] says: "Bearing in mind the peculiarly large amount of energy set free as heat during the isomeric transformation of many cyanogen compounds, as well as the large store of potential energy existing in cyanogen itself, the heat of combustion of which is very large, and contrasting these properties with those of ammonia and the ammonia compounds, we cannot help being tempted towards the view that in the actual living structure the nitrogen exists in the form of cyanogen compounds, and that in the passage to dead nitrogenous waste, during which energy is set free, the cyanogen compound changes to the amid or other ammonia representative." There is very strong experimental evidence that the waste nitrogen first appears in the blood as ammonium carbamid, and that out of this the liver produces the urea which is afterward excreted by the kidneys.

Let the reader pause and try to realize what a poison factory our bodies must be if these ideas of our leading physiologists are correct and if a poison is always a poison, whatever the dilution or whatever the quantity. Although ammonium carbamid is far from being as toxic as cyanogen, it is, nevertheless, poisonous enough to produce a vast amount of mischief should it increase to a point much beyond the liver's power to convert it into urea. While kept within the normal amount, is there any reason for us to believe that the body is injured to the slightest degree by the presence in it of its normal amounts of either the exceedingly poisonous radicle,cyanogen, or the less poisonous ammonium compound? But there are still other nearly end-products of metabolism, beside ammonium carbamate, that, in excess, would prove poisonous. Among these may be mentioned formic and oxalic acids. By being quickly converted into the less poisonous formates and oxalates and then excreted in the urine, the system gets rid of them. This keeps them from reaching the concentration in which they can act injuriously. Along with these is quite a list of poisonous putrefaction products like phenol, skatol, cresol, indol, methylmercaptan, and sulfhydric acid. No person is ever free from the action of some or all of these, and few are conscious of their presence in the system until an excess appears, followed by toxic symptoms. Even when we believe they are in excess, because of our symptoms, it is quite probable that such symptoms are not due to these, but to the far more poisonous toxins and ptomains that accompany them. In any case, we have no reason for believing that subpoisonous amounts are undermining or in any way injuring the system.

The number of poisonous substances formed by the body during normal metabolism is probably quite numerous. As physiologic chemistry advances, we are learning of new ones. Pfeiffer[8] tells us that "poisons are formed by the peptic digestion of fibrin." Kobert[9] tells us that the "peptotoxin of Brieger forms when albumin is peptonized." Neumeister[10] asserts that tyrosin is produced during tryptic digestion. Nencki[11] claims that methylmercaptan is the substance which gives the urine its peculiar odor after eating asparagus. We have already referred to potassium sulfocyanid as present in saliva and milk. Phenylalanin is a splitting product of albumin that is further decomposed in the organism.[12] Hydrochloric acid is formed by the decomposition of salt in the body. Bile evidently contains poisonous substances, for "the injection of bile can cause tetanus as well as coma."[13] The physiologic effects of the glandular secretions and the destructive power of the lysins on bacteria and blood cells show that these are powerful poisons. From suprarenal extract one of these has been isolated so that we can have some sort of an idea of their potency. Lesage[14] has experimented with this agent by intravenous injections. "In the dog the fatal dose when administered in this way lies between .0001 gm. and .0002 gm. per kilogram. The cat is more resistant to the action of the drug than the dog, the rabbit, or the guineapig. The fatal dose varies from .005 gm. to .00087 gm. per kilogram."

Next to these glandular extracts come the enzymes. The number of these that is being discovered is growing. No sooner does food enter the body than they begin their work upon it. Harmless as they appear in the diluted form in which they are found, experiment has made it clear that they are far from being the harmless substances that we had imagined them. In fact, they are now pronounced to be, like the hydrochloric acid of the gastric juice, dangerous poisons. Even in their diluted form, when introduced directly into the blood current, they show their power. The best known

of these that are found in the human body, are ptyalin, pepsin, trypsin, emulsin, rennin and invertin. Allbutt[15] tells us that when they are "injected into the animal body they produce rise of temperature, general disturbances, and death, acting not by means of fermentation, but as direct poisons." Oppenheimer[16] tells us that "pepsin, rennet, invertase, diastase, emulsin, and myrosin, all had toxic action." Again he says: "Ferments proved to be capable of arresting the action of the newly removed heart of a frog, and in general, showed the characteristics of true protoplasmic poisons."[17] Yet these are the substances by the aid of which food can be utilized by the body and life maintained. Without them, life, as we know it, would seem to be impossible. Can any person imagine the possibility of their being in the slightest degree injurious to the system, in the amounts in which they are absolute necessities of life's perpetuation? Are not two such conceptions mutually destructive and utterly contradictory? One might as well try to think of a crooked straight or a white black. Is it not perfectly apparent that, in all such instances, toxicity is wiped out by dilution and by environing conditions?

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[*To be concluded.*]

CEREBRAL HEREDITARY SYPHILIS.

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Although little is mentioned by many of the earlier pediatricians as to the occurrence of cerebral manifestations in hereditary syphilis, it has long been generally recognized that while it is less prone to attack the nervous system, it is capable of causing any form of nervous lesion that may result from acquired syphilis.

In an effort to determine its comparative frequency, Rumpf[1] found that among 70 children born of syphilitic parents, 9, or 13% developed affections of the nervous system, some dying in convulsions in the first months of life, and one at three years from meningitis.

Some observers, notably Rumpf and Fischel,[2] assert that many of these cases may not present the skin changes usually observed in the first few months, the specific poison remaining quiescent for a considerable time before cerebral symptoms appear. Virchow believed syphilis could localize itself in some undemonstrable diseased foci for ten years or longer, and then under favorable circumstances manifest itself.

Baumes,[3] in 1840, expressed himself as follows: "If syphilis exhibits its action on the nervous system, the children, without showing any external evidence of constitutional syphilis, may die at an early age in convulsions or suffer for a long time with disturbances of the nervous system." He cited the following cases, illustrating this point:

The father was syphilitic. The first five children, without any external syphilitic symptom, all died in convulsions between the second and seventh months. The sixth child developed, at four weeks, a pustular eruption, which was diagnosed syphilitic. In spite of mercurial treatment the child died a month later of atrophy. Thereafter the father was treated by inunctions. The seventh child, although presenting no specific symptoms, suffered from epilepsy from the earliest months.

Hutchinson[4] stated that "for practical purposes we must admit that a taint of inherited syphilis may remain latent until at, or even considerably after, the age of puberty it may manifest itself by a severe attack of interstitial keratitis, by deafness, nodes, specific lupus, or ulceration of the palate."

It seems probable, however, that in the absence of external evidence of hereditary syphilis, or syphilitic parental history, the diagnosis of specific cerebral disease would be attended at times with considerable difficulty, although Fournier[5] states that the cerebral manifestations that occur in hereditary syphilis are the same as those observed in the acquired. In the initial stage of the cerebral affection, the polymorphic character of the symptoms might make its diagnosis quite clear, but at later periods it might present a clinical picture not dissimilar to cerebral lesions due to other causes.

While the early skin lesions may not have occurred, or may have been overlooked, there are frequently present one or more phenomena characteristic of hereditary syphilis, and render the association of the nervous lesion with the hereditary taint probable. To Hutchinson are we especially indebted for work in this direction. His studies of changes in the sense organs and teeth in hereditary syphilis gave a special impulse to the study of nervous lesions in hereditary syphilis. He first pointed out the association of interstitial keratitis to congenital specific disease, and the characteristic changes in the upper permanent central incisors. In discussing the value of past choroiditis as proof of inherited syphilis, he says: "Among the symptoms to which we finally make appeal in cases of difficulty in the establishment of a diagnosis of inherited taint in children and young adults, is the evidence of past choroiditis. If in a case in which other facts are present which suggest suspicion, there is any evidence of old choroiditis, it is, I believe, often held to be almost conclusive."

Concerning the pathologic changes in these cases, Barlow[6] and Bury state that the most common brain lesion in syphilis in children is a diffuse affection of the cortex, in which certain of the convolutions become hardened and shrunken, and their cells atrophied in consequence of an overgrowth of neuroglia; that this condition may be secondary to a chronic meningitis, itself started by a syphilitic periosteitis or occurring independently, or may occur as result of a specific endoarteritis,

or gradually develop apart from either disease of the vessels or membranes.

Hydrocephalus is also sometimes attributed to syphilis. Virchow early described a case of congenital hydrocephalus in hereditary syphilis. Barensprung,[7] and von Sternberg [8] reported cases of hydrocephalus in hereditary syphilis. Heubner [9] found, in a case that presented the appearance of hydrocephalus, a pachymeningitis hæmorrhagica.

Waldeyer [10] and Kobner reported a case of gummatous periosteitis with exudative formations simulating pachymeningitis interna.

Ruffer [11] found hereditary syphilis mentioned in 20% of the reported cases of chronic hydrocephalus, including his own.

Chiari [12] related the case of a seven months' old child, born of a syphilitic mother. It developed ocular paralysis, hemiplegia, and epilepsy. Autopsy showed, beside thickening of the meninges and diffuse small areas of softening in the brain, the basilar and vertebral arteries were thickened and partially thrombosed. The carotids were also thickened.

Fournier reported a case in a girl of 10, born of syphilitic parents, presenting typic cerebral symptoms before death. Autopsy showed that in some spots the cranial bones were atrophied; in others hypertrophied; the meninges thickened, cloudy, and adherent to each other and to the cortex, which showed a high grade of softening. There were also softened areas in the white substance of the brain.

Money [13] related the autopsy findings in a boy aged 3½ years, who suffered from convulsions and became idiotic. There was osteosclerosis of the cranium, thickening of the dura, and also of the pia mater, atrophy of the convolutions with great increase in consistency. Specific endarteritis and partial thrombosis of the basilar arteries and middle cerebral; sclerosis of pons and cord were noted throughout.

Nettleship [14] described a case of cerebral gumma in a girl of 10. Dowse [15] also described a case.

Clinical Symptoms.—Cerebral syphilis in children often begins with convulsions of a severe type, seldom petit mal. Sometimes they recur uncomplicated, more frequently combined with headache, which is severe, with nightly exacerbations, dizziness, ringing in ears, change in disposition and impaired intelligence. Later on the epilepsy may disappear, in others it persists for years. Paralysis frequently develops in the form of hemiplegia. They often end as paralytic idiots. In the earlier stages, paralysis of the cranial nerves frequently occurs, especially the abducens and oculomotorius.

In addition to the motor paralysis and mental deterioration which characterize the later stages, sensory disturbances also occur—amblyopia, deafness, aphasia, etc.

Judson Bury [16] states that congenital deficiency of mind from inherited syphilis is rarer than mental failure coming on in childhood. He had seen syphilitic children whose mental faculties had never perfectly developed. Such children may subsequently be seized with eclampsia or other symptoms of brain disease. In the vast majority of cases, however, mental failure comes on in childhood, at an age varying from 5 to 10. They belong to the class of simple intellectual failure. They are passive, apathetic, deprived of memory, and do not understand what is said to them. In 40 of 90 cases of hereditary syphilitic brain disease, some failure of the mental function was noted.

The following cases forming the basis of this report present many symptoms and signs which could not well be accounted for, except by assuming syphilis as the etiologic factor:

CASE I.—Helen W., aged 23 months, was born after a five-hour labor by version. Mother died shortly after birth, evidently from hemorrhage. She is one of 11 children, one of whom was born dead; another is said to have died a few minutes after birth. A third child died at 3½ years of meningitis.

At about the third month it was noticed she did not use the right arm or leg much, and later did not seem to see well. She was unusually sensitive to sounds, any sudden, loud noise causing her to cry out. This condition has not varied up to this time. She began to sit up at a year old, but has never stood. She speaks a few words.

Examination gave the following: Patient is poorly nourished. Head, measuring 17¼ inches, presents prominent parietal and frontal bossæ. Fontanel open. Ears negative. Eyes show slow horizontal nystagmus on effort at accommodation. The left pupil is irregular in outline, the result of adhesions from an old iritis. The right pupil seems normal in outline and location. Both react promptly to light. There seems to be considerable impairment in sight.

Face: There are two linear scars on mucosa of lip. Face shows slight deviation on right side.

Teeth: Upper incisors have decayed and dropped off at margin of gum. Neck and spine negative. Lungs and heart normal. Abdomen negative.

Extremities: Right arm is held slightly flexed and close to side. Both right arm and leg are paretic and slightly spastic. No atrophies. Patellar reflexes present on both sides. No gross disturbances of sensation can be determined.

Ophthalmoscopic examination of eyes made by Dr. Hotz shows an atrophic choroiditis of both eyes, and optic neuritis most marked on the left side.

Although convulsions are frequent at onset or in the course of cerebral hereditary syphilis, none occurred in this case to date. No mention is made of epilepsy in a case similar to the foregoing, reported by Haddon,[17] and in another by Abercrombie. Haddon's case was in a boy of 10. Hemiplegia had occurred when he was a year and nine months old. He had interstitial keratitis and extensive choroidal atrophy.

Abercrombie,[18] in a clinical lecture on hemiplegia in children, stated that in four of his 50 cases of hemiplegia in children there was evidence of congenital syphilis, and there was good reason to attribute the paralysis to this cause. In three the paralysis dated from quite early infancy, having, as usual, been ushered in by fits. In the fourth case there was conclusive evidence of syphilis. This case was that of a girl of 6, who while walking in some fields had suddenly fallen down, and was then found to be paralyzed on the right side, and that side had been weak ever since. On postmortem examination a small, old, adherent thrombus was found in the middle of the longitudinal sinus. There was atrophy of the left hemisphere, the cortex and central parts both sharing in the atrophy. The meninges were

thickened and adherent over the left side, and the convolutions (chiefly the ascending frontal and frontal convolutions) were sclerosed. The middle cerebral arteries were diseased.

CASE II.—Helen N., aged 6, was admitted to Presbyterian Hospital January 1, 1905.

Family History.—Mother, who had a deformed spine and feet, died two years ago of pneumonia. Father is living and an alcoholic. One older sister is living and well. Early history of patient not obtainable.

For some time previous to present illness she was restless during sleep and cried out a great deal. December 31 last she was taken suddenly with a chill, followed by fever, became very delirious and passed into a semicomatose state inside of four or five hours. Entered hospital following day.

Present condition: Patient cannot be roused. Breathing slightly accelerated, but neither stertorous nor labored. She is well-nourished and of average size for her age. Lies on left side with head markedly retracted and knees flexed. No tremor or convulsive movements noticeable.

A diffuse maculopapular eruption, purplish in color, not disappearing on pressure, is distributed over the trunk. No evidence of injury on head. Flexion of latter is resisted.

Ears: Negative.

Eyes: Apparently a slight strabismus. Conjunctivas are injected. Pupils react to light. Face is pale; no paresis of either facial nerve. No herpes.

Neck: Chains of fine, pea-sized cervical glands palpable on both sides.

Thorax: Respirations 24 per minute. Over both lungs normal resonance and respiratory sounds. No pleural adhesions. Heart normal, but rapid—140 per minute. Abdomen full and apparently sensitive to palpation. Liver and spleen not enlarged. No hyperesthesia, spasticity or paresis of extremities. Kernig's sign present. Patellar reflexes slightly increased. Temperature, 104.8°.

Examination of urine: Acid, 1,030; urates abundant; no abnormal constituents.

Leukocyte count, 25,000. Counts made three and four weeks later gave 13,400 and 13,500 respectively.

January 3: Spinal puncture was made; 4 cc. of clear fluid obtained, fluid dropping slowly from canula. Cultures from this fluid remained sterile. Smears did not show any bacteria.

In the first few days she vomited frequently after nourishment, and was constipated. General condition continued the same, except patient could be more easily aroused, during which time she was very irritable and complained of headache. The eruption noticed on the body on entrance had extended to the face and extremities. January 6, paresis of left facial nerve was observed, involving apparently all three branches. The eye could be closed, but not tightly. About this time she complained of pain in the left eye, which had become markedly injected. The cornea appeared turbid and there was evidence of iritis.

This suggested at once a possible etiology for the cerebral symptoms present—that is, on the supposition that the eye changes were specific. The patient was referred to Dr. Hotz for examination of the eyes. He found an interstitial keratitis and iritis, and stated that the most frequent cause for same was syphilis. Both fundi were normal. About this time the rash had in great part disappeared, and the temperature curve, which was running quite high, now sought a lower level.

The child was immediately given antispecific treatment (mercurial inunctions and potassium iodid). She began to show some improvement in four or five days, in that there seemed less retraction of head and less resistance to flexion. She was clearer mentally, and the eye looked better.

The temporary improvement in some of the symptoms was interrupted, January 15, when the temperature again rose and assumed a markedly intermittent type, showing a difference of 6° and 7° in 24 hours. There were no chills. A Widal, made at this time, proved negative. The patient remained in a somnolent state the greater part of the time, but would complain greatly at night of headache, which she would often localize in the occiput.

Examination on January 28 gave the following: Flexion of head more restricted than two weeks ago. Strabismus has disappeared. Left eye has greatly improved. Paresis of left facial nerve less marked. Cervical and dorsal spine somewhat tender. Abdomen tender and tense. Liver and spleen not enlarged. Constipation. She continued gradually to improve. Temperature dropped to normal. The left eye, the seat of keratitis and iritis, cleared up entirely. Rigidity of neck disappeared. Facial paresis was slight.

Patient was discharged March 7. There still persisted a slight paresis of left facial nerve, and an internal ophthalmoplegia of the left eye, which exists at present.

Fournier relates Bartholemey's case:

A child of 3½, who was suddenly seized with anorexia, vomiting, photophobia, constipation, restlessness and insomnia, convulsions, and severe headache; loss of consciousness, contractures, and opisthotonos. In consultation, at end of four weeks, the diagnosis of tuberculous meningitis was made. Potassium iodid was given, and in a few days marked improvement was noted. Patient recovered in a month entirely. After ten years the child developed an affection of the right eye, which Barthelemey and Parinaud diagnosed as a hereditary syphilitic Hutchinson's keratitis. There were defective intelligence, deafness in one ear, Hutchinson's teeth, irregular position of teeth, early decay of same, and a syphilid were present. The mother acknowledged specific infection.

Wood[19] reported a case of chronic basilar meningitis, which he diagnosed as tuberculous, but in which recovery eventuated under the prolonged use of iodids. He concluded that although no signs of inherited syphilis were perceptible, the specific nature of the inflammation, in view of the results, could scarcely be doubted.

Sachs,[20] on the other hand, states specific disease which is a very frequent cause of acute and chronic meningitis in the adult does not play an important role in the meningitis of early life. He had not seen a single instance of acquired or hereditary syphilis in a child in which the diagnosis of a specific meningitis seemed most probable.

Holt[21] reports two cases of chronic basilar meningitis which he says were certainly syphilitic. One occurred in a child who had other manifestations of syphilis, and one patient was cured by antispecific treatment. In the other case it was confirmed at autopsy.

Referring again to my first case, I believe that there can be no doubt that the cerebral palsy in this instance is associated with specific cerebral disease, substantiated by the presence of an atrophic choroiditis. I would also call attention to the early decay of the teeth in this patient.

In Case II the semicomatose and later somnolent condition of the patient, the marked and persistent opisthotonos, and the severe headache, permitted the diagnosis of meningitis, and a meningitis involving the base

as strongly supported by the paresis of external rectus of left eye. The occurrence of an iritis and interstitial keratitis, which cleared up under antiseptic treatment, as did likewise the cerebral symptoms and the negative spinal fluid, argued strongly, as did likewise the multiplicity of symptoms, for a common etiologic factor, namely, syphilis. The cerebral affection seemed to be more extensive than the meningeal, as indicated by the peripheral paralysis of the left facial and the resulting internal ophthalmoplegia, suggesting nuclear changes. In Chiari's case the facial nerve was diseased. Nettleship reported a case of gumma of the cranial nerves. In this case, however, there was a high temperature, which at times was markedly intermittent, simulating a septic curve or a quotidian. However, at no time was there any evidence of endocarditis, as one might expect in a sepsis, nor did any focus of pus present. The blood was negative as to plasmodiums, and quinin was ineffective. There were, however, considerable tenderness of the abdomen; tympany, and constipation, with fecal impactions.

It is not improbable that we had a coincident bowel infection which might explain the increased temperature, although it is not necessary to seek this for the cause of the increase, as high temperatures are not altogether uncommon in cerebral disease.

Prognosis in cerebral hereditary syphilis will depend in great part on the character and extent of the pathologic change, its early recognition, and the energy with which antispecific treatment is employed. In gummatous meningitis and endoarteritis the patients can, as in the acquired form, recover apparently entirely, with restoration of function, if the nerve tissue has not been damaged beyond this point, when diagnosed early and treated. However, when a case comes under observation later, and cerebral softening has occurred, with its accompanying disturbance of function, but little can be expected of treatment. Even in cases in which the disease has apparently subsided and function has been restored, extensive changes may be found at autopsy.

The convulsions in hereditary syphilis may be controlled by antispecific treatment. Mental disturbance, although at times arrested and periods of quiescence supervene, shows, as a rule, a progressive tendency toward dementia.

Treatment is only likely to be useful during active syphilitic changes, and not in a case in which a brain has been damaged by syphilitic disease which was active months before.

As a prophylactic measure against subsequent serious nervous and visceral lesions, in cases of hereditary syphilis, they should be treated vigorously with the first appearance of skin symptoms by mercurial inunctions, and continued after all evidence of activity has disappeared. During this latter period, grey powder may be substituted for inunctions.

When nervous lesions have developed, in addition to inunctions, potassium iodid should be given. The latter, however, is sometimes not well borne by children, in which event it may be alternated with iron iodid, and, as previously noted, the treatment continued after disappearance of all symptoms.

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THE RESTRICTION OF CONTAGIOUS DISEASES IN CITIES.[1]

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Modern municipal sanitation may be divided into two periods. The first occupied the middle half of the nineteenth century and was dominated by the filth theory. The second extended from 1880 to the present time and its procedures were influenced by knowledge of the parasitic and transmissible nature of the infectious diseases. There was some truth in the old theory, and the facts of parasitism and contagiousness are incontrovertible; but the deductions from the facts were not entirely warranted. The watchword of the earlier period was municipal cleanliness, of the second period, isolation. We are now entering on a third period, in which our practice will not be based on wide generalizations. We shall study with greater care the mode of transmission of each disease, and shall strive to devise appropriate measures for each.

Municipal cleansing did much to diminish typhoid fever and cholera, and the isolation of the sick has doubtless had a similar effect upon smallpox, diphtheria, and scarlet fever. But as it can be shown that much municipal cleansing was unnecessary and ineffectual from a sanitary standpoint, so I believe, it can be shown that isolation and accompanying procedures are often ineffective and unnecessarily severe. In all this work we must remember that the measures taken are justified only by success. It is to diminish disease that the health department exists, not to enforce law. The constraint of citizens during contagious disease is not for punishment, but for the prevention of infection.

Isolation and disinfection, which for the last 25 years have been the chief weapons for fighting contagious diseases, were based upon the supposition that practically all infected persons could be reached and controlled during the period of infection. The experience of the last few years indicates that this assumption is entirely unwarranted. At the last meeting of this association, I attempted to show that the unrecognized sources of

[1] Read before the American Public Health Association, September 25 to 29, 1905.

infection, either well persons or those slightly sick, were often as numerous, or more numerous, than the recognized cases. The past year has furnished additional proof of this, and health officers show by their writings that they are coming to realize, more and more, the enormous importance of unrecognized cases in the extension of the contagious diseases. This new and important fact, that unrecognized sources of infection are the chief factor in the spread of disease, has not thus far modified to any great extent restrictive measures, but it must necessarily do so in the future. While it is true that modern science has rendered less burdensome isolation and disinfection in typhoid fever, cholera, plague, and particularly yellow fever, yet for the more common contagious diseases that we have constantly present in most of the cities of the United States, as measles, scarlet fever, and diphtheria, these measures have been applied during the last 25 years with increasing strictness. It may be admitted for purposes of discussion that of late years there has been in this country and England a decided decrease in the mortality from scarlet fever, diphtheria, and probably a considerable decrease in the incidence of these two diseases. It is probable also that the decrease has been due, in part at least, to the public health measures referred to. But, admitting this, it does not at all follow that the same ends might not have been attained by simpler measures, and neither does it follow that it is desirable to increase the stringency of these measures, or that by so doing there is any reasonable hope that these diseases will be eradicated, as is so often promised.

It will doubtless be admitted that the success of isolation in restricting the infectious diseases will depend upon the completeness with which all the sources of infection can be controlled. If all the foci of infection are controlled, the disease will be eradicated. If only a small proportion of the centers is known, probably no effect will be produced. If say half of the sources of infection are controlled, perhaps some appreciable effect will be produced on the prevalence of the disease, and perhaps not. In such diseases as influenza and pneumonia, there is reason to believe that the number of persons bearing the specific organisms is much greater than the number reckoned as sick. Yet restrictive measures in these diseases have been seriously urged. There is no reason to believe that their attempted enforcement would result in any diminution of these diseases. Cerebrospinal meningitis is another disease, the specific cause of which is, so far as our knowledge goes, widespread. Yet official isolation in this disease has been proposed and practised in a number of our cities, though there is not the slightest ground for thinking that the disease is in any way diminished thereby. In contrast with these diseases is smallpox. In no disease is the diagnosis so easy, or is such a large proportion of cases likely to come to the notice of the health officer. If isolation and disinfection ever accomplish anything, it must be in this disease. There is reason to believe that much has been accomplished and that numberless outbreaks of this disease have been checked by the labors of the health officials. But it must be remembered that in this disease we have in vaccination a powerful auxiliary to isolation, and that too much credit must not be given to the latter. It seems to me extremely doubtful if a widespread outbreak of smallpox in a large city could ever be checked by isolation and disinfection without recourse to vaccination. Indeed Bracken claims that this is never possible, and his contention that isolation in this disease should be abandoned, so that the public may be brought to realize the necessity for vaccination, has much to recommend it. But it is scarcely possible for us in the present state of public opinion to maintain such a position, and it is probable that for many years to come, isolation will prove a necessary and useful measure in this disease.

Between such a disease as influenza, where official isolation is of no avail, and smallpox when under present conditions it is often effective, are a number of diseases concerning which there is room for, and need of free discussion. First of all, it must be recognized that there are only two logical methods of dealing with these diseases. One is officially to do nothing, which is neither desirable nor practicable, and the other is to seek diligently for all persons and secure their isolation as long as infection remains. From what we know of the prevalence and duration of infection in well persons, it is evident that the latter is impossible. Only a middle course is possible, and this of necessity must be irrational, a compromise, and unsatisfactory.

Typhoid fever is a disease which is often transferred quite directly from one person to another. Recent civil practice, as well as the experience of the Spanish and South African wars, indicate that this is a much more common source of the disease than was formerly supposed. It has therefore been urged that isolation should be enforced in this disease somewhat as it is in diphtheria or scarlet fever, and some cities have resorted to placarding the house for this purpose. But it is not likely that anything is thus gained. Rather are erroneous ideas inculcated, and unnecessary fear excited. Better far is it to rely on teaching that strict personal cleanliness, by means of which the management of this disease can be conducted with reasonable safety.

Measles has received comparatively little attention from health officers, though at the present time, it is as important a cause of death as scarlet fever. Because so few cases are seen by physicians, and because the disease is infectious for several days before it is likely to be recognized, health officials have felt that there was little use in stringent measures of isolation. Children sick with measles are kept out of school for two or three weeks, and usually other children in the family are also excluded, though sometimes, and preferably, this applies only to those who have not had the disease. The closure of the lower school grades, particularly the kindergartens, whenever 5% to 10% of the children are infected, is sometimes done, and would appear to be a wise procedure. Placarding is occasionally resorted to, but whether it is a wise measure or not is an open question. As so few cases are seen by a physician, it is to be feared that the placarding of houses would result in a widespread concealment of cases. As a matter of fact, there is no evidence that restrictive measures thus far adopted have had any appreciable effect in checking this disease,

and it is difficult to believe that more stringent measures would be more effectual.

Whoopingcough presents an even more unfavorable public health aspect than measles. As a cause of death it is about on a par with measles. Like measles it does not seem to have been at all affected by public health measures. It is true that restrictive measures have not been energetically enforced in this disease, and owing to the fact that the diagnosis is difficult, that in many cases no physician is called, that the infection remains a long time, and we have no means of determining how long, it is very unlikely that any restrictive measures, however energetically applied, would accomplish much in diminishing this disease. The exclusion of the sick from school, the occasional closure of schools, and perhaps placarding, seem to be the only available measures.

In most American cities, scarlet fever and diphtheria receive more official attention than all the other infectious diseases together. This is because, until recently, they have been much more important as causes of death than have the other common diseases, and even now diphtheria is a serious disease. The mortality from both these diseases is very much less than it was, and this is usually attributed entirely to the restrictive measures adopted against them. That it is partly so due is probable, but I mistrust that it is, entirely brought about in the manner usually assumed.

It is becoming evident that we can not eradicate scarlet fever from our cities. At present the question of the value of hospital isolation in this disease is exercising our English friends. In many English cities, for 10 to 15 years, in a large proportion of the recognized cases of this disease, even as high as 80% or 90%, the patients have been removed to the hospital. Yet the disease is about as prevalent as ever in those cities, and not less so than it is in cities without hospital facilities. So too the cities in this country with large hospital facilities do not appear to have less scarlet fever than those with no hospitals, and cities which maintain isolation in the most stringent manner are no freer from the disease than are those where lax measures prevail.

In those English cities where from 80% to 90% of the patients are in the hospital, and the others are in well-to-do families where they are well isolated at home, the incidence of the disease continues year after year, not very different from what it was before hospitals were established. Everything points to the conclusion that the disease spreads not from the recognized cases, which are well isolated, but from the unrecognized sources of infection. The remedy then is not to render more burdensome the control of the recognized cases, but rather to make it lighter, so that there will be less temptation to concealment, and what is far more important, to devise means for lessening the danger from the unrecognized sources of infection. But this is a difficult matter which few have attempted.

For the management of this disease at the present time, I would suggest that the patient be separated from the public. In the majority of cases this can be done in the home. The easiest way to accomplish this is by a warning sign on the house. This not only keeps the patient in, and the public out, but it teaches that the disease is contagious. I believe that a considerable part of the decrease of this disease is due to the very general recognition of its contagious nature, and the warning sign has been an important factor in this education. Hospital facilities should be provided for those who cannot have decent care and isolation at home.

The most difficult problem is to determine the duration of isolation. Four weeks is, perhaps, a good limit. It may be that three weeks would do as well. I fully realize that some cases remain infectious for many weeks or months, but we have no means of determining the duration of infection. The desquamation is no indication; in fact, there is reason for thinking that the exfoliated epithelium is not infectious at all. Discharges from mucous surfaces are a better indication, but are not reliable. But the chief reason for not maintaining a prolonged isolation is that it is unreasonable and ineffectual, though of course individual cases will arise when it is advisable. It is probably necessary at present to exclude from school all the children of the family. Wage earners should rarely be interfered with. Instead of keeping them out of work I not infrequently intercede with employers to take their help back. As for official disinfection, which often is merely a fumigation which does not disinfect, it had better be omitted entirely. People contract scarlet fever from chance contact with persons not known to be infected. We can never teach them this and guard against it, so long as by fumigation we encourage the notion that it is infected things that do the harm.

When the antitoxin of diphtheria was discovered it was expected that the disease would rarely cause death, and when methods were devised for readily recognizing the diphtheria bacillus, it was thought that we would soon be able to exterminate the disease. Ten years have elapsed, but diphtheria is still the most serious of our common infectious diseases. Notwithstanding that the diagnosis and the determination of the duration of infection, are more certain than in any other disease, the application of the most stringent measures of isolation and disinfection, based on the most thorough bacteriologic examinations, do not appear to have been much, if any more effectual, than the very loose and uncertain methods practised 10 or 15 years ago. We have been steadily strengthening our restrictive measures, but with little avail. We were justified in doing this so long as we were justified in the hope that it was possible to control all or nearly all the sources of infection. We now know that this is impossible. The clinical and epidemiologic history of this disease, as of scarlet fever, indicates that it spreads almost exclusively from unrecognized sources. In scarlet fever we have only the clinical method of inferring the prevalence of unrecognized foci of infection, but in diphtheria we have also direct bacteriologic evidence that infected well persons, and slight sore throats, are far more numerous than recognized cases of the disease. Under these conditions the most stringent methods of isolation can never accomplish more than very moderate restriction. This is the teaching of experience. The history of the outbreak at the Willard State Asylum for the Insane in New York is most instructive in this connection. This outbreak

was most ably managed and well reported by members of this association. In a community of nearly 3,000 persons every one sick or well was isolated until three successive negative cultures were obtained from nose and throat. Disinfection was thorough, yet the outbreak lasted about four years. Such measures are, of course, impracticable in municipal outbreaks. If such thorough procedures are not feasible, and would rarely be successful if they were feasible, why not admit the limitations of enforced isolation, and reduce our requirements to a minimum? Reasonable procedures for the present might be to placard all reported cases, keeping up isolation on a time limit of say four weeks, to exclude all children from school, to permit most wage earners to go to work, to provide hospital accommodations for the very poor, to furnish free antitoxin and free bacteriologic examinations. Official disinfection may well be abandoned. Unless at least two negative cultures are obtained from every member of the family, and this is an impossible requirement, disinfection becomes a farce, and in any event there is little necessity for it, and its practise gives rise to false ideas as to the mode of extension of the disease, teaching that it is things, not persons that are to be feared.

The specific suggestions herein made for the restriction of our common contagious diseases are by no means intended as final. The only thing insisted on is that at present the tendency of sanitary practice in relation to these diseases should be reversed. Instead of constantly endeavoring to render isolation more complete, the effort should be made to reduce the restrictions to the lowest limit compatible with the object sought. This object is not the extermination of these diseases, for such an end is impossible of attainment. The object to be aimed at is not the absolute, but merely the approximate prevention of the extension from the recognized cases, and most of the danger from recognized foci of infection can be prevented by moderate measures.

I was asked to write about restrictive measures in cities, and it is to be remembered that what has been said applies only to cities. In small communities which have been free from the disease, the appearance of one or a few cases demands entirely different treatment. Under such conditions the most stringent measures are called for, and will often be successful in checking the outbreak. So, too, when a rare disease like plague appears, even in the largest cities, stringent measures are needed. It is only when the virus of a disease has become widely distributed that the common methods of management become ineffectual and therefore unnecessary. It is well to remember the words of a prominent English health officer that "while one can stamp out a spark, it is not possible to stamp out a furnace."

Antitoxin for Mushroom Poisoning.—An antitoxin for mushroom poisoning has been discovered by W. W. Ford, instructor in bacteriology at the Johns Hopkins University, Baltimore. He obtained the toxin by boiling and filtering the poisonous species of mushroom, and with this he immunized small animals, using the same process as employed with diphtheria antitoxin, thus securing a protective serum. As yet the substance has not been used in a human being.

THE URETERAL CATHETER AND ITS IMPORTANCE IN DIAGNOSIS AND TREATMENT OF KIDNEY LESIONS.[1]

BY

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One of the most important subjects of the day, and one which has caused a vast amount of discussion, both *pro* and *con*, is that of cystoscopy and ureteral catheterization. The cystoscope has been used for years by surgeons the world over, but only recently has it gained so in importance that the procedure of examining the bladder and catheterizing the ureters for diagnostic purposes and for applying treatment to the bladder and kidneys is classed almost as a separate branch of urology.

The cystoscopes used today are all modifications of the Nitze and there are two distinct varieties, one fitted with a prismatic lens, the other with direct vision lens; the former is rather a complex instrument, causing an inverted telescopic picture which occasionally gives rise to difficulty in its use. In this instrument the lamp and the catheter tubes are constructed in one piece, which necessitates the use of a rubber catheter for the purpose of irrigating and filling the bladder prior to the passage of the cystoscope. While in the other instrument the telescope and catheter tubes are made in one portion and are independent of the lamp-carrying part, and fit into it after the canula or mantle, as it is called, is removed. The mantle simply fills up the space for the telescope, making it smooth and even at the elbow for the purpose of passing the instrument. After it is in place the mantle is removed and the bladder can be flushed and filled directly through the barrel of the cystoscope, and being less complex in structure it is easier to handle, the ureters can be catheterized more rapidly and with greater comfort to the patient. In my hands the cystoscope of Dr. Winfield Ayres has proved the most satisfactory and causes the patient less discomfort than any other I have used. It is constructed with direct vision lenses, the telescopic picture is larger, allowing a wider view of the bladder walls and hence the ureteral orifices may be more readily picked up.

The technic of the procedure is exceedingly important. Rigid asepsis must be the rule. The instrument should be thoroughly sterilized by immersing it for five minutes at least in some antiseptic, preferably a solution of mercury oxycyanid 1–1,000. I have given up the use of formalin as it is too irritating to the hands. The mercury oxycyanid solution is stronger in its action and absolutely nonirritating to the hands or to the membranes of the urethra or bladder. It has no deteriorating action on metal instruments whatsoever. The catheters may be sterilized in the same solution but when not in use I keep them in formaldehyd gas.

In the male the glans penis and the meatus should be washed and rendered sterile, while in the female the urethral orifice and the vulva should be cleansed. The

[1] Read before Medical Society of Norwich, Conn., October, 1904.

hands of the operator are sterilized by any of the ordinary methods.

The patient is placed upon the table in the lithotomy position with the hips slightly elevated, to prevent the fluid from escaping from the bladder alongside the instrument and the catheters. The lamp must be tested before passing the instrument into the bladder, which, upon removing from the oxycyanid solution, is lubricated with sterilized glycerin, or other lubricant, and passed into the canal much the same as an ordinary metal sound, but owing to the short beak, when the prostatic portion of the canal is reached, the outer end must be carried well down between the patient's thighs, thus allowing it to slip easily through the prostatic urethra into the bladder. If the direct vision cystoscope is used, the bladder is filled with oxycyanid solution, 1–5,000, directly through the instrument, it being necessary that the bladder should hold at least 6 ounces of fluid to allow of an examination. This being done, the telescope and catheter carrying portion is inserted, the current turned on and the bladder illuminated. The instrument should be tilted in such a manner that it has an inclination of about 30° to the horizontal, it may then be drawn back and forth when the ureteral orifices will usually appear as small oblique slits, cavities, or small papular prominences, or again they cannot be readily seen until they emit a spurt of urine. If the fluid in the bladder is at a lower temperature than the urine, the spurts have the appearance of distinct vibrating whirls. When located, the catheters are gently inserted and carefully pushed upward until the tip is in the pelvis of the kidney.

Occasionally the urine fails to flow through the catheter at all, and when this occurs it is probably due to a small bubble of air being retained in the catheter. This may be expelled by the patient giving two or three violent coughs, when the flow of urine will occur. The instrument may now be removed and the catheters left in place, thus allowing the urine to be drawn from the separate kidneys; this is collected in two sterilized bottles or test-tubes for the purpose of microscopic and chemic analysis. If the catheters are of two different colors, it can be readily discerned which drains the right and which the left kidney. The urine should stand for about 12 hours, to allow the sediment to accumulate at the bottom of the tube, and this sediment should be used for the microscopic examination.

Epithelial cells in the urine denote a pathologic condition, except the presence of bladder or vaginal epithelial cells in small numbers; these, of course, are not to be found in the specimens drawn directly from the kidneys; therefore the presence of epithelial cells in these specimens, together with pus corpuscles, is indicative of an inflammatory condition in the upper urinary tract, and the variety of epithelial cells signifies the exact location of the lesion, namely, cells from the ureters show the lesion present in the ureters; from the pelvis of the kidney it indicates pyelitis, and from the tubules of the kidney it denotes a beginning nephritis. When casts and albumin appear together with pelvic or renal epithelial cells, a distinct pyelonephritis is present. From the examination of a large number of urines drawn from the pelvis of the kidney it has been proved that a nephritis rarely exists without an accompanying pyelitis, and that very frequently one kidney is involved to a greater extent than the other.

The separate specimen of urine is significant in many ways. From its examination the exact condition of each kidney may be diagnosticated and a pyelitis or pyelonephritis may be accurately studied. Is it not evident, therefore, that the ureteral catheter is important in that its use will inform us as to the condition existing in the kidneys, whether or not one or both kidneys are involved, and to what extent the pathologic lesion occurs? It also informs us whether there are two kidneys present; this is important, because there are a number of cases reported in which the only kidney was removed, resulting in the death of the patient; nephrectomy should, therefore, never be performed without definite knowledge as to the extent of the pathologic lesion in the diseased kidney, and the exact condition of the other, if it be present.

Inflammatory conditions of the ureters, the pelvis or the kidney are diagnosticated from the microscopic findings. It is desired here to differentiate between the distinct purulent condition and a catarrhal inflammation. The condition here described as catarrhal pyelitis is evidenced when the microscope shows epithelial cells from the renal pelvis, either superficial or deep, with the presence of little or no pus, together with mucus. Pyelonephritis signifies a similar condition with epithelium from the tubules, albumin and frequently casts. These are the cases in which treatment by pelvic lavage is giving good results. Lavage is performed by injecting through the catheters, antiseptic solutions. It should be practised with the greatest precaution. A glass syringe of about 100 cc. capacity should be used, fitted with a needle which will pass into the end of the catheter; then with gentle pressure not more than 5 cc. or 10 cc. should be injected at a time and this allowed to run out before it is repeated. Frequently if a larger amount is given it will cause considerable pain, but, however, after a few treatments a patient will stand as much as 30 cc. or 40 cc., but this must be administered very slowly and on the least sign of pain discontinued and the pelvis allowed to empty itself before repeating the injection. I have seen a very severe colic follow a large injection into the pelvis, which could only be relieved by hot applications and morphin. When this occurs it exaggerates the condition and no benefit is derived from the lavage.

It is my practice to employ silver nitrate or some of the other silver salts. Silver nitrate and protargol have proved the most efficacious.

A solution not stronger than 1 to 8,000 of the silver nitrate in a saturated solution of boric acid should be used at the first treatment, but the strength may be gradually increased up to 1 to 2,000 or even 1 to 1,000 in successive treatments. In purulent cases it may be used very much stronger from 1 to 1,000 to 1 to 500. These solutions must be given at the temperature of about 100° F. Upon withdrawing the catheters the injection is continued, irrigating the entire length of the ureters. After the patient has emptied the bladder, the urethra and the bladder are washed with a solution of silver nitrate about 1 to 5,000 in strength by the Janet method, thus overcoming any chance for infection or urethral chill following instrumentation.

At each catheterization a sample of urine should be collected for microscopic examination, and a careful record kept of the findings, as this is the only manner in which the condition of the kidneys can be ascer-

tained and will indicate whether or not the patient is improving.

Stone in the ureters or pelves may be proved, after the microscopic findings indicate its presence, by passing a wax-tipped catheter, which will show scratch marks caused by the edges of the calculus.

Strictures of the ureters are occasionally met by the failure of an ordinary size catheter to pass upward into the pelvis. No. 4 or 5 French is about the proper size to use. It must be remembered that the lumen of the ureter is slightly constricted at three points, a muscular constricture at the entrance into the bladder, another where the ureter passes over the brim of the pelvis, and a distinct narrowing about an inch from the pelvis of the kidney.

We have all had patients under our care who gave the history of frequent attacks of gonorrhea covering a period of a year or two. These attacks have been diagnosticated time and again as new infections, but if a careful history of the case had been taken it would be found that the patient has had, almost invariably, dating from the first attack, a discharge from the urethra, commonly termed gleet; this, as you all know, is the cardinal symptom of chronic urethritis. The seat of this chronic condition has been localized by some authorities in the posterior urethra, from which point it may travel forward into the anterior canal into the prostatic sinuses, causing chronic prostatitis; into the seminal vesicles, causing chronic inflammation there, or into the bladder, resulting in a chronic cystitis. Very few trace the infection further. Is it not evident that the infection will travel into the ureters and hence into the renal pelvis? This is exactly what does occur, for in a large number of patients with obstinate urethritis now under observation the majority have inflammation of the entire urogenital tract, as indicated by a careful microscopic examination. Certainly, treatment of the lower portion of the tract will not cure these patients. The condition may improve, but there will usually be a relapse. The only thing to be done is to treat the entire tract, beginning with the pelvis of the kidney; this is washed out with the silver solution already mentioned. The patients will rapidly improve and will soon be discharged cured. I will only take the space required to report two or three interesting cases in detail:

Mr. S., aged 29, unmarried, presented himself June 3, 1903, with the following symptoms: Eight years prior he had gonorrhea, which lasted for about eight months He felt perfectly well until about four years ago, when he began to have trouble: Pain along the urethra on passing water, which continued after the act; slight mucus discharge, which occasionally disappeared, and slight pain in the lumbar region.

Examination: First specimen of urine contained shreds, second was clear. Prostate small and hard. Seminal vesicles enlarged and tender. Meatus 18 French and a congenital stricture behind the fossa navicularis. Urine contained pus, but no albumin. Discharge showed no gonococci.

Treatment: Meatus and congenital stricture was cut to 31 F. Later, upon examination, a deep stricture was found 22 F. The canal was dilated, prostate and vesicles were massaged and the bladder and urethra irrigated. In October he was discharged as cured.

Three months later he returned with all the old symptoms. I carried out the same line of treatment and in two months he was discharged again. He again returned in a short time and examination showed a similar condition. The patient had been living a very careful life as he was anxious to become married. At this time a careful microscopic examination of the urine was made which showed a marked inflammation of the pelvis of the kidney and the entire urinary tract. A catheterizing cystoscope was passed. The bladder showed no marked signs of cystitis, but the trigone and ureteral orifices were swollen and inflamed. The catheters were inserted and the pelves of the kidneys were irrigated with a 1–5,000 silver solution.

The microscopic report of the urine drained from the kidneys was as follows: Right side, many cells from pelvis both deep and superficial and a large number from the tubules, some little pus but no casts; left side, a few blood cells, many pelvic epithelial cells, deep and superficial, a few from the tubules, no pus and no casts.

The patient was treated 17 times but the last three examinations of urine came out perfectly clear, showing no epithelial cells of any kind, proving the kidneys free from pathologic lesions. He was discharged on probation and told to return in a month, and at that time the urine was still perfect. Patient when last seen was free from all symptoms and was feeling perfectly well.

Mr. L., aged 27, unmarried. Patient presented himself March 29, 1904, with the following history: Two and a half years prior to his first visit he had an attack of gonorrhea which lasted six weeks. One and a half years ago he had an attack lasting two months. Present condition began six months ago. He now has a slight continual discharge. No pain nor frequency in urination. He has pain in the back, testicles and thighs.

Examination: First urine contained shreds and plugs. Second a few prostatic points. Prostate enlarged, soft, flabby and tender. Vesicles normal. Stricture at the bulb 22 F.

Microscopic examination of the urine showed epithelial cells from the entire urinary tract and the pelvis of the kidney as well. A trace of albumin was also present.

Treatment: The stricture was dilated until I was able to pass the cystoscope. I catheterized the right ureter, but was unable to pass the catheter more than about an inch into the left ureter. Microscopic examination of the separate specimens of the urine showed right kidney few pus cells, many pelvic epithelial cells, moderate amount of epithelium from the tubules, a trace of albumin but no casts. Left kidney, large number of blood cells, cells from the ureter, few pus corpuscles, large number of pelvic and epithelial cells from the tubules. No casts but trace of albumin. The blood was probably due to trauma caused by the manipulation of the catheter. Lavage was performed by injecting through the catheters a solution of silver nitrate 1 to 8,000. A few days later I again cystoscoped the patient and passed a bougie through the constriction in the left ureter and followed it by a small catheter. The patient rapidly improved and after 22 treatments were given was discharged upon probation and told to return at the expiration of two months. Upon presenting himself at that time his ureters were again catheterized, a specimen was collected, microscopic examination of which proved specimens free from all pathologic elements.

In another case a physician had a chronic discharge for several years, the entire urogenital tract was involved, as proved by the microscopic findings. After a pelvic lavage the discharged ceased and he has been entirely free from it since that time. This, however, is not the rule, but several washings must be done before any great benefit is derived.

It is certainly remarkable how some patients who have been suffering for years have improved under this line of treatment. In conjunction with Dr. Winfield Ayres, I have treated 28 patients with pyelonephritis. The urine in these cases contained albumin, pelvic epithelial cells, as well as epithelium from the tubules. All were treated by pelvic lavage; 17 have been absolutely cured, urine reports showing no albumin or epithelial cells, while 11 have shown marked improvement.

Several months have elapsed since reading this paper and not one of the 17 patients has returned complaining of the old symptoms. All of the 11 cases, however, in which at the time referred to the patients were still under treatment, have cleared up and the patients have been discharged, with the exception of one or two, who have been careless in regard to taking treatment regularly, and also as to following directions for mode of living.

Several patients with chronic nephritis, seen with Dr. J. W. Pulley, of Bellevue, treated by pelvic lavage, have all improved to some extent, but have been so irregular in presenting themselves for treatment that the results have not been entirely satisfactory, consequently I will not attempt to report them in detail.

From the foregoing remarks it is evident that the ureteral catheter has a very important place in surgery, both as regards treatment and diagnosis. In an article by Guiteras, read before the Urological Society, at the annual meeting in New Orleans, he states: "To be perfectly frank, I believe that the objections against ureteral catheterism on the part of eminent surgeons are due to the fact that the procedure is one of the most difficult methods of diagnosis yet devised in any branch of medicine or surgery, and that many surgeons feel utterly helpless with a cystoscope in the bladder when they are unable to see the orifices of the ureters, much less to catheterize them. Anyone who has had experience in examining the posterior nares or the retina by reflected light can understand how difficult it is to become proficient in these two methods of examination, and yet they are as child's play compared with the examining and catheterizing of the ureters."

From an experience covering several thousand catheterizations, I feel perfectly justified in saying that the procedure is not nearly so difficult as claimed by many. However, it is not desired to give the false impression that ureteral catheterization is simple. It is a fact that when rigid attention is paid to technic and asepsis and the choice of a proper instrument, there need be no fear of dangerous after-complications.

I cannot entirely agree with some of the authorities when they state that a catheter should never be inserted in the pelvis of the kidney when that organ is involved by any inflammatory process. I have yet to see any untoward conditions arise from catheterizing a pyelonephritic kidney or one affected with a chronic inflammation.

The conclusion, then, at which we arrive is that the catheterizing cystoscope will be of far greater value in the future, when its manifold advantages are more clearly demonstrated and accepted by the general practitioner and the specialist.

MISCELLANY

THE PLACE AND WORK OF THE SMALLER HOSPITALS AND TRAINING-SCHOOLS.[1]

BY

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From some things I have heard, I gather that there is an impression prevalent that I intend to offer apologies and ask favors for the smaller hospitals and training-schools. Nothing could be further from my purpose. The smaller hospitals and training-schools need neither apologies nor favors, they do ask that they will have simple justice. They have come to stay, because they fill, not a long-felt want, to be sure, but what is more important, a long-existent and urgent need, because they are doing a good work and doing it well, not so well, but better than it can be done by the larger and more imposing hospitals and training-schools in the large cities.

In the matter of mere geographic convenience these small hospitals afford a means of saving life and limb in numerous emergency cases which would be lost before the patients could reach a large hospital in a large and relatively distant city—so that, even if their facilities for caring for patients were notably inferior to those of the large hospitals, their greater convenience of location would, in many instances, suffice to turn the balance in their favor. In many of the smaller hospitals, however, the facilities are fully equal in quality to those of the large hospitals. They cannot care for so many patients at a time, but they can care for those they do receive with all the refinements of modern medical and surgical art quite as well as the large hospitals can. I have said they fill, not so much a long-felt want, as a long-existent and urgent need, this because the need was not recognized as a want till the value of hospital care had been demonstrated to a reluctant public.

This is well shown by the records of the hospital with which I have the honor to be connected, the Brooks Memorial, of Dunkirk, N. Y. It is now in its seventh year, and the number of admissions has increased from year to year, till those for the last six months are nearly double those of the first 12 months.

Dunkirk is a small manufacturing city, with a somewhat variable population, running from 15,000 to 18,000. A large proportion of its inhabitants are of the laboring class and of foreign birth, good material for citizenship, but not yet up to the American standard in matters of personal sanitation, bathing, ventilation, etc. They bring with them a rooted horror of hospitals in general, born, it may be, of painful experience of themselves or friends in some of the great hospitals of Europe. They are poor, but are far from being paupers. A hospital should not, and the Brooks Memorial does not do anything which would tend to pauperize them. Another large class of our population consists of skilled mechanics, mostly young married men, who can earn, in good times, from $12 to $20 per week. They, like the former class, are exposed by their occupations to serious accident, and from these two classes come the great majority of our emergency surgical cases. That a man seriously crushed or burned, or both, has a better chance of recovery in a small hospital which he can reach in a few minutes after the accident than he could have in a larger hospital which he could reach only after some hours and by means of a railroad journey of 40 or more miles, is too axiomatic a statement to need demonstration. That his chances of recovery are much better in

[1] Read before the semiannual meeting of the New York State Nurses' Association, Niagara Falls, N. Y., October 18, 1905.

the small hospital than they would be in his own home is almost equally self-evident. Then we have, of course, a very considerable merchant and professional class, but except for emergency cases, like appendicitis, and an occasional accident case, they furnish comparatively few hospital cases, though they are gradually learning that a well-appointed small hospital offers comforts and conveniences in acute disease hardly to be equalled in the most comfortable home, and are beginning to look upon the home hospital as a welcome haven of refuge in acute disease, as well as in cases requiring surgical treatment. The neighboring villages and the surrounding country, with their large and in the main prosperous population, furnish a steadily increasing number of applicants for hospital care.

Now, as to the relative care which can be given to individual patients in large and small hospitals, respectively. The small hospitals have, necessarily, smaller wards, and, in consequence, the ward patients can, and do, get more care than is possible in a large hospital, where from 20 to 50 patients are congregated in a single ward under the care of two or three nurses. The depressing effects of a large number of sick or injured persons confined in a single room, where the groans and cries of each are reflected upon and multiplied in each other patient, are avoided. There is more of human interest, too; each one of the few patients can be, and is, regarded by physicians and nurses less as a mere case and more as a patient than is possible in the large hospital.

As for equipment, the smaller hospitals, many of them at least, will compare very favorably with the large ones. For instance, in the Brooks Memorial we have an operating-room with a floor capable of being made thoroughly aseptic. It is hard as iron and as waterproof as glass, and the entire floor and eight inches of mopboard are one piece of smooth, hard, waterproof cement, without crack or crevice for germs to lurk in. It is not so pretty as the floors of tiny tiles arranged in ornamental patterns that I have seen in the operating-rooms of some of the large hospitals, but it is far more easily kept aseptic. Indeed, I doubt if such ornamental mosaic tile floors can be made aseptic, to say nothing of keeping them so. The instruments, apparatus, etc., can be, and in many instances are, quite as good in the small hospital as in the large one, and the same is true of light, heat, and ventilation. Where then is the advantage of the large hospital? True, it may have upon its staff men of wider reputation, but that does not necessarily imply that they are men of really greater knowledge, skill or resource than their less widely-known colleagues in the smaller hospital. Indeed, I feel sure, that under given conditions, a patient has a better chance of recovery in a small hospital near his home, under the care of his own family physician, whom he knows and in whom he has confidence, than he would have in a large hospital in a distant city under the care of some distinguished physician or surgeon, who, though his name may be a household word in the mouths of his professional brethren, is a stranger to the patient, who justly or unjustly, is apt to look upon him with more dread than confidence, and who is also quite apt to complicate his original disorder with symptoms of nostalgia, often sufficient to retard, and in some cases, to prevent recovery.

I believe I have sufficiently demonstrated that the small hospitals fill a place which cannot otherwise be filled and do a work that cannot be done except by them, and have thereby made good their claim to continued existence and support.

Now as to the smaller training-schools—they are necessary to the continued existence and usefulness of the smaller hospitals, and for that reason, if no other, have a right to exist. But, in point of fact, their claims to continued existence and recognition are based chiefly on other and stronger grounds, viz., that, for the practice of private nursing outside of the larger cities, they afford better training than can be, or at least is, given in the large hospitals. It hardly needs demonstrating that a superintendent can give more individual personal instruction to each member of a class of five than to a class of 50, and the same holds good of the teaching members of the medical and surgical staff. Then, too, in the smaller hospitals the student nurses get a more varied experience, and under conditions more closely approximating those under which they must hereafter practise their profession as private nurses. They do not spend six months in a surgical ward, seeing meantime no medical cases, another six in a medical ward, seeing no surgery cases, but must take the cases, medical, surgical, gynecologic, etc., just as they come into the hospital and just as they would come in private practice. Further, in the latter part of their course, they must actually assist in the operating-room, taking their share of the work and responsibility and actually doing the things needful themselves. The smaller number of patients permits of more individual attention to each; closer and more accurate observation of symptoms; and of greatest importance, permits the nurse to do many little things for the patient that she would have to do in private practice; things which she should learn to do in the hospital, but which the greater number of patients in the big hospital renders impossible. Then, too, in the small hospital there is more chance of retaining more of the humane element; not that there is less science, but there is more sympathy.

So far as courses of study are concerned, the smaller training-schools, some of them at least, have no reason to dread comparison with the larger ones. I looked up this matter of courses of study in some large hospitals a short time ago, and was surprised to find that in one there was no regular course of lectures to the student nurses by members of the medical and surgical staff. "They just give clinics on whatever happens to be in the hospital." In another, the course is not graded, juniors, intermediates and seniors all attending the same lectures at the same time, if they are not on duty. On the other hand, there has been a growing tendency in some of the larger hospitals to follow the plan of our common schools, and fill up the course with a great variety of subjects, not all of which are necessary, to teach many things superficially instead of a few necessary things thoroughly. One school devotes a large number of lectures to "physiologic psychology," another has an elaborate course in "bacteriology." Of course there is no particular harm in these studies *per se*, but they take up time and strength that might be much better devoted to things which are necessary.

At present, a student nurse has three years in which to get her training, and, unlike the student at a literary college, she has not all her time free for study, but must devote many hours each day to hard work at the practical part. This leaves her little enough time and strength for the study of essentials and none at all for such "mint, anise, and cummin" as "physiologic psychology" and "bacteriology."

Beyond the general principles of the germ theory of disease, and of the principles of sepsis, asepsis, and antisepsis, what time has a nurse for the perplexing details and difficult technic of bacteriology? If a physician or surgeon wishes information in regard to the bacteriology of a given case that is beyond the scope of his own knowledge, skill, or apparatus, he is not going to ask the nurse to leave the care of the patient while she makes plate cultures, tube cultures, differential stainings, microscopic examinations, and all the elaborate ceremonial of Koch, Löffler, and others. On the contrary, if for any reason he cannot or will not do it himself, he will have it done for him by a bacteriologist and leave the nurse to attend to her important legitimate task of caring for the patient, seeing that his orders are obeyed, and that solicitous friends do not nullify his efforts by well-meant

but injudicious interference. If she does this thoroughly and well, she will have neither time nor occasion to dabble in bacteriology. Better a few essentials thoroughly than a multitude of nonessentials superficially. Better make your student nurses into well-trained, practical nurses than into half-qualified doctors.

The weak point in the training-schools of the smaller hospitals is obstetric nursing. The prejudice against going to the hospital for surgical operations, and even for severe illness, is dying out, slowly to be sure, but under the influence of the more homelike surroundings, greater sympathy and individual care in the smaller hospitals, it is dying out, but the average American mother still prefers to have her baby born at home, even though that home may be a poor one. This may be a matter of mere sentiment, and as such I am not sure that I do not sympathize with it, but it exists and stands as a bar to hinder sufficient obstetric experience being gained in the smaller hospitals at present. The question is, what are we to do about it? The common-sense reply would seem to be: "If the maternity patients will not come into the hospitals we must send our students out to them." But now comes the Nurses' Examining Board, or the regents (each body seems quite willing that the other should have the credit for this piece of wisdom), and says: "No! You cannot have your training-school registered unless you will promise not to send your student nurses to outpatients except during the last 6 of their 36 months of student life!" Obstetric nursing is to be a large part of the life work of these students; the patients will not come into the hospital and we are not allowed to send our students out to them! Captain Cuttle, in his most profound moments, never exceeded the wisdom of such a regulation; and further, I have been assured by competent legal authority, that there is nothing on the statute books of the State of New York authorizing any body to make such a regulation. Of course, as matters stand at present, if we violate this edict, our school will not be registered, our students will be better trained, but they cannot take the examination for registered nurses, and then what? I do not know, but, like the nephew's curse in "Patience," it is understood to be something "very dreadful."

I believe in obeying the law even if it is not a good law; I even believe in complying with regulations issued by competent authority even if they are not wise regulations, but I wish this particular regulation could be modified, or even better, abrogated. The only argument I have heard in its favor is, that it prevents the training-schools from sending out students in competition with graduated nurses, and so cutting prices. Such argument should be left to trades unions and not be adopted by a body of professional women, and beside it is not true. The patients to whom these student nurses would be sent would not and could not employ graduate nurses at current rates.

The girl who has been in good training in a small hospital for a year needs the experience in maternity cases; again, she is so much better informed, has so much better ideas about asepsis and antisepsis and nursing in general than the average "practical monthly nurse," that the young mother needs her. The young father earning from $12 to $20 a week cannot very well pay a graduate nurse $20 or more a week and meet his other expenses; he is not a pauper and therefore does not seek free service. He can and will pay the smaller sum for the services of the student nurse for a short time and all will be benefited, and when in future he is earning, as many of them will, more than $20 per week, he will the more readily call upon the graduate nurse and pay her fee if you will let him learn the value of trained nursing by employing the student nurse now.

And now a final word as to examinations. I believe they are necessary, but they cannot show everything, nor the most important things, for, in spite of the popular civil service superstition, you cannot ascertain a nurse's fitness for her sacred calling by any written examination that the wit of man, or even of woman, has yet devised. Her holdings of anatomy, physiology, materia medica, and even of physiologic psychology may be so ascertained, but the weightier matters such as skill, judgment, kindliness, firmness, prudence, tact, presence of mind in emergencies, etc., cannot be so ascertained and can never figure in an interesting table of average standing even though it is worked out to six places of decimals. The superintendent who trained her, the medical and surgical staff who taught her and whose patients she has nursed in the hospital for three years, know more about her fitness to practise than any committee sitting in a distant city can ever discover by the most cunningly devised examination.

Synesthesia.—H. L. Smith refers to the shivering sensation felt by many at the squeak of a slate pencil, etc., as an illustration of sound feeling. Color hearing, or sound seeing is a rarer type. When light instead of color is associated with sound, it is known as photism; when a definite image suggests a sound we have phonison. The color sensations associated with tones destroy in the minds of some subjects the strains of music, and the incessant play of colors seen while reading or writing is most irritating to others. A more common type of synesthesia is the number form, in which numbers, important events, etc., occupy definite geometric positions in space. The writer reports the cases of a father and five children, one or the other of whom presented color audition, photisms, phonisms, number form, involvement of the temperature, tactile, pain, and stereognostic sense, and the association of human characteristics with numbers, colors, and musical tones. Smell and taste were not involved. Among the notable points are the direct transmission of synesthesia, the greater intensity of the color associations formed in early youth, and their tendency to fade with time, while the mental diagrams of number form remain unaltered. The cases were intellectually above the average, and were sane, healthy, and happy. [H.M.]—[*Johns Hopkins Hospital Bulletin, July, 1905.*]

Tuberculosis in Ireland.—Consul Moe, of Dublin, writes that the deaths from all forms of tuberculous disease which were registered in Ireland during the quarter ended Juue 30, 1905, amounted to 2,984, a figure which represents an annual rate of 2.72 per 1,000 of the estimated population of the country, and is 15.2% of the total number of deaths (19,616) registered during the period; or, in other words, that of every 100 persons whose deaths were registered during the quarter, 15 were the victims of tuberculous disease. The report of the registrar-general states that these figures are not revised, and that "the revision of the figures will probably increase the deathrate from tuberculous disease." Curiously, the number of deaths from this disease was greater in the rural than in the urban districts.

At Salsomaggiore, Italy, a new journal has been instituted, chiefly through the efforts of Prof. Ceccherelli. This periodical, under the name of *Salsomaggiore Terme*, will give experiences of the physicians acquainted with the effects of the iodosaline waters of this famous resort. Perhaps no greater mistake may be made than that of inexperienced men who advise treatments, which, from the nature of the case, cannot succeed, and physicians frequently send their patients on wild-goose chases from spa to spa, because of a failure to comprehend the exact use of a course of waters; this will be more easily avoided in the light of a careful publication of the results of years of trained observation in the shadow of the pump house and bath. Here, "single instances assume their proper value in the succession of many cases."

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 2, 1905. [VOL. XLV, NO. 23.]

1. The Secret Nostrum Evil.—Frank Billings. See *American Medicine*, Vol. X, No. 6, p. 219.

2. Syncytioma Malignum.—Laura House Branson. See *American Medicine*, Vol. X, No. 14, p. 556.

3. A Study of the Bony Pelvis in 150 Cases.—Effa V. Davis. See *American Medicine*, Vol. X, No. 13, p. 556.

4. The Psychopathic Manifestations of the Non-insane Psychoneuroses.—John Punton. See *American Medicine*, Vol. X, No. 9, p. 347.

5. Typhoid Perforation.—W. Courtney remarks on the promptness with which the profession meets the surgical needs in appendicitis as contrasted with its apparent neglect of the equally urgent need of operation in typhoid perforation. The difference is one of the anomalies of surgical progress. In the 15 years from 1898 to 1905 there were treated in the Northern Pacific Railway Hospital, at Brainerd, Minn., 576 cases of typhoid fever, with 42 deaths, or 7.3%. Ten deaths, or 28.8% of the total mortality, were from perforation. All the patients not operated on died, as well as four of the five subjected to operation, making a recovery of 20%. Courtney holds that, with the possible exception of intestinal hemorrhage, operation is equally indicated in all the conditions that are likely to be confounded with typhoid perforation. With improvements in the treatment of peritonitis, the expectation of 50% of recoveries if the operation is undertaken within the first three hours, ought to be realized. He prefers general anesthesia in these cases and the incision through the right rectus muscle, opposite the cecal region. He would use drainage from the bottom of the pelvis, probably through a stab wound on the left, as well as by the operation wound, and put the patient in the Fowler position to favor gravitation of fluids to the pelvis, where the drainage has been placed.

6. Top Milk Mixtures.—According to J. C. Gittings, good results in infant feeding can be obtained with the use of the top portion of good ordinary milk bottled under fair hygienic conditions. The excessive variation of the fat content is largely compensated for by the necessary dilution. The proteid is much less likely to be variable, and, while the percentage of this and of sugar decreases as that of fat increases, for practical purposes, allowance need only be made for this when we use 13% or 16% cream. Certain other matters are just as important as the strength of the milk. The proper interval of feeding should be more strictly adhered to than the amount or strength of the mixture. Save in exceptional cases, such as illness, etc., the following rules may be advocated: During the first two months of life the interval between feedings should be two hours; during the second two months, two and a half hours. After the fourth month the interval should be three hours. The amount given at different ages may be approximately stated as follows: First week, 1 oz.; second and third weeks, 1½ oz.; fourth week, 2 oz. From the second to the seventh month, inclusive, the amount of mixture in ounces varies from the number of the month to one in advance of it; for example, third month, from 3 oz. to 4 oz.; fifth month, from 5 oz. to 6 oz., etc. It rarely will be advisable to give more than 8 oz. at one feeding. As regards the strength of the milk mixture, it may be assumed that the average healthy infant can digest whole cow's milk at the age of from 8 to 12 months. Some can do it earlier and others will be unable to digest whole milk at any time during the first two years of life. The first three months is the crucial period when mistakes are most frequently made, and during this period the strength of the first milk mixtures should be: Fat, 1.5% to 2%; sugar, from 4% to 5%; proteid, from 0.5% to 0.75%. By the third or fourth month the fat should have been increased to from 2.5% to 3.5%; sugar to 6%; and proteid to from 1.5% to 2.5%. From the eighth to the twelfth month the full strength of whole milk should have been reached. The cardinal points to be noted are the condition of the child's digestion, the gain in weight, and the appetite.

7. Hypospadias.—J. Coplin Stinson describes his method of operating for hypospadias anterior to the scrotum in the following steps: First, he performs an external perineal urethrotomy and inserts a large tube into the bladder so that all the urine will be drained away, permitting the later plastic operations to heal primarily. Next he corrects the incurvation by dissecting up the urethra and dividing all constricting fibrous bands by transverse incisions so as thoroughly to straighten the organ. The third step is to form a new urethra by taking flaps from the mucous membrane and submucous tissues of the glans, and if necessary from the skin and subcutaneous tissues also. To cover the raw surfaces thus left on the glans and body, the hood is utilized. Lastly, the hump and transverse constriction on the upper surface of the body is corrected by making an inch-long incision backward through the skin and subcutaneous tissues in the median line. This incision is at right angles to the transverse one made in separating the hood, and is made long enough so that when its angle is dissected it can be drawn forward and sutured in the same line and continuous with the stitching of the preputial or transverse incision. This eliminates the convexity by diminishing the anteroposterior measurement of the penis, and overcomes the existing lateral constriction in this region by increasing the transverse measurement to the normal condition. The advantages claimed are: The surgery is done at one sitting, and takes but a short time, healing is durable in two to four weeks, the new canal retains its normal caliber and its coverings remain in their new positions. The preliminary urethrotomy and bladder drainage allow the plastic surgery to heal without the least trouble, and the results are better than those of any operation hitherto described. The deeper structures are sutured separately and accurately with buried absorbable sutures, so as to get perfect union. Sterilized catgut is used for the buried sutures.

8. Errors in Hydrochloric Acid Determination.—E. L. Whitney criticises the usually employed tests for free HCl as also reacting with the organic acids when present in sufficient concentration, and also because with many of them the end-point is likewise obscure. An exception is made in favor of the tests of Günzberg and Boas, which are said to be accurate for qualitative work. For quantitative work the various indicators are even less reliable. Beside the reaction with the organic acids and the indefinite end-point their results are inaccurate in giving a portion of the combined HCl as free HCl. In seeking a method free from these sources of error his attention was called to one worked out by Hoffman at Ostwald's suggestion, and based on the effect of free hydrogen ions in saponifying methyl or ethyl acetate with the formation of free methyl or ethyl alcohol and acetic acid, the amount of the latter being proportional, other things being equal, to the amount of free hydrogen ion present, and readily titrated with decinormal alkali and an indicator such as phenolphthalein. Whitney describes the method as slightly modified by him. The sources of error in this method are probably only slight, and comparably negligible. Very dilute solutions of HCl may give slightly too high results and the organic acids may act very slightly on the methyl acetate liberating acetic acid, and neutral salts do very slightly increase the saponifying power of water; the increase, however, falls within the limits of error.

9. Cholesterin Stones in Brain and Cord.—E. E. Southard reports an interesting case of a man aged

56, suffering from general arteriosclerosis and cardiac disease, without presenting during life any symptoms directly referable to the nervous system. Death occurred unexpectedly after an apparent slight improvement in his cardiac symptoms. The autopsy revealed small masses of pure, or almost pure, cholesterin crystals in several parts of the cortical and central ganglionic gray matter and in the white matter of the cord. The largest of these, 2 cm. in diameter, was found in the middle of the left lenticular nucleus, and one or two others of considerable size were found in the gray matter of the temporosphenoidal and frontal convolutions. The deposits in the cord were not so obvious; attention was called to them by the findings in the brain. The masses were enclosed in thin capsules, due to fibrillary overgrowth of neuroglia. The author remarks that the case can hardly be unique and that a more careful examination of the spinal cord may bring out in other cases similar miliary or larger glioses in which the cholesterin may have been dissolved, as seems to have been the case in some of these. The relation of cholesterin to miliary glioses in the spinal cord may readily escape attention.

Boston Medical and Surgical Journal.

November 30, 1905. [Vol. CLIII, No. 22.]

2. Diabetic Coma with Recovery under Alkaline Treatment.—G. G. Sears finds in a search through literature but few instances of recovery under any treatment, and these are not free from possible error as to the diagnosis, as they include all grades, from a slight drowsiness to complete loss of consciousness. These recoveries, however, show that we are not helpless in its presence. As alkalies are purely symptomatic remedies, they can be of use only before changes in the tissues have occurred, which prevent their recovering their normal functions. Acting as a chemic antidote, it is necessary that the dose should be sufficient to neutralize the offending acids, and the greater success which has been obtained in children is probably largely due to the greater relative amount which can be given. Results obtained from small quantities must be due to a neutralization of the excess of acid, allowing the organism to resume once more its oxidizing processes. The method of administration is less important than the amount. [H.M.]

3. Rupture of the Intestine.—F. B. Lund thinks that in these cases the abdomen must be taken unawares before the muscles have time to contract, the intestine being compressed between the impinging body and the vertebras or pelvic bones, the tear resulting from pinching or from gas bursting through the coil. Those due to gas present a small round perforation; others vary in size. It is remarkable how, even in a large tear, the swollen mucous membrane will plug the opening and prevent extravasation. This is also prevented by contraction of the circular fibers above and below the injury. Commonly only a little fluid escapes, starting up a local peritonitis, with pain, tenderness, and muscular spasm. General peritonitis and septicemia may be delayed for hours, but are inevitable unless the opening is sutured and the peritoneum cleansed. Ruptures due to bursting are generally opposite the mesentery. Others may be accompanied by rupture of the mesentery also. In 19 cases studied by the author, 4 were caused by blows from pieces of board thrown by a circular saw; 4 by blows upon a hernia; 3 by horse kicks; 5 by falls. The symptoms at first are often slight. Peritonitis must be quite general before the patient looks badly. The fact that he is getting worse should be sufficient for immediate operation, without waiting for the facies. Of the ruptures reported, 18 were of the small intestine. Blows below the umbilicus are more apt to cause rupture than those above. Blows in the lumbar region are more likely to cause rupture of the solid viscera. The rupture is usually under the spot where the blow was received; here the abdominal wall may contain a hematoma, and this is the proper place for the incision, as we can thus treat the injuries to the parietes, and the ruptured coil does not have to be dragged through noninfected peritoneum. [H.M.]

4. Malignant Disease of the Lungs and Pleura.—H. Jackson finds it is the primary cases which offer the greatest difficulty in diagnosis, as they closely simulate acute pleurisy and pneumonia. In secondary cases, infection may occur so long after removal of the primary focus as not to suggest malignant disease. Cachexia is absent, as the growth does not interfere with nutrition as it does in the gastrointestinal tract. In massive growths fever is sometimes high and leukocytosis is present, suggesting an inflammatory process. When the growth is small, it is more suggestive of tuberculous trouble. The cases reported in the paper point toward invasion of the lung by the pleural surface. [H.M.]

Medical Record.

December 2, 1905. [Vol. 68, No. 23.]

1. The System of American Hospital Economy.—See page 971, this issue.

2. Essential and Paroxysmal Tachycardia.—J. J. Morrissey says that tachycardia may be classed under essential and paroxysmal, and this classification may be subdivided into true and false. The true tachycardia, according to the author, finds its best illustration in permanent disease of the cardiac musculature; the false may be produced by causes far removed from the heart. There are certain definite peculiarities which distinguish true tachycardia from the evanescent "heart hurry" so frequently produced by the most trivial causes: (1) The attack is sudden in its onset, reaching its height almost immediately; (2) the patient may or may not be entirely unconscious of the great degree of palpitation; (3) there is generally a definite period covered by the attack; (4) the reversion to the normal condition is as sudden as the onset, the vestiges of the storm through which the patient has passed rapidly disappearing. He then discusses the various forms of these types, and describes several cases which illustrate the differences in origin which may be exhibited. For example, one case was produced possibly by myocardial degeneration, and another by profound shock to the nervous system. In one case in which digitalis appeared to be of no avail, the fluid extract of convallaria majalis in five-drop doses, four times a day, seemed effective. The treatment of tachycardia is that of the condition from which it arises, or with which it is associated; but (1) essential tachycardia is not accompanied by indigestion; (2) paroxysmal tachycardia and the forms of tachycardia, accompanied by signs, no matter how slight, of Basedow's disease, are very frequently associated with dyspepsia; (3) extreme cardiac arrhythmia frequently occurs without any indication of stomach disease, and (4) tachycardia in its various grades is, however, often but a symptom, a prominent expression of a neuropathic state, which requires to be approached for treatment from many sides.

3. The Subkatabolic Metabolism of Colds.—Homer Wakefield explains the occurrence of colds on the view that they represent the results of disorders of metabolism, due to local circulatory disturbances following the unequal exposure of some part of the body to cold. The degree of temperature is subordinate to the state of inequality produced, for a cold may be due to the extrinsic effect of either cold or heat, if sufficiently pronounced or abrupt to insure a localized action of definite heterogeneity from the balance of the organism. Protoplasm as such is subject to the general laws that heat causes expansion and cold contraction, or in other words, cold heightens, and heat lowers the specific gravity of

protoplasm in general, not excepting that of the parenchyma. Cold is productive of high density, compactness, and tonicity, while heat induces low density, looseness of texture, flaccidity, expansion, dilation, elongation, and atony. This is not a nervous effect, but a direct responsive reaction of protoplasm, *per se*, as is attested by the fact that it is as marked in nerveless unicellular and multicellular organisms as in those of the highest types of nervous organizations. As to the mode of origin of a common cold, primarily a condition of disequilibrium is produced. A state of contraction of the tissues of an extremity is attained, the blood is ejected from the peripheral vascular areas to the more roomy reservoirs of the splanchnic veins, which readily dilate to receive it, with the result that a pernicious splanchnic venous stasis is produced, concurrent with a capillary and arterial blood deficiency in the extremities and with an inevitable suboxidation of the dependent tissues in the extremities.

4. The Value of Test-feces in the Recognition of Intestinal Disturbances Arising in Other Parts of the Digestive Tract.—Heinrich Stern considers that many of the transitory and milder intestinal disturbances arise on a basis of gastric disease. The specific pathologic condition of the intestines depends upon the nature of the gastric affection, its duration, the habitual nourishment, the irritability of the intestinal tract, etc. According to the extent and duration of the secondary, or intestinal affection, other pathologic elements may be found admixed with the fecal masses, but the exhibition therein of large amounts of connective-tissue fragments invariably points to the gastrogenous causation of the intestinal disturbance, no matter how completely the phenomena due to the latter may overshadow all subjective gastric symptoms. Disturbances of intestinal function are much more rarely the consequence of hepatic than of gastric disease. Almost all hepatogenous intestinal affections are caused by disordered biliary secretion. We may conclude that biliary obstruction underlies the intestinal disorder when the test-feces (1) are excreted in very large quantities; (2) when they present a grayish-white color; (3) when the sublimate test is negative; (4) when considerable masses of the ingested fat reappear; (5) when very large amounts of fatty acid flakes can be demonstrated; and (6) when there are no pathologic amounts of other food debris present. The test-feces, in cases of pancreatic degeneration, contain similar amounts of fat as those in biliary obstruction. They differ, however, from the latter: (1) By not being excreted in such large amounts; (2) by exhibiting normal quantities of biliary pigments; (3) by containing large quantities of muscle debris, which are macroscopically recognizable; (4) by frequently presenting its fatty contents in the form of globules of neutral fat, when examined under the microscope; (5) by the occasional exhibition of putrefactive changes.

6. Valvular Closing of the Gallbladder after Operation.—H. E. Rockey has devised a plan of introducing the drainage-tube into the gallbladder after cholecystotomy, which is intended to prevent the prolonged leakage of bile. The tube is inserted through the incision into the gallbladder, which is surrounded by a pursestring suture of catgut. The edge is turned in so as to bring the peritoneal surface into contact with the tube, and then a second pursestring is placed about the first. On tightening this the first suture is invaginated into the gallbladder and a valve is formed varying in size according to the distance between the two sutures. The drainage-tube should be fastened to the skin by anchor stitches of silkwormgut, to prevent the tension on the pursestrings and consequent puckering of the valve. This is best done by passing a silkwormgut stitch at either side of the tube and tying a small loop above the first knot. A similar tie and loop with silkwormgut is made around the tube about 1 inch from the skin. A safety-pin is then passed through the three loops, thus holding the tubes firmly in place. A firm dressing is applied and a bottle suspended from the bandage over the tube.

New York Medical Journal.

November 25, 1905. [Vol. lxxxii, No. 22.]

1. Chronic Uterine Hemorrhage.—G. E. Shoemaker mentions passive congestion of the pelvic vessels, produced by retroversion with descent by subinvolution after labor, by prolapse and hypertrophy as causes. An ovary prolapsed, inflamed, or the seat of chronic cystic degeneration, especially if imprisoned by chronic pelvic inflammation, may be at fault. Tumors of the ovary, such as ovarian cysts, often are associated with hemorrhage because of the increased pelvic blood supply. Chronic adherent inflammatory disease of the tubes and ovaries is a very common cause of mild excessive bleeding. Partial placenta prævia; threatened abortion, and extrauterine pregnancy are mentioned. Carcinoma and sarcoma are important causes. Abnormal bleeding must be accounted for, and the search continued until a reasonable explanation, and one which is safe to the woman, has been reached. [C.A.O.]

2. Appendicitis in Children.—C. C. Barrows says that the ordinary rules for the management of a case of appendicitis cannot always be depended upon as a safe guide in cases occurring in children. Children with a beginning appendicitis almost invariably suffer from abdominal pain, usually referred to the region of the umbilicus, from nausea, as a rule, accompanied by actual vomiting and constipation. The patients have a great dread of being touched or moved. They usually lie on the back with the right thigh flexed and almost from the beginning there is wellmarked rigidity of the abdominal muscles. The question of temperature is not of great importance; the increased and increasing pulse-rate, together with a more rapid respiration, being of vastly more concern than the temperature. At times we find appendicitis in children ushered in by a well-marked rigor. The author considers this a symptom of great importance. Barrows regards an increasing leukocytosis with an increase in the polynuclear cells and of the fibrin of considerable help in the establishment of the diagnosis, but in no way to be considered to the exclusion of the bedside clinical history of the case. He believes in operating in practically every case. While an adult may be carefully watched and with the help of the subjective symptoms correctly stated, he may be tided over an acute attack and operated on in the interval, this he believes to be a dangerous course to pursue in children. [C.A.O.]

4. Scopolamin-morphin-chloroform Anesthesia.—M. K. Isham reports 40 cases. The standard dose used was 0.01 gr. of scopolamin hydrobromid, and $\frac{1}{8}$ gr. of morphin hydrochlorid, in 1 cc. of distilled water. One, two, or three injections were given, according to the nature of the operation and reaction of the patient. In no case was the anesthetic property of the injection sufficient without chloroform. The author is convinced of the following advantages when it is used as a preliminary measure in chloroform anesthesia: Lessening of the amount of chloroform; abolition of fear, nervousness, and pain preceding the operation; suppression of the stage of excitement preceding muscular relaxation; long duration of sleep following the operation; lessening of nausea and vomiting is exceedingly doubtful; the necessity of an anodyne is not nearly so frequent; no increase in the amount of mucus and saliva; this decreases the troubles of the anesthetizer, and also, which is of greater importance, diminishes the possibility of postoperative pneumonia; it ought also to lessen the nausea and vomiting; absence of albumin in the urine; harmlessness, when used intelligently. Its disadvantages are: Its variety of action, *i. e.*, the variability of reaction in different patients; vasodilation and consequent

hemorrhage, which, however, may be controlled by injections of ergot; muscular contraction; the inconvenience of giving the injections so long before the operation, the interference, in some cases, with sterilization; and the readiness with which both the crystals and the solution decompose. [C.A.O.]

5. Scopolamin.—H. C. Sharp reports three cases, in which scopolamin combined with morphin was used as an anesthetic. The first is that of appendicitis in a man of 28. The anesthesia was very satisfactory without the use of chloroform. The second operation was that for incomplete inguinal hernia. One dram of chloroform was necessary. The third operation was that of following a cold abscess discharging near the left nipple to its source. About 2 dr. of chloroform was necessary in this case. The method preferred by Sharp is to administer the hypodermic injection of scopolamin, $\frac{1}{8}$ gr., and morphin $\frac{1}{4}$ gr., one hour before the operation is to begin. The advantages of this method are: 1. The harmlessness of scopolamin; while the pulse is accelerated the quality remains good and strong. 2. The absence of the stage of excitement. 3. The small amount of chloroform used. 4. The natural sleep after the operation, extending over the period of the most severe postoperative pains. 5. The absence of nausea and other ill-effects, which usually follow the use of chloroform alone. 6. The deep, full, and regular respiration. 7. The ability of the patient to take water, or even food, shortly after awakening without nausea or vomiting. [C.A.O.]

Medical News.

December 2, 1905. [Vol. 87, No. 23.]

2. Is Paralysis Agitans Caused by Defective Secretion or Atrophy of the Parathyroid Glandules?—W. N. Berkeley describes these glandules as four in number, generally varying in size, and always present from early fetal life to old age. Their precise physiology is unknown. Their removal from rabbits causes salivation, tachycardia, tremors, and rigidity of muscles, convulsions, albuminuria, hurried breathing, loss of appetite, emaciation, and death in from 2 to 10 days. Dried gland of the ox or sheep relieves the symptoms temporarily, but the animal ultimately dies in any case. Different diseases have been attributed to disorders in these glands, as exophthalmic goiter, epilepsy, and tetany, but there are weighty facts against these hypotheses. The author has found opportunity among medical friends to administer a physiologically tested gland to 11 cases of shaking palsy. Of these, 9 were helped, the earlier cases were greatly helped, and one considered himself almost entirely relieved while under the influence of the drug. Patients remarked on a curious increase in courage, comfort, and mental energy. Much of the gland on the market is ineffective, Armour & Co.'s being an exception. The initial dose is $\frac{1}{20}$ gr. two to four times daily. Larger doses cause an exaggeration of symptoms. The first good effects were only after 50 to 75 capsules had been taken—two or three weeks after beginning treatment. [H.M.]

3. Pyosalpinx.—J. E. Cannaday states that a careful study of symptoms makes diagnosis easy. Chills, fever, and sweats run riot. The importance of gonorrhea as an etiologic factor is due to the great frequency of that disease and to the rarity of cures in males. The protective conservatism of plastic peritonitis and the systemic and generally depressing effects of the disease are marked features. While complete enucleation and vaginal drainage are not advocated as routine measures, the final results are excellent, there is seldom a recurrence of the trouble, and if the work is skilfully done the mortality is low. After the end-results of pus tube have been reached the conditions are often favorable, as regards a cure for sterility. In cases in which there is hope for a functionating tube the club end should be split, the fimbrias should be straightened out or the delicate mucous lining sutured to the peritoneal covering to insure patency, and adhesions should be loosened whenever practicable in order to release tortuosities. [H.M.]

4. Headache.—J. N. Upthus explains the persistence of headache after the cause has been discovered and treated, by the fact that habit is difficult of eradication. He discusses the dangers of acetanilid and considers the treatment of various sorts of headaches, including those due to eyestrain, nasal lesions, digestive disorders, renal disease, pelvic reflexes, neurasthenia, central nervous diseases, anemia, syphilis, and idiosyncrasies, toward certain drugs. [H.M.]

5. Agglutination in Tuberculosis.—M. P. Ravenel concludes from his investigations that the agglutination test is not available for diagnostic purposes. The more advanced the disease, the lower is the agglutinating power. A low agglutination is of unfavorable prognostic significance. Cases under favorable conditions, as at a sanatorium, have the agglutinating power distinctly increased. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Alcoholic Hypertrophic Cirrhosis without Ascites.—Alcoholic hypertrophic cirrhosis without ascites, along with the atrophic cirrhosis of Laennec and the hypertrophic cirrhosis of Hanot and Gilbert, enter into the large class of bivenous cirrhoses. The same etiologic factor, namely alcohol, the same periportal and periinfrahepatic lesions of sclerosis, the same vascular symptoms manifesting the hindrance in the portal circulation are present. But the special character of this form of cirrhosis described by Gilbert, in 1899, and more recently by his pupil, Beauchef,[1] is that there is a marked collateral circulation in the abdominal wall, while the hindrance to the portal circulation does not reach a sufficient intensity to give rise to ascites. It may be that this peculiarity indicates that circulatory hindrances are not the only cause in the production of ascites and there exists another factor which, in spite of the various explanations proposed, is not sufficiently known. To attribute a part to peritonitis in such cases is a true explanation, but which is wanting in preciseness. In the first place the question arises as to the nature of this peritonitis and whether or not it is a tuberculous process, or, on the other hand, a nontuberculous chronic inflammation. However, that may be, the form of cirrhosis to which we refer, never gives rise to an intraabdominal fluid collection. With the exception of the absence of ascites, all the symptoms that this affection presents are those of a bivenous hypertrophic cirrhosis; the liver is enlarged, hard, and usually regular in outline, while the spleen is distinctly perceptible on palpation, while the presence of hemorrhoids indicates a hindrance arising in the portal circulation. Like bivenous hypertrophic cirrhosis with ascites, an ascitic cirrhosis is characterized by the extreme slowness of its evolution and this prolonged duration in its progress differentiates these cirrhoses from that bearing the name of the illustrious Laennec, the latter form being far more rapid in its

[1] Thesis, Paris, 1904.

progress and having a far more serious prognosis. It is a well-known fact that an ascites arising in an enlarged cirrhotic liver may be cured by a few punctures, an event exceedingly rare, if not to say exceptional in Laennec's cirrhosis. There is the same favorable prognosis, which is still more favorable in cases of the anascetic type; death only results from complications, such as hemorrhage from rupture of varicose veins of the esophagus, or intercurrent infection, such as pneumonia. The patients present evidences of hepatic insufficiency to only a slight degree, and this explains the long resistance of the general health to the affection and the slight influence of the hepatic lesion on nutrition. In certain cases reported by Gilbert and Lereboullet, this cirrhosis was accompanied by glycosuria and other evidences of diabetes. The diagnosis of this form of cirrhosis is occasionally a matter of some difficulty, because one is dealing with an enlarged and hard liver with a hypertrophied spleen. One might make a diagnosis of a large, fatty tuberculous liver, but in this case the organ is softer, there is no collateral circulation, and splenomegaly is wanting. In fatty hypertrophic cirrhosis the same characters will allow one to differentiate it from the anascetic type. Primary carcinoma also gives rise to a large, smooth liver, but the spleen is not hypertrophied and the evolution of the disease soon gives rise to a rapid and progressive cachexia. The diagnostic difficulties are still greater when the liver in the anascetic liver type presents an irregular surface, but nodular carcinoma may be distinguished from it by the loss of flesh and the absence of an enlarged spleen, while the liver of syphilis can be diagnosed by a positive antecedent history and the rapid action of specific treatment on the process. The treatment of anascetic cirrhosis is that of all forms of alcoholic cirrhosis, namely, the suppression of all alcohol and a diet largely vegetable. Calomel given daily has been advised, while Gilbert prescribes it along with sodium salicylate. A well-prepared hepatic extract has been found an excellent opotherapeutic medication, and Hirtz prescribes 120 gm. of raw pig's liver daily, while Crequy praises hepatic extract, 1 gm. a day given in a glass of milk. Maceration of the liver seems to be more active than the extract. The prognosis should be very reserved, if the patient continues to indulge in alcohol and if ascites makes its appearance.

REVIEW OF LITERATURE

Changes in the Heart-rate and "Blood-pressures" Resulting from Severe Hemorrhage, and Subsequent Infusion of Saline Bicarbonate.—Percy M. Dawson[1] experimented with dogs, and observed the pulse-rate and blood-pressures, *i. e.*, systolic, mean, diastolic, and pulse-pressures. He concluded that when sodium chlorid was infused after a severe hemorrhage, the blood-pressure immediately increased. If sodium bicarbonate is added to the solution of the chlorid, the rise in pressures is markedly increased. Concentration of bicarbonate in greater than .5%, increases the pulse-pressure considerably above the normal. If the pressures are observed two hours after the infusion, it is found that the systolic pressure has remained unchanged, and the mean and diastolic pressures have increased. If, however, the carbonate is used, all the pressures decrease considerably, so that the systolic is no greater than when pure chlorid is infused, while there is a lessening in the mean and diastolic pressures. The pulse-pressure is considerably diminished in all cases. The bicarbonate is more efficient than the pure chlorid. The results of the secondary experiments are strikingly similar to those in the primary experiment. These experiments indicate that it may be expected that the addition of bicarbonate to the infused fluid, under certain conditions, may result in a beneficial action. In cases of extreme shock, due to loss of blood, the addition of .5% to 1% of sodium bicarbonate to a solution of .8% of sodium chlorid, may result in the rise of all the pressures, and has the advantage that smaller quantities of fluid are required than when the pure chlorid is used. Hence the solution can be injected into the circulation more rapidly than a larger amount of fluid. The danger of overworking the heart in the employment of bicarbonate must not be forgotten. Dawson advises first the intravenous infusion of a solution of bicarbonate until the pressures rise to a considerable height, when the bicarbonate may be omitted from the solution. [J.H.W.R.]

Insufficient Nourishment in Dyspeptics.—Mathieu and Roux[1] present an important article on this subject. They emphasize especially the tendency of neurasthenics and dyspeptics to cut down their diet imperceptibly until the digestive organs lose, through disuse, their power of assimilating food, and the taking of food even in small quantities is accompanied by a distress due to this loss. The distress caused by eating often deceives the physician who assumes the existence of some serious lesion of the stomach. The administration of stimulants and narcotics is continued until a gastritis medicamentosa is produced. In such cases, increase of diet is accompanied unavoidably by gastric distress, but the patients must be encouraged to persist by the assurance that digestion will become comfortable in a short time. Decrease in the size of the liver, shown by lessening of percussion dulness, is an almost certain sign of undernourishment. If the lessening of the amount of food has been gradual, there may be no sensation of hunger, but in many cases the appetite is capricious, or hunger may be replaced by satiety after eating very little. There may be nausea after eating or before meal times, and this may be accompanied by a sense of anxiety or faintness. If this occurs when the stomach is empty, it may be relieved by eating a few mouthfuls, and the patients may be led to keep nibbling frequently, but eating almost nothing in the course of the day. There is always atony of the musculature of the stomach, and whenever food is taken, gastrectasis occurs, accompanied by belching and borborygmi. Even small quantities of food may draw the stomach below the umbilicus. The treatment consists almost wholly in the gradual increase in the amount of food taken, and the encouragement of the patient during the three or four weeks that the disagreeable sensations last. In some cases the condition is associated with hysteria, neurasthenia, or even serious mental diseases. In such cases treatment is most difficult, and it may be necessary to remove the patients to an institution and feed them by force. [T.S.G.]

Some Extraroutine Views of Tuberculosis Pulmonalis.—R. M. Phelps[2] thinks that curability belongs only to those cases properly treated so soon as the diagnosis is made or suspected, and believes it amounts to 50% or 75% in a good climate, with good care and medical advice. From that time the percentage rapidly diminishes. An unduly hopeful view presented to the patient prevents him from securing the greatest benefit. Every person having tuberculosis should be told as

[1] Journal of Experimental Medicine, February 25, 1905, p. 1.

[1] Archiv für Verdauungs-Krankheiten, Bd. xi, Heft 4.
[2] St. Paul Medical Journal, July, 1905.

early as possible. The prevalent fear of personal transmission causes patients to conceal their trouble as long as possible, as their pleasure, business, and comfort call for such concealment. The best hotels and restaurants, private families, and hospitals all try to keep such patients out. Tuberculous patients even do not want to mingle with others having the same disease. The author warns against underestimating the value of climate. Climate effects are simply from those conditions which permit the most out-of-door life. The best climate is the desert area from El Paso to the mountain divide in California and north to Colorado. The advantage of the sanatorium is in the physician's constant oversight and control. [H.M.]

The Causes of the Destruction of Bacteria in the Small Intestine.—Rolly and Liebermeister[1] find that the empty small intestine of rabbits contains an exceedingly small number of bacteria, demonstrable only by special methods. Germs introduced into the intestine are partly destroyed and partly forced onward by peristalsis, so that the canal soon becomes almost sterile again. The peristaltic movements themselves have no effect on the development of bacteria; the fact that they flourish in the absence of peristalsis depends upon other factors. The experiments show that the normal, living intestinal wall plays a certain part in the destruction of bacteria. The bile, pancreatic secretion, and intestinal juice have no bactericidal action, either separately or combined. The biliary acids cannot exercise their antibacterial influence, as they are neutralized by the alkaline contents of the intestinal juice or by constituents of the chyme. The acid reaction of the latter, from the stomach to the lower part of the ileum, militates strongly against the development of bacteria. If it is neutralized by soda, more bacteria are found in the small intestine, but the influence of the intestinal wall still keeps their numbers down within small limits. Peristalsis in itself has no inhibiting effect on bacterial growth, except insofar as it forces the germs from place to place, and thus subjects them to variations in the acidity or alkalinity of the medium. In pathologic conditions, e. g., intestinal stenosis, the acid reaction becomes alkaline, most of the bacteria multiply rapidly, the composition of the chyme becomes changed, and the intestinal wall becomes the seat of inflammatory changes, which still further favors the development of bacteria, etc. If the intestinal mucous membrane becomes injured or inflamed in any way, an enormous development of bacteria results throughout the intestinal tract, irrespective of the reaction of the medium. [B.K.]

Antidiphtheric Serum: A Clinical Report upon Its Use in 37 Cases.—V. W. Savage[2] believes this serum is undoubtedly prophylactic, and that when given by mouth though not so effective as when injected subcutaneously, it is certainly effective, at least in early cases. In every case he would give a further injection of 2,000 units on the commencement of convalescence as a prophylactic against paralysis. He believes that the disease can be practically aborted if the antitoxin is given early enough. [H.M.]

The Typhoid Bacillus in Pulmonary Complications of Typhoid Fever.—G. C. Robinson[3] has made several observations along these lines which permit him to conclude that the typhoid bacillus invades the lung during typhoid fever not infrequently. By the invasion in different areas of lung the seat of hemorrhagic infarction, abscess, and gangrene may be caused. The typhoid bacillus may be the cause of bronchopneumonia, but when lobar pneumonia is a complication of typhoid fever it is usually due to the pneumococcus which may be present in the circulating blood, together with the typhoid bacillus as a general infection. Both *Bacillus typhosus* and *Bacillus paratyphosus* (type B) probably can produce a lobar pneumonia, in which case the process is of hemorrhagic character, recognized clinically by the bloody nature of the sputum. The typhoid bacillus is frequently found in the sputum of typhoid fever patients suffering from pulmonary complications. [J.H.W.R.]

Problem of Tuberculosis.—V. C. Vaughan[1] refers to the natural tendency for tuberculosis to increase as population grows in density. Too much is said about creating a condition of tuberculophobia. The intelligent cooperation of the laity is essential to the eradication of the disease, and the facts must be made known to the people. There are now in the United States more than 250,000 persons in the active stages of the disease. When all tuberculous discharges are destroyed, the disease will be no more. Leprosy was as widely distributed in Europe 300 years ago as tuberculosis is today. Isolation eliminated it. Sanatoriums for tuberculosis would arrest or cure a large proportion of cases, add to the comfort of the incurable, and prevent further spread of the disease by those treated. The disease is largely due to indoor life. The average American is so afraid of taking cold he does not allow himself enough fresh air. Even the good effects of farm life are vitiated by the conditions prevailing in the home. The well-to-do, with large and expensive lawns, shut themselves up in their houses and merely look at them. We should live out of doors in summer and sleep with open windows at all seasons. [H.M.]

Edema Due to Excessive Ingestion of Sodium Chlorid.—J. H. Bryant[2] furnishes the notes of a case which is particularly interesting in connection with the present discussion regarding the influence of chlorid retention. The patient was a medical man of 40, perfectly sound and healthy, with the exception of varicose veins of the legs. Edema of the feet and legs alarmed him, but, as stated, nothing to account for it could be found. Questioning then elicited the fact that he was using from two to four times the amount of salt consumed by the ordinary person. The urine contained nearly three times the usual amount of chlorids. Reduction in the amount of salt ingested was followed by lessening of the edema, which in three weeks had almost disappeared; the sodium chlorid in the urine also diminished half. The edema in this case is believed to have been due to the inability of the kidneys longer to eliminate the excessive amount of chlorids ingested. Occurring in an essentially normal person, the case is of unusual importance. [A.G.E.]

Workingmen's Insurance against Tuberculosis.—H. L. Ulrich[3] thinks that whatever our views of the organizations of workingmen in an economic and industrial sense we must all admit that they can be of much value in the control and eradication of tuberculosis. Are the laboring classes ready to accept the idea? Is their knowledge of insurance as experienced in their societies adequate to meet this new problem? Can a satisfactory plan be worked out to meet the conditions in this country? That insurance is becoming an essential factor in the workingman's life is seen in the gradual growth of benefits administered by labor organizations. Labor unions are beginning to recognize the tuberculosis problem as shown by certain instances recorded by the writer. The lack of legal and financial security of workingmen's insurance demands that it be placed on a better basis. Contributions should be separated from the general fund, sick benefit insurance should be local, invalidity and death insurance should be federate, assessments and liabilities must be put on a real actuarial basis, the acquired rights of the insured ought never to be forfeited. Such attempts, however, in the direction of the methods of old-line companies have resulted in the

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiii, p. 413.
[2] Australasian Medical Gazette, June 20, 1905.
[3] Journal of Infectious Diseases, June 24, 1905.

[1] Wisconsin Medical Journal, July, 1905.
[2] The Practitioner, August, 1905.
[3] St. Paul Medical Journal, July, 1905.

English friendly societies in a separation of insurance from the labor organization proper. Such a development in this country is very distant. Insurance naturally divides itself into protection against incipient, chronic and final stages corresponding to sickness, invalidity, and death. The author gives an abstract of the constitution of the Trades and Labor Assembly of Minneapolis for the projection of an insurance society against tuberculosis. Beside the immediate benefits of such insurance the movement will arouse a distinctly militant and alert body to combat the disease. [H.M.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

REVIEW OF LITERATURE

Postoperative Parotitis.—H. MacN. Jones[1] believes the importance of preoperative and postoperative disinfection of the whole digestive tract cannot be exaggerated. After operations on the pelvic viscera the danger from contiguity to the bowel is well recognized. Convinced that digestion is more interfered with by ether than chloroform, he has not used the former in abdominal operations for five years. He reports a case of parotitis after an operation for hemorrhoids due to gingivitis. He has been using cyllin after operations as a mouth wash, and finds it a most efficient oral disinfectant in 1 to 2,000 solutions. For *Staphylococcus pyogenes aureus* the coefficients of cyllin, carbolic acid and formalin, respectively, are 9·37, 1·00, and 0·37. He advocates cyllin as an intestinal disinfectant in gynecologic surgery. In the action of the above on *Bacterium coli* the relative coefficients are 10·0, 1·0, 0·3. Klein's experiments show that virulent tuberculous sputum is completely disinfected in 24 hours by cyllin, 1 in 800, while it was not affected by carbolic acid, 1 in 10. [H.M.]

The Influence of Adrenalin Chlorid on Toxic Doses of Cocain.—J. M. Berry[2] details experiments on guineapigs to determine the effect of adrenalin upon toxic doses of cocain. The experiments, as have many others which have been made, were with too large doses of cocain to show the real value of adrenalin chlorid as an anesthetic. They certainly did show that adrenalin will not protect the organism against toxic doses of cocain. In the use of the combination, therefore, care should be taken not to inject a toxic dose of the cocain, for not only does the adrenalin fail to protect the body against the toxic effect of the cocain, but seems to enhance the toxic action. [A.G.E.]

Spina Bifida, with a Report of 385 Cases Treated by Excision.—J. E. Moore,[3] after a careful study of these reported cases, illustrating the experience of so many surgeons, reaches the following conclusions: 1. Operation on children of very tender age is scarcely worth while, because of the large mortality rate and because it does not stop the progress of progressing cases. 2. Patients aged 5 or more can be operated on safely. 3. Patients with large or rapidly growing tumors, with hydrocephalus and with deformities of the extremities, are not cured. All we can hope to accomplish by operation is to relieve the patient of an unsightly and annoying tumor after he has survived the dangers of the affliction. [H.M.]

The Treatment of Inoperable Cancer.—J. A. Shaw-Mackenzie[4] has written a booklet of 32 pages on methods of hypodermic medication in the treatment of inoperable cancer. The first is the use of chian turpentine, beginning with 0.33 cc. (5 m.) of a 20% combination of the turpentine with olive oil and increasing by this amount on alternate days until 4.0 cc. (1 dr.) is attained. The injections are made into the subcutaneous tissues of the buttock. Cases are cited in illustration of the relief from pain, increased appetite and other favorable results of the treatment. A second method is the injection of soap solution into or beneath the tumor, when situated superficially, or as near the growth as possible. Numerous cases of very marked improvement under this method are detailed; in a few, permanent cure appears to have been effected. [A.G.E.]

[1] Medical Press and Circular, July 26, 1905.
[2] American Journal of the Medical Sciences, November, 1905.
[3] Surgery, Gynecology, and Obstetrics, August, 1905.
[4] London: Bailliere, Tindall and Cox.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN — E. LINDAUER

REVIEW OF LITERATURE

Sodium Citrate in Vomiting of Infancy.—Variot[1] is quoted as favoring the use of small quantities of this salt in the milk which is administered. The calcium salts are precipitated and the coagulum of the milk is rendered less resistant. A 1% solution of the sodium citrate is employed, and of this one teaspoonful is the dose, given just before feeding. [T.H.E.]

Success of Antitetanic Serum.—Melesio de Anda[2] admits frankly that some cases recover without the use of serum treatment, but personally he has seen all cases die that did not have the serum employed. This case, that of a young man, J. Z., aged 19, was first seen July 22, 1905. The severity of symptoms gave but little hope. Three injections of serum were made the first night, and improvement became noticeable by morning. Recovery was complete September 28 following, when the patient was discharged. It is not stated whether any mixed infection could be responsible for the trouble, and the confidence in serum treatment which the author expresses is given, regardless of such a complication. [T.H.E.]

Sclavo's Iodogelatin in Surgical Tuberculous Cases.—G. Angioni,[3] of the Royal University of Cagliari, Italy, gives some space to accounts of clinical instances in which excellent results were obtained. These comprise a run of cases, as they occurred, cold abscesses, tuberculous peritonitis, lymphomas of the shoulder and neck, osteosynovitis, tuberculous epididymitis, localized adenitis, tuberculosis of the calcaneum, and of the astragalus, etc. It is to be a matter of rejoicing that "at last, in this preparation of Sclavo's, the problem is solved. There is no danger in its employment, and in proof of this the fact is adduced that one patient received 700 injections with no injury. There appears to be no local or general reaction. Improvement of the appetite and general strengthening result. Leukocytosis lessens, hemoglobin and red cells increase. Best of all, the constitutional malaise and debility disappear and there is a speedy recovery all the more readily if the case be of the type of noncaseated glandular enlargement, of simple nonsuppurative osteitis, or of any of the tuberculous forms of epididymitis." [The article by Sclavo, which appeared last August in Italy, is abstracted in this journal, p. 836, Vol. x. T.H.E.]

Urethanethylate and Quinin Hydrochlorid for Hypodermic Use.—Gaglio[1] warmly advocates this combination. "We have here a most soluble preparation, and one weakly alkaline, which does not precipitate in the animal tissue, is well tolerated, and quickly absorbed." Experiments by Mariani, who injected the simple quinin hydrochlorid into the thighs of guineapigs, show that after 17 hours the salt is virtually recoverable *in toto* from the site of injection. The author notes a further dislike for quinin dihydrochlorid, and justifies his preference for the urethan combination in

[1] Il Policlinico (Rome), September 24, 1905.
[2] Gaceta Médica Mexicana, November 1, 1905.
[3] Il Policlinico (Rome), October 1, 1905.

reporting success in both hospital and private practice. [T.H.E.] [After 20 years' experience with the double salt known as quinin-and-urea-hydrochlorid, I continue to regard it as the best quinin preparation for use in malarial cases, especially when subcutaneous injection is needed. From 0.7 gm. to 1.0 gm. (10 gr. to 15 gr.) may be dissolved in 0.5 cc. to 2.0 cc. (15 m. to 30 m.) of distilled sterilized water and injected deeply into the areolar tissue, the point of puncture being sealed with iodoform collodion. S.S.C.]

The Treatment of Status Epilepticus.—K. Alt[1] takes the profession to task because of the despair with which epilepsy is treated; he says 10% of all cases is curable, and another 50% is more or less improvable. Patients in whose family epilepsy has existed and then disappeared, the individuals having simplified their mode of living, and particularly their diet, present better prognoses than others. Neither should the prognosis of the "status epilepticus" be considered so bad; during 1904, he lost 26 epileptics by death, but not one of these died in status epilepticus. The cases of status epilepticus are getting fewer every year, the prognosis better. The best method to treat it, is to prevent it; this can often be done by regulating the diet and digestion, also the bowels; stool retention is the most common cause of an attack of status epilepticus. The first thing he orders, therefore, in such conditions is a high enema, repeating it if necessary; large quantities of foul-smelling feces usually come away, and the patient revives at once. As epileptics have a tendency to motor insufficiency and intestinal putrefaction, calomel should be given them frequently; it is possible that status epilepticus is an autointoxication. Other causes which may produce an attack are alcoholic excesses, morphin injections, sexual excesses, nervous irritations, prolonged exposure to sun, and depriving the patients of bromids. The more rapid the bromids are withdrawn, the more likely is an onset of status epilepticus. Other important causes are the iodid treatment of syphilitics, when not carefully supervised, organic brain changes, and infections; immediately after infectious fevers the attacks remain away for a long time, often to return then in the form of status epilepticus. The next step in the treatment of these attacks is absolute quiet in the neighborhood of the patient; he is constantly watched, so he cannot injure himself. When drugs are necessary, they are preferably given by rectum; if the patient is in good general health, chloral 2 gm. (30 gr.) is given by rectum in some water every two hours for three doses; in other cases he uses a 25% solution of amylene hydrate; 3 gm. to 6 gm. (45 gr. to 90 gr.) of the drug is given every two hours; hypodermic injections are employed, if the enema is not retained, or in specially bad cases. If there is cardiac weakness, strophanthus is added to the injection. If the substances are of no avail, the patient is lightly narcotized with chloroform, oxygen being combined with it. Symptomatically cool baths and venesection has been used, and in certain cases with good success. Death in status epilepticus is due either to simple asphyxia, asphyxia due to food particles occluding the respiratory passages, aspiration pneumonia, cerebral hemorrhage, hypostatic pneumonia, etc. [E.L.]

The Action of Digitalin and Strophanthin on the Heart.—In his dissertation, T. A. Chuewski[2] discusses the effects of these drugs on the blood supply of the heart in warm-blooded animals. Both drugs produce at first a contraction of the unstriped musculature of the cardiac bloodvessels, resulting in a diminution of the blood supply to the heart. Later, dilation of the vessels takes place, and the blood supply of the heart is considerably increased. After these fluctuations, the original normal condition gradually reasserts itself. These effects of strophanthin and of digitalin are due to their action on the unstriped musculature of the cardiac bloodvessels, hence the effects are to a certain extent independent of the heart action. Small doses of either drug create unusually favorable conditions for the cardiac blood supply, while large doses have the reverse effect. [L.J.]

[1] Münchener medicinische Wochenschrift, 1905, lii, 585.
[2] Medizinskoe Obosrenie, lxiv, No. 14.

Cardiac Asthma.—A patient with aortic insufficiency in the stage of compensation rarely suffers from shortness of breath, unless he exerts himself immoderately, and even then the dyspnea lasts only a short time; this is due to the muscle of the left ventricle being strong enough to empty the blood from its cavity and the pulmonary circulation is therefore kept undisturbed. In mitral stenosis, dyspnea exists always at the slightest exertion, as the better the right ventricle compensates, the fuller the vessels of the lesser circulation will be; on this account the patient will always be more or less cyanosed. In uncomplicated cases of arteriosclerosis the condition is just as in aortic insufficiency. Asthma in these cases will usually be sudden and unexpected. A. Fränkel[1] describes an attack thus: It comes on with or without mental or physical exertion, sometimes in the midst of sleep. The patient to be able to breathe must get himself in the sitting or standing posture; associated with this is a sensation of tightness, cyanosis, coldness of extremities, scanty expectoration and numerous audible pulmonary rales; rarely there is pain. This lasts from 10 minutes to several hours, when the patient will fall into the sleep of exhaustion. The pulse, depending on the condition of the heart, will be full and rhythmic, full and irregular, or lastly weak and irregular. The attacks recur frequently and become accompanied by hepatic congestion, oliguria, albumin and general edema. The pathologic cause of cardiac asthma is to be found in diminished elasticity of the bronchial walls, increased congestion of the mucous membrane and overfilling of bloodvessels, all of which act as an impediment to the entrance of air into the bronchial tree. But it depends upon the strength and nutrition of the left ventricle, whether or not these attacks will occur, and therefore arteriosclerotics, in whom the coronary vessels are not affected, remain free from these attacks longer than individuals with aortic insufficiency, in whom the left ventricle is exposed to inordinate pressure both in systole and diastole. Cardiac asthma is to be differentiated from gastric asthma, which arises reflexly and is characterized by tachycardia, gastric symptoms, and a history of injudicious eating; aneurysmal asthma, in which the stenosed part of the trachea is the seat of a sudden swelling, of the mucous membrane and in which tracheal stridor is noted; bronchial asthma, in which expiratory dyspnea is present. If tension is very great, frequently repeated venesections or wet cuppings are indicated; only enough blood should be withdrawn to relieve pulmonary congestion; in very bad cases digitalis, strophanthus, caffein and morphin are indicated; in first attacks the improvement will be greater and quicker than in later paroxysms. The combination used by him is:

Powdered digitalis leaves	1.5 gm. (22½ gr.)
Caffein and sodium benzoate	3 gm. (45 gr.)
Powdered rhubarb root, Extract of gentian	q.s.

To be made into 30 pills.

He orders 2 pills three times daily for 5 days, 2 pills twice daily for 10 days, and 1 pill twice daily for 10 days. For the attack itself he gives a hypodermic injection of morphin 0.01 gm. to 0.015 gm. (⅙ gr. to ¼ gr.), which usually gives almost instantaneous relief; oxygen inhalations, oxaphor (alcoholic oxygen camphor solution) 15 to 20 drops several times daily in wine is also useful. Heroin, chloral and other hypnotics may also have to be used. [E.L.]

[1] Deutsche medicinische Wochenschrift, 1905, xxx, 569.

American Medicine

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The secret nostrum evil was discussed by Dr. Frank Billings,[1] of Chicago, in a paper read before the Section on Practice of Medicine at the last meeting of the American Medical Association. It appears that certain chemical companies have had the audacity to attempt, through threats of legal action, to suppress the publication of this paper, though what there is in it to have made them so frantic is rather difficult to imagine. The same things have been said scores of times before. In the paper and the subsequent discussion it was clearly shown that there are many classes of preparations between the standard drugs and the out-and-out nostrums. The mere fact of a drug being proprietary does not necessarily condemn it, as many of them are of proved therapeutic value, and there was even a good word for some "patented" pharmaceutic preparations, whose ingredients and method of manufacture are matters of official record. The trouble always has been, and always will be, with those pharmacists who overstep the limits of their calling.

That medical schools have shamefully neglected pharmacy, a most important art and science, cannot be denied. Therapeutists are prone to make mere mention of the drug and ignore the manner of its preparation for administration. Ignorant of pharmacy, and even of prescription writing, it is not at all strange that the drugs administered were anything but palatable. The revolt against these nauseating mixtures of the past generation of physicians was, in part at least, a cause for that remarkable stampede toward homeopathy which this country witnessed. All the work of discovering proper methods of administering drugs has thus been left to the pharmacist.

The tendency toward therapeutic nihilism would certainly have become a great evil but for the pharmacist, to whom the medical profession certainly owes a great debt of gratitude. They are enabling physicians to return to the use of remedies of proved value and are assisting in the restoration of therapeutics, which now seems to be taking its place by the side of pathology and diagnosis. Nevertheless, skilful prescription writing, desirable as it is, does not seem able to take the place of pharmaceutic preparations of experts. The physician has too much to learn already, and he must trust the pharmacists to do this work for him.

Pharmacists who are really quacks are the ones to whom we are indebted for much of the present trouble. Not content with the success which comes of honest manufactures, they have been lured by the hope of imitating the rank nostrums in an ethical way—if it can be called ethical. It is no wonder, then, that advantage should have been taken of our helplessness and the profession deluged with a host of preparations, many of which were good enough in their way for special purposes. It was this real need which gave the opening for introducing other mixtures which could be properly placed with secret nostrums, but which, coming from reputable firms, had an air of respectability. In addition, the out-and-out quacks have imitated the reliable pharmacists, and have deliberately advertised nostrums as though they were standard drugs. It is not at all surprising that the borderland mixtures should be accepted, for it would take superhuman intelligence to sort the sheep from the goats. Though mistakes have been innocently made by the whole profession, they have been and are being corrected. There is no excuse for the establishment of journals for the exploitation of these doubtful mixtures, for that is the boldest kind of quackery, but it is not proper to blacken the whole profession for the errors or misdemeanors of a few who have taken unlawful advantage of a deplorable condition of affairs.

The elimination of all doubtful mixtures and the retention of those whose composition is known and whose worth is proved is the present policy. The burnt

[1] Journal of the Am. Med. Association, December 2, 1905.

child dreads the fire, and the pharmacists cannot expect their mere statements to be accepted in the future. The present professional demand seems to be in the direction of full authentic information and it is a healthy sign of the reaction against what has been an unwholesome faith in commercial statements. But to eliminate the pharmacists entirely and depend upon ourselves, does seem impractical, and even unwise. Their studied skill should enable them to make a better preparation than an impromptu prescription written on the spot, and this fact no doubt will always tend to lessen prescription writing, whether we like it or not. It may seem slovenly and be criticised, yet the element of time-saving is not to be ignored, as it is a big item to a busy practitioner and a necessity in country practise, where prescriptions are often, if not generally, impractical. The modern decadence of prescription-writing is then more of an evolution than a relapse, even though it have some evils.

The popular demand for drugs is probably at the root of the great nostrum evil, both in and out of the profession. We have previously called attention to this very human mental kink. Most laymen are thoroughly convinced that no matter what sickness befalls them, there is some drug which will help or cure them. It is practically impossible for many a patient to be treated without medicine, and if it is not given he will buy nostrums advertised by the lay press or by almanacs. We have called attention to the fact that the very exactness of modern medicine, by which we soon know that no drug can help certain states, is one of the causes for the increase of quackery. The sick man wants assurance of cure, and pays for this assurance, even if he knows he is being swindled. It is his last throw of the dice and he doesn't care if sixes turn up or not. It is absurd to argue that medical students are to have all human kinks educated out of them in college. We must all confess to a mental trait we imbibed perhaps with our mothers' milk. It is very easy then for a physician to be biased like his patient—and how often we have all wished that there was a drug to do what we wanted! No wonder we, too, catch at straws. No wonder also that the insinuating circulars of the borderland quacks are read and their assertions tested. It is human, and it can only be remedied by that greater attention to therapeutics which is so urgently needed. The education of the lay public must be attempted too, though no marked success can be expected soon. The whole matter lies deeper than many of the speakers imagined and its remedy is not the simple affair which many of them thought. The very differences of opinion showed the complications of the subject. In it all there is no cause for pessimism. The common sense of the profession will assert itself as it always has in the face of far greater evils and entrenched ones at that. More knowledge of all drugs and their advertised mixtures is, of course, the basis for future work, but it is only part.

The use of trade names for drug mixtures is also receiving more or less comment in the present upheaval. From the first appearance of antipyrin and antifebrin, or perhaps sooner, there was a very natural desire for short expressive names in place of the long official or scientific ones—a desire found in every profession and every walk of life. It is no wonder that such names should spring up like mushrooms to fill the demand. The convenience was great, but it gave the opening for the introduction of simple, wellknown drugs under new names, and of course the quacks jumped at the new chance for their own trade in fraudulent mixtures. It has also been found that many of the trade names of legitimate mixtures have given rise to a widespread impression that they represented new compounds and not mixtures of old and wellknown drugs. All these and many more of the pros and cons of the matter are receiving earnest consideration, and the faults will, no doubt, be entirely rectified in time. It is but proper to remark that no matter what new things will be devised, they will surely be imitated by the quacks and imposed upon by the weaker sisters of the reputable trade. The millennium will not come in a day, but the wild accusations that the reputable medical journals of the country are not keenly alive to the importance of the whole matter, is gratuitous, to say the least. The humorous side of the funny names which manufacturers sometimes hit upon to attract attention, reminding one of sleeping-cars and suburban stations, will in time be noted, and a faint smile might start a laugh which will do more reforming than all the medical philippics of a decade.

The articles on the "Great American Fraud," which were promised in *Collier's* of July 8, have duly appeared as promised and are fully up to expectation, if not a little beyond. The writer, Mr. Samuel Hopkins Adams, has shown marvelous ability in collecting an enormous amount of data, the publication of which cannot do else than stop the worst features of this essentially modern crime. As we have shown, quackery always has existed, and probably always will, for it sells to the sick what they cannot always buy from honest men—the comfort of an assurance of a cure, or at least a relief from incurable affections. It is only in the last half century that conditions have arisen which have shunted quackery into new channels—the lay press now

takes the place of the cap and bells of past centuries, but as it reaches a thousand where the older frauds could reach one, the evil is correspondingly greater. From the definite statistics published, it is not a great error to estimate that $200,000,000 are annually filched from the pockets of gullible Americans for medicines, having no value whatever for the purposes for which bought. Of this, $40,000,000 falls to the share of the lay journals for their part of the crime. In a nation, which occasionally affects to groan over a less amount paid as pensions to the sick and aged soldiers who sacrificed themselves for its welfare, it is a direct challenge to our intelligence. Surely it should be possible for the thinking part of the nation to devise means of saving us from the results of our own mental limitations. The conspiracy against the freedom of the press is fully exposed and it shows the dark side of lay journalism. Under threats of withdrawal of advertisements, some journalists actually converted themselves into public enemies and helped to defeat legislation intended to protect public health. Were it not for the published proofs it would be hard to believe these painful statements against a calling which does so much in other directions toward the uplifting of public morality.

The bracers and subtle poisons are specially treated in two of these remarkable articles. In a general way it may be said that nothing is brought out which is not already known in principle by the physicians of the country, but it is a great gain to have accurate statistics thus published as to the ingredients of these dreadful mixtures. The alcoholic beverages masquerading as tonics and "bracers" are sufficiently enlarged upon, and the astounding statement is made that, omitting beers, less alcohol is sold in the United States by licensed liquor vendors than in the patent medicines sold over the drug store counter. It is a painful satisfaction to see the proofs of what physicians have been vainly warning against for many years. Here is one cause of alcoholism and here should the axe be laid to destroy the roots. The literature as to subtle poisons is even more painful reading still, although these facts have also long been known to physicians and repeatedly commented upon. The list of nostrums containing cocain, acetanilid, morphin, and similar drugs, together with specific instances of the harm done, shows the great extent of the evil, particularly as these deadly chemicals are advertised as perfectly harmless. The more one learns of these crimes, which cause so much sickness and death, the more the wonder grows that society does not declare the men to be criminals, or even murderers, and lock them up for life. The man who breaks in and steals our gold—if we have any—is an angel in comparison. The present policy to compel the seller to place a poison label on these drugs, and also print the ingredients on the package, does not seem to touch the root of the matter at all, but it is probably as far as public sentiment will go. When deaths occur from drugs advertised as harmless, when it is known that they are not harmless, surely the maker can be held for a greater crime than mere fraud! The worst of it is, we do not hold him guilty of even a misdemeanor. It is one form of murder which is not murder.

The borderland nostrums are appropriately treated and properly stigmatized. It is a real blot upon medical science that a mixture or pharmaceutic preparation of known composition and recognized but limited value, should be advertised as a "cure" for about everything it is not good for at all. These are the greatest obstacles to the crusade against the nostrum evil. An exposure of a rank fraud is appreciated by laymen, as when a few cents worth of an inert substance is sold for a dollar and said to be a cure for a score of incurable things; but the few, the very few, which have a limited use, lead all laymen to ask if it is not true that some patent medicines are useful. This question is asked so many times that it is quite evident the idea has a firm hold upon the public mind—so firm, indeed, as to cause a passive resistance to remedial legislation. It will not do to answer that the patient does not necessarily know his own case, and should do no self-prescribing—every man claims that right. Nor will it suffice to say that no physician should prescribe any of this limited class—the habit is too deep-seated, both in city and country practice, and the very few of such preparations we really need, destroy the whole effort to break up the custom. There is but little doubt, nevertheless, that a steady and persistent frowning upon this one little class will in the end drive them into the respectable class entirely. The real good which these articles will accomplish is not so much in the education of the public, a large percent of whom will never hear of them, but in opening the eyes of lay journalists to the crimes they have been committing or aiding, unwittingly, perhaps, but nevertheless wrongfully. They have been like the mother who ignorantly dopes her child with a morphin soothing syrup. The unthinking masses must be guarded, and the journalists will do it in the end. The public needs teachers and leaders and Adams' crusade is educating the press. The Brooklyn *Eagle* states that "a campaign of education might be begun by the physicians and druggists of the land with advantage," and this is the only bit of humor in the whole dark affair. The physicians have begun the campaign many times, only to be met by accusations of trade-union selfishness to drive worthy drug advertise-

ments from the daily press. Indeed, the first article in the series is upon the criminal alliance between certain newspapers and patent medicine frauds. Happily, the journalistic conscience can be depended upon to right the evil in time.

"Stop my Subscription!"—This cry has been shouted into the ears of editors since independent journalism was started. The reasons for it have also furnished the poor editors with much of their encouragement and not a little of their amusement, and as they need a great deal of both, the shouters should not be too entirely discouraged in their laudable endeavors to promote progress and conscientiousness. *American Medicine* has probably not been thus enheartened or amused as much as many of its contemporaries, but has not been wholly without such warnings as to the dangers of abject acceptance of the popular view or private interest. There are always subscribers who take a journal because it repeats their own opinions and encourages their personal prejudices. When they do not find this done the pride of power rises to heroism and the fatal peremptory command is written. Analyzed closely, the motives of the writers will often not bear examination nor the intelligence, surely not the journalistic or professional conscience. Argument is a far better method of bringing about "a change of heart," or a conviction of editorial error, and all editors are glad to publish the grievances of remonstrating subscribers. But to use the bludgeon of *stop my subscription* is either a confession of a condition of mind which will not be influenced by argument, or an unconfessed desire to make all journalists the pliant tools of individual prejudices and interests. The best excuse for subscribing to a journal is the wish to get new views and truths, to know what others think. It is rank bigotry to say, "you must agree with me or you can't go on." "Be my brother or I will kill you" was said to be the essence of the Terror, "Liberty, Equality, and Fraternity." Intimidation is not a good way to hasten professional progress. Compliant journalism is a curse already sufficiently in evidence. Even, although disagreeing, the irate subscriber should thank the independent editor for preserving the fundamental tradition of good journalism.

"Learning Makes Not Wise."—It is now a truism that those accounted the leaders of the profession have not only generally refused to accept new medical discoveries, but have either cursed them or, what is worse, have ignored them to temporary death. The corollary of this truth is that the profession has usually been in grievous error as to who are its true "leaders." We have become habited to accept the results of astute advertising, reckless assumption, and cunning egotism; the crowd instinct has lingered in our emotions, and we take up the attitude of adulation toward some who are wholly unworthy, and simply because a day's hero is in the public eye. One thing all history concurs in: "All your learning cannot make you wise." It is like great age—those who best illustrate the seeming results of hygiene have habitually broken almost every rule of prudence in sanitary living. There is no surety that all the study and practice of healthy living will make one live longer or as long as some peasant who has been wholly ignorant of these laws, and who has broken them every day in his own practice. So it seems that the simplest minded and unlearned of doctors may be wiser than the most famous, the most erudite, and the most witful. The flair for true wisdom does not necessarily come to the man of high training and great position. Even in the treatment of common diseases experience teaches that good old Dr. Common Sense may be a better adviser than the great Professor Consultant from the city. The chief mechanism whereby this false vogue of the nonleading leader is gained is the consultation. Physicians, in duty bound to call in a consultant, and also urged thereto by the patient's friends, are in one way or another limited in the choice, and the mechanical hand on the dial points infallibly to the famous man just at that hour in the public gaze. He may be wise or not, and the best to call, but neither his fame nor his learning insure it. It is in the choice of a consultant that the physician does the most good or evil to his patient and to his profession.

The marriage of the tuberculous is perhaps frowned upon by all physicians, the majority of whom would no doubt advocate the prohibition of such unions. It is considerable of a surprise then to learn that Dr. Charles Valentino,[1] of Paris, has declared that these marriages are desirable. He bases his opinion upon the well-known fact that the disease itself is rarely if ever transmitted and that there is an immunity possessed by many of the offspring of the tuberculous. He shows that though this infection is more frequent about the age of 20, its appearance in those of tuberculous parentage, if they acquire it at all, is somewhere between 35 and 50. He acknowledges that where one partner alone is infected, the other is contaminated in 16% of the cases, and that this infant mortality is quite high, particularly where both parents are tuberculous, but he thinks that these disadvantages are far outweighted by the advantage of breeding up a race of immunes. It is a fact, as Valentino points out, that the tendency of all diseases is toward attenuation in time, that is, the longer

[1] Revue Scientifique, July 15, 1905.

a race is afflicted with a disease the milder the disease becomes, until the two organisms live on good terms together as symbiotics, some biologists even asserting that host and parasite convey mutual benefits at the end. The generally received explanation of this process is the exact opposite of that given by Valentino. For instance, Theobald Smith[1] shows that immunity is a result of the death of the most susceptible hosts and also of the most aggressive invaders who kill too quickly and thus destroy their own food supply. Immunity then is not a result of the survival of those who are the most, but of those who are the least affected. The only hosts who survive are those who have developed a resistance in some other unknown way, and the only invaders who survive are those which have developed in some unknown way a power to refrain from injuring the host.

The resistance to tuberculosis is not of the nature of a lately acquired character, but is some more fundamental difference from the parent, due to very early acting causes and similar to the generally received idea of a variation. Indeed there is some evidence that the acquired immunity to tuberculosis in those of bad ancestry is not so great nor so permanent as Valentino asserts, as it is merely due to the transmission of some antitoxin from the mother to fetus and soon wears out. For instance, it is stated that fully a fourth of all cases of tuberculosis have a hereditary history and yet we know that a fourth of all mothers are not tuberculous. It is not yet known why some families should deteriorate and become susceptible to this infection, but the susceptibility once acquired appears to be more or less hereditary for awhile, unless the offspring live in a different and more wholesome way than their parents. The mere fact of having had tuberculosis in one's family somewhere, or even in one's parents, does not condemn to celibacy, if it did, few of us could marry. It is merely evidence that some relatives have not lived properly and that a change will restore us to the normal. Nevertheless, after infection has taken place it is quite likely that the experience of the great majority of physicians would lead them to discountenance matrimony, if not permanently at least until a cure has certainly been attained. This attitude would appear to be in line with the method nature is now using to evolve a racial immunity to this great white plague. We are not at all sure that Dr. Valentino will receive much support.

The Fort Wayne Medical College has transferred all its medical equipment to the medical department of the Purdue University at Indianapolis.

[1] *American Medicine*, 1904, p. 711.

BOOK REVIEWS

Atlas and Epitome of Operative Gynecology.—By DR. OSKAR SCHAEFFER. Authorized translation from the German, with editorial notes and additions. Edited by J. CLARENCE WEBSTER, M.D. (Edin.), F.R.C., P.E. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

The value of a picture or illustration to impress a medical truth or elucidate a surgical fact is thoroughly appreciated by the medical profession. To understand the technic of individual gynecologic operations one must either stand by the side of the trained surgeon, or be familiar with illustrations or diagrams which are clear and accurate. This series of atlases, which has been so carefully prepared by the publishers, has been of extreme value to teachers as well as practitioners in the special lines selected. This atlas devoted to gynecology contains 42 colored lithographic plates with many text illustrations, some of which are in color, and each illustration is accompanied by sufficient text to describe the procedure and its object. The author, a wellknown German teacher, has made a specialty of demonstrating by illustrations, and issues this volume as an aid to those who wish to study the surgical part of gynecology; and practically all of the gynecologic operations have been illustrated in one volume of convenient size. The value of this work has been enhanced by the interspersed comments of Dr. Webster, who has so carefully edited it.

Practice of Medicine.—By HUGHES DAYTON, M.D. Series edited by VICTOR COX PEDERSEN, A.M., M.D. Lea Brothers & Co., New York and Philadelphia.

This new volume of Dayton's Epitome of the Practice of Medicine is a very comprehensive little manual, giving under each named disease, definition, etiology, pathology, symptoms, complications, diagnosis, prognosis, and treatment. It is worthy of remark that treatment is not merely suggested, but the doses of the indicated drugs are invariably given, together with the special symptoms which call for a change from routine therapeusis. It will be useful to the student as a means of refreshing his recollection in regard to essentials.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Manual of Chemistry.—By W. SIMON, Ph.D., M.D., Professor of Chemistry in College of Physicians and Surgeons, Baltimore, etc. Eighth edition, thoroughly revised with 66 illustrations, 1 colored spectra plate, and 8 colored plates representing 64 chemic reactions. Lea Brothers & Co., Philadelphia and New York, 1905.

Operative Surgery.—By JOHN H. MCGRATH, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School, etc. Second edition, thoroughly revised, with 265 illustrations, including many full-page plates in colors and half-tone; 628 royal octavo pages, extra cloth, $4.50, net; half morocco, $5.50, net. Sold only by subscription. F. A. Davis Company, Philadelphia, Pa.

A Textbook of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis.—By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Physician to the Jefferson Hospital, etc. New eleventh edition, enlarged and thoroughly revised to accord with the eighth decennial revision of the United States Pharmacopeia, 1905. In one octavo volume of 910 pages, with 113 engravings and four colored plates. Cloth, $4.00, net; leather, $5.00, net. half morocco, $5.50, net. Lea Brothers & Co., Philadelphia and New York, 1905.

Medical Directory of New York, New Jersey and Connecticut, Vol. VII.—New York State Medical Association, 1905.

Yearbook of the Medical Association of the Greater City of New York.—By P. BRYNBERG PORTER, A.M., M.D., Editor. June, 1905.

AMERICAN NEWS AND NOTES

GENERAL.

New Move for Pure Food.—Efforts to secure pure food legislation in this Congress will begin in the House when Representative Hepburn introduces his bill in a few days. Mr. Hepburn's bill will be the same as the one he unsuccessfully championed two years ago.

To Prevent Tuberculosis.—President Roosevelt has issued an executive order appointing a committee consisting of Surgeon-General Robert M. O'Reilly, of the army; Surgeon-General P. M. Rixey, of the navy; and Surgeon-General Walter Wyman, of the Marine-Hospital Service, to inquire into and report to him on the sanitary conditions in government offices and workshops, with a view to the prevention of the spread of tuberculosis.

Good Health in Panama.—Assistant Surgeon-General W. C. Gorgas, who has supervision of the health department of the Isthmian Canal Commission, says the situation has improved wonderfully in the past year. It is about as healthy on the Isthmus of Panama now as it should be. There is as little loss from sickness on the canal zone now as if the work were being done in New York or Pennsylvania. The deathrate is about 21 per 1,000.

Open-air Treatment for Tuberculous Cattle.—The cattle on the Dominion experimental farms at Nappan, Nova Scotia, that have developed tuberculosis are not to be slaughtered. Dr. Rutherford, veterinary inspector general, has recommended that experiments be made, in the hope of eradicating the disease by the fresh-air cure. The herd, consisting of sound and diseased animals to the number of about 50, will be separated and housed under the most approved principles of sanitation. It is hoped by introducing some treatment that is beneficial in the case of human beings to effect a cure.

Yellow Fever in Cuba.—Passed Assistant Surgeon von Ezdorf reports from Havana, that all cases at Havana which have been diagnosed as yellow fever are passed on by a board of diagnosis. When a suspicious case is reported the patient is taken to the hospital and the residence fumigated for the purpose of killing mosquitos. The board of diagnosis is notified and after making careful study of the case, confirms or negatives the diagnosis of yellow fever. All the cases have been traced to what is known as the infected district, which is located in the central portion of the city. The local health officer has recommended organizing a special commission for contagious diseases out of the most prominent practitioners in town, to act in an advisory capacity in the determination of doubtful diagnoses. He also points out the necessity of increasing the mosquito brigade and the force devoted to general sanitation, in order to insure a better service, and hence the probability of its success in averting the propagation of yellow fever in the case of reaching that locality.

EASTERN STATES.

Smallpox in Maine.—Because of the prevalence of smallpox in York, Queens and Sudbury counties in New Brunswick, an inspection of passengers from the infected districts by Maine State officials has gone into effect. All trains on the Maine Central and Canadian Pacific Railroads are closely watched.

The medical department of the University of Vermont occupied for the first time, on December 2, the building erected to replace the old structure, which was burned in 1904. The new building cost $100,000. The principal address at the opening exercises was delivered by Dr. John B. Grout, superintendent of the State Insane Hospital, at Waterbury.

NEW YORK AND VICINITY.

New York Fears Epidemic of Measles.—The New York Health Department is endeavoring to avoid an epidemic of measles, and incidentally pneumonia, by urging a fight against dust and greater activity in the antispitting crusade. The public has been warned against cold, alcohol and fatigue as the three direct invitations to pneumonia.

Contagious Diseases in New York.—For the week ended December 2, the following list of contagious diseases was reported: 406 cases of tuberculosis, with 162 deaths; 326 cases of measles, with 11 deaths; 310 cases of diphtheria, with 31 deaths; 155 cases of scarlet fever, with 11 deaths; 65 cases of typhoid fever, with 9 deaths; 17 cases of cerebrospinal meningitis, with 7 deaths, and 121 cases of varicella.

National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.—At the fifth annual meeting, held in New York City, November 29, 1905, the following officers were elected for the ensuing year: President, Dr. Max Mailhouse, of New Haven, Conn.; first vice-president, Dr. Everett Flood, of Palmer, Mass.; second vice-president, Dr. William F. Drewry, of Petersburg, Va.; secretary and treasurer, Dr. James W. Wherry, of Dansville, N. Y.

Epsom Salts Anesthetic.—Dr. Samuel J. Meltzer, who, with several other physicians, has been engaged in extensive experimentation in the Rockefeller Institute in the past eight months with magnesium sulfate, read a paper before the Academy of Medicine, dealing with the substance in regard to its uses as an anesthetic when injected into the spinal canal. He reported a case of tetanus that had been cured as a result of the injection. The substance was introduced very cautiously into the body in increasing quantities. Anesthesia was produced, Dr. Meltzer said, with no harmful effects.

Milk Permit Law Upheld.—In an opinion by Justice Day, the Supreme Court of the United States has sustained the validity of the New York State law authorizing Boards of Health to require persons dealing in milk to secure permits. The decision was rendered in the case of Simon Lieberman versus John E. Von Decarr, warden of the New York City prison. Lieberman is a milk dealer and is under prosecution for violation of section 66 of the sanitary code of that State, which authorized Boards of Health to enact ordinances prohibiting the sale of milk without a permit. He contended in his appeal that the regulation was an abridgement of the privileges of citizens, an arbitrary and unreasonable assumption of power, and, therefore, contrary to both the Federal and the State constitutions.

Rockefeller's Institute to Open Soon.—The Rockefeller Institute for Medical Research, to which John D. Rockefeller has given $3,000,000, will be ready for occupancy in the first week in January. The buildings are of gray brick, with limestone trimmings. Work on the structure was begun in July, 1904. The Rockefeller institute is the first and only one of its kind in the United States. It was founded by Mr. Rockefeller after the death of his baby granddaughter in Chicago of dysentery. In the hope that other babies might be saved from this and other diseases Mr. Rockefeller was led to establish an institution where these diseases might be studied by experts who would devote themselves to seeking antidotes for them. The institute is controlled and managed by a board of directors composed of Dr. William H. Welch, Baltimore, president; Dr. T. Mitchell Prudden, of New York, vice-president; Dr. L. Emmett Holt, of New York, secretary; Dr. Christian A. Herter, of New York, treasurer; Dr. Simon Flexner, formerly of the University of Pennsylvania, director of laboratories; Dr. Hermann M. Biggs, of New York, and Dr. Theobald Smith, of Boston. These directors have served since the institute was established in 1901.

PHILADELPHIA, PENNSYLVANIA, ETC.

Jefferson Medical College Hospital.—Robert W. Lovett, of Boston, will hold a clinic at the hospital on scoliosis on December 19 at 11 a.m., to which physicians and medical students are cordially invited.

Miners in Training as Nurses.—The Reading Coal and Iron Company's lectures on "first aid to the injured" were inaugurated for the season last week at Pottsville. About 100 members of the First Aid Corps, in service at the company's 44 collieries, were in attendance.

Many New Cases of Measles in Philadelphia.—There were 201 new cases of measles reported last week to the health authorities. The disease is confined principally to children in West Philadelphia and the northeastern part of the city. The public school buildings in West Philadelphia have been thoroughly fumigated as a precautionary measure against the spread of the malady. The work of disinfecting will continue until all the schools have been fumigated.

Fighting Vaccination.—The school authorities of York, Pa., are having some difficulty in enforcing the compulsory vaccination laws. In some boroughs and parts of York county parents comply readily, but in many other sections they keep their children from school. In consequence, the enrollment in many of the country schools has fallen off. In some sections of the county the opposition against vaccination is so great that many parents have been talking of employing private teachers in order to educate their children.

Unite to Test Vaccination Law.—Citizens of Waynesboro to the number of 1,260, through their attorneys, have presented a petition to Judge Rowe, asking the court to issue an injunction restraining Superintendent J. P. Reber, Principal Charles H. Cover and Chester A. Gesaman, a teacher, from refusing to admit to the public schools of that place Grace Stull, who does not have a certificate of vaccination and who is not immune from smallpox. Judge Rowe issued a preliminary injunction returnable Tuesday at which time arguments were heard. The people of Waynesboro are organizing to fight the act of 1895 in every respect.

State Commissioner Dixon Upholds Vaccination.—State Health Commissioner Dixon sent the following telegram to the chairman of a mass meeting at Waynesboro, Penna., called to oppose enforcement of the vaccination law and to which the principal speakers were to be Porter F. Cope and C. Oscar Beasley, of Philadelphia: "Having just learned that a public meeting is to be held in Waynesboro at which speakers will endeavor to incite opposition to the enforcement of a law of the Commonwealth that is on our statute books for the protection of the public health, I feel it my duty as a State official, charged with the protection of the people of Pennsylvania, to speak a word to you and your fellow citizens as to the object of that law and the purpose of its enforcement. Pennsylvania needs to guard mightily against smallpox. The barriers have been down to an invasion of this loathsome disease at any time, because of the disregard of vaccination, the only preventive against smallpox, according to the highest scientific opinion and experience of the world. The Legislature and Governor of the State enacted a law to prevent children from attending schools unless they had guarded against smallpox by vaccination. Passed for the protection of the public health, this law, according to Attorney-General Carson, is today in full force, and I can only express the hope that coming to realize the sense of duty which is leading thousands of school teachers throughout Pennsylvania to uphold the law by refusing admission to unvaccinated children, you will soon devote your energies likewise to cooperating with the State Department of Health to rid the Commonwealth of smallpox.

SOUTHERN STATES.

Mobile Lifts Quarantine.—The maritime quarantine against Havana and other points in Cuba has been raised by Mobile, acting upon the suggestion of Surgeon-General Wyman, it being understood that the Cuban authorities will inspect passengers bound for Mobile and New Orleans and detain suspected persons.

Louisiana to Have New Hospital.—During December, the new Louisiana Hospital for the insane, now being erected at Pineville, will be formally opened. To this hospital, 500 inmates of the Insane Hospital of the State of Louisiana, at Jackson, will be transferred, and Dr. George A. B. Hays will be superintendent.

WESTERN STATES.

The Hennepin County Medical Society of Michigan has expressed gratitude to the prosecuting attorney of Hennepin county, for the aid he has given the society in its endeavor to rid the State of those engaged in illegal and criminal practices.

New Addition to the University Hospital at Ann Arbor.—In order to better handle diseases of the eye, ear, nose and throat, the regents of the University Hospital have decided to erect a new building at a cost not to exceed $14,000. They have also refused to allow the erection of a detention house for contagious diseases.

FOREIGN NEWS AND NOTES

GENERAL.

A school for tuberculous boys will soon be opened at Frauenfeld (Switzerland) by a German doctor.

A congress of medical men is shortly to be held in Paris to devise means for putting a stop to the illegal competition of "witch-doctors," bone-setters, faith-healers, and every kind of medical "crank."

The best system for providing pure, healthy milk to thickly populated centers proved by actual test received an award of $1,000 from the Milan, Italy, exposition.

The Convection of Cholera.—Professor Chantemesse tells the Paris Academy of Medicine that rats, mosquitos and flies are terrible propagators of cholera—especially the flies. "The infection through flies is exceedingly common," he says, "and laboratory experiments have established the fact that these insects take up and transmit the cholera bacillus very easily." The professor calls on his brother physicians to teach French housewives that they must make fiercer, more unrelenting war upon the little black house-fly than upon the bedbug.

OBITUARIES.

George W. Miltenberger, aged 87, December 11, at his home in Baltimore, Md. He was graduated from the University of Maryland in 1840. He served as professor of anatomy in the University of Maryland; in 1849 he was appointed one of the attending physicians at the Baltimore city and county almshouse, and in 1852 was elected to the chair of materia medica and pathology, and in 1858 to the chair of obstetrics, and in 1890 was relieved from his active duties and was made professor emeritus and honorary president of the faculty, having seen 50 years of active service. He was at one time president of the Obstetrical Society of Maryland, of the Maryland Medical and Chirurgical Faculty. He also devoted some of his time to medical writings, the

most noted being "Version or High Forceps," "Puerperal Eclampsia," "Etiology of Puerperal Fever." He was held in high esteem by the medical profession and will be sincerely missed by his many patients.

W. J. McMurray, aged 63, December 4, at his home in Nashville, Tenn. He was graduated from the University of Nashville, medical department, Nashville, Tenn., in 1869. He served with the Confederate army during the Civil war. He was a member of the Nashville Academy of Medicine, of the State Medical Society, and of the Anthropological Society of London.

Peter Henry Reiche, aged 68, of Baltimore, from shock produced by being accidentally struck by a car, at the City Hospital. He was graduated from the University of Maryland in 1868. He was a member of the Medical and Chirurgical Faculty of Maryland, the Chemical Society of Baltimore, the Baltimore Academy of Medicine and of the American Medical Association.

Edward Osborne, aged 70, December 4, from heart trouble, at his home near East Hampton, L. I. He was graduated from the College of Physicians and Surgeons, New York City, in 1886. He was one of the most charitable men of his home city.

J. F. Failing, aged 64, formerly of Grand Rapids, Mich., December 6, from tuberculosis, at his home in Los Angeles, Cal. He was graduated from the University of Michigan. He was a Civil war veteran, having served through the war.

Morton Grinnell, aged 51, December 10, at his home in Milford, Conn. He was graduated from Yale University in 1875 and from Bellevue Hospital Medical School in 1879. He had retired from active practise about 15 years ago.

Joseph Furness, aged 64, from intussusception, December 8, at his home in Lancaster, Pa. He was graduated from the University of Pennsylvania in 1872. He had been in active practise for 35 years.

John Matheson, aged 35, of New York City, was found dead with a bullet hole in his head, December 8. He was graduated from the University of New York, medical department, in 1896.

William Kroh, aged 46, formerly of Baltimore, Md., December 11, at his home in Los Angeles, Cal. He was graduated from the University of Maryland, School of Medicine in 1886.

Evelyn D. Bissell, December 10, at his home in New Haven, Conn. He was graduated from Yale University, medical department, in 1860.

Cyrus Tracy Peckham, aged 52, from apoplexy, December 10, at Buffalo, N. Y. He was a member of the Marine Hospital Service.

FOREIGN.—**John Burdon-Sanderson,** aged 77, November 24. Formerly Regius Professor of Medicine at Oxford, England, the position now held by Dr. Osler. He was graduated from the University of Edinburgh in 1857. He contributed a number of articles to the medical profession and was instrumental in the opening of a physiologic laboratory at University College, London.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended December 9, 1905:

First Lieutenant JOHN W. HANNER, assistant surgeon, is relieved from duty in the department of Mindanao, and will proceed to Manila, reporting at the division hospital for duty.—JAMES R. MOUNT, contract surgeon, is granted leave for three months, with permission to visit the United States.—JOHN F. LEEPER, contract surgeon, is granted leave for two months, with permission to visit the United States.—Major FRANCIS A. WINTER, surgeon, is relieved from duty in the office of the chief surgeon of the Philippines Division and will proceed to Zamboanga, Mindanao, reporting for assignment to duty.—Captain CHRISTOPHER C. COLLINS, assistant surgeon, is granted leave for one month, with permission to apply for an extension to include Jan. 1.—ELMO D. MATHEWS, sergeant first class, now at Stewards Mill, Tex., is relieved from further duty in the Philippines Division, and on or before expiration of furlough will report at Whipple Barracks for duty.—First Lieutenant WM. T. DAVIS, assistant surgeon, is granted leave for three months, to take effect when he shall be relieved from duty in the Philippines Division, with permission to return to the United States via the Suez Canal.—Captain WILLIAM F. LEWIS, assistant surgeon, upon his arrival at San Francisco, Cal., will proceed to Chicago, Ill., and report to the commanding officer, Department of the Lakes, for duty as attending surgeon and examiner of recruits in that city.

Changes in the Medical Corps of the U. S. Navy for the week ended December 9, 1905:

E. O. HUNTINGTON, surgeon, ordered to treatment at the Naval Hospital, New York, N. Y.—J. S. WOODWARD, assistant surgeon, detached from the Brooklyn and ordered to Colon, Panama, for special duty.—J. H. HOLLOWAY, assistant surgeon, ordered to the Navy Yard, Norfolk, Va.—A. H. WISE, acting assistant surgeon, detached from duty with the Naval Recruiting Party No. 1, December 16, 1905, and ordered to the Navy Yard, Washington, D. C.

Changes in the Public Health and Marine-Hospital Service for the week ended December 6, 1905:

GEORGE T. VAUGHAN, Assistant Surgeon-General, granted leave of absence for two months and eight days from December 1, 1905.—J. M. GASSAWAY, surgeon, reassigned to duty at St. Louis, Mo., effective August 2, 1905.—F. W. MEADE, surgeon, upon being relieved by Surgeon A. C. Smith, to proceed to Charleston, S. C., for duty.—P. C. KALLOCH, surgeon, authorized to attend meeting of Maine State Board of Health, at Augusta, December 7, 1905, relative to smallpox.—J. H. WHITE, surgeon, relieved from duty at Mobile, Ala., and from special temporary duty in New Orleans, La., and directed to assume command of the service at New Orleans, La., relieving Surgeon A. C. Smith.—A. C. SMITH, surgeon, relieved from duty at New Orleans, La., and directed to proceed to Pittsburg, Pa., for duty, relieving Surgeon F. W. Meade.—G. M. CORPUT, passed assistant surgeon, relieved from duty at Pascagoula, Miss., and directed to report to Surgeon J. H. White, New Orleans, La., for special temporary duty.—R. L. WILSON, passed assistant surgeon, relieved from duty at Vera Cruz, Mexico, and directed to report to the medical officer in command, New Orleans, La., for duty and assignment to quarters.—R. L. WILSON, passed assistant surgeon, granted fifteen days' leave of absence en route from Vera Cruz, Mexico, to New Orleans, La.—T. D. BERRY, passed assistant surgeon, relieved from duty at Biloxi, Miss., and directed to proceed to New Orleans, La., reporting to Surgeon J. H. White for special temporary duty.—B. H. EARLE, passed assistant surgeon, reassigned to duty at Columbia River Quarantine Station, Astoria, Oregon. F. H. MCKEON, assistant surgeon, granted leave of absence for ten days from December 22, 1905.—B. F. DUKE, acting assistant surgeon, granted leave of absence for twenty-five days from November 29, 1905.—J. C. RODMAN, acting assistant surgeon, granted leave of absence for five days from December 3, 1905.—W. L. STEARNS, pharmacist, granted leave of absence for twenty-one days from December 9, 1905.—E. S. MAGUIRE, pharmacist, granted leave of absence for thirty days from December 2, 1905.—GEORGE I. VAN NESS, JR., pharmacist, granted eleven days' leave of absence from December 4, 1905.

Resignation.—Assistant Surgeon-General GEORGE T. VAUGHAN resigned, to take effect February 9, 1906.

SOCIETY REPORTS

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-third Annual Meeting, Held in Boston, Mass., September 25-29, 1905.

[Specially reported for *American Medicine.*]

[*Concluded from page 975.*]

The Collection and Preservation of Samples of Sewage for Analysis.—STEPHEN DE M. GAGE and GEORGE O. ADAMS (Massachusetts) stated that in collecting samples of sewage and the effluents of sewage filters for analysis, more representative samples would be obtained if each sample is the average of a number of small samples taken at short intervals. The preservative used must prevent chemic changes. Two preservatives which best fulfil these conditions are chloroform and carbon bisulfid. Both destroy the bacteria and prevent all bacteriolytic decomposition; both are sparingly soluble in water, and being heavier than water, they do not evaporate rapidly, requiring small amounts to be used in each sample. Both are comparatively inexpensive, and neither interferes with any of the usual analytic methods.

Methods of Bacteriologic Examination of Milk.—FRANCIS H. SLACK (Boston, Mass.) described the apparatus and methods in use at the Boston Board of Health Laboratory for collecting, plating, incubating and counting; also for direct examination of milk sediments and the microscopic estimate of the number of bacteria present, together with pus and streptococci determination. The methods of examination described are recommended as a system which has been reasonably successful in the practice for city laboratory work where quick reports are needed as well as the accurate examination of large numbers of samples.

Longevity of Bacillus Typhosus in Surface Waters and Sewage.—PROF. H. L. RUSSELL and MR. C. A. FULLER (Madison, Wis.) said that from their experimental work it appears that in relatively pure waters of a surface character, the typhoid bacillus is capable of retaining its vitality for about eight days. The results of their experiments confirm and extend on a broader basis the data obtained in the investigations made on the Chicago drainage canal. They have been carried out under sufficiently diverse conditions to warrant the belief that the typhoid organism in natural sewage does not live as long as it will in relatively pure water.

A committee consisting of John Guiteras, Frederick Montizambert, P. H. Bailhache, James Carroll, William Bailey, and Eduardo Liceaga, presented the following preambles and resolutions:

WHEREAS, The results obtained during the present epidemic of yellow fever in New Orleans by the methods of mosquito extermination, and by the prevention of the access of the mosquito to the patients, have been far in advance of the results obtained by the older methods; and

WHEREAS, It has been possible by the new methods to hold in check and to gradually reduce an epidemic that has taken a firm foothold in the midst of the largest nonimmune population that was ever exposed to yellow fever; therefore, be it

Resolved, (1) That the association sees in these results a further confirmation of the view that yellow fever is naturally transmitted only by the bite of an infected mosquito; (2) that the association is of opinion that an efficient plan of defense against the propagation of yellow fever at the beginning of an epidemic can be easily established upon the basis of this doctrine; (3) that the successful carrying out of such plan depends upon a thorough understanding of the mosquito doctrine by the people, and the support that they may give to the prompt and frank reporting and to the proper handling of the first cases and of all suspicious cases; (4) the association wishes further to congratulate the Public Health and Marine-Hospital Service for the brilliant work done by Joseph H. White and his colleagues in New Orleans, and to urge upon all concerned that the said service be called upon to take charge permanently of maritime quarantine along the Gulf Coast.

These resolutions were adopted.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine.*]

[*Continued from page 975.*]

Sarcoma of the Anterior Segment of the Globe.—O. TYDINGS (Piqua, O.) presented a brief history of a case upon which he had operated for the removal of a melanosarcoma of the anterior segment of the globe. The diagnosis was confirmed by reliable microscopists and pathologists. Five days after the removal of the tumor the patient disappeared, and the speaker did not see him again until the following August. There was no recurrence; the cicatrix is smooth; the lone pigmented spot, not larger than a pin point, which the author takes to be the remains of an old hernia of the iris, is still present, but absolutely quiescent. The patient's vision, when he first saw him, was: Right eye, 20/40, and when operated, 20/200; left, 20/30; is now 20/20 in each eye. So far as the author has been able to examine authorities, the case stands alone. Primary melanosarcoma of the cornea is rare. Nine cases have been reported of sarcoma of the cornea by different authorities.

Three Cases of Extraperitoneal Rupture of the Bladder Complicating Fracture of the Pelvis, with Recovery.—JOSEPH RILUS EASTMAN (Indianapolis) said that injuries of the pelvic bones are attended with more or less risk to life, which do not ensue solely from the damage done to the bones themselves, but arise usually from the injuries done to the viscera of the region involved. Formerly, death occurred in a large percentage of cases of rupture of the bladder. The mortality is naturally much higher in those cases in which a tear of the peritoneum makes possible the entrance of urine into the peritoneal cavity. However, extravasation of urine through the pelvic connective tissue, in cases of purely extraperitoneal bladder rupture, also formerly caused a high mortality rate. This mortality rate has been decidedly decreased by modern methods of dealing with shock, and free and rational bladder drainage. The immediate and characteristic symptoms of the injury are intense pain in the abdomen, collapse, and great irritation of the urinary reflex, with ineffectual attempts to void urine. Inability to void the urine is usually present, whether the peritoneum is torn or not. If the peritoneum is injured, peritonitis of the sthenic type develops duly. As the injury usually occurs while the bladder is full, an area of dulness and tenderness is to be found over the bladder, extending irregularly beyond the normal limitations of bladder dulness, and a large amount of bloody urine may usually be withdrawn by catheterization. As to the diagnosis of fracture of the pelvis itself, this can occasionally be made visually. Usually, however, the surgeon must depend upon his senses of sight, touch, and hearing for the wellknown signs of fracture, deformity, abnormal mobility and crepitation. The deformity is usually not pronounced. In the three cases described by the author, treatment consisted in combating shock, chiefly with normal salt solution and adrenalin, in the removal of clot, suture of the rent in the bladder, appropriate bladder drainage, rest, and the application of a bandage in such a manner as to prevent movement of the pieces of bones which are broken off.

The following **preamble and resolution** were unanimously adopted by the Section:

WHEREAS, The medical profession keenly realizes the great and increasing public evil, moral, mental and physical, arising out of the support given by the public press to the socalled patent medicine interests, leading to the pernicious practices of self-drugging, narcotic habituation, and alcoholic excess; be it

Resolved, That the Mississippi Valley Medical Association commends and frankly endorses the attitude adopted by *Collier's Weekly* and the *Ladies' Home Journal* in giving publicity

in the articles by Samuel Hopkins Adams, Norman Hapgood, and Edward Bok, respectively, to the truthful exposure of the nefarious practices and unscrupulous methods of the socalled patent medicine concerns.

Medical Section.

What is the Present Conception of Bright's Disease?—G. W. MCCASKEY (Fort Wayne, Ind.) read a paper with this title, in which he said that the only possible justification for the use of the term is a historic one, and while its meaning must in a sense change with the changing views of pathology, yet the primary groundwork which constitutes the historic basis on which it stands should be kept constantly in view. He presented a brief inquiry as to the character of the group of morbid states and symptoms originally described by Bright. The investigations of Gull and Sutton on the relation of arteriocapillary fibrosis as a cause of contracted kidney are the most important steps in broadening the views entertained concerning Bright's disease. They demonstrate the systemic or hematogenous character of one clinical type of the disease, which naturally stimulates thought and investigation with reference to other types along the same line. In spite of the advances in pathologic doctrine, in spite of the mutations of opinion and classifications, one cannot but be impressed by the close resemblance between the views entertained today and those of half a century ago concerning what may be called the gross features of Bright's disease. For the purpose of a broad general view of the subject, the author divides the causal conditions into six classes, each class being discussed at length. (1) The acute infections; (2) chronic infections; (3) chemic poisons introduced into the circulation, of which lead may be taken as a type; (4) the influence of cold; (5) the products of perverted gastrointestinal function, and especially intestinal putrefaction; and (6) the products of perverted metabolism.

The Combined Method of Treatment in the Arrest and Cure of Tuberculosis.—HENRY B. WEAVER (Asheville, N. C.) stated, among other things, that in order to wage a successful warfare against tuberculosis and prevent its spread, the method which is pointed out by nature consists in increasing as far as possible the organism. All efforts, therefore, should be directed toward that goal. As only 2% of tuberculous patients is treated in sanatoriums, that method cannot now bring the desired relief; 98% of patients is treated in their homes. Therefore, the general practitioner, as remarked by Osler, is after all the man behind the gun in this warfare, and to him and through him we must look for ultimate success. Tuberculosis will only then be vanquished, when it shall become possible to strengthen the organism and assist with specific powers which will render it immune against the disease.

The Treatment of Tuberculous Pleurisy with Effusion.—THEODORE POTTER (Indianapolis, Ind.) read a paper on this subject in which he presented the following deductions: (1) That the profession has gone too far in accepting the general principle and following the general practise that pleural serous effusions, unless they show a tendency to early absorption, should be removed; (2) granting that in the majority of such cases pleurisy is the dominant feature and removal of the fluid is the proper procedure, and that such removal will probably tend to arrest the pleural tuberculosis, which is usually present, nevertheless the best results ought to be obtained by dealing with each case upon its own merits; (3) in cases in which the pleurisy is the sole or dominant feature, the removal of the fluid is the proper treatment; and in proportion to the accuracy of differentiation between the pleural and the pulmonary disease will be the promise of good results by the removal of an effusion; (4) in cases in which tuberculosis of the lung is evidently or probably the overshadowing feature, a conservative course as regards the removal of a serous effusion is the proper one. In some cases the fluid had best be left to nature to take care of, with the hope that the compression, immobilization, and physiologic quietude of the tuberculous lung may tend to arrest the disease. In other cases of this type, the removal of the fluid should be undertaken only upon a deliberate judgment, after due consideration.

Tuberculosis in General Practice.—HUGH A. COWING (Muncie, Ind.) said that in his relation to tuberculosis the general practitioner should exercise great care in physical examination. He should strive to make an early diagnosis. He should carry a life-saving knowledge into the tuberculous home; improve its hygiene, and teach sanitation. He should employ the pure air treatment. The method will vary according to the individual case, and condition. He should cooperate with health boards, and report cases. He should estimate the cost before sending a patient to a health resort. He should study health resorts and sanatoriums, and visit them, if possible. He should oppose quack tuberculosis cures, and quack doctors, who "cure tuberculosis." He should influence the press for sanitation. He should fight patent medicines. He should expose Christian science, and kindred fads that rob the tuberculous patient of his chance for life. He should endeavor to seek legislation for sanitary advancement. He should help to popularize the tuberculosis sanatorium health farm. Membership in a society for the prevention of tuberculosis will make the physician's work more effective.

The Management of Neurasthenics.—H. A. RODEBAUGH (Columbus, Ohio) said that an individual becomes neurasthenic only after having suffered from some of the psychoneuroses, the latter having been caused by traumatism, by disturbed metabolism, or by peripheral nerve irritation. Heredity, occupation or environment can hardly be considered etiologic factors without further specification. Neurasthenia should be considered a mental rather than a physical disease. Mental symptoms often persist after the removal of all physical causes, and can only be relieved by psychic treatment. Mental hygiene is both preventive and curative. The neurasthenic should be taught that a healthy mental attitude conduces to bodily health.

Autointoxication.—D. L. FIELD (Jeffersonville, Indiana) in a paper on this subject, after referring to the theories and definitions of autointoxication, by Bouchard and others, said that the part played by the intestinal emunctories in the elimination of certain poisonous substances is attested by the commonly fetid stools of persons who frequent postmortem examinations. The fetid character recalled the putrid odor of emanations from the cadaver. If poisonous products have been absorbed, an effort should be made to destroy them. The liver has the power of arresting poisons. It withdraws them from the intestines and eliminates or destroys them. One should, therefore, stimulate its action by proper therapeutic measures. If the poisons have escaped the liver, they should be eliminated by the skin, the lungs, the intestines, and the kidneys. If all these attempts fail, one should have recourse to certain antidotes which tend to counteract the physiologic effects of the poisons which menace the system. As a striking example, he mentions the antagonistic properties of poisons in atropin and pilocarpin. The strength of the patient should not be neglected, so that he may have time to eliminate the poisons. Sometimes it is only necessary to keep a patient alive a few minutes more in order to save him. We cannot provide him with radical force, and what is required is active force. Thus the physician is led to administer stimulants which may awaken the forces that remain latent. Cases were cited in point.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

LATEST STATISTICS FROM JAPAN'S GREAT MILITARY AND NAVAL HOSPITALS: EBA INFECTIOUS DISEASE BRANCH AT HIROSHIMA, AND THE SASEBO NAVAL HOSPITAL.

BY

DONALD G. McCASKEY, M.D.,

of Lancaster, Pa.

To the Editor of American Medicine:—As the majority of American physicians have been much interested in the reports of the Russo-Japanese war, especially regarding its medical side, perhaps the publication of statistics collected during a three weeks' trip through Japan may not be amiss. During the time mentioned I visited the hospitals at Sasebo, Japan's greatest naval base; at Hiroshima, the army base, and at Tokio, 11 hospitals in all.



Fig. 1.

At the Sasebo Hospital, Dr. Suzuki, the hospital chief, furnished me with statistics taken directly from the record book for the entire period of the war, up to September 8, 1905. Only major cases were included and only those handled at Sasebo. The capacity of the hospital is 500, and the figures are as follows:

Major injuries to the skull (all varieties), 19 cases, 2 deaths; to the face and mandible, 18 cases, 0 deaths; to the neck with complications, 7 cases, 1 death; to the spinal cord, 2 cases, 2 deaths; to the thorax (all penetrating wounds), 13 cases, 4 deaths; to the clavicle and scapula, 9 cases, 1 death; to the humerus, 19 cases, 3 deaths; to the abdomen, 0 cases; to the elbow-joint, 6 cases, 0 deaths; to the forearm, 8 cases, 0 deaths; to the carpus and metacarpus, 7 cases, 0 deaths; to the pelvis, 4 cases, 0 deaths; to the neck of the femur, 3 cases, 2 deaths; to the shaft of the femur, 11 cases, 2 deaths; to the knee-joint, 11 cases, 0 deaths; to the tibia and fibula, 12 cases, 3 deaths; to the tibia, 16 cases, 0 deaths; to the fibula, 5 cases, 0 deaths; to the ankle-joint, 13 cases, 0 deaths; complete severing of upper extremity from body by shell explosion, etc., 7 cases, 2 deaths; complete severing of lower extremity, 10 cases, 1 death; making a total of 200 cases, 23 deaths, a mortality of 11.5% for the total number of major cases. (Minor cases are classed as burns, finger injuries, superficial wounds, muscle wounds.) I was assured that these cases comprised the entire number of major cases at the Sasebo Hospital during the late war. They represent not only Japanese but Russian sailors as well. Of the two deaths from fracture of the skull, one occurred shortly after the patient was admitted; the other was due to a brain abscess, which was discovered at autopsy some distance from the trephined site. The one death from injury to the neck occurred as the result of a suppurative process, extending through the wound into the trachea, esophagus, and cervical vertebras to the cord. In one of the spinal cord cases the autopsy revealed the bullet lodged in the cord itself at the level of the eighth dorsal vertebra. This specimen was preserved, Dr. Suzuki directing my attention to it when he visited the pathologic laboratory. Of the 4 deaths in the 13 cases of penetrating wounds of the thorax, 3 occurred from septic pneumonia soon after the patients were admitted; the remaining death followed the resection of a rib. I saw one patient, a gigantic Russian. The bullet or shell fragment had entered the left interspace near the sternum at an acute angle, and is still somewhere within the axillary thorax region. In five of the cases of injuries to the thorax, the patients were treated expectantly; in the remaining five cases, excision of a rib was performed. In the three septic pneumonia cases operation was not done, as the patients died shortly after admission. There were no perforating abdominal wounds. Dr. Suzuki is of the opinion that in cases of penetrating wounds of the thorax or abdomen, alert, watchful, expectant treatment, free from all meddlesome surgical efforts, is the best possible mode of procedure.



Fig. 2.

Of the clavicle and scapula injuries, the one death which occurred was that of a Japanese staff officer, and was due to sepsis. His wound was of the most complicated nature. Of the 19 cases of injuries to the humerus, 9 required amputation at different sites, 2 being at the shoulder-joint. These two patients died. The cause of



Fig. 3.

Figs. 1, 2, and 3 illustrate some of the wounds resulting from the recent battle of the Japan Sea. Patients treated at Sasebo.

the third death is not recorded. Amputation was done in one case of the six reported for injury to the elbow. Of the four pelvic injuries, two were in the sacrum and two were in the ilium. From one of the patients was taken a half-pound screw. This patient recovered.

The sole survivor of the three victims of injury to the neck of the femur was still in the hospital dying by inches. His acetabulum was shot away, in addition to the neck of the femur, and great trochanter. All that is left of his right arm is a four-inch stump. Already he is suffering greatly from bed-sores, and this too, in spite of skilful nursing and the ingeniously constructed surgical appliances to support his affected hip and body. One of the two deaths from fracture of the shaft of the femur occurred soon after the patient was admitted. He had a penetrating wound of the chest, complicated by lacerations in the neck and lumbar regions. The Sasebo surgeons are emphatically in favor of nonwiring of bone in the treatment of this class of patients. Although none of the 11 patients with knee-joint injuries died, in two of the cases amputation had to be done later.

Amputation was done in 11 of the 12 cases of injuries to the tibia and fibula. Of the three deaths which occurred in this series, one was from tetanus, one from shock, and one from septicemia. In the 16 cases of injuries to the tibia and the 13 cases of injuries to the ankle-joint, amputation was only required in one case of each series.

The following medical statistics were obtained from the record books of the Eba Hospital Branch for Infectious Diseases, at the Hiroshima Military base, which has a hospital capacity of 12,000; that of the Eba Hospital being 1,500. They were given to me by Dr. H. Yamaguchi, chief of the hospital, and include all cases in the hospital from July 2, 1904, to September 3, 1905:

Dysentery, all forms, chiefly amebic, 2,139 cases, 219 deaths (10%); typhoid fever, 1,531 cases, 294 deaths (19%); tetanus, 60 cases, 36 deaths (60%); tuberculosis, 926 cases, 98 deaths (10%); erysipelas, 116 cases, 8 deaths (7%); variola, 15 cases, 1 death (7%); leprosy, 56 cases, 0 death; cerebrospinal meningitis, 68 cases, 14 deaths (20%); morbilli, 72 cases, 0 deaths; scarlatina, 3 cases, 0 deaths; intermittent fever, 3 cases, 0 deaths; all other diseases, including pneumonia, endocarditis, peritonitis, pleuritis, leukemia, etc., 182 cases, 2 deaths (1%); making a total of 5,171 cases, 672 deaths (13%). There were no malaria cases in the hospital, and I failed to discover where such patients are treated.

Although the foregoing statistics are confined to two important hospitals, they may be fairly accepted as representative of the character of cases and the percentage of mortality in all Japanese hospitals.

In conclusion, I would emphasize the fact that the statistics I have given are absolutely accurate, and for this reason may prove of interest to readers of *American Medicine.*

A SCHEME FOR PROTECTION OF THE RÖNTGEN-RAY OPERATOR.

BY

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Figure I—A, B, C, D—represents a lead-lined wooden frame hinged at B. To the wall A D, is attached the current plug and the rheostat. X and Y represent two handles which hang from above, by means of which two multiple spark gaps attached to the coil can be controlled. O and Q are two small windows of heavy lead glass. Through O the patient and the tube can be watched.

Figure II represents a middle vertical section of the front B C. M N is a lead-lined board balanced by a system of weights and pulleys. It carries the tube by an outside arm and the fluoroscope by an inside arm, as shown in the figure. At R is a circle of 6 in. diameter, which can be diminished at will. The anode of the tube, the center of the circle, and the center of the fluoroscope can be adjusted to occupy the same straight line. They then, together, can be readily raised or lowered. This gives us a vertical orthodiagraphic effect. The lateral movement of the patient gives us a transverse orthodiagraphic effect. To the fluoroscope F is hinged a mirror L at an angle of 45°. The observer stands entirely outside of the primary ray beam 1–2–3,

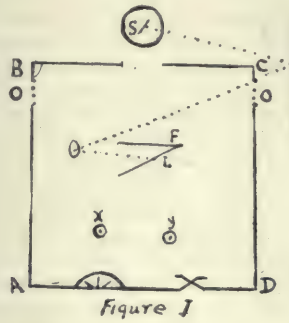


Figure I

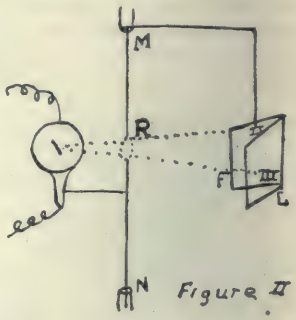


Figure II

and watches the reflected shadows in the mirror. He is even then subjected to the secondary rays emitted by the patient's body, etc., but these are trivial compared to the primary beam. The view obtained is satisfactory and the pulsations of aneurysms and the movements of the diaphragm can be clearly seen. The leaden lining is metallically connected with the gas pipe, so as to conduct away the induced electric currents.

A just criticism of such a scheme as this would be that it presupposes much knowledge as to the appearance of röntgen-ray tubes of different vacuums when energized. This necessary knowledge can be acquired in a way readily understood by referring to Figure I.

T is a mirror so placed that the reflection from the tube S can be seen by looking through the window Q. Its penetrating power can at the same time be gauged by interposing various structures, *e. g.*, movable aluminum plates between the tube and the fluoroscope; by means of the spark gap the appearance of the tube and the ray penetration can be varied at will and mentally correlated.

The Liverpool School of Tropic Medicine announces that it proposes to appoint two qualified medical practitioners to work on trypanosomiasis and spirillosis at the school. The salary to be paid is at the rate of £100 per annum.

Adopts Medical Inspection.—Medical inspection of school children has been adopted by the Chelsea Mass. School Committee, and the proposed system will at once be given a trial. The report of the committee of three local physicians, who investigated the subject says that in order to carry on the work with any degree of benefit to the children it will be necessary to make at least three visits weekly to each school, and more if necessary. The success of the inspection is dependent in a large measure upon the power of observation of the individual teacher and upon the authority given the inspectors in connection with the exclusion of pupils suffering from disease. It is recommended that all cases of infectious or contagious diseases be excluded until cured. Permits to return to school will be issued to pupils only by the inspector who orders their exclusion. None of the cases will be treated by the inspectors, but the children will be sent to their family physicians.

ORIGINAL ARTICLES

THE CAUSE, COURSE, PREVENTION, AND TREATMENT OF BERIBERI.[1]

BY

HAMILTON WRIGHT, M.D. (McGILL),

Beriberi Research Commissioner, London School Tropical Medicine; Pathologist, West London Hospital and Postgraduate College; Late Director, Institute for Medical Research, Federated Malay States.

I shall not attempt more than to outline the results of my researches into the cause, course, and treatment of beriberi. Full details have already been published.[2]

The cause of beriberi appears to be a bacillus which gains entrance to the alimentary canal in contaminated food and drink. It chooses for the site of its activity the contents of the stomach and small intestine, but chiefly the pylorus of the former and the duodenum. The bacillus, after causing a necrosis of the mucosa of these parts, with congestion and small-celled infiltration, invades the unhealthy mucosa and continues its work. At the site of its activity it appears to elaborate an extracellular toxin, which on being absorbed into the circulation, poisons the peripheral terminations of the fibers in the different systems of neurons, and thus induces symmetric, bilateral, sensorimotor, cardiac, and vasomotor paralyses.

After a few weeks' activity, the bacillus and its toxin are eliminated, the paralyses which the toxin has induced either subside, or they resolve into narrower limits, and continue for months or years, until the subjects are carried off by an intercurrent disease or cardiac failure.

The causal bacillus of beriberi seems also to be able to accomplish its effects by invasion of an open wound. Therefore, we not infrequently see beriberi after surgical operation, in chronic ulcer cases, and in parturient women. In all classes of acute beriberi, the specific bacillus appears to induce its remote effects, paralysis, by means of an extracellular toxin carried to the neuronal terminations in the circulation. There is as yet no evidence that the bacillus extends within the body.

Upon clinical and postmortem observations extending over some six years, I have classified beriberi into (1) acute pernicious beriberi; (2) acute beriberi; (3) subacute beriberi; and (4) beriberic residual paralysis or the disease as it appears after the specific organism and its toxin have been eliminated and the engendered paralyses have failed to clear up.

Clinical Summary of Acute Pernicious Beriberi.—This form of the disease is rapidly fatal as the result of the severe impact of the beriberic virus on the cardiac nervous system. If one happens to be watching a community in which beriberi rages, it is observed that even the more robust members suddenly complain of symptoms that suggest acute indigestion. There is loss of appetite, or a disinclination for solid food, malaise, oppressive feelings in the deep epigastric region, cold or hot flushes in the legs or trunk, and sometimes sore throat. The throat is found reddened, pressure of the epigastrium is resented and causes obvious pain. The patient often indicates quite definitely that the epigastric sensations are deep, and in the position of the pylorus and duodenum. In a few days, or even hours, the knee-jerks disappear, rarely they become plus, a pretibial edema develops, subjective and objective sensory disturbances occur in the feet and legs, motor weakness of the peroneals and anterior tibials is demonstrable, the cardiac rhythm is found to be embryonic in character, or it gallops, one or several cardiac sounds reduplicate, hemic murmurs may be heard, the cardiac area extends with alarming rapidity to the right, a marked precardiac impulse contrasts with a weak irregular pulse, the cervical veins and epigastrium throb, dyspnea intrudes, delirium cordis develops, and in a few days or even hours the patient dies of cardiac failure. In the meantime the sensorimotor disturbances and edema have together, or separately, marched to the thighs, hands, arms, and trunk. The face may not escape, and not infrequently the diaphragm, pharynx, larynx, and the internal and external ocular muscles become involved.

Pathologic Summary.—The external appearance of the cadaver depends largely on the amount of edema which has developed before death. A general anasarca will mask other signs. Where edema has not extended beyond the legs, the cervical veins are greatly swollen. Rigor mortis is early if there has been a long agony. The eyes are partially closed and a bloodstained froth is found on the lips. The pharynx is moderately reddened. The serous cavities contain varying amounts of clear straw-colored fluid. The stomach and duodenum are toneless, dilated, and empty. Their mucosa is deeply congested, rugæ and valvulæ are flattened and present numerous small hemorrhagic injections. Rings and patches of brilliant congestion occur, and prove to be markedly dilated capillaries. They suggest sprinklings of red pepper. This congestion and injection may be found as low as the cecum; in a few instances I have found it in the ascending colon. As a rule it is most marked and occasionally wholly confined to the pylorus and duodenum. A thin pellicle of treacle-like mucus has occasionally to be stripped from the congested mucosa, but no true membrane is ever formed. Infrequently the congestion proceeds to hemorrhagic erosion of the gastroduodenal mucosa. The first chain of mesenteric glands is usually swollen. The liver, spleen and kidneys are markedly congested and may be moderately swollen, but in uncomplicated cases exhibit no other gross change. The contents of the thorax present a characteristic appearance. The lungs look massive from hypostatic congestion and edema of their bases, and from acute emphysema of their apices, and ventral borders. The heart looks large. It is only greatly dilated, especially the right chambers. The latter are full of dark semifluid clot. A moderate amount of similar clot occurs in the left ventricle. The right chambers are enormously dilated, the walls are thinned and the tricuspids are relatively incompetent. The muscle may have a greasy feel, but the fatty degeneration is not usually apparent to the naked eye. Occa-

[1] Read before the American Public Health Association at the thirty-third annual meeting, Boston, Mass., September 25–29, 1905.

[2] See the British Medical Journal, June, 1901; Studies from the Institute Medical Research, Federated Malay States, Vol. ii, No. 1, May, 1902; Brain, Winter Number, 1903–1904; Studies from Institute Medical Research, Vol. ii, No. 2, December, 1903; Journal of Hygiene, Vol. v, No. 2, April, 1905.

sionally the outer wall of the right ventricle is spongy and on pressure exudes a considerable amount of blood. The left ventricle is usually slightly dilated. There is no hypertrophy in uncomplicated cases. On the contrary, both right and left walls may be thinned. The encephalon and cord are normal looking, also the peripheral nerves.

Microscopically, the gastrointestinal mucosa exhibits all the signs of an acute inflammatory process. There is a more or less extensive small-celled infiltration, the vessels are engorged with red cells, and leukocytes bearing debris, the epithelium of the villi and necks of the glands is markedly necrosed, and a small amount of fibrin has been precipitated. Lying between the necrosed cells are varying numbers of a bacillus of constant morphologic character. In some instances it exists in pure culture, in others it is predominant. In length it is from 4 to 6 microns, and in breadth from 1 to 1.05 microns. The ends are slightly rounded. It stains with the ordinary basic dyes, and *is not to be decolorized by Gram.* All stains leave from one to three finely striated bars across the organism. The muscle fibers of the heart exhibit an extreme fatty degeneration. There is usually some fragmentation of the fibers of the right heart. There is also some dissociation of the individual fibers. A few foci of small cells are found beneath the membranes. The capillaries are crowded with red cells. The lungs exhibit the changes characteristic of hypostatic congestion and moderate edema. The kidneys are unchanged except the intense congestion. In uncomplicated cases there are no changes of note in the liver and spleen. As in the kidneys, their vessels are crowded with erythrocytes. The nervous system is profoundly implicated. The effects of the beriberic toxin are exhibited by the peripheral terminations and trophic centers of the fibers. Sensory, motor, and cardiac fibers show the same kind of change, though it differs somewhat in degree. Fibers first and most severely implicated, such as the anterior tibial and cardiac, react most plainly to Marchi. Of all the fibers implicated, the vagal are the most important, and so they will best serve as an example. Their terminations in the heart, in the gastroduodenal walls and in the deep cardiac plexus, exhibit by Marchi, black dots and dashes at the nodes and internodes. It is rare to see droplets of altered myelin. The medullary sheath does not appear to have broken down, but only to have been chemically changed. It is probable that the earliest act of the beriberic toxin is invisibly microchemic, and breaks the synapses between fiber and muscle or skin, followed by a visible chemic change in the medullary sheath readily detected by Marchi. In any event, the changes found in acute pernicious beriberi are not truly degenerative, but only toxic. In the vagal twigs, no single fiber termination is greatly changed, but every termination is poisoned. It is this that makes the poisoning of the vagal cardiac terminations so serious a matter. A few terminations completely destroyed would not cause death, but the moderate damage of the whole number soon leads to cardiac failure.

Acute beriberi in its clinical aspect differs from the acute pernicious form only in degree. The gastroduodenal syndrome which ushers in the disease is as marked, and the consequential paralyses, sensory disturbances and edema may be severe and widely distributed, but the terminations of the cardiac nervous system are never so deeply implicated. Death from cardiac failure is, therefore, a rare event in the early acute stage of the disease. When it does occur within the first 20 days or so, the anatomic changes are not different from those of acute pernicious beriberi.

Subacute beriberi is insidious in its onset, and patients seldom complain of or recall symptoms anterior to the actual edema and sensorimotor paralyses of the legs. The cardiac nervous system is but slightly, or not at all involved. The disease is not, therefore, of itself fatal.

Course of Beriberi.—Cases of acute beriberi which do not succumb in the active, acute stage of the disease, follow one of two courses: First, they run a fairly definite course, ending in recovery. This is especially so when the disease is taken seriously and accorded the treatment usually meted to acute neuritis in an occidental hospital. About 15 or 20 days after the onset of the disease the symptoms of gastroduodenal irritation clear up, the slight pyrexia which may have been present disappears, and the deep epigastric pain is no longer demonstrable. If the patient has been strictly confined to bed the edema will have almost vanished, and now subsides entirely. The sensorimotor disturbance ceases to spread, and soon begins to resolve. By the fifth or sixth week of the disease the heart rhythm has steadied, the cardiac area has contracted to normal, the motor paresis has disappeared, and except for the continued absence of the knee-jerks, the patient may be said to be well again.

The second course of beriberi is a serious one and generally incapacitates the subject for life. Up to the end of the third or fourth week cases in this category proceed as those in the first. The gastroduodenal irritation, deep epigastric pain, any pyrexia that has shown and the edema subside. The sensorimotor paresis contracts to the hands, arms, and legs, or altogether to the legs, and it looks as though the patient was about to reach normal. Then for some more or less obvious reason, such as that the patient is allowed on his feet too soon, or has not been compelled to rest from the onset, or because the impact of the beriberic virus has been crushing, there is a halt in the subsidence of the different paralyses and sensory disturbances. And now, what may have been an almost complete flaccid paresis, a wide affection of sensation, or a marked cardiac weakness and irregularity, resolves into narrowly confined atrophic paralysis of the legs, and arms, perhaps definite anesthesia of the legs, trophic changes in the tendons, and a weakness and irritability of the heart, troublesome on exertion. What has been a general anasarca remains so or fluctuates between that and edema of the legs. In course of time these residual paralyses become more marked, or some one predominates. It may be cardiac weakness, atrophic motor paralysis, anesthesia, analgesia or edema, and we then have beriberi, as most often seen in endemic areas.

It should be needless to point out that in these residual paralytics we have to do with nervous wrecks, left by the toxin of a specific organism long since elim-

inated. The real factor in these residual paralyses is not a toxin constantly acting, but the extension of a degenerative tendency imparted to the neuronal terminations by a toxin in the active, acute stage of the disease. The residual paralyses are, as a rule, confined to those sensorimotor and vasomotor areas which were the first to be implicated in the acute stage; to the cardiac and anterior tibial muscles, and the sensory areas of the legs and feet, for instance. As time passes the degeneration in these neuronal terminations, which do not recover on the elimination of the beriberic virus, not only extends laterally in each individual termination, but migrates along the fiber toward its trophic center.

For cases of beriberi which take this second course I have proposed the term, beriberic residual paralysis. This term may be modified so as to indicate which of the neuronal systems, cardiac, motor, sensory, or vasomotor is most deeply implicated.

Patients with beriberic residual paralysis may live for many years, depending largely upon the progress of the degeneration of the vagal cardiac fibers. Death is usually due to some cause inherent in the disease itself, generally cardiac failure, or to some intercurrent disease.

Pathologic Summary of Beriberic Residual Paralysis.—The appearance of the cadaver depends upon the duration of the disease, and upon the neuronal system most involved. There may be marked wasting of the leg, arm, and hand muscles. On the other hand, edema may be the salient feature. I propose to take for example a case of say two years' standing, in which the patient has finally succumbed to heart failure. If no rigor mortis is present, the wrist, ankle and knee-joints are remarkably loose. The latter permit of an extensive retroflexion. The stomach and small gut are generally slightly dilated, but there is a complete absence of the gastroduodenitis seen in the acute stage of the disease. Varying amounts of clear, straw-colored fluid are found in the abdominal and other serous cavities. The spleen is generally swollen and passively congested. A slight increase in the connective is sometimes present. The liver is round edged and passively congested. A moderate increase in the connective is found, and fatty and brown atrophy is common. The kidneys occasionally suggest cloudy swelling, but generally nothing but a marked passive congestion is present. The pancreas and other abdominal viscera exhibit nothing of note. The lungs are deeply congested at the bases and cut with more resistance than when normal. The apices and anterior borders are emphysematous. The heart is large. The right chambers are full of dark, semifluid clot. A small amount of similar clot is found in the left ventricle. The right side is, in the great majority of cases, eccentrically hypertrophied. In a small number there may be a thinning of the walls. A moderate hypertrophy of the left wall is not uncommon. The muscle is not firm and dark red, as is usual in hypertrophy, but fatty looking, and decidedly greasy to the finger. The whole organ is flabby. The tricuspids are generally relatively incompetent. The encephalon and cord appear normal to the naked eye. Nerve fibers to the atrophic muscles are thinned.

Microscopically, it is seen that the atrophy of the somatic muscles is of the parenchymatous type. Fatty degeneration and thinning of the individual fibers is more or less marked. The hepatic cells exhibit a moderate fatty and pigmentary degeneration. The protal canals are marked out by a moderate fibrosis. Foci of small cells are found beneath the capsule and about the interlobular vessels. The capillaries are engorged with red cells. The glomerulæ and epithelium of the convoluted tubules of the kidneys are rarely fatty and cloudy. A few subcapsular foci of small cells are seen. The spleen, barring an extreme passive congestion, exhibits no change. The cardiac muscle is profoundly changed. Fatty and pigmentary degenerations are often combined and are always extreme. Rarely, there is a slight increase in the intermuscular connective tissue. Fragmentation of the fibers is not often seen. Foci of small cells are frequent beneath the membranes. A few of Remak's and Bidder's cells are always profoundly atrophied.

It is in the nervous system that we find the most remarkable changes. The slight poisoning in the acute stage has been succeeded by a true degeneration. Two factors are concerned in this conversion—the impact of a toxin of great potentiality on neurons of low power of resistance, and inadequate treatment. The degeneration is not strictly terminal, as is the poisoning of the acute stage of the disease, but often migrates well toward the plexuses. I have never, however, even in cases of 15 years' duration, found degeneration in the plexuses. Between the centralward extension of the degeneration and the trophic cells there is always an hiatus. There is another important difference between the fibers as seen in residual paralytics and the acute stage of the disease. Whereas, in the latter, all the terminations in a given nerve twig are more or less poisoned, in the former only a moderate proportion are degenerated. The general poisoning of the acute, active stage of the disease, has resolved into a narrow degeneration of the residual stage of the disease. In the vagi, which we may take as an example, from a quarter to a third of the fiber terminations have failed to recover on the elimination of the beriberic toxin, but have developed a true degeneration, Wallerian in appearance. These degenerated fibers are not numerous enough to kill suddenly, but are in sufficient numbers to affect profoundly the nutrition and action of the heart (and plus strain), ultimately to cause death. What is true of the vagal cardiac fibers, is true in a general sense of the nerve fibers to the somatic muscles. The trophic centers in the cord and bulb of all atrophied fibers exhibit degenerative changes, the extent of which is closely related to the amount of degeneration in the fibers.

It will be seen that in beriberic residual paralysis, we have to deal with true degeneration causing atrophy, while in acute beriberi, we have to deal with a simple poisoning causing flaccid paresis.

Working Theory of the Cause and Nature of Beriberi.—Taking all the facts of beriberi into consideration, I have propounded the following theory as to the cause and nature of the disease: That it is an acute infection with an incubation of from 10 to 14 days; that the exciting cause is a specific bacillus not yet isolated; that this bacillus ordinarily effects its purpose by invading the

alimentary canal; that the chief site of its activity is the contents and mucosa of the pylorus and duodenum; that its local action causes a necrosis and inflammatory reaction in the mucosa of the affected parts of the alimentary canal, which for convenience may be termed a gastroduodenitis; that its remote action is on the peripheral terminations of the nerve fibers by means of an extracellular toxin elaborated at the site of the local lesion; that the remote effects on the fiber terminations are of the nature of a poisoning, which rapidly clears up on the elimination of the causal organism and its virus; that nevertheless the impact of the virus on the terminations may be, and often is destructive in its tendency and so leads to true degeneration in the terminations, with consequent atrophic paralysis of the somatic muscles, anesthesia, and cardiac weakness; that the active stage of the specific bacillus is about three weeks; that the bacillus escapes in the feces and becomes deposited in dark, damp places, whence by the agency of flies, or by manipulation, it contaminates food and drink; that by the ingestion of such food and drink the disease arises again. This working theory includes the possibility that the specific organism may gain a wound, and through the agency of its toxin, give rise to acute beriberi minus the gastroduodenal irritation.

Stated concisely, beriberi is caused by a specific bacillus that, multiplying in a mucous surface or wound, elaborates an extracellular toxin, which induces its effects by poisoning and setting up a degenerative tendency in the peripheral terminations of sensorimotor and autonomic neurons.

Treatment of Beriberi.—In April, 1902, I made certain recommendations to the government of the Federated Malay States and Straits Settlements for the control of beriberi. They were based on the foregoing working theory of the disease and were to be applied to the Kuala Lumpur gaol, where beriberi had been epidemic for seven years. The chief recommendations were that the ventilation of the gaol be improved; that the gaol be made dryer; that the entire gaol be disinfected at short intervals; that the prisoners be no longer permitted to defecate in their cells, and that all gaol work should be done in the open air so far as possible. It was also recommended that in all acute cases of beriberi the patients be isolated for a month; that their stools be treated as typhoid stools are treated. A long series of observations and investigations had convinced me that diet, considered as diet, was not an active factor in the causation of beriberi. It was therefore pointed out to the authorities that so long as the diet of the prisoners was wholesome it need not be regarded.

Since the institution of these recommendations, the gaol diet has been of the standard that obtained when beriberi was epidemic. In spite of this, the result of the application of the hygienic measures has been most brilliant. Beriberi has, in fact, disappeared from the gaol. From August, 1895, when beriberi invaded the gaol, to October, 1902, some 2,500 cases of beriberi had occurred in the gaol, among a daily average of about 400 inmates. The deathrate had averaged about 20%, and another 15% was left in a state of residual paralysis. The application of the hygienic measures as outlined was begun in May, 1902, and became effective in October of the same year. Since November 1, 1902, there have been about 30 cases of beriberi, with two deaths, in a daily average of about 500 prisoners.

This reduction of the gaol beriberi was no accident; for in the surrounding country from which the inmates of the gaol are drawn, the disease has not at all abated. Table No. I is of the cases in the gaol just before and after the application of the hygienic measures. Table No. II is of the inmates of the District Hospital, Kuala Lumpur, which draws its patients from the area which feeds the gaol with prisoners.

TABLE I.—NUMBER OF CASES.

	1902.	1903.	1904.		1902.	1903.	1904.
January	.....	6	0	July	38	0	3
February	.....	0	0	August	26	0	0
March	.....	0	3	September	28	1	0
April	.....	0	0	October	32	1	0
May	64	0	0	November	4*	0	0
June	49	0	1	December	11	0	0
				Totals	252	8	7

* Hygienic measures effective.

The numbers of cases per month from May to October, 1902, indicate the prevalence of the disease for the years 1895 to May, 1902, that is, before the nature of beriberi was made clear. The number since October, 1902, indicates how controllable beriberi is by efficient hygienic measures, since I determined the nature of the disease.

TABLE II.

	Admissions.			Deaths.		
	1902.	1903.	1904.	1902.	1903.	1904.
January	.....	67	48	.....	16	17
February	.....	61	50	.....	7	11
March	.....	61	73	.....	11	10
April	.....	69	70	.....	12	9
May	84	67	.....	23	17	.....
June	67	80	.....	16	16	.....
July	67	52	.....	14	12	.....
August	56	57	.....	10	17	.....
September	40	51	.....	5	18	.....
October	54	80	.....	12	12	.....
November	55	85	.....	6	30	.....
December	67	66	.....	14	24	.....
Totals	490	796	241	110	192	47

This table clearly indicates that beriberi remained epidemic in the area from which the prisoners in the gaol were drawn. In view of these results, it may be stated with considerable assurance that a correct personal and institutional hygiene, such as would be directed against diphtheria or typhoid, will surely stamp out beriberi.

Medicinal Treatment of Beriberi.—It is evident that if the foregoing theory of the cause and nature of berberi is correct, we have to deal with a disease which calls loudly for an antitoxin; but before this can be had, the specific bacillus must be isolated. I am working to that end now. In the meantime, the chief measure in the treatment of acute beriberi is rest in bed. Because the sensorimotor and cardiac disturbance is slight, the patients are, as a rule, permitted to wander at will. The result is that the moderate poisoning of the neurons is given a degenerative turn, and the paralyses, instead of clearing up on the elimination of the

toxin, become fixed or more pronounced. I insist on rest in bed until the pains in the calves subside and the heart sounds approach the normal. If the preliminary gastroduodenal irritation marks the local action of the specific bacillus, as I am convinced it does, then calomel ought to be exhibited in small doses at short intervals. In the case of parturition or wound beriberi, carbolic, or other antiseptic lotions are called for. In the event of threatened cardiac failure, strophanthus is the best drug; for, undoubtedly, a factor in the circulatory disturbance of acute beriberi is a low peripheral pressure due to a poisoning of the nervivasorum. Strychnin should not be used in the acute stage of the disease. Its action on the trophic cells of the acutely poisoned neurons would probably be more inimical than its benefit to the circulation. I have tried bleeding to relieve the distended heart in acute beriberi, but with questionable success. The best results are obtained in Sir Patrick Manson's clinic from absolute rest in bed and restriction of fluids. Rest in bed and the simple diuretics are also the best remedies for the edema.

In the stage of residual paralysis, remedies which have proved effective in other forms of chronic neuronal degeneration are called for; gentle exercise, massage, electricity, and small doses of strychnin or arsenic. The cardiac condition should be closely watched. It will be recalled that the cardiac disturbance is due to two factors: (1) Degeneration in the vagal and accelerator nerve fibers; and (2) fatty and pigmentary atrophy sequel to it. Compensation is partially established by the hypertrophy of the ventricles, principally the right. When this breaks, digitalis and strophanthus may be employed. It is often well to combine with them some strong stimulant, injections of ether for instance. Morphin injections often relieve the dyspnea; but there is really nothing that so quickly relieves threatened cardiac failure and dyspnea as rest in bed.

THE SHORT NARCOSIS, THE SHORT INCISION AND THE SHORT STAY IN BED AFTER IDEAL OPERATIONS.

BY

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The ideal operation depends upon ideal and uncomplicated conditions. Most essential is the exclusive diagnosis. In hernia this exclusive diagnosis is generally easy and absolute; in appendicitis it is often as good as absolute; in cholelithiasis it frequently becomes absolute after the operation is well begun, and the stone discovered; and in many other cases the diagnosis is as favorable to treatment as if an exclusive diagnosis had been made. Too much time is often spent by the patient on his back after operation, and too little by the surgeon at the bedside and in the laboratory before the operation. In order to make the stay of the patient short after surgical intervention, he should be studied in the hospital for days or even weeks before operation is undertaken. I distinctly remember the irritation and complaining submission of a patient that I had studied from the first of December to the middle of April before I did a nephrectomy and ureterectomy for violent cystitis, and the great satisfaction and surprise at her return to work within two weeks after so serious a procedure.

The second condition upon which the ideal operation depends is reliable operating-room service. This consists not alone in equipment which money will buy and set up anywhere, but a permanent and trained management, which only few operators can secure. There are hundreds of hospitals with perfect material equipment, but only tens with reliable operating-room service and management. Wherever commercial greed, eleemosynary display, religious or national prejudices dictate hospital management, ostentatious extravagance is manifest in the operating-room equipment, and niggardly parsimony or criminal ignorance in the operating-room service.

The third condition to the ideal operation is a corps of permanent, trained, and sympathetic assistants. Every operation requires at least one assistant, but more than two assistants add to the dangers of infection without increasing the facility and brevity of the procedure. Only when special complications exist, or unusual diversity of manipulation is necessary, are three or four assistants desirable. In hernia, when twisted silk suture material is used, one assistant is detailed for this service alone, and when vaginal, rectal, or pharyngeal manipulations are necessary in operations in the neighborhood of these canals, an assistant should be prepared for such maneuvers. The same may be said of the management of electric illuminating and accessory skiagraphic apparatus. No ideal operation can be performed with assistants picked up for the occasion and unused to the operator's methods and his technical foibles.

The advantages of the short anesthesia seem obvious. Any anesthesia is likely to be attended by danger, but no one would hold that a brief narcosis was more dangerous than a protracted one. Anesthesias of an hour or more are attended by more inexplicable disasters and distracting discomforts than those which last only 10, 15, or 20 minutes. It is a fact, of course, that sudden death sometimes occurs under chloroform at the very first inhalation, and the malignant toxemia which occasionally proves disastrous, with the symptoms of acute yellow atrophy of the liver, does not seem to be dependent upon the duration of the narcosis. Still, even in this dark corner of clinical history no one would maintain that a shorter anesthesia was more dangerous.

It is my custom to use gas, and occasionally continue the anesthesia with ether in ideal operations. Most of my patients have been able to take gas readily, and have been kept anesthetized the necessary 20 minutes or half hour with only occasional resort to ether. In a few instances, on account of obesity, chloroform has been used to continue the anesthesia.

A number of patients have preferred to have ideal operations performed under local anesthesia. I have repeatedly operated in the aged and in those suffering from septic and uremic intoxication with Schleich's infiltration. In this manner I have opened and drained the gallbladder, drained periappendiceal abscesses, performed appendicectomy and suprapubic cystostomy; I

have opened the pleural cavity for empyema, and resected a rib, beside amputating extremities and performing many minor operations. The duration of an operation under Schleich's infiltration is generally somewhat longer than under gas or ether, and the dangers of infection in the wound are greater. It is, therefore, desirable in these cases to leave the edematous wound open for a day or two, and then close it with a suture left untied at the time of the operation.

The use of scopolamin, morphin and chloroform is not a sufficiently established procedure to be recommended. It is certainly a marvelous phenomenon to see patients operated upon under the profound sleep of scopolamin, and after such an exhibition the reluctancy of the surgeon of the 1840's to use ether can be appreciated by us today. Should the future demonstrate the safety of this method, it will certainly be a valuable addition to our anesthetic resources.

The short incision is one of the dictates of good surgical judgment. It inflicts the minimum amount of traumatism and gives adequate access to the field of operation. This method was first practised by the gynecologists when they made it a routine to spay every patient that came into their operating-room, and they manifested an unequalled dexterity in removing the ovary through a minimum incision. It is not only possible but easy to remove the gallbladder, the appendix, or an ovarian cystoma through an extremely small cut. The opening should be made so as to divide as few structures as possible and preserve the strength and integrity of the abdominal wall. This is done by the longitudinal separation of the fascia and muscles and by selecting the most favorable locations for this procedure. One of the greatest advantages of the short cut lies in the short time consumed in its closure. A continuous catgut suture closes the peritoneum, and two or three stronger stitches hold the separated layers of fascia or muscle in place. The closure of the fat and skin is then a brief and simple matter. The complications which the protrusion of abdominal viscera add to the operation are unknown with the small incision. Operators who have been accustomed to use incisions 4 in. to 6 in. long are surprised to find that they are able to accomplish the same results more rapidly, with less traumatism and with fewer postoperative discomforts to the patient with an incision 2 in. or 1½ in. long. The duration of the operation is curtailed, the intoxication and the discomforts of the anesthetic are lessened, the danger of hernia is minimized, the necessity of a long stay in bed is obviated, the chances of infection through the introduction of many stitches diminished. It seems almost supererogation to remark that with the small incision there is no temptation to place sponges and no danger of losing instruments in the abdominal cavity, and thus increase the traumatism to the peritoneum and cause postoperative gas pains, or endanger the patient and embarrass the surgeon by a subsequent operation to remove these foreign bodies left behind.

For appendicectomy, my incision is not more than an inch and a half long, for cholecystectomy, not more than three inches long, and for other typic procedures, proportionately short.

With a short narcosis and short incision, the necessity of a long stay in bed is entirely overcome. There are no mechanical reasons for retaining the recumbent position, and the patient is rarely sick and prostrated by nausea. He wakes up and feels the discomfort and even the dyspnea of supination, and if allowed to sit in his chair, he is immediately relieved and grateful. There are eructations, and doubtless rearrangements of the disturbed abdominal viscera, which usually give great comfort and relief from nausea. The advantage of this early erect position is inestimable in the aged and the obese. Many patients find themselves unable to urinate or adequately empty the bowels under any other circumstances. The appetite more quickly returns, and the loss of strength which invariably attends a long stay in bed is avoided. In those who have suffered a protracted semiinvalidism, the early erect position breaks up the complaining habit and encourages a complete restoration of physical and mental health. The Esculapian adage: "Cure the patient safely, quickly and pleasantly" is thus fulfilled.

It stands to reason that the early erect position and the short stay in the hospital and away from life and labor, encourage rather than discourage early, prompt and effective surgery, and thus relieve the patient of long-continued suffering and the surgeon from the necessity of undertaking belated, dangerous and inefficient or deforming operations. Many of us would let our teeth drop out of our mouths with decay rather than to go to bed two or three weeks for each filling, and the obscure and indefinable risk of cholelithiasis, periappendiceal peritonitis and strangulated hernia is endured by thousands who would be glad to terminate the risk by a short anesthesia, a short incision and three or four days in the hospital.

Much criticism has been indulged in, sometimes to my discomfort and sometimes to my amusement, at my recommendation and practice in this matter. Some of the reviewers of my recent book on appendicitis, spoke of the short stay of my patients in bed as betokening an unnecessary and dangerous haste on my part. Many laymen and some physicians have doubted that I removed the appendix or gallbladder, or obliterated the hernia in patients who returned home with an insignificant scar inside of a week. In one instance, a physician of local reputation was accused by his neighbor of conniving with me in deceiving a patient, and not a few patients have been embarrassed by the allusions of doubting friends. One physician came to operation for acute hemorrhagic appendicitis, with the determination to stay in bed two weeks. Nevertheless, he sat up the next morning of his own accord and shaved himself, and insisted upon going home the fourth day despite the entreaties of his astounded wife.

My critics of the short stay in bed admit that there is no danger of hernia; that the chance of leakage from the bowel is small, and diminishes with the skill and care of the operator, that the opportunity for adhesions is less with the patient active than when at rest; that the comfort of the patient is greater in the erect position, and that his respirations are fuller, the activity of the heart less impaired, and the functions of the digestive

and urinary tracts encouraged by the erect position, but they insist that it is dangerous, and that thrombosis is more apt to follow. This is an assertion which is not sustained by the facts. The only case of death from thrombosis and embolism which I have observed, occurred in a patient confined to his bed for several weeks after appendicectomy. A thrombosis is a condition which generally attends periappendiceal abscess or neglected cholecystitis, or other long-continued suppuration, in which the time for the ideal operation has passed. My practice in this matter has extended over more than three years, and no accident has befallen any patient, and only in one case has a patient failed to remain out of bed after once rising, and in this case she recovered suddenly when her bill was settled.

The ludicrous aspect of the criticism which the short stay in bed arouses is illustrated by the following case:

Earl E., aged 17, a farm laborer, was suffering from acute hemorrhagic appendicitis. He was brought to me by an old patient, with a subscription paper signed by 25 or 30 people in the neighborhood where he worked. He had had repeated attacks of appendicitis, and operation had been recommended. Under the circumstances I agreed to do the appendicectomy and pay the hospital fee for $50. He was operated on at 5 o'clock the afternoon of September 12, and went home on the street cars and railway the morning of September 16. Shortly afterward I received the following letter, which is so naïve and significant that I copy it in full:

"BUCKINGHAM, ILL., September 19, 1905.

Dear Dr. Holmes.—Well, Doctor, I got home safe and feeling good. Well, there is a favor I will ask of you which I know you will do. There are some people here that think that on account of my coming home so soon that I never had an operation, and they make an awful fuss about me walking around. I am very careful how I step, and I don't think it hurts me at all, as I do no lifting or work of any kind. I want you, if you will, to write me a letter stating my case in full, and whether walking hurts me or not, and what I should eat. This being a very unusual case, it is very doubtful to them. They think a patient should lay in bed a couple of months. Now, Doctor, please write a statement of the whole case, and I will have it put in the paper here, and the people then will feel more satisfied. Hoping this you will do, being it will do yourself and me a benefit,

Yours very truly,
EARL E———."

This is not an unusual instance. More distinguished patients have developed more incriminating accusations. A physician who maintains a considerable practice and a prominent position in an adjoining city, came to me for appendicectomy on August 13, and was operated upon the morning of August 14. He was up on the day following the operation, and went home on August 19, five days afterward. He was accused in the public press of being on a drunk, and an exchange remarked such a liar ought not to be allowed to run at large.

The discomforts which have attended me in the practice of the short stay in bed are illustrated by the following poignant experience:

I saw a boy, aged 19, in one of the suburbs of Chicago on June 24, in whom I diagnosticated acute and probably complicated appendicitis, and recommended immediate appendicectomy. He had already been under the care of his physician for at least 60 hours. The patient was the son of a wealthy and prominent merchant, and a personal friend of a boy that I had operated on some years before. The mother of the boy was an intimate friend of a lady of her own age upon whom I had operated for appendicitis a year ago. Both recovered promptly. The father and the uncle of the boy had suffered from appendicitis, and one of them had submitted to the starvation-enema treatment and fortuitously recovered after five months of invalidism. The family was violently opposed to operation. After laying the matter clearly before them, feeling the gravity of the condition, and believing that there was a periappendiceal infection, I insisted upon the necessity of immediate operation. The consultation ended about midnight. The next morning the physician in charge of the case advised me to come early and be prepared to operate. On arriving at the house I was informed that the parents had decided to remove the boy to a hospital some five miles away and have him operated upon by the chief surgeon of that institution. With some feeling of relief and self-congratulation, I hastened to withdraw, but was called back by the parents, who had just discovered the imperative preference of the son that I should operate if any operation was to be done. They conceded to his request, but insisted that he should be operated upon at the hospital. I requested the parents to withdraw and decide the matter once for all who was to have charge of this patient, assuring them that if I had anything to do with him I must have absolute control in every particular, with no let or hindrance from anyone, saying that I should be greatly relieved to have them place the patient in other hands. Nevertheless, I was given control, and immediately prepared an operating-room in the house, and half an hour later anesthetized the patient with chloroform and opened the abdomen at the outer border of the rectus, over McBurney's point, and evacuated several ounces of seropurulent fluid, containing flakes of lymph. The presenting intestines were covered with a greenish-gray lymph. The spaces from which the serum and pus escaped were carefully filled with long, narrow sponges. The appendix was found in the ileocolic fossa. It was as large as the thumb, adherent on nearly all sides, full of pus and blood, and presented a massive necrosis on one side about a centimeter in diameter. After the typic removal of the appendix, the cavity from which it came was tamponaded with a strip of iodoform gauze systematically and carefully laid in and so extended and folded as to drain the three cavities or fossas about the cecum from which the pus and infected serum had escaped. As each fossa was packed, the protecting sponge which it contained was removed. The operation lasted 18 minutes. The attending physician who stood by at the time, remarked that the case was not a very bad one. I was silent.

The pulse and temperature rapidly assumed the normal, and the patient was relatively comfortable in bed in the semirecumbent (Fowler's) position. He did not vomit after the first 12 hours, and did well. The tamponade was removed little by little, so that it was all out of the abdomen by the end of the fourth day. The patient sat up and took plenty of liquid nourishment on the third day, and he was dressed in his own clothes on the fifth day, and went down to dinner at night on the sixth day. On the ninth day, which was July 4, his family left him at home with his nurse alone, and he shot off a couple dozen bunches of firecrackers on the front porch. That evening I made my last visit at the house. On July 13, he bid me good-bye at my office, and a day or two later went to Wisconsin for his vacation.

I sent my bill to the father for $1,550, and considered that I was making a very moderate charge for my services, which I modestly considered successful. I learned from a mutual friend that the bill was looked upon as exorbitant and would be contested. Two months later I requested an audience, not to say parley, with the father of the boy, and learned that he had consulted his attending physician, who had originally recommended another

surgeon whose fee he said would be $150 or $200. When the patient had insisted upon calling me the attending physician had spoken for my reasonableness and fairness in the matter of fees, and had said that I would probably charge not more than $200. The fact that the patient was up so soon, suffered so little after the operation, and was out of the house in a week's time, disparaged in the mind of the father the gravity of the case and the skill of the procedure. On the other hand, the parents were shocked at the unseemly haste with which a boy who was said to be in danger of his life for nearly a week was gotten out of bed in less than a week, dressed, and eating his full meals. The neighbors took part, and the neighbors' doctors, in the consternation and alarm, and up to the present writing, no fee has been paid, and the issue of the case is more disastrous to me than half a dozen fecal fistulas, half a year's invalidism to the patient, or even a funeral in the family, could have been.

This brief abstract may be suggestive: Of 145 consecutive cases, in which the patients were treated in the same hospital and under the same conditions during the past year, 70 cases might be selected as ideal, although not all of them were simple. Some of them required more than one direct and definite procedure. Of these 70 cases, 43 were cases of appendicitis, or were complicated by the presence of appendicitis. Of these 43 cases of appendicitis, 24 were uncomplicated by disease in other organs requiring separate operation. In these 24 uncomplicated cases, the patients remained in the hospital an aggregate of 198 days, an average of 8.6 days for each patient; 18 were in the hospital less than a week, and 6 for more than a week; 3 patients remained in the hospital 32, 23 and 16 days, respectively, for suppuration in the abdominal wall. These disasters all occurred during the same two weeks, and the accidental infection was never satisfactorily accounted for. Four patients had more or less extensive periappendiceal abscesses, and one other case, a most extensive peritonitis. These four patients remained in the hospital an aggregate of only 64 days, in spite of drainage. They were not confined to their beds more than 3 or 4 days each, and their average stay in the hospital was only 16 days, as compared with 8.6 days, the average for the simple cases. The patient with general peritonitis died on the fifth day of acute nephritis and almost complete anuria. Six cases of appendicitis were complicated by cholecystitis, and cholecystostomy or cholecystectomy was performed. These six patients remained in the hospital an aggregate of 85 days, an average of 14.1 days each. One other patient had cholecystectomy, appendicectomy, and hysterectomy for impacted uterine fibroid; and still another patient had the three operations with a suppurating fibroid. These patients remained in the hospital only three weeks each, but one of them required treatment several weeks longer. Three cases were complicated by salpingitis and single or double salpingectomy was performed. These patients remained in the hospital an aggregate of 36 days, an average of 12 days each. One case was complicated by an ovarian tumor and pregnancy in the eighth week. This patient remained in the hospital a week, and was removed in an ambulance, and remained in bed another week on account of the rather large abdominal incision. In a second case, the appendicectomy was complicated by a large ovarian cyst. This patient remained in the hospital 12 days. Of the remaining patients, 25 were in the hospital an aggregate of 407 days, an average of 16.3 days each. Upon two of these patients, osteotomies or arthrectomies of old tuberculous knees were performed, and both patients were out of bed inside of 24 hours. One remained in the hospital 7 days and left on crutches. The other remained 28 days, although he was about town on his crutches after the first week. In one abdominal hysterectomy, the patient left in 5 days, one in 15 days, and one in 18 days, although he was out of bed on the first day. Six patients with cholecystectomy, one case complicated with inguinal hernia, and one with an accidental and wholly unrelated infection of the skin far from the operation wound, remained in the hospital an aggregate of 110 days, an average of 18.3 days. One patient died 12 hours after cholecystectomy. This case was reported before the Chicago Surgical Society.[1] The remainder of these 70 operations were typic hernias, mastoidectomies, or excisions of one sort or another, among which there were no fatalities, no accidents, and no long stay in the hospital.

The history sheets contain no records of the duration of the anesthesia. In most of the appendicectomies, however, the patients were anesthetized not more than 20 minutes, and hardly any other of the typic cases required more than half an hour, even though two or three operations were performed. In every case in which there was abdominal infection the patient was kept in the semirecumbent position (Fowler's) and practically every one was out of bed by the end of the first or second day. This was so general an occurrence that it was not always noted on the history sheet, and a perfectly accurate record in regard to this matter cannot be made. Hernias have never occurred in any of these patients. Three patients have had suppuration in the abdominal wound, and three other patients had trouble with the buried catgut stitches, some of which came out after weeks and months. During this whole period I have had no case of acute dilation of the stomach, and no case of nephritis following an anesthetic. The only two cases of acute nephritis were recognized before the operation. In these 70 cases there were two deaths, one from appendicitis with diffuse peritonitis and acute nephritis, and the other after cholecystectomy. In the whole 145 consecutive cases, there were ten deaths.

I conclude, from the review of this work, that I have had great advantage from a careful and watchful and brief anesthesia, and that the habit which I have formed of making the incision as short as possible has materially diminished the duration of the operation and permitted the shortest possible stay in bed and in the hospital, and in every way proved advantageous to the patient. Many factors have contributed to the success of this endeavor. The operating-room equipment and service have generally been faultless, and only during two weeks and in three or four cases can I blame others for the long stay of my unfortunate patients in bed. I have had the advantage of uniform, efficient and permanent assistants, with whom I was able to operate without irritation, and almost without error. Although I en-

[1] Annals of Surgery, 1905.

deavor to make the operation direct, brief, and the anesthesia short, I never hurry nor have any fretting or scolding in the operating-room, and an observer would never conclude that I was operating rapidly and would generally be surprised only at the ease and quietness of the procedure and the slow advance of the clock.

The patients themselves are not generally nauseated and depressed by the short gas-ether anesthesia. They are ready to sit up as soon as they wake up, and are anxious to get out of bed for the first movement of the bowels. They never receive any stimulants or restoratives during the anesthesia, and it is most exceptional for them to receive any medicine afterward, except a laxative or carminative. Most patients are able to drink by the end of six hours, or 12 hours at the most, and after the simpler operations they rarely miss more than one or two meals before they are placed upon light diet. After many of the operations the patients dress and go about the hospital on the second or third day, and rarely remain in the hospital longer than a week.

INTRACORPUSCULAR CONJUGATION IN THE MALARIAL PLASMODIA AND ITS SIGNIFICANCE.*

BY

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[*Concluded from page 986.*]

Tertian and Quartan Infections.—It is unnecessary to describe fully the process as it occurs in tertian and quartan infections, as the phenomena do not differ in any essential particular from those observed in estivo-autumnal infections. Conjugation is completed during the young hyaline stage, before the formation of pigment, in both forms of infection, but it does not always occur in the ring forms, for many times conjugating plasmodia are seen in which ameboid motion has distorted the ring, and bizarre-shaped parasites result. None of these conjugating organisms has shown the presence of pigment, however, and should not be confused with the pigmented parasites in which pigment is present and two masses of chromatin granules; such organisms are not conjugating bodies, but that stage of the development of the plasmodium in which the division of the chromatin takes place prior to the formation of spores.

In his contribution, Ewing speaks of the large size of the sporulating bodies which result after conjugation, but I have been unable to confirm this statement, as it would appear impossible to be sure that large sporulating bodies were due to conjugation, as the process being completed during the hyaline stage of growth, it is afterward impossible to distinguish the conjugating parasites from those in which the process is absent. While such large sporulating bodies may result from conjugation, and the probability is that they do, I have been unable to demonstrate, to my own satisfaction, that such is the case.

From the study of the process of conjugation, the morphology of which has been briefly given, I believe that it is obvious that the process is not an accidental one but one of great importance in the human life cycle of the malarial plasmodia; the definite stages of the process which can be traced in practically every specimen of blood showing conjugation, proves that it is a vital process, and one that is in some way essential in the life history of the parasites. In order, therefore, to determine its significance it is necessary to learn the frequency of its occurrence, the class of cases in which it occurs most frequently, and whether or not these cases present any peculiar clinical phenomena. It is also necessary to review the significance of the process of conjugation in other protozoan organisms.

The Frequency of the Occurrence of Intracorpuscular Conjugation and the Clinical Types of Malaria in which It is Present.—As I have already stated, intracorpuscular conjugation is present in all three of the great classes of malaria, tertian, quartan and estivoautumnal, and occurs as frequently in one variety as another, although the process is best observed in blood from estivoautumnal cases. In order, however, to arrive at any conclusion regarding the significance of this form of conjugation, it is necessary to determine in what period of these infections it occurs, and what, if any, are the clinical phenomena produced by it. Does conjugation occur only during the initial acute attacks of malarial infection or also during recurrent and latent infections? What is its duration as regards the length of the infection, and what influence has it upon the symptomatology of the malarial disease? These questions can only be answered by a careful study of the blood in initial and recurrent attacks of malaria and latent infections. As stated, I have studied the blood with reference to intracorpuscular conjugation in several hundred cases of malaria, divided as follows: Acute initial attacks, 52; recurrent attacks, 289; latent malarial infections, 195; and the conclusions regarding the frequency of the process and its significance are based upon the data derived from these examinations.

Initial Acute Malaria.—The 52 cases of acute initial attacks of malaria were observed at Camp Stotsenburg, in the persons of soldiers and civilians located at or near that post. Tertian, quartan and estivoautumnal cases were all present, and thus a good opportunity was afforded of studying the process of conjugation in undoubted acute initial attacks of all the varieties of malaria.

As regards the frequency of conjugation in acute initial attacks, it may be stated that it is invariably present, for in every case which I have examined, examples of conjugation were seen. There appeared to be a definite relationship between the clinical symptoms and the number of the conjugating parasites, for in those cases in which the symptoms were most severe, conjugating plasmodia were most numerous. In all the cases, however, they were seen, though often when the symptoms were slight, repeated examinations of the blood had to be made before the conjugating pairs were

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demonstrated, but patient search always resulted successfully. I have never found it necessary to resort to puncture of the spleen, on the supposition that conjugation may be present in the splenic blood when not in the peripheral, as suggested by Ewing, for I have never failed to observe it in the peripheral blood in acute initial attacks of malaria.

In many acute infections, marked by severe clinical symptoms, conjugating parasites are very numerous, sometimes, especially in estivoautumnal infections, one field of the microscope showing two or more red cells containing conjugating pairs.

After the administration of quinin, conjugation cannot be observed, even though a generation of the plasmodia have escaped the drug and entered the red corpuscles, and in many instances, when spontaneous recovery has occurred, so far as the clinical symptoms are concerned, I have examined the blood repeatedly, and very carefully, and have never been able to find any examples of conjugation, even when plasmodia were present and were sporulating. This fact proves that the connection between the production of clinical symptoms and conjugation is very intimate, that conjugation is not essential to sporulation, and that its disappearance leads to spontaneous recovery.

Recurrent Malarial Attacks.—I have examined the blood in 289 cases of recurrent malarial fever, all of them being in soldiers invalided home from the Philippines to San Francisco, Cal. All of these patients had had repeated attacks of malaria, and most of them, at the time of examination, were suffering from the estivoautumnal type.

As would be expected from the frequency of conjugation in initial acute attacks and the close relation of the process to the clinical symptoms, in recurrent attacks, also, conjugation is present in the vast majority of instances, although not invariably. In a very small number of the cases, not more than 10, the most careful examination of the blood failed to show any evidence of the process, so that it is fair to presume that it is not absolutely essential to the production of clinical symptoms of malaria, although undoubtedly increasing their severity. All of the cases in which the process was absent presented very slight symptoms of the disease, while, as in the acute initial attacks, those cases presenting the most severe clinical symptoms also showed in the blood the greatest number of conjugating plasmodia. Quinin brought about their disappearance, as in the acute attacks, and they gradually disappeared in those cases in which spontaneous disappearance of the clinical symptoms occurred.

From the examination of these cases we must conclude that intracorpuscular conjugation is present in the great majority of cases of recurrent malaria, but that it is not absolutely essential to the production of clinical symptoms of the disease.

Latent Malarial Infections.—There were 195 cases of latent malarial infection examined, 120 of which were in soldiers returned from the Philippines, and 75 in native Filipino children. These latter cases are of especial interest, as they were discovered during the routine examination of the blood of the native children in the barrios (villages) around Camp Stotsenburg. A detailed report of these examinations will be made later, but it is interesting to note that over 50% of the native children in this locality are harboring the malaria plasmodia, and are, undoubtedly, the great source of infection to the soldiers at Camp Stotsenburg.

All varieties of malarial infection, tertian, quartan, and estivoautumnal, were represented in these cases.

A most interesting and important fact was discovered during the examination of these latent infections. With very rare exceptions, intracorpuscular conjugation was absent, and in those cases in which it was present, clinical symptoms appeared within 24 hours. The blood in the latent cases showed the presence of the plasmodia in various stages of development, and in many instances the entire human life cycle of the parasites was followed in individual cases, but, with the exception of six cases, conjugation was never observed.

The absence of conjugation in these latent cases, and its occurrence in acute and recurrent cases of malaria, throw a flood of light upon the significance of the process. While conjugation is neither essential to sporulation or to the production of clinical symptoms, it is essential to the maintenance of a malarial infection sufficient to cause severe symptoms, and in the vast majority of instances the severity of the symptoms is a direct index of the number of conjugating plasmodia present. The absence of intracorpuscular conjugation is absolutely essential to spontaneous recovery. These facts can only be explained by considering that this form of conjugation favors the production of more numerous sporulating parasites.

From the study of the facts as described, the following conclusions are warranted:

1. Intracorpuscular conjugation is always present in acute initial attacks of tertian, quartan, and estivoautumnal malaria, almost invariably present in recurrent attacks, and almost never present in latent infections.

2. It has, in the vast majority of cases, a direct relationship to the severity of the clinical symptoms.

3. It is not absolutely essential to sporulation or to the appearance of clinical symptoms.

4. It is essential to the maintenance of autoinfection, and its disappearance results eventually in spontaneous recovery.

The Significance of Intracorpuscular Conjugation.—In order to understand thoroughly the significance of this form of conjugation in the plasmodia of malaria, it is necessary to review briefly the process of conjugation and its significance in some of the other protozoan parasites, as only by so doing can we arrive at a clear comprehension of the fundamental facts which make this process of such great importance in the life history of many of the protozoa.

The process of conjugation, in the protozoa, is preeminently intended to prolong the life of the organism by rendering future generations possible, and is not a reproductive act, in the strict acceptance of that term. In those protozoa which have a life cycle in an intermediate host, however, conjugation is absolutely essential to reproduction, an example of which is found in the

malarial plasmodia, during the life cycle within the mosquito.

The process of conjugation in the protozoa was first observed and described by O. F. Müller.[7] His work was confirmed by Balbiani,[8] who claimed that certain of the protozoa not only reproduced by simple division but also by conjugation, the latter being a sexual act leading to the formation of the young parasites. It is to Bütschli[9] that we owe the correct interpretation of conjugation in the protozoa. He observed that continued reproduction of many of the protozoan organisms by simple division leads eventually to the exhaustion of the capability of division, and thus to the death of the organisms. Such organisms greatly diminished in size and in vital activity, and, unless conjugation occurred, lost the power of reproduction. He, therefore, regarded the process of conjugation as intended to bring about rejuvenescence in the nearly exhausted individuals of a generation of organisms. Engelman[10] confirmed the interpretation of Bütschli, and thus defines the process: "The conjugation of the infusoria does not lead to reproduction through 'eggs,' 'embryonic spores,' or any other kind of germ, but to a peculiar developmental process in the conjugating individual, which may be designated as reorganization."

In other words, conjugation is intended to bring about a restoration to former reproductive activity, this result being secured by a rejuvenescence of the vital activities of the organism.

Calkins,[11] in his admirable discussion of this subject, says:

If, as Minot suggested, every newly-formed organism be regarded as having a certain initial potential energy which is gradually used up in its life activities to be restored by conjugation, then the union of two cells may be interpreted as a renewal of vigor or a rejuvenescence. . . . The force of these views as to the need of conjugation for different species of infusoria, at least, can hardly be questioned, for, as repeatedly stated in the previous chapters, reproduction by simple division may go on for a certain number of generations, but cannot continue indefinitely, unless at certain intervals, which Maupas has shown to be more or less definite, two individuals unite in conjugation. This union, in some wholly unexplained way, imparts to each of the conjugants a renewed vitality, or in Bütschli's words, a renewal of youth, expressed by increased activity in movements and reproduction. Conjugation thus, as R. Hertwig insists, is not the beginning of a series of reproductive acts, but occurs at or near the end of such a series. Maupas' results seem to offer conclusive evidence that the absence of conjugation involves a cumulative degenerative process which ultimately ends in death. The phenomena of the socalled sexual reproduction and sex differentiation have, in all probability, grown out of this apparently fundamental requirement of living protoplasm, namely, the periodic union of two cells. . . .

The process of conjugation has been observed and studied in all classes of protozoa, in some of which it is much more highly specialized than in others. Indeed, as Calkins states, the whole process of sex differentiation can be traced by a careful study of the phenomena of this process, so far as the protozoa are concerned.

In the *Sarcodina* it occurs, so far as is known at present, but rarely, and especially in *Arcella* and a few *Amœbæ*, I have observed it repeatedly in *Entamœba dysenteriæ* and *Entamœbæ coli*, and it is probably of much greater importance in maintaining the life of these organisms, and consequently infection, than is at present believed. In both these amœbæ conjugation consists in the permanent fusion of apparently adult organisms, of about the same size, which is probably followed by fusion of the nucleus. In the *Mastigophora* conjugation has been very thoroughly studied and is comparatively frequent. In this class the formation of spores is often preceded by conjugation. The process is common among some of the monads, and consists in the fusion of adult organisms. In the *Cercomonads* conjugation commences with the fusion, at first, of the protoplasm, the flagellas being retracted within the organism; eventually the nuclei unite and a cyst is formed within which the young spores develop, and are liberated by rupture of the cyst wall. This method of conjugation is closely analogous to that occurring in the malarial plasmodiums, which I have described. Strong has also seen conjugation in *Balantidium coli*, consisting in the fusion of adult organisms.

In the *Sporozoa*, conjugation is very highly developed and in this class of the protozoa sexual differentiation is often apparent, the conjugating organisms varying in size and even in structural details. In the *Hæmosporidiida*, *Gregarinida*, and *Coccidiida*, conjugation has been carefully studied by Siedlecki and Schaudinn, who have contributed the most valuable additions to our knowledge of this process in the protozoa. In the *Coccidiida*, an asexual and sexual cycle of development is present, conjugation being a developmental necessity in the latter. The same is true of the plasmodia of malaria, which have an asexual cycle of development in man and and a sexual cycle in the mosquito. In the latter conjugation is absolutely essential to sporulation, but here the conjugating organisms are sexually differentiated, while in the human cycle, conjugation is not essential to sporulation and the conjugants cannot be sexually differentiated. In fact, the two cycles of the plasmodia of malaria illustrate conjugation in its simplest and most highly developed phase.

Having thus briefly reviewed the phenomena of conjugation in the most important classes of the protozoa, and its significance, we are prepared to interpret its significance in the human life cycle of the malarial plasmodiums.

These parasites reproduce in man by spore formation, and it has been shown that intracorpuscular conjugation is not essential to the formation of spores, for in latent malaria the entire cycle of development can be followed when conjugation is absent. Continued reproduction, however, will end ultimately in exhaustion, as in other organisms, and it is prevented by conjugation after a certain number of generations of the plasmodia have been produced by asexual reproduction. Intracorpuscular conjugation in the plasmodia of malaria results in a rejuvenescence of the nearly exhausted individuals and renewed activity in reproduction, and thus it is essential to the maintenance of the malarial infection.

Considered in this way, it is not difficult to reconcile the clinical and microscopic findings, so far as conjugation is concerned.

In initial acute malarial infections, conjugating parasites, as I have said, can always be demonstrated in the blood. In such cases, sporulating parasites are present in comparatively large numbers, thus proving that sporulation is favored, as in cases in which conjugation is not present, sporulating bodies are very scanty, and there are few or no clinical symptoms present. This fact can only be interpreted as meaning that the presence of conjugation has produced increased activity in reproduction.

The same interpretation may be placed upon the occurrence of conjugation in the recurrent malarial infections, and the deduction is proved by the fact that conjugation disappears during spontaneous recovery, and reappears just before the recurrence of the clinical symptoms.

In the latent infections, conjugation is, practically, always absent, the only cases in which it was found being a few which developed, within 24 hours, the clinical symptoms of malaria, at which time conjugating parasites were found. Although the process is not essential to the production of symptoms, as shown by the fact that conjugating parasites could not be demonstrated in a few of the recurrent cases, there can be no doubt but that conjugation plays a very important part in the production of the clinical symptoms by favoring the sporulation of the plasmodia.

From the data obtained from these studies I believe that the following conclusion can be drawn: After infection of man by the bite of the infected mosquito, the plasmodia reproduce asexually for a number of generations (this is proved by the examination of the latent cases) without producing symptoms, or, at most, very slight symptoms of malaria. After reproduction has gone on in this manner for some time, the plasmodia become exhausted, and intracorpuscular conjugation commences, thus increasing the reproductive ability, and, in the majority of instances, leading to the production of the clinical symptoms. In those cases in which spontaneous recovery occurs, conjugation for some unknown reason ceases, and recovery ensues.

The conclusion arrived at regarding intracorpuscular conjugation is, I believe, substantiated by the facts which have been given, and is the one which best explains the occurrence of the process in acute and recurrent malarial attacks, its absence in latent infections, and its disappearance during spontaneous recovery. It is a process intended to preserve the reproductive power of the plasmodia by "rejuvenescence," thus preventing their death, and, what is of most interest to the physician, maintaining the malarial infection.

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[11] The Protozoa, New York, 1901, p. 212.

A Medical Hotel.—According to the *Riforma Medica* there is to be built in Rome a medical hotel which will be equipped so as to furnish the best medical care and attendance.

SUBJECTIVE OZENA.

BY

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The existence of ozena, in its more ordinary varieties, always constitutes a physical evil of sufficient magnitude to make it important, and, in most cases, so obstinately troublesome in regard to curative treatment as to give it a very special clinical interest. The term ozena has been pretty familiar in medical literature since, at least, the date of the publication of the professional writings of Celsus. The ὄζαινα (from ὄζειν, to emit a disagreeable odor, to stink) of that Father of Medicine was very fully recognized by Galen; a fact which necessarily secured its place in the nosology of every medical writer down through the middle ages. Under the additional (or synonymous) appellations of *dysodia* and *fœtor narium* it received a prominent share of attention from the hands of all the "authorities." Rhazes, Avicenna, Fernelius, Forestus, Fabricius, Scultetus, Riverius, etc., treated its claims with unmistakable deference. All regarded it, too, as a condition in which an offensive odor was due to local ulceration productive of a foul discharge. No special modification of nomenclature or pathology—so far as I have been able to ascertain—arose in this connection till the appearance of the epoch-making nosology of Sauvages, who, after defining ozæna dysodia in concordance with the orthodox views of its pathology, proceeded to add: "La puanteur de la matière ichoreuse qui sort des narines, n' est pas un signe certain de la présence de l' ulcère, puisqu' on voit s' ecouler des narines une humeur fétide, quī n'est cependant point purulente, et qui n'est antre chose que du mucus corrompu par son séjour, á cause de l'ouverture étroite des narines." Since that date, at least, the existence of a malodorous nasal discharge without necessary coexistence of an unhealthy solution of continuity of the mucous membrane has been universally acknowledged. The characteristically Gallic expressiveness of the term *punaisie*, by which it is known in semiscientific and popular French literature, has been derived—as need hardly be explained—from the supposed resemblance of the odor of the discharge to that emitted by a recently-crushed specimen of a certain loathsome insect. The tendency to classify and arrange with increasing precision of detail characterized the encyclopedic movement of the latter part of the eighteenth century, and was continued directly into the nineteenth. In accordance with this spirit, we find J. Frank making three divisions of ozena: (1) According to the seat of the local lesion—nasal fossas proper, frontal sinus, or maxillary sinus; (2) according to the nature of the disease—traumatic, catarrhal, metastatic, scorbutic, scrofulous, arthritic, venereal, carcinomatous, etc.; (3) according to the condition of the affected parts—simple and complicated, though complications including in a fair proportion of cases such lesions as caries of one or more of the bones which enter into the formation of the osseous framework of the nasal fossas. In classifying the circumstances which—directly or remotely—have been found to give rise to ozena, Piorry arranged these under five heads: (1) The simple

secretion of the pituitary mucous membrane, which is retained by some (congenital or acquired) deformity of the nasal cavity; (2) a purulent discharge from the surface of the membrane—with or without ulceration; (3) disease of the bones (caries or necrosis) causing the discharge of a sanious pus into the nasal fossas; (4) sinus abscess, frontal or maxillary, especially the latter; and (5) presence of tumors—polypus, encephaloid, etc. Valleix was one of the first to lay special stress on the independence of the phenomenon of a fetid nasal discharge. He emphasized the fact—known from ancient times—that there may be nasal ulceration without distinctive fetor, while the latter may exist without the accompaniment of the former. The distinctive feature of ozena as usually understood of recent years, is the production of a nasal discharge whose odor is most offensive to the bystander without being apparently noticeable to the individual affected. The special condition to which I venture to call the attention of readers of *American Medicine* in the present communication is one of inverted conditions; the affected individual is tormented by the continuous presence of a bad odor, which he, mistakenly, believes to be noticed by all who approach him.

Neurologists, indeed all practising physicians, are thoroughly familiar with the vagaries of such functional disorders of the apparatus of the various special senses.

Of this group of neuroses, none appear to affect the patient's mind to a greater degree than those of hallucinations of the sense of smell. Of cases of this kind, characterized by the persistent sensation of an offensive odor, I have met with some striking examples during the past years of my practice, and have ventured to describe them under the name given at the head of this paper.

The first of these, A. B., a native of Dublin, consulted me in May, 1889. He was a slightly built man, aged 34, height 5 feet 5 inches, weight 10 stone 2 pounds. His head was inclined slightly to the hydrocephalic shape. He was very intelligent when questioned, but very timid and hesitating in manner, and evidently dominated by some fixed and ponderous idea. He entered my study in a very apologetic manner, stooping a little forward. I happened to have a cold at the time, and sneezed as he advanced toward me, which seemed to distress him greatly, and made him at once begin to offer excuses for having disturbed me, as he was afraid that his presence was very unpleasant to me. This surprised me not a little, so I tried to assure him that I was very glad indeed to see him. He said he thought this very kind, but that he knew I felt his presence in the same way that all people did, as I sneezed the moment he entered the room. This surprised me still more; so I asked him to sit down, and tell me what was the matter. As he sat down, I coughed rather violently; this had the effect of making him start up at once, and say very meekly that he thought he ought to go, as this was really one of his worst days, and he was afraid I could not bear his presence. As I saw he was in a rather feeble state of mind, to say the least, I pressed him back into his chair and assured him as earnestly as I could that his presence was by no means distasteful to me, and that I could not even understand why he thought so. I asked him to tell me what was the matter without further hesitation, and he then proceeded to inform me that for about three years he had been affected with a continuous sensation of a bad smell, which not only annoyed himself but made his presence intolerable to other people. He had been assistant and accountant in the houses of booksellers, but since his present affliction he had changed his employers several times, so he had felt that his presence could not be borne by others, on account of the odor which emanated from him. His fellow workers always coughed, or sneezed, or yawned when he approached them, and persons entering the shop displayed the same symptoms of dislike or digust. He was so much disheartened by this state of things that he had given up work altogether, and for the past five months had been living on his small savings, so that he did not know what was to become of him when his money was spent. He could not attempt to go to church, or to any public meeting, or to mingle with a crowd, because people began to cough and sneeze, and yawn when he came near them.

When he had got so far with his story I myself yawned, quite unconsciously, and he at once begged my pardon for his offensive presence, but hoped that, as a medical man, I would forgive him for the infirmity which he could not help. I assured him that his presence was not at all disagreeable to me, and that he was entirely mistaken in attributing my yawning to any odor which I sensed. He said that he was sure I said this in order not to hurt his feelings. I tried to reassure him, but did not at all seem to succeed. He then proceeded to tell me that the sensation had been continuous since it first appeared, but was much worse at times; that he felt what he thought like waves of bad smell come along a nerve from his heart, along the left side of his chest, to his throat, and so up to his nose. At the same time he felt a corresponding agitation pass along the nerve from his heart to his penis. He believed there was some definite connection between these organs and the smell which so much annoyed himself and everybody he met. His digestion was, he told me, tolerably good, and his bowels were fairly regular; but he did not sleep well on account of the state of his mind. He lived in lodgings alone and approached nobody, except when absolutely necessary, on account of the symptoms of disgust which they displayed. He could not think of traveling in a railway train with another person in the carriage, and never entered a tram car because he could not be sure of having an empty one at any hour of the day. Persons passing him in the street drew away from him, and coughed, and sneezed, or yawned, or used the pocket handkerchief. Here I again expressed some doubt as to the accuracy of his surmises, and assured him I had noticed no bad smell since he had entered the room. While speaking I got a rather severe fit of coughing, and he at once broke in with: "But you are coughing now, and I know it is because I am here." I tried to assure him that this demonstration was entirely due to the simple fact that I had a cold; but he told me that he knew I only meant to be kind, and did not seem to believe a word I said. He was sure there could be no mistake about his own view of his condition, and knew that he always left a suffocating odor in a room on leaving it. When he left his own room he had often noticed, on returning after a short absence, that if his landlady had entered she had found it necessary to open the window to allow the bad smell to escape. Even horses seemed to dislike his presence, and turned away or shook themselves or stretched their necks, as he passed. He was sure that his vicinity was disagreeable to animals as well as to man. He could not on any account think of seeking any new employment, because he was sure that anyone to whom he applied would at once notice the smell which emanated from him, and decline to have anything to do with him. He had practised masturbation occasionally, between the ages of 18 and 20, as well as he could remember, but never since. He had had an attack of gonorrhea when about 21, but had never had syphilis. He had occasionally, very occasionally, a seminal emission; of course he "could not think of approaching any female now with this smell coming

from him." Such was his description of his own symptoms.

Apart from the absorbing idea of the smell, this man was intelligent and rational. He had been an extensive reader, and since his malady developed he had more especially taken to books—to obtain, if possible, information about the sense of the smell, and the properties and phenomena of the nervous system. He had consulted a great number of doctors, and been to several hospitals, but would not give the names either of the professional gentlemen whose advice he had obtained, or any of the institutions of whose aid he had availed himself. He had, however, carefully noted all the treatments which had been suggested, or recommended, and had accumulated a remarkable list of them. Most of the recognized tonics and sedatives had been given internally. Locally, he had been treated with lotions and sprays of carbolic acid, of salicylic acid, of sulfurous acid, of Condy's fluid, of mercuric chlorid, of mercuric iodid, of zinc chlorid, and so on. He had used menthol snuff, and had been treated to inhalations of small quantities of chlorin gas. All had in turn failed; his medical attendants, he said, soon got tired of him; and he had no doubt that it was on account of the offensive smell which emanated from him. He was even anxious not to stay too long with me, because he felt sure that I would have to do something to purify the air of the room after he left, before anybody else could be allowed to enter it. The back of his throat had been frequently cauterized, as it was supposed that local ulceration might be the source of the smell. As he went about from one hospital to another, more radical measures were sometimes suggested; he remembered having heard such surgical procedures discussed as: Exploration of the cavity of the antrum, removal of Meckel's ganglion, and trephining—over Broca's space, or somewhere near it. He had, however, a very strong repugnance to operations of every kind.

As the case did not seem likely to prove a satisfactory one, I advised him to begin by attending to his general health; and did all I could—although with very little apparent result—to persuade him that his presence was not quite so offensive as he thought. So far as the evidence of my senses went, there was nothing specially offensive about his breath; but he at once waived all assurances of this kind by telling me that he was sure I only meant to be kind in saying that I was not disgusted by the smell, but he knew the contrary too well. I coughed occasionally throughout the interview; and he never failed to direct my attention to the incident, as a proof that I was affected in the same way that others had been. I did not press by assertions, as they rather annoyed him. I prescribed sulfonal at night with the hope of calming his nervous system, by procuring better sleep. I also gave him a mouth wash containing a little potassium permanganate, although I did not expect any definite result from it, as the symptoms were, obviously, altogether subjective. Three days later I saw him again; he did not seem quite so depressed about himself, and I tried to persuade him that there was an improvement. He had slept well, and appeared calmer.

I then prescribed a mixture containing nux vomica and cannabis indica, and tried to encourage him by assuring him that the medicine would have a good effect on his nervous system generally. He was directed to continue the mouth wash. When I saw him again, after a week, he really appeared in better spirits, and told me that the smell did not appear quite so bad to himself, but that passers-by still noticed it just the same; although they did not, perhaps, cough and sneeze, and use their pocket handkerchiefs quite so frequently. I thought that I would try the effect of a strong galvanic current; and, accordingly, applied it for 10 minutes, with one pole in a nostril, while the other was moved about over the face, and side and back of neck. Five minutes were given to either nostril. He was very quiet and attentive during this experiment; it evidently took his fancy a good deal, as it had not been tried before. He told me, when I had finished, that he thought there was less smell, and seemed to feel more hopeful. I directed him to continue the mixture. Three days afterward I repeated the galvanism; he then told me that he thought the smell had been less for more than a day, but it had returned. As his bowels were rather confined then, I changed this mixture for one containing aloes and iron. At each of four subsequent visits the galvanism was repeated, as he said that it was the only thing which had been tried that seemed to give him even temporary relief. The progress was not, however, satisfactory; and evidently depended on the novelty, and the partial diversion of his ideas into a new channel. I then changed his mixture to one containing chloral and potassium bromid in large doses, but it did not affect his symptoms. I had almost decided to tell him there was no use in visiting me again.

At that date several persons, patients and others, had been asking me what I thought of hypnotism as a treatment for nervous symptoms; and during one of these discussions the idea occurred to me that I would try hypnotism with this patient before giving him up in despair. Accordingly, at his next visit, I suggested the idea to him, and he seemed delighted with the chance of having the "new foreign treatment" practised on him. He was ready to try anything short of a severe surgical operation (of which he had a fixed horror) that gave him any hope of getting rid of his depressing malady. I found him an ideal subject for hypnotic influence; and, on awaking him from his state of induced somnolence, I stroked him for a couple of minutes along the skin in the direction in which he indicated that he always had felt the morbid sensations passing up to his nose. I told him to take his sulfonal tabloids at night, and to come again after an interval of two days. When he returned he was in much better spirits; he told me that the nerve which had always been carrying the bad smell up to his nose was much quieter, and that he had felt very little in connection with it since. He was confident that the right remedy had been adopted at last, and felt sure that the stroking along the course of "that nerve" had been of special service. The operation was again repeated four times, at intervals of three days each, and at the end of that time he was sure that the offensive nerve had quieted down—he had scarcely noticed any odoriferous sensations traveling along it for a week. He felt that he was in a fit condition to resume work; and, as he did not care to stay in Dublin, on account of the small chances of lucrative employment, he had decided to emigrate immediately. His last visit was paid on a Monday; he had been to church the day before; the first time, he said, for three years. He had been very nervous on entering church, on account of his former recollections of the number of coughs and sneezes which he had always provoked, but nobody seemed to mind him on this occasion. He professed, at parting, extreme gratitude for the result of my treatment; but I never heard from him since, although I specially requested him to write to me.

The second case of this kind which came under my notice was in the person of a policeman—in size and general development a fully representative member of the Metropolitan B. Division. Like a great many members of this profession who have come under my notice, he had developed a considerable variety of "bilious" and "nervous" symptoms. When he consulted me (in May, 1891) he had belonged to the force for nearly 11 years. He had originally come from the west of Ireland. He told me that he was often sorry that he had left the country life, for he found that neither the city nor duty as a policeman agreed with him. His employment as a public guard became very monotonous after the first couple of years. He suffered from dyspepsia, was affected with insomnia, found considerable difficulty in keeping

his bowels regular, and was frequently troubled with bad occipital headaches. He was an immense fellow to look at; but, on closer examination, his tissues appeared rather spongy in texture, and there was a general deficiency of nervous and muscular tone. He often felt very lonely and depressed when alone on duty; but his prime affection was a persistent bad smell, which he had observed to attend him for about half a year or so. His general description of the phenomena to which it gave rise was ridiculously like that given by my former patient. All human beings, and many animals, especially horses, were affected by his approach in the same way. Within the fortnight before his visit he had been obliged, in the course of his duty, to arrest two persons for drunkenness in the street. Each of them had displayed the greatest repugnance to his presence, and each of them vomited within a few minutes of the arrest. As in the other case, he had practised masturbation for some years, but had given it up on joining the constabulary. He had never attempted sexual intercourse till he came up to the depot in the Phœnix Park for his preliminary training. Even since, he had never indulged to excess. He sometimes noticed that the odor was much more decided when he was affected by sexual excitement. His appetite and digestion were fairly good. His articulation was rather slow; but I did not observe any other nervous peculiarity excepting the evidences of the dominant idea that he was afflicted with this persistent bad odor. It was worse at some times than at others, and worst at the times when he happened to suffer from insomnia. Still, the case did not appear to be at all so aggravated in character as the one which I have above described.

I thought it best in this case, as in the former, to commence the treatment by the use of a placebo in the form of an antiseptic mouth wash. I also brushed the back of the throat and syringed the nostrils thoroughly. The employment of menthol snuff was prescribed. For internal use a mixture of equal parts of mist. fer. aromat. and decoc. aloes co. was given. He looked much too obstinate and suspicious an individual to form an eligible subject for hypnotism. Accordingly, did not suggest it. I saw him regularly once a week for about five months. Four sulfonal tabloids were taken every night for the first fortnight. After about three weeks he commenced to admit that his general health had been greatly improved by the medicine. His thoughts, too, were not so continuously concentrated on the offensive smell. At this date I commenced to use the galvanic current, and employed it regularly once a week afterward during the treatment. The application was followed by some slight improvement. I then gave a mixture containing nux vomica, belladonna, cannabis indica, and aloes. Blaud's pills were at the same time prescribed. This treatment was continuously employed for the next three weeks, during which the general tone of the patient's system underwent marked improvement. The offensive odor also annoyed him less; although it was never completely absent and was sometimes more distinct, especially when he did not feel so well as usual. As his general condition was then so much improved, the mixture was changed for one containing small doses of tinct. chlorof. co., sp. ammon. aromat., and tinct. cardamom. co. This he used for about another month. The galvanism was regularly used all the time. During this treatment the general health continued to improve; the patient's spirits were much brighter; his appetite continued good; the bowels were regular; and he slept well. He was still conscious of the sensation of the bad smell, but decidedly diminishing; it did not engross his attention in the way it used to. He now felt quite hopeful of ultimate cure. The medicine was then dropped, but the galvanism was continued during the remaining time of the treatment. At the end of five months from his first consulting me, he felt sufficiently well to discontinue his visits. He had almost ceased to notice the offensive smell which had tormented him, although he still observed a slightly unpleasant sensation at times in which he did not feel quite so well as usual; especially if he had been worried, or had not had sufficient sleep. I saw him from time to time for nearly a year afterward; he occasionally felt an attack of depression of spirits, during which there was usually more or less of the old hallucination of smell present. These attacks were, however, nearly always traceable to want of sufficient sleep, fatigue, or worry of some kind, or neglect of the bowels. They were always amenable to treatment.

In neither of the foregoing cases did there appear to be the slightest trace of any organic lesion—central or peripheral—to account for the peculiar and distressing symptom complained of. Both were individuals of but little nervous energy; and, in the case of the first, his mind had very obviously become quite unhinged on the subject of his affliction, although he was quite intelligent and reasonable on all topics. In each case there were some sexual symptoms connected with the predominant subjective sensation; neither, however, appeared to have ever indulged to any considerable extent in venereal excesses. The intimate connection between the sexual instincts and the olfactory sensations in the lower animals is well known; and in the more animalized types of man peculiar evidences of this kind have been noticed, and from time to time placed on record. Romberg saw a case of a young man who sneezed violently whenever he had an erection of the penis. Mackenzie, a case in which symptoms of coryza, with copious discharge from the nasal mucous membrane, always followed any venereal excess; and Féré has recorded one in which a young man of 20 was troubled with persistent priapism whenever he got a cold in the head, and had so suffered even from the days of his boyhood. Cloquet quotes from l'Etoile[1] the narrative of the circumstances under which the Duc l'Anjou (afterward Henri III) became violently enamored of Marie of Cleves on the night of her marriage with the Prince of Condé. The princess had danced a great deal at the celebration of her own wedding, and at last found it necessary to retire to the "garde-robe oir une des femmes de chambre de la reine mere lui fit changer la chemise. Elle venait de sortir quand le duc d'Anjou (Henri III) y entra pour racommoder sa chevelure, et S' essuya par mégarde la visage avec la chemise qu'elle venait de quitter. Depuis ce moment le prince concut pour elle la passion la plus violente." Those who are acquainted with the history of France during the sixteenth and seventeenth centuries can well appreciate the magnitude of the social and political mischiefs which derived their origin from this apparently trivial accident.

A third case was that of a gentleman from the west of Ireland, who consulted me in February, 1892. He was a strongly-built man, aged 52, of florid complexion, and gouty constitution. He had always lived an active country life; he had been married for 19 years, and had felt hardly any physical or mental ills, except slight attacks of "flying gout," till the troublous times of the Land League agitation set in. During that period he had been worried a great deal; he had been continuously boycotted for over two years, and his property had been greatly reduced in value by the consequences of the sub-

[1] Journal de Henri III.

sequent legislation. He had then also commenced to drink more than was good for him, and suffered rather severely from gout—two, or sometimes three, paroxysms yearly. It was in the year 1888 that, during the premonitory symptoms of an attack of gout, he noticed that he had lost the sense of smell. It remained absent for about three weeks, when, as he was recovering from his articular symptoms, the olfactory sensations were almost as suddenly restored. He noticed no further peculiarity connected with the sense of smell till the latter part of 1890, when, with the onset of another attack of gout, the sense of smell was again lost for about seven weeks. It returned more gradually on this occasion, and for a month or so after its restoration he was conscious of the presence of a slightly unpleasant odor, which then disappeared. With each of two succeeding attacks of gout he had had a similar experience; the sensation of an abnormally unpleasant odor lasting longer each time. From the early part of 1892, when he had suffered from a severe and prolonged gouty paroxysm, the sensation of persistent bad smell had become continuous. It was, of course, very annoying to him; but as he had had so peculiar an experience connected with the organ of smell, his mind did not seem so much affected by it as had happened in the other cases I had seen. He had sufficient good sense to believe that the symptom was dependent on what he called the "gouty state of his circulation." He had always lived pretty freely; and, as he entered upon a more contemplative stage of his existence, he was rather disposed to regard any constitutional derangements upon which he suffered as a visitation of Providence, induced by the excesses of his youth.

Having regard to the history of this case and the temperament of the patient, I did not think it desirable to try any local treatment, and, accordingly, decided to direct my whole attention to the state of the system. I gave him the usual directions about attention to the bowels, avoidance of excesses in eating and drinking, advised him to rise early, take exercise before breakfast, eschew late hours, etc. I had the bowels freely moved by pretty large doses of colchicum, taken on two successive nights. I then prescribed sodium salicylate in 1 gm. (15 gr.) doses, to be taken three times a day for a week. As he complained of a tendency to insomnia, I directed him to take 4 sulfonal tabloids at night. He was greatly pleased with the effects of this drug, and told me that it gave him the most refreshing sleep he had had since he was a young man. The sensation of bad smell, which had hung about him for so long a time, had considerably diminished. As he was returning to the country, I directed him to take a stock of the sulfonal tabloids with him, and take four every night for a week; also to take a similar dose twice a week for three weeks following. I also prescribed .32 gm. (5 gr.) doses of sodium salicylate, to be taken three times a day during the same time. I heard from him after a week. He was much better, was in higher spirits, and the olfactory trouble was progressively diminishing. The improvement continued till I heard from him again at the end of another fortnight. I then prescribed a mixture containing 1.25 cc. (20 m.) doses of tincture belladonna, and .6 cc. (10 m.) doses of tincture cannabis indica, which he was to use till I heard from him again. When he next wrote, about a month later, the normal sensation of smell was quite restored.

In the following November this patient had another attack of gout, brought on by exposure to cold and wet, and the same morbid complication of the sense of smell followed. As soon as he was able to go about, he at once came up to town and placed himself under my care, when a somewhat similar course of treatment was followed by restoration of the normal function.

The fourth case of this kind that I have met with occurred in a member of the legal profession, a gentleman, aged 38, married, and of highly organized nervous temperament. It had followed a spell of hard work, in which his professional engagements required him to sit up during the greater part of the night for a period of three weeks. He also was of gouty disposition. He became thoroughly used up by this excessive work and want of sleep, and suffered immediately afterward from intercostal neuralgia and herpes zoster, with a general feeling of nervous exhaustion. After these symptoms had disappeared, he was tormented with vertical headache and sleeplessness, and while suffering from the latter troubles, he developed the hallucination of bad smell. Soon after the appearance of this symptom he consulted me. He himself thoroughly believed that it was of functional origin. The result was quite satisfactory; for a course of tonics and nerve sedatives, extending over about three weeks, followed by a fortnight's sojourn at Aix-les-Bains, restored him to perfect health again.

Since the date last mentioned I have from time to time met with others, but presenting no very striking divergence from the types furnished by the foregoing. They all offer object lessons to the philosophic pathologist of the concentrated wisdom contained in the aphorism enunciated through one of his "characters" by the immortal dramatist: "There is nothing either good or bad, but thinking makes it so." I cannot even fancy more abject mental distress than existed in some of my patients. Failure of eyesight I have usually seen borne with a degree of dignified resignation; while that of hearing—although generally damaging to amiability—is not necessarily accompanied by aggravated mental tortures. Aristotle, whose shades of thought have so profoundly tinted the intellect of Europe ever since his day, gave the sense of smell a median position among the five. "Odoratus medius esse videtur inter tactum, et gustum, et visum, et auditum." The psychologic theories and neurologic observations of the immortal Stagirite do not seem to have led him to any definite grasp of the mysteries of subjective sensations. His metaphysic investigations, like those of his innumerable successors, depended for their basis of support on the reliability of the evidence afforded by introspection, which would surely be badly confused by the admixture of testimony so obviously distorted in its genesis and transmission as could be derived from cases of subjective ozena. The sight is sufficiently saddening to an earnest soul, of seeing an intellectual colossus provide himself with writing materials, and sit down to watch the movements of the various items of his own mental machinery while he simultaneously describes and explains them all for the enlightenment of his contemporaries and that of posterity. Such a distressful (intellectual) caricature of the youthful gymnastics of the kitten in trying to catch its own tail! That the latter exercise is a really good training for the future destroyer of mice cannot, I think, be well doubted; the mental improvement derived from the other is probably more open to question. Still we must probably admit that all earnest efforts of human thought, when directed by a true purpose, tend to increase the capitalized knowledge and experience of the individual and of the race. So the metaphysician himself should in justice be occasionally heard—even if never exactly understood! The great medieval medical commentator of Aristotle was, of course, Avicenna; and he expanded the illuminating infallibility of the text of his master in all direc-

tions. His succeeding rival in this field was Averroes, whose doleful pilgrimage of forty courses through the text of the Stagirite was completed before the mental wanderer was rewarded by the first glimpse of a ray of any part of its meaning. His views on the sense of smell and the transmission of odor are perhaps worthy of a place among the landmarks of medieval thought.

They were composed after his enlightenment, of course, and contained such items as the following: "Odorem non opinatus est Aristoteles esse corpus dissolutum in aere ab odorabili, sed est qualitas aliqua per quam illa natura innata est perfici. . . . Odor habet duplex esse unum in humido saporabili, et est naturale: alind in humido non saporabili, et est extraneum. . . . Odor habet duplex esse, esse in corpore, odorabili, et esse in medio, et in hoc erravit Avicenna, qui estimavit odorem non separari à corpore odorabili."

The phenomena of olfaction—in health and disease—have furnished texts for much speculation in the very prolonged infancy of physiology. As every observant individual—lay as well as medical—has noticed after a certain experience of life, there is hardly any of the senses of which the stimulation has so powerful an effect on the memory and on the more complex emotions as in the case of smell. The unexpected perception of an odor calls up, instantaneously, long-forgotten visions of the remote past—of the beautiful, of the painful, of the best-beloved! Such emotional associations lend, of course, additional horrors to the misery of any one who may become the unhappy victim of such functional disorder as that which I have ventured to describe under the name of subjective ozena.

WHAT IS A POISON?

BY

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[*Concluded from page 989.*]

The quality of poisonousness is in no sense a quality that can be divided up indefinitely and persist in a degree commensurate with the division of the substance that manifests it. On the contrary, is it not very much like the quality of heat that in excess destroys and in moderation benefits? Great heat will destroy life just as powerful poisons will. Less heat will injure the body just as weaker poisons will. Normal heat is a necessity of life just as toxic enzymes are. If the teachings of Pflüger, Foster, and other great physiologists, regarding the presence of that fearfully poisonous radicle, cyanogen, in cell structure are correct, and if the experiments of Bert are to be relied upon, then there may be more than mere analogy between heat and poisonousness. In plant physiology this is brought out with added clearness. Pfeiffer[18] declares as the result of countless experiments that "small doses of the most varied poisons increase growth, respiration, and the production of heat." Here we seem to have struck what may turn out to be a universal law of living things. Is it not a most remarkable fact that it is not one or two poisons, nor even a group of poisons that have this effect of making plants grow better, respire better, and defy chilly weather better, but it is "the most varied poisons?" Compare this with the function of oxygen in the body and the supposed function of the hypothetic cyanogen of cell structure and is not the analogy most striking? On the same page the author goes on to say: "When sufficiently attenuated, a poison may induce reactions which are either innocuous or even of use to the protoplast. This stimulating action of poisons is of equal importance to their fatally injurious effect when sufficiently concentrated." When such remarkable conclusions are drawn from experiments extending over the most diverse forms of vegetable life is it not highly probable that similar conditions may obtain in animal life as well? It is not merely an inference drawn from a few species of a few genera, but from many species covering diverse genera and orders. It is not a statement that applies to particular organs, but it is a fundamental reaction of protoplasm. It is not a matter of secondary importance to the organisms, but is declared to be of equal importance with the toxicity. While the human physiologist has no such free hand for experimenting with poisons that the vegetable physiologist has, yet by observation, Foster has been able to gain a somewhat similar idea as is expressed by Pfeiffer. The former declares that "The salts and extracts of a diet may be looked upon as necessary daily medicines, and a medicine as a more or less extraordinary variation in these elements of a diet. Alcohol, to the use of which as a component of an ordinary diet, special interest for various reasons attaches, comes in this class."[19]

This brings us to the edge of that debatable ground where opinions differ materially as to what shall be called poisons. The arsenic present in all of the principal extractives of a diet most people would be willing to concede is a poison, the prussic acid of fruits they would likewise acknowledge to be a poison, the solanin of potatoes they would also be likely to consider a poison, the copper that exists naturally in some food products they might also call a poison; the asparigin of asparagus would likewise be classed as a poison, the ergot alkaloids that bread is so likely to contain in minute amounts would also be deemed poisons, and the many dangerous substances collected by bees and administered to us in honey they would agree to look upon as poisons. With regard to some of the other salts and extracts of a diet which we take as "necessary daily medicines," some would demur when they were called poisons. The chlorids, carbonates, sulfates, phosphates, and nitrates of such metals as sodium, potassium, calcium, magnesium, and lithium they would scarcely deem poisons, unless they had some bias against one or other of them. The alcohol of beer, wine, whisky, gin, or brandy, the prohibitionist would quickly denounce as a poison, regardless of the minuteness of the amount taken. As regards the first named of these beverages, one set of persons would denounce the alcohol and another set the salicylic acid used as a preservative. Neither would care to consider the, to them, unimportant matter of the dose, while both would be blind to the fact that that same beer contained the powerful nerve depressant, lupulin.[20] Regarding the alcohol, this

same author emphatically declares that "large quantities of strong alcohol act as an irritant poison." [21]

In the matter of table salt, which is doubtless the least toxic of any of the metallic salts referred to, Professor Victor C. Vaughan [22] says: "The expert is frequently asked if common salt is not a poison in large doses; it may kill, but it is not a poison. The injections of concentrated solutions of salt or of sugar, or even of distilled water directly into the blood may kill by altering the specific gravity of the plasma, but these are not poisons." The fact that salt can both impair health and destroy life would be to the majority of people sufficient evidence of its toxic power. With the "Century Dictionary," they would hold that "Any substance which, introduced into the living organism directly, tends to destroy the life or impair the health of that organism" is a poison. With Webster's International Dictionary, they would contend that "Any agent, which, when introduced into the animal organism, is capable of producing a morbid, noxious, or deadly effect upon it," is a poison. Dr. C. M. Combs [23] has reported the case of a patient of his that through the error of a nurse received by injection an overdose of salt. After six hours of coma and prolonged maniacal excitement death occurred within 24 hours. A. W. Blyth, in his work on "Poisons, Effects and Detection," lists salt as poisonous, but to so slight an extent that it is more of scientific than practical interest in this direction. Prof. Vaughan's [24] ideas about what constitutes a poison varies from that of all these authorities. He tells us that "those substances which combine with these cells chemically in such a way as to cause their destruction or to render the performance of their normal functions impossible are poisons. Therefore, a poison may be defined as a substance that destroys or impairs cell function by virtue of its chemic constitution." This is practically the same definition as that given by Pfeiffer [25] when he says: "Every substance which in larger or smaller doses produces, in virtue of its chemic properties, functional disturbances ending ultimately in permanent injury or death can be classed as a poison." While holding to this chemic definition of a poison Pfeiffer [26] declares that "a feeble poisonous action is exercised by potassium nitrite, sodium chlorid and other neutral salts of the alkalies, so that the plasmolysed cells of mosses, algæ and flowering plants die in solutions of these salts." Elsewhere he declares that "solutions of sodium and calcium chlorid exert a poisonous action upon pollen grains which is absent when they are grown in inorganic nutrient solutions or in water." [27] Ewart [28] agrees with Pfeiffer concerning salt being truly poisonous, and says: "Chara and nitella, which had been kept for some time in nearly pure water, ceased to show streaming, and ultimately died in solutions containing from 0.1% to 0.5% of salt."

That this is a toxic effect, is shown by the fact that partial plasmolysis occurred only in 2% solutions. Cushny [29] is apparently in agreement with Ewart and Pfeiffer, for he says: "Muscle suspended in isotonic solution, often develops a more or less rhythmic series of contractions, while the frog's heart ceases to beat after a time when it is perfused with isotonic salt solution, although it has not exhausted its energy entirely. Similarly, some ovums of fish living in sea-water, die if they are put in a solution of sodium chlorid isotonic with sea-water, while they live much longer in distilled water. It is obvious that in these instances no change in the distribution of the fluids can occur, for the osmotic pressure of the fluid is unchanged. In other words, the death of these animals in pure salt solution is due not to the physical action of the salt (salt action), but to the sodium ion exerting a deleterious effect on them." Again he says [30]: "Some recent investigations indicate that, in addition, salt tends to lessen the proteid metabolism through acting directly on the cells." Prof. Jacques Loeb [31] says: "It is, however, easy to give striking illustrations of the fact that a pure NaCl solution is a strong poison." One of the striking illustrations which he gives is the following [32]: "The eggs of a marine fish (Fundulus) develop normally in sea-water, but they can develop just as well, as I had previously found, in distilled water. The addition of ions from the outside is consequently not necessary to the development of this animal. I found, now, that if the freshly fertilized eggs of this fish are put into pure sodium chlorid solution, having a concentration equal to the concentration of the sodium chlorid in the sea-water (about $\frac{5}{8}$ m.), not a single egg can develop into an embryo. If, however, a trace of a calcium salt is added to a sodium chlorid solution, as many eggs develop, and in just as normal a manner as in ordinary sea-water. The calcium ions in this case undoubtedly serve the purpose of annihilating the poisonous effect of a pure sodium chlorid solution." Prof. Loeb gives a number of proofs that sodium chlorid is certainly toxic, and that its influence for evil is not confined to its effects upon osmosis, as Prof. Vaughan teaches. This seems to spoil Prof. Vaughan's contention that none but physicians, or professionally educated people, should be permitted to dispense substances that are toxic, however mild. Some sort of reasonable construction should be put upon laws, like those of Pennsylvania, that make it a crime to use toxic substances, be they ever so dilute or ever so mild, in any food product. As salt in large amounts is poisonous, and is deleterious to health, its use in food is, as seen in the light of honest logic, a legal misdemeanor in Pennsylvania.

The attempt has been made to distinguish between foods and poisons. From what has preceded, we might readily infer that any attempt of this kind would prove futile, but it is advisable to give this phase of the subject some special consideration. If we take the case of alcohol, we have the experiments of Ainstie and Atwater to show us that, as Flint [33] says: "It is certain that most of the alcohol which is taken in quantities not sufficient to produce alcoholic intoxication, is consumed in the organism, and but a trivial quantity is thrown off either in the urine, the feces, the breath, or the cutaneous transpiration." Here is a substance that is at once a poison and a food. It is evident that it cannot be both simultaneously, so that its toxic power does not and cannot be made manifest until after its amount has passed the point where its food value ends. That

amount of it which the body is capable of disposing of as a food, cannot, by any stretch of reasoning, be justly called a poison. One might as well call bread a poison. When concentrated, and when taken in amounts that transcend the powers of the body to consume it, or to eliminate the excess quickly, there can be no question about alcohol being a poison.

If we now go to the extremely toxic toxalbumins, we are confronted by a similar condition of things. Let us consider ricin, abrin, and venin. These bodies are so potent that it only requires about $\frac{1}{1600}$ of a grain per kilogram of body-weight to kill. This is the amount for ricin and the others vary little from it. These powerful poisons are albumins, and under the action of the gastric juice are converted into peptones. Can any person claim that they are not foods? When applied subcutaneously ricin will kill. When injected into the circulation it will kill. When taken into the stomach, a small quantity at a time and not too frequently repeated, it is converted into substances that we have every reason to believe will nourish the body as egg or meat would.[34] If any of these poisons are injected in subtoxic doses and gradually increased, we acquire immunity toward comparatively large quantities.

Leaving the consideration of poisons that are to a small extent foods, let us reverse the picture and look at the foods that are to a small extent poisons. It is unnecessary to remind the reader of the numerous idiosyncrasies of various individuals to different kinds of food. Prof. Atwater says: "Some of the compounds produced from the food in the body may be actually poisonous. Different persons are differently constituted with respect to the chemic changes which their food undergoes and the effect produced, so that it may be literally true that 'one man's meat is another man's poison.' Milk is for most people a very wholesome, digestible, and nutritious food, but there are persons who are made ill by drinking it, and they should avoid milk. The writer knows a boy who is made seriously ill by eating eggs. A small piece of sweet cake in which eggs have been used will cause him serious trouble."[35] Not to dwell upon exceptions, let us consider the rule. Is there a single article of diet which if used in very great excess will not affect us unfavorably? Has this not got something to do with our instinctive desire for a mixed diet? The palate rebels against excesses, not only of any one kind of food but of all kinds. An excess of butter will make us sick. An excess of sugar will do the same. These are concentrated foods, so that it does not really require any tremendous excess to have our appetites rebel. Pfeiffer[36] distinctly declares that "Many food materials act as poisons when concentrated."

No one will deny that the malic, citric, and tartaric acids of fruits have a food value for man. They are consumed constantly with a relish. If any distinction can be drawn between foods and poisons how happens it that these substances are listed as poisons in books on toxicology and have more than once caused death? Acetic acid, too, possesses food value, yet, in concentrated form, it is a decidedly dangerous caustic poison. Pfeiffer relates an incident in respect to sugar that is both interesting and important. He tells us that "Stahl found that the plasmodium of *Æthalium septicum* was partly or entirely killed when suddenly transferred to a 2% solution of grape sugar or from this to a dilute nutrient solution."[37] Here we discover that whether one or other of two foods should be considered poisons, it was necessary to know to which the plant had become adapted. Both were poisons and both were foods and only the biologic state determined, from one time to another, which was the poison and which the food. Both were both in alternation. When we study facts like these we are led to agree with Kobert[38] when he says: "We conclude, then, that for us no substances are 'poisons in themselves'; and that it is only when the particulars are known that we are able to say, in any given case, whether the substance involved can be classed as a poison or not." The same author tells us that "the smallest snail will withstand more strychnin than an adult man. Many of the strongest cardiac poisons have no action whatever on insects. The rabbit can take more morphin than can a man 50 times the animal's weight. Doses of lead, nicotin, cystisin, etc., sufficient to poison man fatally do not injure the goat. Amygdalin does not affect dogs, but it kills rabbits. The hedgehog takes with apparent enjoyment a dose of cantharides that will kill several persons under excruciating pains. Whereas, the frog is extraordinarily susceptible to the digitalis poisons, they have no effect upon the toad."[39] Pfeiffer[40] tells us that "ricin, abrin, and probably other toxalbumins, which are deadly poisons to higher animals, are only feebly poisonous to certain algæ."

The evidence of the relativity of toxicity is constantly growing, but in the domain of technical mycology the study of what we might call the dynamics of toxicity has been prosecuted with greater celerity than elsewhere. Prof. Lafar[41] declares that "The influence exerted on microorganisms by the substances already considered (antiseptics) is subject to the same fundamental law as has been established for physical forces, viz., that the effect produced varies with the intensity of the causative influence. A solution containing so large a proportion of antiseptic that it is capable of killing a given microbe, will, when sufficiently diluted, have a merely restrictive influence on development, without, however, proving fatal. Proceeding farther in the same direction, a condition of dilution will be obtained which will exert a favorable effect, stimulating the vital activity of the organism; and finally, if the degree of dilution be extended beyond this point, no effect will be observable." Again, he says: "Just as a certain degree of heat is fatal to one species, simply retards the development of a second, is favorable to a third, and insufficient to allow the cells of a fourth species to grow at all—so given amounts of poison may be fatal to one species of organism, inert toward a second, and even stimulating to a third. In other words, the constants of influence of a given poison vary with different organisms."[42] If three organisms are given the same poison, in the same dose as related to the body-weight of each, and each of the three has a different degree of susceptibility to that poison, according to this law of poison action, if there is just enough in the dose to injure the most susceptible there would be just enough to stimu-

late and benefit the one with intermediate susceptibility, while there would not be enough to produce the slightest appreciable effect upon the least susceptible. To the first, it would, in that dose, be a poison. To the others it could not properly be considered such. It is this law that gives solidity and validity to the practice of medicine. Any other condition would, as we have already intimated, make the practice of medicine a crime, or something akin thereto, because of the administration of poisons, the chances of which for doing harm would be vastly greater than for possible benefit. While there is this difference in the effect upon human beings as compared with germs, it seems irrational to cry out against the use of minute amounts of copper sulfate in ridding water of dangerous microorganisms, and against the use of minute amounts of preservatives that arrest the development of disease and putrefactive germs in food products. The amounts used in either case never reach the size of medicinal doses. There is not, in the whole literature of medicine, a single particle of evidence to show that poisons of any kind, much less substances that can only be called poisonous when used in immense doses, ever do any person harm, until the quantity consumed has reached the stage of producing perceptible intoxication. It is a multiplication of intoxications that gives us cirrhosed livers and palsied hands from alcohol. Each intoxication leaves its scar, and the accumulations of these scars constitute chronic poisoning. If it can be shown that distinct symptoms of intoxication ever occur from the use of small fractions of a medicinal dose of antiseptics, then, once more is therapeutics worthy of condemnation before the bar of public opinion.

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Water-supply of Illinois to be Investigated.—At a recent meeting of the secretary of the State Board of Health, director of the water-supply, and the sanitary engineer, plans were adopted to make a thorough investigation of the water-supply of the State of Illinois. In this investigation will also be included the purification of the sewage system.

Antispitting Ordinance.—The antispitting ordinance of Grand Rapids, Mich., has gone into effect and the police commissioners distributed signs about the city warning pedestrians not to spit on the walks. No arrests will be made for several days, until the force of the warning signs has had time to sink in. Then, it is promised, the ordinance will be rigidly enforced and spitters prosecuted.

PINWORMS AS A CAUSE OF APPENDICITIS, WITH REPORT OF TWO CASES.*

BY

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of Chicago.

The oxyuris or threadworm is the commonest of intestinal parasites, and has been found in the human intestine at all ages. It is a small white worm, round in the body, and tapering at each end. The male is about 4 mm. in length, and the female 10 mm. or 12 mm. The posterior extremity of the male is blunt and curved in toward the body, while that of the female is a sharp fine-pointed tail. The ovums are produced in great abundance. When the ripe eggs are taken into the stomach the embryos are set free by the digestive fluids. They rapidly arrive at maturity, and infest the intestinal canal from the jejunum to the rectum. The worm completes its whole existence in one host. Though called seatworms, it is an error to assume that they specially inhabit the rectum, as is popularly supposed. The male is said to be found in great numbers covering the mucous membrane of the small intestine, and the female is most numerous in the cecum. The impregnated worms pass slowly down the colon to deposit their eggs in the rectum, and by the active wriggling, boring movements of the sharp tail an intense intolerable itching or tickling sensation results. Fitz describes the rectal mucosa as reddened and excoriated, and Eichhorst says the mucous membrane of the colon is rough, granular and felt-like. With reference to its ability to penetrate and invade the deeper structures, O. Wagener[1] cites the presence of the oxyuris in the wall of the intestine. Yeo and Heller state that seatworms are prone to collect in the vermiform appendix, where also the ovums are hatched. The close proximity of the appendix to their real habitat in the cecum makes their frequent and continuous residence in the appendix an easy matter. These parasites in themselves are of slight pathologic significance, though they may, on the other hand, constitute a most obstinate disorder. There are cases of pinworms that resist repeated and thorough courses of treatment. Osler mentions the case of "a gentleman, aged 40, who had suffered with pinworms from childhood, and had failed to obtain any benefit from prolonged treatment by many helminthologists." Reinfection may take place when a proper degree of cleanliness is not observed during treatment, or the condition may be continued by repeated autoinfection of the intestinal canal from worms or their ovums lodged within the appendix.

Considering the frequency of the oxyuris in the human intestine and the great frequency of appendix disease, it is surprising to find how few comparatively is the number of cases reported in the literature on this subject. In all, I have reports of 17 cases, treated by 14 surgeons: Howard Kelly,[2] Frazier,[3] Bryant,[4] J. Hutchinson, Jr.,[5] Mayo,[6] Hubbard,[7] Morkovitine,[8] Bloodgood,[9] Kablukoff,[10] Rammstadt,[11] Cuthbertson,[12] R. W. Hardon,[13] and W. E. Morgan[14] report one case each,

* Read at the May meeting of the Southern District Medical Society, Chicago.

while Erdman[15] has had four cases. To these I wish to add two cases occurring in my own practice.

CASE I.—Miss N. M., aged 23, was first seen July 27, 1902. Patient gave a history of having pinworms since childhood. Repeated and thorough courses of treatment had failed to effect a permanent cure. Quantities of the worms appeared in the bowel movements, which were fairly swarming with the parasites. In April, 1902, she suffered from persistent, uncontrollable vomiting, with pain in the right iliac fossa radiating toward the epigastrium. There was no fever. The vomiting and paroxysmal pain, crampy in character, continued at intervals for six weeks. On examination in July, the abdomen was found negative, with the exception of moderate tenderness over the appendix. Leukocytes, 7,200. Pelvic organs normal. Rectal examination negative. The diagnosis of disease of the appendix was made, and operation advised. In July and August the patient remained relatively well, except for occasional attacks of severe crampy pains located in umbilical and right iliac regions. No fever, nausea or vomiting accompanied these attacks. The pains were of short duration, lasting from half an hour to several hours, and often recurred several times during the day, or upon successive days. The pulserate was but slightly increased, and muscular rigidity was well marked only during an attack. The bowels were always very constipated.

Operation, September 13, 1902, at Chicago Hospital: Appendix, 3½ inches in length, with narrowed neck, was removed. Immediate section of the appendix demonstrated its lumen distended by a large mass of pinworms. Permanent disappearance of the abdominal symptoms and of pinworms in the bowel movements resulted.

That this appendix had undergone inflammatory changes is shown by the following pathologic report, furnished by Professor Zeit and Dr. Gottfried Koehler: Mucosa shows atrophic glands, edematous interstitial tissues, showing slight round-cell infiltration. Also shows a few goblet cells. Submucosa presents small-cell infiltration, and is also slightly edematous. The lymph nodules are hyperplastic. The muscularis and serosa show no changes.

Diagnosis: Catarrhal appendicitis (atrophic form).

CASE II.—Miss M. W., aged 14, was first seen by me on March 18, 1905. For 2½ years the patient had suffered from many attacks of sharp, crampy pain in the abdomen, lasting for from several hours to two or three days, necessitating her remaining home from school, but often not requiring the attendance of a physician. The pain was griping and colicky in character, and was often felt in the epigastrium. As is frequent in these cases with fictitious localization of pain, it was considered a simple "stomach ache," and ascribed to indiscretions of diet, and indigestion. The last attack began March 4, and continued off and on with short intervals of freedom from pain. During one day in the attack the patient had a moderate rise of temperature, with increase in the paroxysmal pains, nausea, and vomiting. For several weeks previous to this attack, pinworms were noticed in the stools. Examination made in the quiescent interval showed slight muscular rigidity and some tenderness in the right iliac region. Deep pressure elicited dull pain. Rectal temperature, 99.2°; pulse, 88. Rectal examination negative.

Operation March 21, 1905, at Wesley Hospital. The appendix was 2¾ inches in length, club-shaped at the tip, hyperemic and erect, with the bloodvessels sharply injected. It was found to contain 36 pinworms. The patient made an uneventful recovery.

The pathologists' report is as follows: Resembles first specimen, except that the glands are more atrophic. Mucosa shows more round-cell infiltration, and the lymph-nodes are much more hyperplastic.

Diagnosis: Catarrhal appendicitis.

The case reported by Hubbard is particularly interesting, being the only one in this series in which the appendix is described as perforated. The patient was a child of 9, who was suffering from general peritonitis. When the abdomen was opened, creamy pus was found everywhere. Appendix was red, swollen, gangrenous and perforated. It contained two small pinworms. Patient died day after operation.

The question arises whether intestinal parasites in themselves are capable of causing appendicitis. Several cases are on record in which *Ascaris lumbricoides* has been found to have perforated the appendix, and to have escaped through the perforation wholly or partially into the peritoneal cavity. *Trichocephalus dispar*, according to Hubbard, has been proved to cause an inflammation of the appendix by injuring the mucous membrane while sucking the blood of the host; and individual segments of tenia in the appendix act simply as foreign bodies.

The etiologic significance of the oxyuris in the causation of appendicitis appears to be a mooted question. It has been found in the normal appendix without symptoms. Kelly thinks that its presence in the apparently normal appendix may cause attacks of severe spasmodic pain simulating appendicitis. Again, the oxyuris has been found in the acutely inflamed appendix and possibly provoked the attack. In some instances of chronic appendicitis the presence of pinworms may be only incidental, while they may, on the other hand, light up a latent appendicitis. Its presence is most frequent in children, as shown by Erdman, who in 29 cases of acute appendicitis in children in 4 instances found from 6 to 30 pinworms in the appendix. Frazier is of the opinion that the oxyuris is the cause of appendicitis in some instances. Von Moty makes a distinction between the character of the lesions excited by the different varieties of parasites, and finds that the lumbricoids are more often associated with gangrenous appendicitis, while the oxyuris and trichocephalus lead to chronic inflammatory conditions.

While one or a few pinworms can hardly assume the role of foreign body, a mass of these parasites may play the part effectively. The rapid accumulation of the oxyurides in the appendix blocking its lumen *en masse* close to the cecum causes violent contractions of the appendix in its efforts to expel its contents, and accounts for the characteristic sharp, brief attacks of crampy pains (appendicular colic), which coincide symptomatically with the painful, violent peristalsis of the distended appendix. After a portion of the appendicular contents is expelled, and tension removed, immediate relief follows, and the colicky attack is not repeated until the appendix is again distended with large numbers of these parasites. Repeated attacks of appendicular colic are associated with pathologic changes in the mucosa, as shown in the two cases herewith reported, and in many similar cases noticed by other observers. In the cases reported the number of pinworms found in the appendix at operation varied from 2 to over 100, but this is, in fact, no index to the number actually present at various times, and particularly just prior to the periodic emptying of the distended organ.

As a causative factor of appendicular colic, it is possible that the constant movements of the fine-pointed, sharp and irritating tail of the female set up painful and violent contractions of the appendix, and cause efforts to rid itself of its offending and unwelcome guests. Furthermore, reasoning from analogy, the active, boring pinworms that cause so much irritation of and surface changes in the colonic and rectal mucosa may well appear as the cause of catarrhal changes in the appendix, and by producing minute abrasions in the lining membrane pave the way for bacterial invasion of the deeper tissues.

The difficulty of dislodging the pinworms and eggs from their nests pocketed in the appendix is apparent. Anthelmintic treatment during an acute attack of appendicitis might prove very dangerous. Medical and surgical treatment of the appendicitis should be decided upon without serious consideration of the probable presence of these parasites. But in cases of appendicitis and those of socalled appendicular colic recurring in repeated attacks and known to be complicated by the obstinate presence of pinworms in the stools, whether in child or adult, the safe course to pursue is removal of the appendix for the cure of both affections.

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Homeopaths Apply for a Charter.—An application for a charter was made last week by the Homeopathic Medical Society of the County of Philadelphia. The board of trustees is as follows: Drs. B. Frank Betts, John J. Tuller, Caleb S. Middleton, Leon T. Ashcroft, Oliver L. Haines, Louis P. Posey, William H. Keim, Thomas H. Carmichael, Edward M. Gramon, Chandler Weaver, H. P. Leopold, D. B. James, Theodore J. Gram, L. W. Thompson, and W. D. Crelin.

Condition of Insane in North Carolina.—Under a strict construction of the law, only indigents are legally admissible to the State hospitals for the insane, but practically the law has been so ignored that 97% of the inmates of State institutions is treated at the public expense, while an average of more than 69% of the inmates is cured. There has been a constant and steady accumulation for many years of incurables in each of the hospitals until, with the increase of insanity, the accommodation provided in State institutions has become insufficient for the use of the insane of the State. The attention of the Legislature has been repeatedly called to this imperative need, and at last, additions to the State Hospital at Raleigh are being made, and an investigation will be instituted by the governor to ascertain the financial status of the inmates cared for at the public expense, with a view of possibly securing more space for indigent patients.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 9, 1905. [VOL. XLV, NO. 24.]

1. Gastric and Pancreatic Juice Enzymes.—J. C. Hemmeter discusses the question of the identity of the enzymes of the gastric and pancreatic juices, reviewing and criticising the work of Pawlow and Parastschuk, who had pronounced in favor of such identity. While admitting the correctness of their technic and method of experimentation, he claims that their deductions therefrom are unsatisfactory. By the same method of using the parallelism of effects under various chemic and physical influences and the proportionality of work done, he says it would be possible to prove the identity of the ptyalin of the saliva and the trypsin of the pancreatic juice. The fact disclosed by persistent analyses of human gastric juices of the occasional absence of the milk-curdling enzyme while the proteolytic or peptic enzyme is still present, is quoted as evidence against their views. This occurs in certain pathologic conditions, but he has also observed it in two persons apparently normal as far as objective and subjective examination could show. Hemmeter says: "We had in these persons a demonstration of gastric juices: (1) That contained no free HCl, but combined HCl because they were capable of dissociating methyl acetate; (2) that could not coagulate milk; (3) that gave the biuret reaction with a Ewald test-meal. The conclusion seems justifiable that pepsin was present, but that rennin or chymozin was absent, a conclusion which is difficult to harmonize with the view of Pawlow that the proteolytic and the milk-curdling effects are due to one and the same enzyme."

2. Minimum Albumin Requirements.—L. Breisacher[1] refers to studies published by himself in 1891, showing that the estimate of Voit and his pupils of the amount of albumin required by an adult in 24 hours, viz., 118 gm., could be materially and safely reduced, at least for periods varying from three to 30 days. He refers to more recent studies by Chittenden confirming these results, and points out their practical importance. For a number of years he has made use of these facts when it was desired to reduce the albumen metabolism in Bright's disease, and when it is necessary to diminish the excessive uric acid production which accompanies various disorders. Still other conditions in which these facts are of importance are those in which gastric albumen digestion is below the normal, and some cases of intestinal indigestion with accompanying toxemic symptoms, though our knowledge of the chemistry here involved is not as full or exact as in cases of purely gastric origin. The facts are also of significance in connection with the criticism of the two-meal fad. While he thinks that future research will tend to support his and Chittenden's results, he says the occurrence of various digestive and metabolic deviations, both pathologic and physiologic, should warn us against any irrational acceptance and application of the minimum albumin figures. It seems probable that the average individual may and usually does eat too much albumin; and while probably 60 gm. or 80 gm. is nearer the normal requirement than the 118 gm. of Voit, we should bear in mind the fact that individual cases may require much larger quantities of albumin than those called for by the Voit formula.

3. Fatigue in Cold-blooded and Warm-blooded Animals.—First calling attention to his earlier observations on the difference in the slowing of muscle contraction from fatigue in warm and cold-blooded animals, F. S. Lee reports the results of further studies on the same subject. The experiments were made on frogs and turtles and on cats, rabbits, guineapigs, white rats,

[1] Deutsche medicinische Wochenschrift, 1891, No. 8.

mice, and woodchucks. The conclusions reached are substantially as follows: 1. There is a physiologic difference between cold-blooded and warm-blooded animals in mode of fatigue of their excised voluntary muscles. 2. One of the characteristics of fatigue of the excised voluntary muscles of cold-blooded animals is a pronounced slowing of the whole contraction process manifested by a lengthening of the muscle curve most noticeable at low temperatures, and diminished, but not destroyed at higher ones. 3. The excised voluntary muscles of warm-blooded animals fatigue usually without a slowing of the contraction process as a whole. At low temperatures there is a broadening of the muscle curve, caused by fatigue, which, in individual cases, may result in a minute lengthening of the curve as a whole. 4. The above facts suggest that the general physiologic differences between the muscles of cold-blooded and warm-blooded animals are not due to immediate differences in temperature. The existence of a homothermal condition and the constant subjection of the skeletal muscle system to a uniform temperature, seem to impress on that system distinctive physiologic peculiarities.

4. Landry's Paralysis, with Report of Case.—Robert McGregor. See *American Medicine*, Vol. X, No. 5, p. 179.

5. Multiple Neuritis, with Report of Four Cases.—David I. Wolfstein. See *American Medicine*, Vol. X, No. 5, p. 179.

6. Proprietary Medicines.—H. P. Loomis calls attention to special objectionable features of the proprietary medicine business, the secrecy in some, the commercialism, the dressing up of old remedies with new names, and the fraudulent recommendations. He sent circulars of three proprietary medicines widely distributed, and pretending to give concise details involving chemicophysiologic facts, to three wellknown physiologic chemists, asking for a simple explanation of the reading matter. The answers were essentially the same in each case, that the pretended concise descriptions were largely mere jumbles of words without meaning, or else a tissue of falsehoods. He asks how the average physician can discern the truth when the expert fails. This does not apply, of course, to some honest manufacturers who are doing excellent work, but does in the case of a large proportion of proprietary remedies advertised and sent out to physicians.

7. Proprietary Remedy Nomenclature.—C. S. N. Hallberg criticises the unscientific and unsystematic nomenclature of proprietary medicines, illustrating his points by lists of names showing the imagination, or lack of it, on the part of the originators, and also by samples of names of entirely distinct preparations that are so similar as to be liable to cause confusion. He further shows that some of these names so prominently before the profession and the public are practically only synonyms of regular pharmaceutic preparations and therefore deceptive. Thinking physicians would better appreciate these remedies if they were sent out under their proper designation, and the name of a reputable manufacturer is the best possible trademark for the protection of the public. The way to do to get rid quickly of trade names, he says, is through litigation and obtaining decisions in line with former cases, which will prevent the use of these names.

8. The Dentitions of Mammals and of Man.—H. W. M. Tims discusses some of the problems of the origin of some of the forms of human and mammalian teeth. He notes the occurrence of socalled prelacteal vestiges in other animals beside the marsupials, and remarks that, should it be ultimately shown that there is an attempt at calcification in the human prelacteal vestiges, it would furnish additional evidence that the primates have branched off very early from the primary mammalian stem, as Wiedersheim has suggested. The reason why the incisors retain the more primitive type is found in the fact that the greater part of the force exerted in mastication acts on the posterior teeth. From his studies of tooth genesis, Tims is led to the startling suggestion of a possible dual origin of the mammalia in mesozoic times.

9. Capital Operations for the Cure of Tinnitus Aurium.—W. Sohier Bryant. See *American Medicine*, Vol. X, No. 9, p. 347.

10. Phlebitis Following Abdominal and Pelvic Operations.—A. H. Cordier. See *American Medicine*, Vol. X, No. 9, p. 345.

11. Site of Origin of Gallstones.—L. L. McArthur. See *American Medicine*, Vol. X, No. 11, p. 429.

Boston Medical and Surgical Journal.

December 7, 1905. [Vol. CLIII, No. 23.]

1. Operative Treatment of Old Fractures at Lower End of Radius.—H. A. Lothrop finds that as a result of the patient's neglect or the physician's oversight, function and appearance are often unsatisfactory, although appropriate treatment should make subsequent operation unnecessary. During the first 3 weeks whatever union has taken place can usually be broken up by manipulation under an anesthetic and suitable apparatus should then be applied as for a recent fracture. After the third or fourth week the best results are obtained by an osteotomy in the line of fracture followed by treatment appropriate for a recent fracture. After 2 to 6 months, osteotomy should always improve the position and frequently improves the function. After six months it is more difficult to correct the deformity. The backward and upward displacement can always be overcome, but the correction of the lateral displacement is more difficult and usually requires an osteotomy of the ulna. The function is rarely improved at this time, hence interference should be limited to selected cases. [H.M.]

2. Gastric and Duodenal Ulcer.—E. M. Buckingham considers only those cases that are characterized by pain, vomiting, and hemorrhage, without evidence of adhesions or contractions. The onset of symptoms may be so sudden that it is impossible to guarantee any human being against death from hemorrhage within a few days. Patients recover sometimes without treatment and sometimes die in spite of any treatment. A return of symptoms does not of necessity mean the failure of previous treatment. All treatment is directed either to excising the ulcer or to keeping it at rest, and at the same time feeding the patient. Hemorrhage may follow any form of treatment, operative or nonoperative. A patient allowed to get up or to suck ice is not undergoing the rest treatment. Nutrition is of importance, as in treating any ulcer. The rectum can be trained. Whatever treatment is adopted, its continuance should include a broad margin of safety. [H.M.]

4. Tuberculosis and Related Diseases of the Lungs in the Medical Outpatient Department.—W. H. Robey, Jr., and R. C. Larrabee point out the difficulties in the way of proper treatment, especially from inadequate sanatorium accommodations, and also the important service this department can do the public by making an early diagnosis and educating the patient and his family in methods to prevent the spread of the disease. They include in their paper the printed directions given to each patient. [H.M.]

5. The Gastric Contents in Twenty-one Cases of Tabes.—M. P. Smithwick finds that in tabes, gastric motor power and HCl and pepsin secretion are depressed more commonly than exalted. No degree of activity of these functions characterizes tabetics. In gastric crises of this series HCl secretion and motor power were more depressed than usual, and in the severe painful crises depression of acid secretion was extreme and continued for hours. In one case there was probably hypersecretion of gastric juice. [H.M.]

Medical Record.

December 9, 1905. [Vol. 68, No. 24.]

1. Certain Forms of Ocular Tuberculosis.—Charles Stedman Bull says that tuberculosis of the conjunctiva is much more often a primary disease, the result of an ectogenic infection, even in cases where tuberculosis has already developed elsewhere in the body, than of infection occurring through the blood. But, although tuberculous disease of the conjunctiva is not often secondary to tuberculous disease in other parts of the system, yet it is itself liable to be the starting-point of general tuberculosis. An intact normal conjunctiva can, however, never be infected. There must always be a loss of substance, usually a traumatic abrasion. Tuberculosis of the conjunctiva is more often secondary to nasal tuberculosis than primary.

2. Displacement of the Abdominal Organs.—Otto Lerch, in considering the subject of prolapse of the various abdominal organs, lays much stress on the neurotic element, both in the etiology and the symptomatology. The affection may be congenital and is often hereditary; it is most frequently predisposed to by relaxation of the abdominal walls, such as often follows childbirth. The disturbance of the nervous system is practically found in all cases, and nervous symptoms presenting the picture of hysteria and neurasthenia are always present. The trouble can only be developed on an inherited basis of neuropathic constitution. After describing the protean nature of the symptoms attending displacement of the stomach, colon, kidneys, liver, or uterus, the author presents several case histories illustrating pronounced phases of these disorders. The treatment, he says, should be prophylactic, by means of abdominal exercises and the use of a bandage if predisposition is recognized, and the same two measures must be employed if the trouble is already present. The author describes his own bandage, which is provided with anterior and posterior pads and with leg straps. Diet adapted to the condition of the stomach and intended to replace the lost fat, and rest, are the next requisites, as well as massage and mild hydrotherapeutic measures. Tonics and suitable exercise are also of value. The advisability of operative treatment requires careful consideration, for often the visceral dislocation is only part of the trouble, for the severity of the suffering does not depend on the degree of dislocation, and correcting operations have been in many cases without any or without permanent result. If the defect to be corrected contributes to the trouble, and medical treatment has failed, an operation is indicated.

3. Fresh Air and Rest in the Treatment of Pulmonary Tuberculosis.—G. R. Pogue says that much harm has been done to tuberculous patients by the indiscriminate prescribing of fresh air, outdoor life, and exercise, without proper instructions and education of the patient, together with a consideration of the extent of the lesions present. It is folly to place a patient with high fever, chills, and sweats, out doors all day long in cold weather and then require him to sleep in an open tent with no provision made for the comforts of life to which he has been accustomed. On the other hand, the patient in the early stages of the disease who is told to adopt tent life, without being given definite instructions, is very apt to shut himself up tight at night in his tent, and so spends seven or eight hours a day in a closed canvas box. Patients must be kept out doors all day long in the open air, and practically the same conditions must prevail at night, but they must be made comfortable, and be protected from cold winds, rains, and storms, and, during the summer months, from the direct rays of the sun. The beginning of the outdoor life must be made gradual, without abrupt transition from the patient's usual mode of life.

4. Reduction Treatment.—John W. Wainwright reviews the ideas of v. Noorden and other authorities concerning obesity and the best methods for its reduction. In expressing his own views, the author says that the fact must always be remembered that obesity cannot be successfully treated by the same or similar methods in every case. Corpulent persons, who are otherwise healthy, by careful dieting, plenty of exercise, baths, and other rational means, may reduce their superabundant adipose deposit, or at any rate may prevent an increase. But on the other hand, obesity in disease is but a symptom, and the treatment of the obesity alone may, and probably will have an injurious effect upon the patient's general condition. The cause must be treated and the attempts to reduce the flesh must be governed by the disease from which he is suffering. He then describes in detail the various measures of diet, exercise, bathing, etc., that are useful, and points out how they may be adapted to the needs of different individuals.

5. The Principles of Ethics of the American Medical Association.—A. L. Benedict, in criticising the Principles of Ethics of the American Medical Association, says that in their present suggestive form they are not an obstacle to the reunion of the medical profession of the State of New York. Yet, like most compromise measures, the "Principles" cannot prove satisfactory. The essential weakness of the document of the "Principles of Ethics" is that it attempts to codify rules of conduct of physicians, without reference to existing problems, such as education and specialism, which imply other problems with regard to medical colleges, hospitals, dispensaries, sanatoriums, open and covert advertising, selfish or altruistic use of positions of trust and honor, subversion of public or private benevolence to personal, scientific, if not pecuniary advancement, etc. Other problems present with reference to the relation of the medical profession to prospective members, and to official and sanitary control, to allied professions. Very delicate problems also present as to the harmonious relations of private physicians and those in institutional practice, in the employ of various branches of the government, etc. A live issue is the licensure as limited by State and national boundaries. In their present form the "Principles" cannot be viewed complacently, except as a rough draft for future revision, which must take one of two diametrically opposite directions. Either they must be abbreviated to a very general application of the Golden Rule to medicine, or they must be amplified and perfected so as to cover the ethical details governing modern physicians. In either case they must be so far restored to the position of the old code that their spirit shall be binding on the profession, and that departures from the principles enunciated shall be allowed only under exceptional conditions.

6. Uncertainties and Fallacies in Scientific Medicine.—Henry Bixby Hemenway draws attention to the fact that the modern tendency to depend on the newer laboratory aids to diagnosis, etc., has a bad effect, in that it encourages physicians to devote less time to the study of their patient's personality. For example, pneumonia is much more fatal now than formerly, perhaps because the exponents of scientific medicine consider the disease to be but little influenced by treatment, and so disregard the old-fashioned curative measures. In diphtheria, antitoxin should not be used to the exclusion of all other treatment, and the advocates of modified milk feeding forget the differences in the nature of the milk of different breeds of cows. Those who insist in having all drinking water boiled, often go to extremes, yet they are willing to eat salad, radishes, celery, and cress that are washed in the unboiled water. The fact that the germs of many diseases may at times be found in the mouths of healthy individuals, shows that the presence of bacteria alone does not cause disease, and also proves the possibility of aborting incipient attacks.

New York Medical Journal.

December 2, 1905. [Vol. lxxxii, No. 23.]

2. Sarcoma of the Undescended Testes.—Such a case is reported by J. A. Wyeth as occurring in a man of 30. The left testicle had never descended, while the right had descended a short distance into the canal. The patient had lost some weight but there was no cachexia or other evidence of malignant neoplasm except the presence of the tumor, occupying in part the pelvis and the right side of the lower abdominal cavity. The abdomen was opened and the right testicle removed. Further exploration revealed the presence of a similar mass on the left side which was also removed. The right testicle weighed 456 gm., the left 190 gm. A study of the tumors showed them to be sarcoma of the large round-cell variety. [C.A.O.]

3. See *American Medicine*, Vol. X, p. 642.

4. Lymphatic Leukemia.—Walter Mendelson and Frederic E. Sondern report such a case in a woman of 35. The patient was quite stout and had always been inclined to chlorosis. She first complained of great weakness and prostration. The face looked puffy and the skin had a waxy hue. There was a tumor in the left hypochondrium which increased in size. The cervical lymphnodes became swollen and later the tonsils had the appearance of acute amygdalitis. The gums were much swollen early in the disease, superficial ulcerations and slight bleeding occurred. Two days before death a uterine hemorrhage occurred which may have been physiologic. In the skin petechial hemorrhages occurred mostly in the face. A few larger ecchymotic spots occurred in the extremities. The fever was irregular, ranging from 100° to 104.5°, and reaching 106° before death. The pulse from the beginning was rapid. The first examination of blood showed 38,000 leukocytes. The article is concluded by a review of the pathology and blood changes in acute lymphatic leukemia by Frederic E. Sondern. [C.A.O.]

Medical News.

December 9, 1905. [Vol. 87, No. 24.]

1. Etiology of Syphilis.—S. Flexner hopes that the cause of syphilis has actually been discovered. Many problems have hitherto failed of solution because observation has been limited to man, but the discovery that the higher apes are subject to inoculation points a new direction for experimental study. The use of these animals has already answered partly certain questions relating to the manner of entrance of the virus into the body and the comparative virulence of different products of the syphilized animal. It has been ascertained that the poison is easily injured or destroyed by low degrees of heat. Glycerin does not deprive it of its power. An unglazed filter which will permit the passage of the microbe of pleuropneumonia of cattle holds back the virus of syphilis. The evidence all points to the microbe being microscopic, not ultramicroscopic. *Spirochæta pallida* of Schaudinn and Hoffmann is not actively mobile, and its tenuity and refractoriness to staining agents render it difficult to see. The flood of confirmatory publications on their discovery has created a faith which the discoverers have never publicly expressed. It has been found with striking constancy in the primary and secondary lesions of acquired syphilis, whether on the surface or embedded beneath the skin. It is possibly only an occasional and accidental inhabitant of the general blood stream, but there is abundant evidence of its distribution by the circulation. The evidence indicates that the spirochæta survives in the body for many years and is transmissible by a parent herself free from the usual signs of the disease. Examinations of infants with congenital syphilis show that the pallida is regularly present. Tertiary syphilids have been studied with negative results. Infection from a suckling child is explained by the occurrence of the germ in the pharynx. [H.M.]

3. Thyrotomy vs. Laryngectomy.—C. Jackson emphasizes the following points: The patient with cancer of the larynx must have his disease discovered early, else a cure is well-nigh hopeless. If discovered early, the comparatively slight operation of thyrotomy will cure. If discovered late, total or partial laryngectomy will probably prolong life for a variable period, but recurrence is fairly certain and the short extension of existence lacks many pleasures and comforts. The curable stages are characterized by nothing but hoarseness which may disappear and recur. Cough, odor, pain, odynphagia, glandular involvement, external swelling, emaciation, cachexia, etc., are present only after the curable stage is passed. In early thyrotomized cases the prognosis as to cure is better than in chronic laryngitis. We should bear in mind the frequently malign nature of chronic hoarseness. [H.M.]

6. Incontinence of Urine and the Isolated Induction Shock.—A. D. Rockwell reminds us that those cases of incontinence due to organic lesions of the nervous system are generally beyond the reach of any treatment. It is occasionally associated with neurasthenia in which either general or local symptoms predominate. The object of treatment is to increase the tone of the controlling muscles. With the rapid intermittence of the ordinary faradic apparatus we induce physiologic tetanus which is followed by an increase in the symptoms. With a slow interruption, say one or two per second, the fibers have a distinct period of rest. In young children the treatment is necessarily external. The best results, however, are from the introduction of an olive-shaped electrode connected with the negative pole as far as the sphincter. [H.M.]

7. Treatment of Conditions Resulting from Chronic Anterior Urethritis.—W. D. Trenwith emphasizes the importance of exact diagnosis, of gentleness with the mucosa, of attention to the general health, of frequent examination of the urine. No case should be considered cured because the discharge has ceased without an examination of the urine. [H.M.]

10. Relapsing Fever.—Koch reports several cases brought into Hongkong, with a case of transmission to a native. He describes the symptoms and *Spirillum obermeieri* and the experiments of others with preventive inoculation. He has examined mosquitos 24 to 36 hours after allowing them to feed on the patients, but failed to find spirillums in the blood, but suggests that they may exist in other form during one stage of their development. He injected a monkey with blood taken during a remission, when spirillums cannot be found in the peripheral blood. There was no rise of temperature, but the monkey suddenly died on the seventeenth day, when the spleen, liver, heart-blood, and lungs, showed numerous organisms. One case was given carbolic acid, 10 gr., every two hours, with recovery. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

REVIEW OF LITERATURE

Local Action of Antidiphtheric Serum.—Dopter[1] refers to the lingering of the bacillus on the mucosa for weeks, or even months after recovery. On this, hypodermic injections of antitoxin have no effect and results from antiseptic gargles have been unsatisfactory. Applications of liquid serum cannot be prolonged sufficiently; infinitely better antimicrobic results have been obtained by Martin from pastilles of the dried serum incorporated with gum. The writer orders 12 daily, 1 every hour,

[1] Annals of Gynecology and Pediatry, September, 1905.

which must be allowed to melt slowly, omitting every gargle which would dilute the serum. He has treated 72 patients, 25 with true diphtherias, and 47 with pseudomembranous anginas. In the first group the bacilli disappeared in 2 to 5 days and in the second in 3 to 6 days. After cessation of treatment, bacilli were found but twice. The writer has also used a dry powdered serum for snuffing up the nose in 4 cases of primitive diphtheria rhinitis, and in 25 cases in which bacilli were found at the same time in the throat. The serum was efficient in 3 to 12 days, acting more slowly than on the throat on account of the patients not snuffing it up well and because of the tortuosity of the passages. By means of local applications the cure is more prompt, relapses and toxic accidents will probably be prevented, as also paralysis of the velum palati, and the period of isolation is notably diminished. The inhibiting action of the serum on the diphtheric and pseudodiphtheric bacilli alike demonstrates once more the unity of these germs. [H.M.]

Hemophilic Bacilli.—To note to what extent Pfeiffer's influenza bacillus and *Micrococcus catarrhalis* are present in the various affections, C. Klieneberger[1] examined the sputum of numerous infectious cases. Of 27 cases of influenza bacteriologicly examined, in but 8 of them could the influenza bacillus be cultivated, and even in those *Micrococcus catarrhalis* predominated in numbers. Of 25 whoopingcough patients, 18 had *Micrococcus catarrhalis*, also 3 out of 9 measles cases, 1 scarlet fever, and 1 gallbladder empyema. [E.L.]

Angina Pectoris and Allied Conditions.—T. Oliver[2] says that cases of angina pectoris are divided into the organic or true angina, and functional or false angina. In the true form the lesions generally found are aortitis, diseased coronary arteries, myocarditis, fatty degeneration, and valvular disease. Under the functional form are included the pure neuroses, the reflex form, arising usually in the stomach; the toxic form, and the vasomotor type of Nothnagel. Allied to angina pectoris is the "angina sine dolore," occurring in a particular form of cardiac disease, and characterized by a peculiar precordial sensation not amounting to pain. There are three important etiologic factors in angina pectoris—muscular exertion, mental emotion, and digestive disturbances. The symptoms are well known and need no further elaboration. The term "pseudoangina" is applied to a group of cases, in which precordial pain and distress are prominent features, but which lack the organic cardiac changes at the basis of true angina. It is often very difficult to separate the two conditions. The pathogenesis of angina pectoris is still a disputed question. It has been ascribed to spasm of the coronary arteries, spasm of the cardiac muscle from blocking of the coronary arteries, some involvement of the cardiac nerve endings of unknown nature, etc. The prognosis in false angina is usually good, but is grave in angina vera. In the treatment of the latter, regulation of the habits and mode of living is imperative. Tobacco and alcohol must be interdicted. Inhalations of amyl nitrite are advised for the attacks. In the interval the other nitrites and the iodids are valuable. If there are signs of a failing heart, digitalis and nux vomica should be given. In some cases amyl nitrite gives no relief, and morphin may become necessary. [B.K.]

The Influence of Temperature upon Cardiac Contracture.—C. D. Snyder[3] reaches these conclusions: When the rate of heart-beat of the Pacific terrapin, as influenced by temperature, is compared with the velocity of a chemic reaction, as influenced by temperature, a remarkable similarity is found to exist. The acceleration of heart-beat, due to temperature influence, progresses nearly in the same proportion as acceleration of the velocity of a chemic reaction when influenced by temperature. From these results, with much other evidence bearing upon the case, we may conclude that acceleration in the case of the heart-beat is essentially due to acceleration of chemic reactions which go on within the heart tissues themselves. [A.G.E.]

The Röntgen Ray in the Diagnosis of Pulmonary Tuberculosis.—G. E. Pfahler[1] believes that before bacilli can be detected in the sputum and before there is cough, the diagnosis can be made more accurately by the röntgen ray than by any other means. The exposure can be made while the patient holds his breath, that is, in from 5 to 20 seconds. To accomplish good results the tube must be in condition to receive a maximum amount of current at once. The clearness of the shadows will be influenced by the thickness of the chest wall. As a rule, the patient is supine; when pleural effusion or pneumothorax is present, he is placed in the sitting position. The tube is placed 18 in. or 20 in. from the plate in the median line on a level with the third interspace. Deposits a quarter inch in diameter can be detected and an experienced eye can separate the old fibrous tissue or scar and calcareous deposits from the new lesions. Cavities, consolidations, abscesses, displacements of the heart, or enlargement of the mediastinal glands can be detected. The plate is distinctly more sensitive than the fluoroscope, and is also a permanent record of the case. Recent lesions of the same size are less dense than old lesions. Cavities show an area of transparency surrounded by a more dense wall. Pleural thickening gives a rather diffuse, uniform shadow, which lacks the usual mottled appearance seen in infiltration of the lungs. Effusion gives a uniform shadow, with a definite border. Pneumothorax is recognized by a large transparent area extending vertically, having usually at its lower border the shadow of a fluid. A consolidation can be seen through the fluid of pleural effusion. [H.M.]

Malaria in the Form of Acute Peritonitis.—V. Gillot[2] gives his observations on a masked form of malaria, assuming the appearance of an acute peritonitis. All the typic symptoms of the latter may be present—meteorism, abdominal pain, incessant vomiting, small rapid pulse, pinched features, and husky voice. The course of the disease may resemble that of perforation in typhoid fever; and, indeed, operation has been performed on the basis of this diagnosis. In other cases the peritonitic symptoms may develop in the course of chronic malaria. In all cases the diagnosis may be cleared up by a careful examination of the blood for the plasmodium, also for the Widal reaction, and for leukocytosis, which is common in septic peritonitis, but rare in malaria. The proper treatment is, of course, quinin, which may in such cases be given hypodermically. The prompt disappearance of all symptoms is further proof of the nature of the condition. Even pregnancy should not be a contraindication to the use of quinin. The prognosis of this peritoneal form of malaria is usually favorable, although there have been as yet few observations of the condition, on account of its rarity. It is probably analogous to the peritonitis without perforation, occurring at times in typhoid fever, and ascribed to the action of toxins on the peritoneum. [B.K.]

Poisoning with an Alkali of Sulfur.—Stadelmann's[3] patient, a girl of 18, swallowed a small quantity of a powder used to remove excessive hair. Chemically, it was composed of hydrogen sulfid and calcium hydroxid, the combination producing calcium sulfid and hydroxid. The addition of dilute hydrochloric acid in the stomach produces a decomposition with the production of strong hydrogen sulfid. The girl was unconscious and cyanosed on admission, her pulse small, and she had clonic con-

[1] Deutsche medicinische Wochenschrift, 1905, xxx, 575.
[2] The Lancet, September 16, 1905.
[3] University of California Pub., Physiology, Vol. ii, No. 15, September 6, 1905.

[1] Archives of Physiological Therapy, September, 1905.
[2] La Semaine Médicale, September 13, 1905.
[3] Deutsche medicinische Wochenschrift, 1905, xxx, 611.

vulsions. The next day she was conscious, had a subnormal temperature, and complained of ulcers on the tongue and soft palate; her urine contained albumin, blood and casts; her stool was greenish-black in color, contained no blood and was voided involuntarily. She was well on the ninth day. The case was evidently one of the rare cases of poisoning with hydrogen sulfid, this acting directly on the brain. [E.L.]

The Diagnosis of Cholera.—N. M. Berestneff[1] discusses serodiagnosis and hemolysis in relation to the cholera bacillus. He is of the opinion that the serodiagnosis of the bacillus is a method practicable only in well-appointed laboratories. The chief importance is to be attached to agglutination, which allows a positive diagnosis. The examination for hemolytic properties of the cholera vibrio is secondary in importance. [L.J.]

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON LAWRENCE HENDEE
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REVIEW OF LITERATURE

Abdominal Injuries.—C. B. Lyman[2] refers to the worry often caused by injuries which are found later to be limited to the abdominal walls especially when the contusion has been sufficiently severe to give rise to symptoms of shock. If there is severe pain, rapid pulse, abdominal tenderness and muscular rigidity, an exploratory incision is indicated to clear the diagnosis. In hernia of the abdominal wall rest and ice is the first treatment with operation later. Injury to organs within is not as a rule accompanied by symptoms definitely pointing to such injury. If we wait for symptoms we have waited too long to be of any service to our patient for the symptoms which will develop will be those of either hemorrhage or peritonitis. Every case should be operated on immediately and every inch of the gastrointestinal tract should be thoroughly inspected, irrespective of the location of the external wound. Every case in which there has been a perforation of the gastrointestinal tract should be considered an infected case and treated accordingly. [H.M.]

Scopolamin-morphin as an Adjuvant in the Administration of General Anesthesia.—G. Seelig[3] reports a series of 65 cases in which scopolamin hydrobromate, $\frac{1}{100}$ gr. and morphin, $\frac{1}{6}$ gr. were given hypodermically half an hour before general anesthesia with ethyl chlorid ether. One end aimed at in the administration of anesthetics is to reduce the amount to a minimum. The ethyl chlorid ether sequence aids this decidedly and this effect is increased by the scopolamin. The writer lists the physiologic effects of large and small doses of the alkaloid. Of the 65 cases only 1 vomited on the operating table; 77% did not vomit at all; a third of the cases that did vomit, vomited only once and then only from 2 dr. to 1 oz. of clear mucus. Nausea was never pronounced except in two cases and vomiting never occurred earlier than two hours after operation, so that when it did occur laryngeal sensibility was intact, and acted as a safeguard against aspiration pneumonia. Patients go under the general anesthetic without the usual stage of excitement. Salivation is almost invariably absent. After their return to bed, patients lie quietly and awake without excitement, usually dozing off again. There is much less pain and discomfort during the first 24 hours. Scopolamin raises blood-pressure and thereby aids in preventing shock. [H.M.]

Peritoneomeningeal Drainage in Hydrocephalus.—J. H. Nicoll[4] reports having drained the spinal canal in cases of hydrocephalus through a tube connected with the peritoneal cavity, the cellular subcutaneous tissue or both as early as 1899, and in spina bifida even as early as 1898. In the case of external hydrocephalus he performs lumbar laminectomy, this including two vertebral arches; on one or both sides of the laminectomy wound, the transverse process is removed; a free opening is created through the muscles into the peritoneal cavity; a large drainage-tube (decalcified bone, rubber, glass) is buried; the former is absorbed, the latter has to be removed later by a secondary operation. The omentum may be brought through from the abdomen and sutured to the spinal meninges. The latter modification was performed by Nicoll in his last case. In cases of internal hydrocephalus the cerebral ventricles must be brought into communication with the meninges; it is best done in the region of the fourth ventricle. Permanent drainage of the cerebrospinal fluid into the peritoneal cavity, where it may be absorbed, is hoped for, but thus far every opening has after a time closed itself spontaneously. No definite results have therefore been obtained yet. [E.L.]

Avulsion of the Anterior Tuberosity of the Tibia.—Gaudier and Bouret[1] review the anatomy and development of the superior extremity of the tibia, which has a special center of ossification for the anterior tuberosity. They report a case of their own, and review the previously reported cases. The fracture may be complete or incomplete. It occurred between the ages of 15 and 18 years in 14 out of 16 cases. It may be produced by a sudden, forced flexion, or by a rapid and violent contraction of the quadriceps. The symptoms common to both the incomplete and the complete forms are pain, loss of function, sense of rupture, swelling, ecchymosis, elevation of the patella, presence of an osseous tumor, deformation of the bone, and crepitus. In the incomplete form the swelling takes the shape of a crescent, and the patella rises very little. In the complete form, the swelling may involve the whole joint, the patella rises much further and is very movable; below the patella can be felt the detached tuberosity, and below this the depression ordinarily occupied by it. The prognosis of this condition depends upon the treatment pursued, being much more favorable in the operative method. For the first four or five days the extremity is immobilized in extension, and treatment is directed toward reduction of the swelling. In cases of incomplete fracture the patella is brought down by properly-applied bands, and the limb is again immobilized for 15 to 20 days. In complete fracture an arthrotomy is the best treatment, especially in cases of hemarthrosis, the joint being cleaned out, and the fragments approximated by wiring or other means. [B.K.]

Cancer of the Pyloric Antrum.—The object of this paper, by X. Delore and R. Leriche,[2] is to advocate early operation in cases of suspected gastric cancer without vomiting. These cases usually present tumors of the pyloric antrum, not involving the pylorus itself, and therefore not producing the stenosis that leads to vomiting. This latter symptom occurs only in the later stages of the disease, when the cancer extends to the pyloric opening. The authors describe in detail eight cases of this nature. Usually the neoplasm appears to start in the lesser curvature, and propagates toward the pylorus. The clinical picture is divided into two stages. In the first there are symptoms of gastric disorder without vomiting, asthenia, and a little loss of weight, often severe pains, and at times hyperchlorhydria. In the second stage, pyloric stenosis sets in, and vomiting occurs. The authors advocate operation in the first stage, after a thorough medicinal treatment has been unsuccessfully tried, even though no tumor can be dem-

[1] Russki Vratch, August 27, 1905.
[2] University of Colorado Medical Bulletin, Vol. ii, No. 2.
[3] Annals of Surgery, August, 1905.
[4] Glasgow Medical Journal, 1905 lxiii, 187.

[1] Revue de Chirurgie, Ann. xxv, No. 9, p. 305.
[2] Revue de Chirurgie, Ann. xxv, No. 9, p. 346.

onstrated. The operation of choice is a resection of the pylorus, or even a subtotal ablation of the stomach, if necessary, to remove all possibly diseased tissue. The authors had excellent results with their cases, losing only one. Another case had a recurrence, and the rest made a good recovery, without recurrence, up to the present time. [B.K.]

General Results of Röntgen-ray Treatment.—A. Judd[1] furnishes notes of 20 cases of various affections treated by the röntgen ray. Among his general remarks on the subject is the statement that persons of a tuberculous diathesis are very much more susceptible to the action of the rays, dermatitis and burns being caused with greater rapidity and with less apparent cause than with any other class of patients. Recently healed wounds are apt to break down under the rays if they are applied sooner than six weeks after operation; the same length of time should also intervene between exposures and a succeeding operation, as sloughing is apt to follow a wound which immediately succeeds the ray treatment. The rapidly formed cicatrices resulting from röntgen-ray exposures possess illy-nourished epithelium, which is easily destroyed; the frequent application of lanolin to such surfaces helps preserve their integrity. Judd's observations are that primary carcinoma of the breast treated by the röntgen ray furnishes more frequent and more marked metastases and proceeds more rapidly to a fatal termination than do those not thus treated. The only class of deep carcinomas favorably affected are recurrent cases, in which the involvement is recent and only moderately extensive. [A.G.E.]

Dietetic Cure of Biliary Fistula.—It has been noticed that bile does not escape from biliary fistulas during the period of digestion, and it has therefore been proposed to feed the patients every three or four hours, in order to hasten the closure of fistulas left after operation. M. Patel[2] reports a case of cholecystotomy for suppurative cholecystitis, in which this plan was pursued, with the result that the fistula closed in 12 days. This action rests upon the fact that the sphincter of the common bile duct is relaxed during digestion, but closes during the interval, forcing the bile into the gallbladder, and thus through the fistula. The author, therefore, recommends the institution of frequent feeding immediately after operation. In the case of old biliary fistulas, this plan should also be tried before resorting to operation. [B.K.]

Frequency of Strangulation Type of Hernia.—Alvarez[3] finds that in one group of 100 cases, 50% were of the inguinal type. In another group of 96 strangulations, 80% were of the inguinal type, and but 10% of the crural or femoral variety. [T.H.E.]

Trendelenburg Posture in Treatment of Femoral Hernia.—A. Ghedini[4] advocates this method of Ruggi, which has long been used in the clinic of Bastianelli at Rome. The value of the Trendelenburg position during the operation stands to reason because of the shifting of the mass of intestines and the abdominal center of gravity and the change of tension on structures to be included in the sutures allows better approximation, while the light falls on the regions more clearly. Durante adds his approval and believes that the best results follow operations done in this manner. [T.H.E.]

Contusion of the Knee-joint.—C. P. Flint[5] advises aspiration of the knee-joint in traumatic cases with effusion, if the effusion does not diminish markedly at the end of one week. If any hemarthritis is present a small incision should be made and the joint washed and cleansed, as the thick fluid and clots do not flow rapidly through a trocar. If the fluid is permitted to remain in the joint too long it has the effect of relaxing the capsule and ligaments which become chronically distended, and the stability of the joint is interfered with, and the danger of permanent alterations of the joint is great. Any fluid that reaccumulates after aspiration should be removed. If the hemarthritis recurs after the joint is washed out, the fluid which accumulates may be removed by aspiration, as it is apt to be less thick. While Flint does not urge promiscuous operations upon the knee, he believes there are many knee-joints which would be greatly benefited by operative procedures, especially those traumatic cases which, after careful conservative treatment, indicate that if the condition persists, permanent secondary changes will follow, constituting the symptoms described as "chronic knee." [J.H.W.R.]

Fractures of the Base of the Metacarpal Bones.—E. Duroux[1] says that an early and exact diagnosis of fracture of the base of the first metacarpal bone is necessary for a favorable prognosis concerning the return of function, since an early diagnosis permits of a perfect reduction. Otherwise, the thumb remains awkward, never recovers completely its power of opposition, and may even become ankylosed. Fractures of the base of the third and second metacarpals, which remain unrecognized, render painful the elevation of the wrist. The diagnosis may be made by this symptom. Fractures of the base of fourth and especially the fifth metacarpals are the cause of characteristic neuralgic pains in the corresponding fingers. [B.K.]

Surgery during War.—Lönnqvist[2] is quoted as asserting the greater humanity of the modern rapid-fire arms. The wounds heal readily enough, and there have been relatively fewer instances of septic infection. The frequency of aneurysm is notable. The sensibility of the individual is an important factor in estimating the amount of pain the injury causes; but the bone traumas seem to have been very painful in contradistinction to the easily overlooked wounds of the softer parts. [The abstractor has been told of a remarkable instance of apparent insensibility to pain. Adjutant H. Evans, of the One Hundred and Ninety-ninth Pennsylvania Volunteers, in 1865, saw a Southern officer, whose cranium had been split open by a shell. The unfortunate man, not yet entirely unconscious, placed his hand to the wound, and with a stupid smile on his face, pulled at his brains as he lay dying. It is commonplace that men wounded may not know of it for considerable time. T.H.E.]

Venereal Prophylaxis.—A. E. Carrier[3] emphasizes the imperative demand for prophylaxis, on account of the great prevalence of these diseases. While legal restrictions are of immense value, their enforcement at present is impossible. Laws regarding the issuing of the marriage license should take account of venereal diseases. They should be regarded as contagious and reportable. Hospital accommodations should be furnished for those suffering from them. For the present, our efforts should be along the line of education in the family, in the schools, and by literature and lectures to the public. Medical pessimism in this matter of prophylaxis must be eliminated. [H.M.]

Decapsulation of the Kidneys.—As no agreement has as yet been reached concerning the value of Edebohls' operation in nephritis, G. Herxheimer and J. W. Hall[4] experimented with a number of rabbits, some having normal, others diseased kidneys, to determine: 1. Whether, when and what kind of a new capsule forms after decapsulation. 2. Do bloodvessels from neighboring structures enter the kidney in large numbers? 3. How do animals bear the operation? 4. Do the kidney changes pass off differently in diseased

[1] The Postgraduate, October, 1905.
[2] Lyon Médical, October 22, 1905.
[3] Cronica Medica Mexicana, October 1, 1905.
[4] Il Policlinico (Rome), September 24, 1905.
[5] Annals of Surgery, September, 1905, p. 445.

[1] Lyon Médical, October 15, 1905.
[2] Il Policlinico (Rome), September 24, 1905.
[3] Journal of the Michigan State Medical Society, September, 1905.
[4] Virchow's Archiv, 1905, clxxix, 153.

than in normal animals, both anatomically and clinically? They found that the capsule renews itself very soon; the new capsule is thicker than the old. It contains many, but very small bloodvessels. They do not enter the kidney in large numbers, and there is no sign of a marked collateral circulation. The animals are not injured to any extent; the injuries are only transient. Nephritis was produced by ammonium chromate. The operation did not influence the nephritis, either clinically or anatomically; either favorably or unfavorably. [E.L.]

Serum Treatment of Anthrax.—Wilms[1] injected Sobernheim's anthrax serum into a man who had a left-sided swelling of the face, neck, and chest, following the appearance of an anthrax pustule over his left brow. Difficulty in swallowing and nausea developed and his general state became gradually worse. He was given 20 cc. of anthrax serum directly into the median vein; this was followed by profuse sweating. The injections were repeated from day to day until he had received six injections, in all 115 cc. The patient recovered. In a second case no general symptoms existed, but the face and neck were much swollen, the result of the anthrax. He received two injections. The author gives the entire credit for both recoveries to the serum. [E.L.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

EDITORIAL COMMENT

Mental Disturbances of Uterine Origin.—Some years ago it was demonstrated by Picque that as many as 89% of women afflicted with mental disease presented lesions of the uterus, and he, at the same time, pointed out the great advantages that might be derived from a well conducted local treatment in these cases. In a paper which appeared from the pen of the same authority,[2] he calls attention to females afflicted with post-partum psychoses and points out that all were afflicted with a local infection, the patients presenting an enlarged uterus, pains in the lower pelvis and leukorrhea. They presented no elevation of the temperature and apparently the delirium appeared to represent their only disease. After having operated on these cases, the operations being carried out according to the operative indications furnished by the lesions, such as curetment, amputation of the cervix, etc. Picque obtained a cure of the mental condition in 6 out of 15 women, and consequently comes to the conclusion that the surgical intervention had a favorable action upon the mental trouble. In no case did the operation in any way aggravate the psychic condition and there were only five completely unsuccessful results as far as the cure of the mental condition was concerned. Before advising practitioners to enter upon this line of treatment, more evident results must be shown, and Picque himself conceived that attacks of puerperal insanity may recover spontaneously and, in point of fact, a cure is very frequent, independently of any surgical operation. On the other hand, the foci of infection may alone be recovered from and consequently there is no need of applying a very active local treatment for them. This same authority brings up another argument, namely, that many patients recover without surgical treatment; this is quite true, only, thanks to surgical treatment, the duration of their mental disturbance is considerably shortened. For example, one patient had attacks of insanity following her first two labors, which lasted for seven months, and this duration was reduced to seven weeks after the third labor, the patient this time having undergone local treatment. In other cases a cure occurred three weeks after labor, while in another, in which the puerperal insanity had been present ever since the last labor, which had taken place six years previously, an improvement was only noticeable five months later. All this shows the great differences existing in the dates of the cures, and it would appear to us very difficult to admit that this is an inattackable proof; in point of fact, a cure took place spontaneously within very variable lapses of time after the onset of the mental disturbance. The psychoses last longer when they commence during the first half of gestation, and are shorter when they begin during the second half. On the other hand, heredity has a most unfortunate influence, and in some of the cases reported by Picque no hereditary antecedents are published; it is, consequently, probable that there were none, and from this very fact the prognosis was considered better and offered much greater chance of a spontaneous recovery. In another case, a patient recovered seven months after her first two labors, and in seven weeks after her third confinement after an operation had been done. Now, it is well known that, generally speaking, the first attacks are the most serious, and require much more reserve relative to the prognosis than those occurring ulteriorly. The most serious form of these mental disorders is the melancholia of pregnancy; the patients are possessed with ideas of murder or suicide, and labor does not have any particularly happy action on the trouble. Even when an improvement is to take place, the duration of the psychosis is of several months, and if in such cases a surgical operation brings about a rapid retrocession, one might more easily conclude that there was some influence derived from the operation, but, unfortunately documents are wanting relative to this subject. On the other hand, the psychoses may possibly be aggravated by surgical intervention, and, until we are better informed upon this subject, we esteem that it is better to carry out the treatment advised by Budin and Demelin. In cases of acute uterine infection, no hesitation is to be permitted, and the uterine cavity should be cleaned out. The patient should not be allowed to nurse the baby. Now, if there is no acute infection, the patient simply presenting ordinary lesions so frequently following labor, her general treatment should be ordered, such as milk diet and laxatives; a more active local treatment should be reserved for the future, if necessary. If the delirium occurs during active labor, it is indicated to end the confinement as quickly as possible; aseptic and antiseptic caution should be particularly minute in these cases, because any infection may aggravate or cause mental disorders to appear. During pregnancy, when the mental disturbance is due to an autointoxication, such as some renal lesion, it is a more difficult matter to outline any absolute rules, but in Bright's disease, it is quite cer-

[1] Münchener medicinische Wochenschrift, 1905, lii, 1100.
[2] Revue de psychiatrie et de psycologie experimentale, January, 1905.

tain that emptying the uterus produces an improvement in the mental state; but when the psychosis follows upon a neurosis, the conduct to follow is rather vague, and the question arises whether or not pregnancy should be interrupted. Melancholia does not appear to be ameliorated by delivery; mania and mental confusion may, perhaps, be susceptible to a more fortunate outcome, only the certitude of this fact is wanting. Being in doubt, it is better, generally speaking, to allow pregnancy to continue.

REVIEW OF LITERATURE

Sudden Death during or Immediately after the Termination of Pregnancy or Operation on the Pelvic Organs in Women.—E. P. Davis[1] reports three cases, and tabulates 25 typic cases found in literature. He concludes from these and others that: 1. Sudden death may occur after abortion, labor, or operation from undemonstrable causes, autopsy showing no adequate reason for the accident. 2. It may result from the rapid formation of a pulmonary embolus, the cause of which cannot be demonstrated. In more than half the cases, labor was normal. It has occurred before delivery, and after delivery during sleep. It is not common after cesarean section or the more difficult obstetric operations. Bronchial affections and abnormal blood conditions seem to predispose to it. When the symptoms appear, the patient must be kept absolutely quiet on the back and be given heart and respiratory stimulants. 3. Sudden death may occur within a month of labor or operation from thrombosis, or secondary embolism. The symptoms of thrombosis are often obscure. The treatment is rest, elevation of a swollen thigh and bandaging; or ligation and excision of the veins may be necessary. Fatal cases of thrombosis usually terminate by the formation of pulmonary embolism. Death from the sudden entrance of air in the veins has not been demonstrated. 4. Among rare causes of sudden death are a sudden nervous reflex from vaginal manipulation, and advanced tuberculosis. Patients with fibroid tumors have a tendency to thrombosis. [H.M.]

Pulmonary Thrombosis and Embolism in the Puerperium.—Leopold[2] reports the case of a healthy woman, who underwent a normal labor and puerperium, until the tenth day, when getting out of bed brought on a severe attack of pulmonary embolism. Two more attacks followed at intervals, but the patient finally made a good recovery. The only discoverable source of embolism was the marked condition of varicose veins in the lower extremities, that had developed during pregnancy. It is probable that thrombi had formed on the walls of these enormously dilated veins, and that these thrombi were the source of the embolism. The first attack came on without any warning, but the other two were preceded by a steadily increasing frequency of the pulse ("kletterpuls") with a diminution in its tension—a valuable sign of marked embarrassment of respiration. [B.K.]

Treatment of Cervical Cancer in the Latter Months of Pregnancy.—The principles of treatment of cervical cancer in the last months of pregnancy are still the subject of much discussion. At the present time the efforts of the physician are directed not only toward securing a living child, but toward curing the mother. Of late years attempts have been made to establish abdominal hysterectomy as the operation of choice. T. Wilson,[3] however, believes that this operation is accompanied by too much risk, and prefers the vaginal operation. When done by Dührssen's method, the socalled vaginal cesarean section is readily performed, and is attended by less risk of infecting the peritoneum. If done in the eighth month, the fetus can be extracted readily by forceps. The author reports two cases, in both of which the immediate results of the operation were excellent, both as to mother and child. One patient subsequently died from recurrence, and both children died some time after leaving the hospital, from ignorance on the part of the parents. [B.K.]

Castration for Mammary Carcinoma.—Following the lead of Beatson, E. Michels[1] says oophorectomy for inoperable carcinoma of the breast has been frequently performed in England and Scotland, and the results have been, in part, surprisingly good. Of 99 cases collected by Lett, about 36% showed an essential improvement. Diminution or disappearance of pain, healing of ulceration, diminution of glandular involvement, were the features of the postoperative change. The majority of the patients, of course, finally died of carcinoma; but several of them are still living and well, four to eight years after the oophorectomy. In three patients an inoperable carcinoma became, after castration, so much smaller as to be operable. (!) Michels' experience with the procedure has been so satisfactory that he recommends it at least in women between 40 and 47 who are still regularly menstruating. He regards it as a valuable palliative means for diminishing pain and prolonging life—if not, indeed, for bringing about cure; a means which at the same time is almost without danger. [J.W.C.]

Cesarean Section upon Relative Indications.—This operation, says N. M. Prozorowski,[2] is still very rarely resorted to in England and in France, while the Russians, and especially the Germans, show a tendency to perform it much more frequently, introducing "relative" indications, such as pelvic contraction of medium grades. He reports two original cases, and in conclusion pleads for an extension of indications to less desperate forms of pelvic deformity, etc., considering the operation as nowadays pretty well shorn of many old-time terrors. He is convinced that numerous lives are lost owing to the prevailing fear of cesarean section. [L.J.]

Diagnosis and Treatment of Rupture of the Uterus.—G. Schmauch[3] states that it is often difficult to separate spontaneous ruptures from those caused by violence, the form being the same. Contracted pelvis is the most frequent cause during labor. Overdistention causes subinvolution and atrophy, and rupture is frequent in 7 to 15 paras. Uterovaginal tears are frequent in impacted transverse presentations and in anteversions from pendulous abdomen. Ruptures in the third stage of labor are caused by violence. The symptoms are retraction of the presenting part, palpability of the fetal parts outside the uterus, absence of uterine tonus, generally the death of the child from detachment of the placenta, hemorrhage, external or intraperitoneal, in violent tears, the cessation of labor pains, more or less collapse, and in some cases the prolapse of omentum or intestine through the tear. Diagnosis must be followed by immediate delivery. Many incomplete tears are never recognized and heal without reaction. Laparotomy is indicated when the child is in the abdominal cavity. Manual compression of the aorta may suffice while placing the patient on the operating table. If she must be moved to a hospital, or if operation is impossible, tamponade of the tear must be instituted at once. The tamponade may be removed piece by piece in five or six days. An ice-bag relieves pain. Opiates must quiet the bowels. We are not justified by statistics in saying the uterus after rupture or cesarean section is unfit for labor. If prematurely induced, the termination may be favorable for both mother and child. [H.M.]

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[1] Surgery, Gynecology and Obstetrics, July, 1905.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxv, p. 219.
[3] British Medical Journal, September 23, 1905.

[1] Münchener medicinische Wochenschrift, 1905, No. 24.
[2] Medizinskoe Obosrenie, lxiv, No. 14.
[3] Surgery, Gynecology, and Obstetrics, September, 1905.

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Milk and meat inspections in Chicago as summarized in the bulletin of that city's Health Department for the week ended December 2, 1905, show an astounding condition of affairs which may exist in other cities also. It is said that between August 7 and November 30, 2,391,719 pounds of meat, fish, etc., and 389,478 pounds of vegetables, fruits, etc., were condemned and destroyed as unwholesome, diseased or otherwise unfit for human food. The estimated value was not far from a quarter million of dollars which the people might have paid for stuff "which would have injured health, and spread tuberculosis, trichiniasis and other diseases." One stands aghast at the criminal cupidity which will induce men to attempt to sell such dangerous foods to an unsuspecting community. It is now in order for this vigorous and aggressive Board of Health to go a step farther and find out who is responsible for all this moral obliquity. It is well known that combinations of the larger meat dealers have existed in the past to the end of raising the prices of foodstuffs beyond the point to which healthy competition would reduce them. The outcry has always been in protest against the increased cost of living, but here for the first time are the combinations which control the food supply, brought into a direct relation to public health. It is high time that this matter be taken out of the class of minor offenses, and the dealers themselves looked upon in the light of public dangers. Even in war, when all kinds of brutality are sanctioned, it is the height of dishonor—even murder—to poison the water-supply of a country. Is it any better to poison the food supply? It is time that the public mind should develop a conscience in this direction.

Milk adulterations show an equally deplorable condition. As soon as the work of milk inspections was hampered, the number of watered samples immediately jumped from 2.07% to 6.16% of those examined. The city was actually paying $5,278 a day for this water brought in from the suburbs—or nearly $2,500,000 a year. And yet there is objection to the expense of the laboratories, which might and do prevent most of this fraud. It seems incredible, but it is true. More incredible still is the failure to notice the danger of this adulteration. Pathogenic bacteria are thus introduced, and their multiplication in the 24 or 36 hours elapsing until the consumer uses the milk, renders the product worse than dangerous, as our many epidemics too sadly show. The public can be appealed to merely on the ground of the money saving caused by laboratories devoted to milk inspections. The fraud side, and not the health side, must be enlarged upon to get the public to consent to be protected from sickness and death. It almost seems as though life were considered too cheap to be mentioned—only the almighty dollar deserves protection. Even when lives are saved, Boards of Health are compelled to calculate the money saving to the community by this preservation of the wealth producers—at $2,000 per head. We hold ourselves too cheap.

The wholesale poisoning scare in regard to preservatives and adulterants in foods, has been discussed recently in the lay and medical press. It brings up unpleasant memories of the malodorous days of the embalmed beef scandal, with the remarkable conflict of testimony as to whether a little boric acid in fresh beef were as harmful as saltpeter in corned beef. Indeed one of the government bureaus in Washington seems to have been puzzling over the problem ever since, actually experimenting with a poison squad of volunteers desirous of uncomfortably purchased glory. It is, no doubt, disquieting to know that creasote, a rank poison, is put on our hams, or in the Scotch whisky we might prescribe for others, but these fears disappear when we learn that the old-fashioned "smokehouse" or burnt barrels did the same to the bacon and whisky of our forefathers. Indeed, it seems to be a rule to look askance at every innovation, whether it be good or bad—even sugar was once considered a dangerous pre-

servative and forbidden by law. Copper, once thought highly dangerous in small amounts, is now known to be quite harmless, and cooking vessels of this metal are permitted. The minute quantities of dyes, used in our ice cream or cake or to color our butter to its proper appetizing yellowness, are quite harmless. Alum may be harmful, no doubt, but the crusade against it, for the trade purposes of certain baking powders, bordered on the ridiculous for a time. We were scared into making the crusaders rich beyond measure. Of course we do not want the whole list of chemic preservatives dumped indiscriminately into our foods—we prefer them as nature made them—but we must remember that we are no longer living as nature intended when she supplied the foods. We bunch together too much and too far from the food supply which we couldn't get at all by the old methods. Modern cities could not exist if it were not for the new ways of preserving foods long enough to reach the consumer. It is right and proper that we should know all about these new antiseptics, and whether they are more harmful than the old ones, and we must also keep a firm grasp upon the manufacturers to check excesses, but there is no use getting frightened over the matter.

Cold storage has also come in for more or less abuse. It is useless to deny that it is one of our present necessities, but it is also evident that it has been shamefully misused by dishonest men. Certain articles are actually better for the more or less prolonged storage, as they are more digestible and we get more nutriment for our money and for the vital energy spent in digestion. Certain fruits and vegetables nevertheless are spoiled so soon after removal from cold storage as to give a very unfavorable impression. The real evil consists in freezing more or less tainted fish and meats. The process of decay is checked, but the ptomains remain. The purchaser notices no odor, but a gastroenteritis is apt to result none the less. There is a beginning suspicion that much sickness of travelers contracted in strange hotels is thus caused. It is also reasonable to think that these conditions will allow a few typhoid bacilli to survive and multiply, whereas they would have perished had the stomach been healthy. The matter is quite serious no doubt, but it is no reason for condemning cold storage. Should an angel devise methods for our life, grafters would abuse them the next week. Every necessary good soon collects its moss of evil, so that safety demands eternal vigilance. It costs money, but it pays to have an efficient health bureau in every city to keep on the alert for these modern enemies of society—those who injure the public health.

The necessity for national pure food laws is self-evident. The reasons for opposition on the part of a few congressmen cannot be understood unless they are representatives of some interests which are injurious to public health. We do want all foods labelled properly to prevent frauds, whether they are harmless to health or not; and we do want a check to the indiscriminate use of chemic antiseptics. Yet it is well to go slow so as to avoid committing ourselves to a condemnation of harmless things. It is particularly wrong to place a prohibitive tax upon coloring materials in butterine and permit the practice in the case of butter. The Department of Agriculture is very wisely conducting a war against foreign foods imported under false names. Foreign makers of foods and beverages have too long looked upon us as legitimate prey—good things—and have grown rich upon our insane desire to buy something made in France or Germany. The average American is said to enjoy being swindled in little things now and then—even the wrong end of a horse trade has its compensations. But when it comes to being swindled as a regular thing by a Frenchman or German—it's a different matter—a reflection upon our national intelligence. There should be then no opposition to this proposed law, but we do hope that its beneficent purposes can be extended beyond the scope of importations and interstate traffic—the present limitations of national laws. We hope to see the time when anyone who fraudulently sells one thing under the name of another, can always be prosecuted and driven out of business, and if the fraud is proved to be injurious to health we hope the seller can be locked up as a public enemy. Luckily for the people, it is found that inspections of food are increasing public confidence and actually enhancing trade in preserved foods instead of hampering it. Fear of fraud always tends to kill any kind of commerce. The worst kind of sordid self-interest may thus bring the offenders themselves to the side of those who are battling for the public health.

The White Haven Sanatorium.—The seventh annual report of the Free Hospital for Poor Consumptives furnishes interesting data concerning that organization. During the ten years of its existence it has maintained 2,458 patients at a cost of nearly $156,000. Of special importance is the work of the society at White Haven, where 1,303 of these patients were cared for. The capacity of that institution is now 120 beds, and 75% of the persons there treated are restored to physical health. The further plans of the society, while of general interest to the State, are of particular significance to Philadelphia. They include, increasing the capacity of White Haven to 300 beds, the building of a second sanatorium near Philadelphia, in which to treat

more advanced, but still curable cases, the erection in the city of Philadelphia of a hospital for dying consumptives, and the establishment of a convalescent farm for those who, having been restored to physical health, need a helping hand before they are able to depend upon their own resources. The need for all these projected extensions is undoubted, but most insistent is the last, unfortunately the one which least appeals to the average layman. The society finds that many of their discharged patients relapse within a year or two because they do not at once find employment, and the consequent semistarvation is disastrous. The statement that 50% of the work the society is doing is lost, because of this feature, is certainly proof of the urgent need of a convalescent farm; it emphasizes a vital point in the modern care of the tuberculous, which too often is overlooked. Because of the uncertainty of State aid and other sources of support, the sanatorium, beginning with April, will be put on a partial pay basis, each patient who can do so paying at first $7 a week, this being reduced as his capacity to work increases, until finally he earns his entire keep. Others who are unable to do this, will be kept partly or entirely free. The White Haven Sanatorium is a credit to the Commonwealth, and richly deserves the State aid now diverted to superfluous private hospitals.

The Action of Alcohol upon the Circulation.—A very valuable scientific contribution to the studies on alcohol has lately been made by Drs. Horatio C. Wood and Daniel M. Hoyt,[1] working under a grant from the National Academy of Sciences. The experiments described were conducted for the purpose of investigating anew a question regarding which opinions are notoriously conflicting. In addition, the literature of alcohol was studied, according to the characteristic and delightfully blunt statement of Dr. Wood, "with impartiality and with partiality, with critical acumen, with partizanship, with judicious candor, with shallowness, and with thoroughness." The past is epitomized in two paragraphs, almost diametrically opposed, from the writings of Dr. Wood and of Dr. John J. Abel, of Baltimore. The work was carried out chiefly upon dogs and with isolated reptilian hearts, but were in part corroborated by human experiments. The technic and results are given with unusual detail for the benefit of other observers and in the main appear thoroughly convincing. The conclusion reached can best be given in the writers' own words:

Alcohol does not seriously affect, in the normal animal, blood-pressure; elevates the blood-pressure after vasomotor paralysis from section of the cervical cord; increases enormously the rate of the blood flow; directly stimulates the heart; therefore the general action upon the circulation of the moderate dose of alcohol is great increase in the rapidity of the circulation, caused by cardiac stimulation, with vascular dilation, due to depression of the vasomotor centers.

In remarking upon the action of the drug upon the cerebrum, they state there is no sufficient proof that alcohol is a direct cerebral stimulant. So far as consciousness is concerned, its tendencies are to produce sleep rather than wakefulness. Finally, it is regarded probable that the cerebral excitement and increased activity following the free imbibition of alcoholic drinks is due not to the direct action of the drug upon the brain, but to the enormously increased flow of blood running riot through the cerebrum. It is hardly necessary to add that this work, performed or endorsed by so eminent an investigator as Dr. Wood, should go far in settling the important and much debated question as to the circulatory influence of alcohol.

Quick lunches and American dyspepsia alternately occupy the attention of students of national habits, but rarely are the two seriously coupled in the same writing. They have recently come up for renewed comment by reason of the financial failure of the quick-lunch restaurants, established in London during the last few years. American business men have rather formed a habit of making merry over the habits of their English competitors, and nothing seems to excite more mirth than the wholesome eating customs of the business men of all European countries. On one side of the ocean nothing must interfere with business, on the other side nothing must interfere with dinner. Our strenuous promoters cannot understand people who, for a mere matter of dinner, will postpone a business discussion with millions in it, nor can Europeans understand the logic of injuring health for a little money. It is evident that the two classes look at the world through different spectacles. Of course there are many causes for our national dyspepsia, if we really have it, but it is safe to say that our quick-lunch counters do not improve matters. They may have filled a long-felt want, but they produce something which is felt longer. Hygienists have condemned them so often and so long that it is rather curious the evil is so persistent. Happily, there are signs of a reaction, except in the hurly-burly of the very center of the business maelstrom of a few cities. There seems to be a growing tendency to relax the tension and save the machine. In every city there is a healthy growth of clubs, whose main function is to furnish its members with a wholesome lunch, to be taken in quiet and some leisure. Physicians are, themselves,

[1] Memoirs of the National Academy of Sciences, Vol. x, Third Memoir, 1905.

such notorious offenders that it may seem like picking out the mote in others' eyes while a beam is in their own. Yet, it is hoped that all classes will learn that the machine must be rested and coaled leisurely, if it is to last and do the most work, and the process cannot be done by machinery—it is a vital matter.

Nature study for children has usually been carried on in the interests of pure science and has evoked much unjust criticism. There now seems to be a tendency to emphasize the practical sides of the matter. An interesting article by Cephas Guillet[1] shows the large number of useful things a lot of boys can learn while they are being given a practical knowledge of the geology, botany, and zoology of the immediate locality of their school. In addition, it gets the boys out into the open air, where they belong, and we hope to see more of this in place of sloyd—good enough in its way, excellent indeed, but unnatural, in that it too soon and too closely imitates the adult and keeps the boys indoors. An entirely new departure has been made by the Board of Education of San Antonio, Texas, in the direction of teaching the school children all about mosquitos, their different stages of development, and where to find them. Practical demonstrations were combined with stereopticon exhibitions of the life history of the insect. According to the *Medical Examiner and Practitioner*, Dr. J. S. Lankford, the president of the board, states that the children have accomplished what the adults have entirely failed to do, and even failed to take an interest in—the practical extermination of the *Stegomyia*. He even states that San Antonio will escape an epidemic of yellow fever, even if the infection is imported. This is indeed nature study with a practical purpose and we ought to have more of it. Out of the mouths of babes we may learn wisdom yet. Why couldn't each school child be an inspector for the Board of Health—a good mark or a penny for each unhygienic thing reported? Having sanitation dinned into their ears daily in childhood, is it not likely that when they become of voting age they will insist on cleanliness where filth is now tolerated, because we never knew better? Should war come, would a regiment of such soldiers dream of living in the conditions which disgraced us in 1898? Hardly.

Typhoid fever in South Africa is only casually mentioned, yet it comes like a delayed echo of the Boer war and a very sharp echo at that. Rear-Admiral Sir W. J. L. Wharton, on August 30, delivered an address on Geography at the Johannesburg meeting of the British Association for the Advancement of Science. A few days later he was taken ill and died at Capetown, September 29, of typhoid fever and pneumonia. As far as known no other fatalities have been reported from that scientific invasion of the infected area, but this one disaster brings up visions of what would be said if an equal proportion of the army had died within a few weeks of its arrival. Considering the ignorance of soldiers and the primitive manner in which they must live, as compared with the knowledge and comforts of the scientists, it speaks volumes for the British Army Medical Department, that they could delay the epidemic as long as they did and keep it within reasonable bounds in spite of a vitally defective organization which took authority from them in matters which they alone should have authorized. It was only the large number of soldiers infected and not their small proportion which attracted public attention. This one death should really attract as much attention for it shows that this infection is an ever-present danger in every part of the world. Travelers must think of it. Armies must expect it, and take the utmost precautions to avoid it.

The surface bacteria of flowers, fruits, and grains have been studied by Professor Haven Metcalf, of South Carolina, and his report in *Science*, of October 6, 1905, is quite interesting in that it shows that the colon bacilli are frequently discovered on rice and such grains as may have been contaminated by the feces from the animals used in cultivation or from men who had defiled the field or immediate vicinity. It is evident, then, that pathologic bacteria can be thus carried from host to host, but as all of the grains must be cooked before eating, there is practically no danger of spreading disease in this way. Of more interest was the discovery of colon bacilli on asparagus, and also in peach orchards on both flower and fruit. Those on asparagus are easily explained, but the contamination of fruits and flowers in trees is more difficult to understand, unless it be through the dust of manure. There are many varieties of organisms on all fruits and flowers, but they are probably symbiotics, and nonpathogenic either to the plant or to man. The sanitary value of such investigations needs no comment. Recently it has been reported that an epidemic of typhoid among Italians in Springfield, Mass., had been thought to be due to infected fruits and vegetables, that part of the town being very filthy. Some years ago a physician published an article claiming that the discovery of pathogenic organisms had overthrown the old idea that filth was the cause of disease, and though he distinctly said that the removal of filth was proper, because it removed the organisms growing in it, yet the general trend of the argument was a belittling of the old sanitary crusade against filth. There is no doubt that every new discovery, such as Professor Metcalf's,

[1] Popular Science Monthly, December, 1905.

places this crusade on a firmer and more permanent footing, for the more we investigate the more we find in the way of pathogenic bacteria in filth, which almost invariably contains excreta. Now as ever—cleanliness is next to godliness.

"The virtues of the Emperor" have occupied a great deal of space in current literature, and many writers have been inclined to look upon the oriental admiral as some curious kind of human being who thinks things in an inverted way. It might have been assumed that such an intensely practical mind as Togo's would not have thought that the Emperor's goodness whipped the Russians. The Japanese all know, as well as we, that victory generally smiles on the strongest battalions. There is no national god to whom they can credit the victory, after the manner of Jewish or Christian or Mohammedan generals. It now appears that certain rules of soldierly behavior were issued by the Emperor at the beginning of the China war, a decade ago:

1. Be sincere and loyal—shun untruthfulness.
2. Respect superiors and be true to comrades—shun lawlessness and insolence.
3. Obey the command of superiors irrespective of its purport—never resist or disregard it.
4. Value courage and be diligent in the performance of duty—shun cowardice.
5. Be not boastful of brute force; neither quarrel with nor insult others, thereby engendering hatred.
6. Cultivate virtue and practise frugality—shun extravagance and effeminacy.
7. Cherish honor and reputation—shun greed and vulgarity.

It is therefore not at all strange that a commander should credit his good results to the fact that his army obeyed rules and regulations, that is, behaved like true soldiers. There is no doubt a little of flattery, or much of it, in the implication that the Emperor designed these excellent rules—he probably never heard of them until long after they were printed and ready for signature. Yet figures of speech are excusable, perhaps necessary, in monarchies, where the ruler is more or less of a figure head, to whom all communications are addressed. There is no psychologic mystery then in the curious dispatches of the late war; indeed they are more intelligible to us now than ours must be to a Japanese. It is all so intensely human that it is a little surprising that it should have been misunderstood. There is a suspicion that American comments on this instance of official politeness, so characteristic of the whole Japanese race, is a bit of a reflection on our own discernment.

New Hospital Dedicated.—The new Lancaster (Pa.) General Hospital was dedicated Thanksgiving Day. It was erected at a cost of $75,000, part of the sum having been appropriated by the State.

BOOK REVIEWS

A Textbook on the Practice of Gynecology for Practitioners and Students.—By WILLIAM EASTERLY ASHTON, M.D., LL.D. With 1,046 new line drawings, illustrating the text, by John V. Alteneder. W. B. Saunders & Co., Philadelphia and London, 1905.

To the somewhat large ranks of textbooks on gynecology this new work is a valuable addition. In his general arrangement and the development of the subject material, the author has shown an originality that is refreshing as compared to the older and more stereotyped works on this subject. The opening chapters are devoted to the methods of diagnosis in general, reserving to the special topics the particular methods of diagnosis applicable to them and explaining those clearly and concisely. Several chapters are devoted to gynecologic and general hygiene, including local massage diet, baths, exercises, etc. The author's textbook is one of the few that discusses conservative operations and their technic of the uterine appendages. Throughout the author's individuality appears, especially in treatment and operative treatment. The book is excellently illustrated and has a good index.

A Treatise on Obstetrics.—By EDWARD P. DAVIS, A.M., M.D. Second edition. Lea Brothers & Co., Philadelphia and New York. 1904.

In the second edition of this work the author has revised and enlarged the volume and presented concisely the latest additions to our knowledge of obstetrics, which promise to be of permanent value. The work is divided into six parts: (1) Pregnancy; (2) the fetus at term; (3) the puerperal state; (4) obstetric surgery; (5) the physiology, pathology, and diseases of infancy; and (6) the jurisprudence of obstetrics. The chapter on the toxemia of pregnancy, a subject of which the author has made a special study, particularly in reference to the importance of urea excretion as an index of the condition of the patient's excretory processes, is especially valuable. In discussing the treatment of central placenta prævia, when the cervix is tightly closed and the mother and child are in good condition, the author believes that delivery by cesarean section is justifiable in the hands of a capable operator and assistants. In multiparous patients, delivery should be effected by dilation and extraction through the vagina. Dr. Davis believes that symphysiotomy has a recognized place among obstetric operations, when the disproportion between the mother and child is not considerable. The book is illustrated by 274 engravings and 39 plates in colors and monochrome. The typographic arrangement is decidedly better than in the first edition and the student is enabled to find any subject readily, because of more prominent headings and subdivisions. An index of 26 pages adds to the value of the work as a book of reference. We can recommend the book as a safe guide for the practitioner of obstetrics.

A Short Practice of Gynecology.—By HENRY JELLETT, M.D. With 125 illustrations. Philadelphia: P. Blakiston's Son & Co.

This work has been written with the object of affording a concise account of gynecologic diseases and their treatment. The author has limited himself to those theories and practices which appear to rest on the surest basis in the present state of gynecologic knowledge. For dilation of the uterus, he advises Hegar's dilators, which, to our mind, are preferable to the parallel bars. American gynecologists will probably note the absence of any description of Emmet's operation of perineorrhaphy. The subject of extrauterine pregnancy has not

been discussed, the author considering it an obstetric rather than a gynecologic condition, although undoubtedly a majority of the operations for ectopic pregnancy are performed by the gynecologist. Kustner's operation, which consists in performing a posterior colpotomy and the division of the constricting isthmus of the uterus, is advised for the radical cure of the inversion of the uterus. We are glad to note that vaginal drainage through an opening made from the floor of Douglas' pouch into the posterior vaginal fornix is advocated, when drainage is necessary. In the description of operations for cystocele, only those procedures are advised which remove the mucous membrane of the anterior vaginal wall, while experience has taught us that in cases of extreme cystocele it is necessary to excise a portion of the entire thickness of the vaginal wall in order to prevent a recurrence of the cystocele. Sanger's operation is advised for lacerations, which involve only one side of the cervix, although the Emmet operation is designated as especially suitable for bilateral lacerations. For a book of its size and scope, this volume, because of its accuracy of description and conciseness in expression, is especially valuable to the busy practitioner.

Hyperemia as a Therapeutic Agent.—By Prof. Dr. August Bier of the University of Bonn. Authorized Translation edited by Dr. Gustavus M. Blech. Chicago: A. Robertson & Co., 1905.

This is an interesting account of mechanical and thermic agencies for causing active and passive congestion of parts, and of the therapeutic effects. Both the author and editor are a little inclined to enthusiasm, not to say hyperbole, but the judicious physician will know how to allow for this bias, and may find some useful hints both for application and methods in its pages.

Anatomy and Physiology for Nurses.—By LeRoy Lewis, M.D. Illustrated. Philadelphia, New York, and London: W. B. Saunders & Co., 1905.

In this book of 302 pages Lewis furnishes a compilation of the principal facts in anatomy and physiology that are required thoroughly to appreciate the work demanded of nurses. It is well written, the subject-matter is wisely selected and the illustrations, 146 in number, are good. Each chapter is followed by a list of review questions. Typographic errors are few. Broad statements are permissible in such works, but the one on page 182 to the effect that renal casts "are disintegrated from the tubules" is rather indefinite, even for nurses. As a whole, the book very well answers its purpose.

Immunity in Infective Diseases.—By Elie Metchnikoff. Translated from the French by Francis G. Binnie, University of Cambridge. New York: The Macmillan Company. 1905.

Dr. Binnie has rendered a distinct service to the medical profession by translating this classic monograph of Metchnikoff, who in it sums up his labors of 25 years on the problems of immunity. Most physicians are more or less familiar with the phagocytic theory of immunity as so ably expounded by Metchnikoff and his pupils, but English readers will welcome this opportunity to gain these views at first hand. The translator has very happily succeeded in giving the ideas of the original, which is the highest test of such work. The book contains 569 pages of text as compared with 594 in the original, but ready reference to the latter is made possible by its paging in the margins of the translation. This is a novelty in works of this class and is to be highly commended. Every medical library, large or small, should include this work.

The National Standard Dispensatory.—Containing the Natural History, Chemistry, Pharmacy, Actions and uses of Medicines, including those recognized in the Pharmacopeias of the United States, Great Britain and Germany, with numerous references to other foreign Pharmacopeias. In accordance with the United States Pharmacopeia, eighth decennial revision of 1905, by authorization of the Convention. By Hobart Amory Hare, B. Sc., M.D.; Charles Caspari, Jr., Ph.G., Phar. D., and Henry H. Rusby, M.D. Lea Brothers & Co., Publishers, Philadelphia and New York, 1905.

The first edition of the National Standard Dispensatory is an admirable corollary for and commentary upon the new revision of the Pharmacopeia. In the number of illustrations it probably surpasses any work of its kind extant. Ample description of all the new drugs is afforded, and especial attention is given to practical knowledge, there appearing considerable condensation in the purely historic matter. It is a distinct improvement on the old National Dispensatory of Stille & Maisch, both in subject-matter and typography. An increase of more than 6,000 references in the present work over those of the last edition of the National Dispensatory evidences its greater usefulness. The editors and the publishers deserve commendation for the uniform excellence and worth of the production.

Infant Feeding in Its Relation to Health and Disease.—By Louis Fischer, M.D. Third edition. Philadelphia: F. A. Davis Company, publishers. 1904.

The third edition of Dr. Fischer's work has been almost entirely rewritten and many changes which were necessary to aid the general practitioner in the preparation of working formulas for the modification of milk have been made. The anatomy and physiology of the infantile stomach are reviewed and the article on the stomach capacity of the infant at different periods is especially noteworthy. The different methods for the modification of milk have been described and the necessity for the administration of water emphasized. Of all the necessities of an infant, water stands out most prominently, and yet the wants of the tiny patient in this particular are often neglected. The author insists upon the child's receiving water several times daily. The milk idiosyncrasies in children, which are of much rarer occurrence than in adults, have been made the subject of an interesting chapter and several cases illustrating this point have been introduced. For the treatment of infantile colic, the author advises the use of an enema of soap and water or chamomile tea, if the seat of the colic is in the intestine. As the colic is usually the result of fermentation, arising from undigested particles of food in the stomach, the cause should be remedied, if possible. A dietary containing the various preparations useful in the treatment of sick infants has been added. This book is especially valuable for a general practitioner who desires exact information, and not merely theories and experimental ideas, in the treatment of the bottle-fed baby.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

A Textbook of Physiology.—By William H. Howell, Ph.D., M.D., LL.D., Professor of Physiology, Johns Hopkins University, Baltimore. Octavo volume of 905 pages, fully illustrated. W. B. Saunders & Co., Philadelphia and London, 1905. Cloth, $4.00, net; half morocco, $5.00, net.

International Clinics.—A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By

leading members of the medical profession throughout the world. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, with the collaboration of Wm. Osler, M.D., Oxford; John H. Musser, M.D., Philadelphia; James Stewart, M.D., Montreal; J. B. Murphy, M.D., Chicago; A. McPhedra, M.D., Toronto; Thos. M. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London; Edmund Landolt, M.D., Paris; Richard Kretz, M.D., Vienna, with regular correspondents in Montreal, London, Berlin, Paris, Vienna, Leipsic, Brussels and Carlsbad. Vol. III, fifteenth series, 1905. J. B. Lippincott Company, 1905.

Memoranda on Poisons.—By THOMAS HAWKES TANNER, M.D., F.L.S. Tenth revised edition by HENRY LEFFMANN, A.M., M.D. Professor of Chemistry in the Woman's Medical College of Pennsylvania, etc. P. Blakiston's Son & Co., Philadelphia, 1905. Price, 75 cents.

A Treatise on Diseases of the Skin.—By HENRY W. STELWAGON, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia; and Clinical Professor of Dermatology, Woman's Medical College, Philadelphia. Fourth edition, revised. Handsome octavo of 1135 pages, with 258 text-illustrations, and 32 full-page lithographic and half-tone plates. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $6.00 net; sheep or half morocco, $7.00 net.

Transactions of The Maine Medical Association, 1905. Vol. xv, Part II. Stephen Berry, printer, Portland, Me.

AMERICAN NEWS AND NOTES

GENERAL.

Charitable Bequests.—Mrs. Helen G. Coburn, of Boston, has devised the following: Children's Hospital, Boston, $50,000; Massachusetts General Hospital, Coburn Fund, $75,000.

Personal.—Prof. William H. Welch, of Baltimore, has been elected a member of the Board of Trustees of the Carnegie Institution, in place of the late Secretary of State Hay.—**Prof. Wm. Osler** will spend the holidays in Baltimore and Boston. He will lecture at Johns Hopkins University during January.

Cholera in Philippines.—Since the recent outbreak of cholera in the Philippine Islands, physicians have been investigating its source. Dr. Victor G. Heiser says the belief is rapidly gaining ground among medical men that the disease is indigenous to the islands. He believes it was introduced into Manila from Rizal. Many of the suspected cases of cholera have turned out to be cases of ptomain poisoning.

Miscellaneous.—Cornell University Medical College.—The Interurban Clinical Society, consisting of the younger medical men in New York, Boston, Philadelphia, and Baltimore, met November 10 in the Cornell University Medical College and was entertained by the presentation of some unusual cases, illustrating the serum treatment of various disorders. The laboratories connected with this college have lately produced some very valuable serums and the results of this work were of great interest. A detailed account is soon to be published.

American Association for the Advancement of Science.—The sessions of Section K: Physiology and Experimental Medicine, which will be held on the morning and afternoon of January 1, promise to be of unusual interest. The morning session will be opened by an address by the vice-president, Dr. William T. Sedgwick, on "The Experimental Method in Sanitary Science and Sanitary Practice." The remainder of the morning session and all of the afternoon will be devoted to a symposium on yellow fever and other insect-borne diseases. Yellow fever in its various phases will be discussed by Drs. J. H. White, Quitman Kohnke, James Carroll, and H. A. Veazie. It is expected that Drs. Edmund Souchon, Surgeon-General Walter Wyman, and Colonel W. C. Gorgas, and other specialists, will also take part in the discussion. Dr. William S. Thayer will read a paper on "The Problem of Prophylaxis against Malaria in the United States;" Dr. Henry B. Ward will consider filariasis and trypanosome diseases; Dr. Charles W. Stiles will present a review of facts bearing on the principles involved in the transmission of disease by insects; and Dr. Gary N. Calkins will discuss the protozoon life cycle. Dr. L. O. Howard will talk on mosquitos that carry disease, and Mr. Henry Clay Weeks, secretary of the American Mosquito Extermination Society, will present the practical side of mosquito extermination.

EASTERN STATES.

Scabies Epidemic in New Hampshire.—It is estimated that there are about 500 cases of scabies known as the old-fashioned "army itch" in Nashua, N. H.

Meningitis at Naval Station.—One death at the naval training station at Newport, R. I., is reported of cerebrospinal meningitis. There are four other cases of the disease at the station, all among recent arrivals. Precautions have been taken to prevent a spread of the disease among the 1,500 apprentices on the station.

Boston Mortality Report.—The number of deaths reported to the Board of Health for last week was 185, as against 209 the corresponding week last year, showing a decrease of 24 deaths, and making the deathrate for the week 16.21. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 44 cases, 2 deaths; scarlatina, 18 cases, no deaths; typhoid fever, 16 cases, 2 deaths; measles, 155 cases, 3 deaths; tuberculosis, 30 cases, 17 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 42, whoopingcough, 1, heart disease 13, bronchitis 5, and marasmus 4. There were 6 deaths from violent causes. The number of children who died under 1 year was 51; under 5 years 70; persons over 60 years, 48; deaths in public institutions 65.

NEW YORK AND VICINITY.

Schools Closed Because of Meningitis.—The city schools at Dunkirk, N. Y., are closed, owing to the spread of cerebrospinal meningitis among the children. Five cases are under quarantine. The schools will be thoroughly fumigated before being reopened.

Medical Societies Consolidate.—The consolidation of the Medical Society of the State of New York and the New York State Medical Association, authorized by the first act of the Legislature of 1904, was registered in the Secretary of State's office December 14 by the filing of an order signed by Supreme Court Justice John M. Davy. The new society will be known as the "Medical Society of the State of New York."

Filthy Street Cars in Paterson.—Owing to the many complaints made to the Board of Health in regard to the condition of some of the trolley cars at Paterson, N. J., Sanitary Officer Green was instructed to make an investigation. He examined four cars and found them in a filthy condition. He recommends as a remedy thorough deodorization and cleansing, also that the seats be upholstered with material other than carpet.

The Department of Health Clinic for the Treatment of Communicable Pulmonary Diseases.—This clinic was opened March 1, 1904, and has been a success from the start. It is open daily, except Sundays and holidays, from 9 a.m. to 4 p.m., and from 8 p.m. to 9 p.m., classes being conducted morning, afternoon and evening. The class on Tuesday, Thursday and Saturday evenings is limited to colored patients, colored physicians being in attendance. Noteworthy elements are the routine throat and röntgen-ray examinations that are made and the supervision over the patient's home life that is exercised by the regular visits of a trained nurse.—[*Medical Record*, December 16, 1905.]

Bar Tuberculous Pupils.—The Board of Education of Elizabeth, N. J., has issued an order excluding from the schools all children suffering with tuberculosis, and putting that disease on the same footing with scarlet fever, diphtheria, and other contagious diseases. Dr. Joseph Funk, of the board, questioned the power of the board to do this, but the board decided to enforce the order until tested in the courts.

PHILADELPHIA, PENNSYLVANIA, ETC.

Charitable Bequests.—By the will of the late Maria T. Wirgman, the Cooper Hospital, Camden, N. J., receives $124,689.50.

More New Cases of Measles.—There were 276 new cases of measles reported to the health authorities in Philadelphia last week. The number is an increase of 66 cases over that reported for the previous seven days.

Contagious Diseases in Camden.—The annual report of the number of contagious diseases in Camden, N. J., which has just been compiled, shows that there was a total of 564 cases of contagious diseases, as follows: Typhoid fever, 33; scarlet fever, 135; diphtheria, 227; membranous croup, 25; tuberculosis, 41; smallpox, 3.

Advisory Board for Dr. Coplin.—The following advisory board was appointed by Mayor Weaver to assist Dr. Coplin in his work in the Department of Public Health: S. Weir Mitchell, John H. Musser, John M. Anders, Hobart A. Hare, J. William White, Henry Leffmann, Charles D. Mills, Francis X. Dercum, and William Pickett.

SOUTHERN STATES.

Smallpox in West Virginia. — At Wellsburg, W. Va., smallpox has appeared in a mild form, there now being about 14 cases under strict quarantine. The Board of Health has done good work and believe they have the disease under control.

At 10, Mother of 8-pound Babe.—A colored girl of Bristol, Tenn., whose mother declares she was only 10 years of age last October, has given birth to an 8-pound infant. The girl came there alone from Stonega, Wise Co., Va., recently, claiming to be homeless. It is believed the mother and her infant will live.

The Southern Medical College Association at its annual meeting at Louisville, Ky., last week elected these officers: President, Dr. Christopher Thompkins, Richmond, Va.; vice-president, Dr. T. H. Frazer, Mobile, Ala.; secretary, Dr. G. C. Savage, Nashville, Tenn. The convention failed after an all-day debate to take action on an amendment to the constitution which would have required all candidates for admission into Southern medical colleges to have a high school education.

WESTERN STATES.

Chicago's Sewage.—Chicago may petition Congress to complete the widening and deepening of the Chicago river to provide for the proper dilution of sewage as required by law. It is estimated that it will cost at least $3,000,000 to carry out the plans of the old drainage board. It is thought that as much of this is permanent harbor improvement, the work should be done by the federal government.

Mortality of Michigan during November.—The total number of deaths returned to the Secretary of State for the month of November was 2,644, representing a total deathrate of 12.6 per 1,000 population. A slight falling off from the rate of the previous month, 13.1, is observed. There were 445 deaths of infants under 1 year of age; 164 deaths of children aged 1 to 4 years, inclusive, and 791 deaths of persons aged 65 years and over. Important causes of death were as follows: Tuberculosis of the lungs, 163; other forms of tuberculosis, 26; typhoid fever, 93, a decrease of 9 from the number returned for October; diphtheria and croup, 71; scarlet fever, 22; measles, 3; whoopingcough, 11; pneumonia, 187; diarrheal diseases of infants under 2 years, 74; influenza, 17; cancer, 143; accidents and violence, 158. The deaths from pneumonia more than doubled in number as compared with the preceding month, and influenza also increased, although the total number of deaths from this cause was only 17. A marked decrease was shown in diarrheal diseases. There was 1 death from smallpox, which occurred in Alma, Gratiot county.

FOREIGN NEWS AND NOTES

GENERAL.

Spain Excludes the Plague.—The passengers and cargo of the Pacific Steam Navigation Company's steamer Oropessa, from South American ports were not permitted to be landed at Corunna, Spain, because there were three cases of bubonic plague on board. The steamer sailed for La Pallice, France.

Status of Cholera in Russia.—According to the publications of the Russian plague commission, there occurred in the Vistula territory (Russia), between October 26 and November 1, 11 fresh cases of cholera with 6 deaths, and between November 2 and 8, 18 cases (18 deaths). Of the cases reported in the last week of October, 7 cases and 4 deaths occurred in the district of Makow (government of Lomja), 2 cases in the city of Lodz, 1 case and 1 death in the city of Warsaw and the district of Ostrow. Of the 18 fatal cases in the first week of November, 13 cases (12 deaths) occurred in the district of Kolno (government of Lomja), 2 cases (2 deaths) in the city and district of Lomja, 1 case (1 death) in the district of Makow, and 1 death in the district of Masowetzk.

OBITUARIES.

W. S. Forbes, professor of anatomy in the Jefferson Medical College, in Philadelphia, December 17, of angina pectoris. He was born February 10, 1831, in Falmouth, near Fredericksburg, Va.; he was an alumnus of the University of Pennsylvania, and was graduated from Jefferson Medical College in the class of 1852. He was in the clinic of the Jefferson College under Drs. Joseph Pancoast and Mutter, and was a resident physician in the Pennsylvania Hospital from 1853 until 1854. He served with the British in the Crimean war. Owing to the fact that public sentiment in America at that time was strongly Russian, his services were the more appreciated in England and as a mark of gratitude he was offered a directorship in the British army, which he declined because he would have had to renounce his citizenship in the United States. Returning from the Crimea, Dr. Forbes opened a private school of anatomy on College avenue in Philadelphia, which he continued until 1872. He was professor of anatomy in the Pennsylvania Dental College for several years. In 1879 he was elected demonstrator in anatomy in the Jefferson Medical College, and professor of anatomy and clinical surgery in 1886, which position he held until the time of his death. From 1862 until 1887, he served as senior surgeon of the Episcopal Hospital of Philadelphia. He was also surgeon in the United States Volunteers, and was appointed medical director of the Thirteenth Army Corps, and served under General Grant during the siege of Vicksburg. Perhaps the crowning act of Dr. Forbes' life and of which he was most proud was his authorship of the original Anatomy Act of Pennsylvania in 1863 and its amendment in 1883. This Act has placed the procuring of subjects for dissection in the various medical schools in Pennsylvania upon a legal basis and has been of the greatest aid in the advancement of medical science. This Act has been copied by all of the States

in the union. Last June the student body of the Jefferson College presented to the College a full length oil portrait of Professor Forbes. In this movement the medical alumni of the University of Pennsylvania joined in honoring Dr. Forbes by the presentation of a silver loving cup and testimonial. These acts were done in recognition of the 50 years of Dr. Forbes' teaching of anatomy in this city and in appreciation of his contributions to medical science including his authorship of the Anatomy Act. Dr. Forbes belonged to the Academy of Natural Sciences, College of Physicians of Philadelphia, Philadelphia County Medical Society, Pennsylvania State Medical Society, American Surgical Association. He was the inventor of a new lithotrite and method of obtaining and measuring the strength of these instruments, and the measured crushing resistance of vesical calculi. He devised and was the first to perform the operation of liberating the ring finger of musicians by dividing the accessory of the common extensor of the digits.

William Wallace Gardner, an ear and eye specialist, December 11, in Springfield, Mass. He was born at Plainfield, May 5, 1826. He took courses at the Berkshire Medical College at Pittsfield, the University of Pennsylvania, Wills Eye and Ear Hospital in Philadelphia, Bellevue Medical College and the Medical School of New York University. He practised medicine for ten years in Pittsfield, Warsaw, N. Y., and Springfield, and then began devoting his entire attention to eye and ear specialty practice. He continued practising actively for 40 years until about three years ago, when he retired.

George I. M'Leod, aged 68, of Philadelphia, December 18, from pneumonia, at the Bryn Mawr Hospital. He was graduated from the University of Pennsylvania. For 18 years he served on the State Board of Charities. He gave much personal attention to the laws relating to the care and transfer of all insane, in both private and public institutions, keeping detailed records of every insane case treated in the State.

Edwin Reynolds, aged 60, December 15, at his home in Brooklyn, N. Y. He was graduated from the College of Physicians and Surgeons, New York, in 1877. He was a member of the New York State and Kings County Medical Societies, the Medicolegal Society, and of the American Medical Association, chairman of the Brooklyn Home for Consumptives.

George S. Hyde, aged 74, December 13, at his home in Boston, Mass. He was graduated from Harvard University, school of medicine, in 1853. He had been in active practice for 50 years, and for 40 years physician to the St. Vincent's Orphan Asylum. He was interested in charitable work, especially that of the Salvation Army, Boston Industrial Mission.

Benjamin Blackford, aged 71, December 13, at his home in Staunton, Va. He was graduated from the University of Virginia, and from the Jefferson Medical College, Philadelphia, in 1855. He served as surgeon in the Confederate army during the Civil war, and was superintendent of the Western State Hospital, at Staunton, for 16 years.

John Mullen, aged 42, December 17, at his home in Portsmouth, N. H. He was graduated from Dartmouth Medical College, Hanover, N. H., in 1888. He was a member of the Portsmouth Medical Society and of the Board of Health.

A. L. Jukes, aged 84, December 10, at his home in Vancouver. He contributed many articles to certain branches of medical science, for which he was given a fellowship in the Royal Obstetrical Society of England.

W. G. Corbett, aged 39, was instantly killed in a runaway accident, December 16, near his home in Plymouth, Wis. He was graduated from the College of Physicians and Surgeons of Chicago in 1901.

Theodore DeEcke, December 15, at his home in Utica, N. Y. He was graduated from the University at Berlin, Germany, in 1857. He was a pathologist and an expert in chemic research.

Isaac D. Newman, aged 67, December 12, at his home in Oakland, Md. He was graduated from the Physio-Medical Institute of Cincinnati, Ohio, in 1885.

David O. Lewis, December 16, from apoplexy, at Honolulu. Dr. Lewis was a medical inspector in the Navy, having been appointed from Pennsylvania.

Louis Gelston, December 12, from scarlet fever, at his home in Calumet, Mich. He was graduated from the University of Michigan in 1905.

George H. Wallis, aged 93, December 17, at his home in New York City.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended December 16, 1905:

First Lieutenant HAYWOOD S. HANSELL, assistant surgeon, will proceed to Cotabato, Mindanao, for duty, relieving First Lieutenant Henry F. Pipes, assistant surgeon, who will proceed to Camp Keithley, Mindanao, for duty.—Lieutenant Colonel WILLIAM B. DAVIS, deputy Surgeon-General, will be relieved from duty in the Philippines Division November 15, and will proceed on the transport scheduled to sail on that date, to San Francisco, Cal., reporting by telegraph to the military secretary of the army for instructions.—First Lieutenant CHARLES N. BARNEY, assistant surgeon, is assigned to duty in the office of the chief surgeon of the Philippines Division.—First Lieutenants William H. Moncrief, William T. Davis, Louis C. Duncan, and Philip W. Huntington, assistant surgeons, will be relieved from duty in the Philippines Division in time to sail from Manila about December 15, for San Francisco, Cal., reporting by telegraph to the military secretary of the army for instructions.—First Lieutenants Cary A. Snoddy, Samuel J. Morris, Harry S. Purnell, John W. Hanner, Horace D. Bloomberg, and Leon T. LeWald, assistant surgeons, will be relieved from duty in the Philippines Division in time to sail from Manila about January 15, for San Francisco, Cal., reporting to the military secretary of the army for instructions.—First Lieutenant ROBERT L. CARSWELL, assistant surgeon, will be relieved from duty in the Philippines Division in time to sail from Manila about February 15, for San Francisco, Cal., reporting to the military secretary of the army for instructions.—JOHN D. MILLIKIN, dental surgeon, is granted leave for one month with permission to visit China and Japan, effective about November 20.—Major LOUIS A. LAGARDE, surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding officer, department of the Visayas, for assignment to duty as chief surgeon of that department.—Captain PERCY M. ASHBURN, assistant surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding officer, department of the Visayas, for duty.—CHARLES E. MACDONALD, contract surgeon, having arrived on the transport Thomas, will proceed to Gumay, Samar, for duty.—CALVIN D. SNYDER, contract surgeon, now at Fort William McKinley, Rizal, will proceed to San Mateo, Rizal, for duty, relieving First Lieutenant Charles L. Foster, assistant surgeon.—So much of orders as relate to DAVID D. HOGAN, contract surgeon, are amended so as to direct him to proceed to Binangonan, Rizal, for duty, relieving John F. Leeper, contract surgeon.—HENRY M. HALL, contract surgeon, now at Fort William McKinley, Rizal, will proceed to Malahi Island, Laguna de Bay, for duty, relieving Captain Charles E. B. Flagg, assistant surgeon.—Captain Robert N. Winn, First Lieu-

tenants William M. Roberts, Gideon McD. Van Poole, Joseph F. Siler, assistant surgeons, and George B. Jones, contract surgeon, having arrived on the transport Thomas, will report to the commanding general, department of Luzon, Manila, for assignment to duty.—Captains Joseph H. Ford and George P. Peed, and First Lieutenants James W. Van Dusen, George W. Jean, and Clarence L. Cole, assistant surgeons, having arrived on the transport Thomas, will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.—Captain George J. Newgarden, assistant surgeon, and Francis M. Wells, contract surgeon, are relieved from duty at Malabang, Mindanao, and Camp Overton, Mindanao, respectively, and will proceed to Manila, P. I., reporting to the commanding general, department of Luzon, for assignment to duty.—First Lieutenants Robert M. Thornburgh and John L. Shepard, assistant surgeons, and Madison H. Bowman, contract surgeon, having arrived on the transport Thomas, will report at Division Hospital, Manila, for duty.—First Lieutenant JESSE R. HARRIS, assistant surgeon, having arrived on the transport Thomas, will report to the chief surgeon of the division, Manila, for duty as sanitary inspector in charge of hospital corps detachments on interisland transports, and dispensary at Fort Santiago, Manila.—First Lieutenant EDWARD B. VEEDER, assistant surgeon, is relieved from duty at Cotabato, Mindanao, and will proceed to Manila, reporting at Division Hospital, for duty.—CROXTON L. RION, dental surgeon, having arrived on the transport Thomas, will proceed to Iloilo, Panay, reporting to the commanding officer, department of the Visayas, for assignment to duty.—The following-named medical officers will proceed to the station set after their respective names for duty: Captain Robert N. Winn, assistant surgeon, and George B. Jones, contract surgeon, to Cuartel de Espana, Manila; First Lieutenants William M. Roberts and Joseph F. Siler, assistant surgeons, to Fort William McKinley, Rizal; First Lieutenant Gideon McD. Van Poole, assistant surgeon, to Cuartel Meisic, Manila; Madison H. Bowman, contract surgeon, to Tanay, Rizal.—First Lieutenant WILLIAM R. DAVIS, assistant surgeon, will, when relieved from duty on the transport Thomas, report to the commanding general, department of Luzon, Manila, for assignment to duty.—MADISON H. BOWMAN, contract surgeon, is relieved from duty at the Division Hospital, Manila, and will report to the commanding general, department of Luzon, for assignment to duty.—First Lieutenant CONRAD E. KOERPER, assistant surgeon, is relieved from further temporary duty at the post of Washington Barracks.—First Lieutenant JOHN W. HANNER, assistant surgeon, is granted leave for three months, to take effect upon his being relieved from duty in the Philippines Division, with permission to return to the United States via Europe.—C. I. WERTENBAKER, contract surgeon, is granted leave for one month, from about January 3.—First Lieutenant PAUL C. HUTTON, assistant surgeon, will report December 29, to Lieutenant Colonel George H. Torney, deputy Surgeon-General, president of the examining board at the General Hospital, Presidio of San Francisco, for examination for advancement.—WILLIAM H. WARE, dental surgeon, is granted leave for two months, from about December 18.—CHARLES T. LOEBENSTEIN, sergeant first class, Philippine Islands, is relieved from further duty in the Philippines Division and will be sent to San Francisco, Cal. Upon arrival at the depot of recruits and casuals, Fort McDowell, he will report to the military secretary of the army for orders.

Changes in the Public Health and Marine-Hospital Service for the week ended December 13, 1905:

P. C. KALLOCH, surgeon, detailed to represent the service at the meeting of the Maine State Board of Health, Augusta, Me., December 7, 1905.—E. WASDIN, surgeon, granted leave of absence for one month from December 15, 1905.—P. M. CARRINGTON, surgeon, granted leave of absence for seven days from December 7, 1905, under paragraph 189 of the regulations; granted extension seven days' leave of absence from December 14, 1905.—H. W. WICKES, passed assistant surgeon, granted leave of absence for one month from December 20, 1905.—J. R. GREENE, passed assistant surgeon, granted leave of absence for one month from December 18, 1905.—J. W. KERR, passed assistant surgeon, relieved from duty at St. John, N. B., and directed to report at Bureau, Washington, D. C.—G. M. CORPUT, passed assistant surgeon, relieved from special temporary duty at New Orleans, La., and directed to rejoin station at New Orleans, La.—T. B. MCCLINTIC, passed assistant surgeon, granted leave of absence for twenty days from December 13, 1905.—T. D. BERRY, passed assistant surgeon, relieved from duty at New York, N. Y., and from special temporary duty at New Orleans, La., authorized to resume leave status.—J. D. LONG, passed assistant surgeon, granted seven days' leave of absence from November 15, 1905, under paragraph 191 of the regulations.—L. P. H. BAHRENBURG, assistant surgeon, granted leave of absence for three days from December 11, 1905.—J. S. BOGGESS, assistant surgeon, granted leave of absence for two days from December 10, 1905.—H. G. EBERT, assistant surgeon, relieved from duty at Fort Stanton, N. M., and upon expiration of present leave of absence directed to proceed to Seattle, Wash., for exclusive duty in connection with the examination of aliens.—T. W. SALMON, assistant surgeon, proceed from Ellis Island, N. Y., to Buffalo, N. Y., for special temporary duty.—R. D. SPRATT, assistant surgeon, granted seven days' leave of absence from December 6, 1905, under paragraph 191 of the regulations.—W. H. FROST, assistant surgeon, granted two days' leave of absence from November 29, 1905, under paragraph 191 of the regulations.—A. PATTERSON, acting assistant surgeon, granted leave of absence for one month from October 8, 1905.—F. LEO QUIGLEY, acting assistant surgeon, granted leave of absence for seven days from December 9, 1905, under paragraph 210 of the regulations.—S. W. RICHARDSON, pharmacist, relieved from duty at Wilmington, N. C., and from special temporary duty at New Orleans, La., and directed to report to the medical officer in command at New Orleans, La., for duty and assignment to quarters.—M. MCKAY, pharmacist, relieved from duty at Cincinnati, Ohio, and directed to report at Bureau, Washington, D. C., for duty, relieving Pharmacist E. M. Holt.—G. C. ALLEN, pharmacist, relieved from duty at New Orleans, La., and directed to proceed to Port Townsend, Wash., reporting to the medical officer in command for duty and assignment to quarters.—G. C. ALLEN, pharmacist, granted leave of absence for two days.—L. W. RYDER, pharmacist, granted leave of absence for fourteen days from December 11, 1905.—R. F. TROXLER, pharmacist, relieved from duty at Port Townsend, Wash., and directed to proceed to Chicago, Ill., reporting to the medical officer in command for duty and assignment to quarters.—E. M. HOLT, pharmacist, relieved from duty in Bureau and directed to proceed to Wilmington, N. C., reporting to the medical officer in command for duty and assignment to quarters.—GEORGE NEVES, pharmacist, granted leave of absence for eleven days from December 20, 1905.

Board Convened.—Board convened to meet at Portland, Me., December 11, 1905, for physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon P. C. Kalloch, chairman; Acting Assistant Surgeon A. F. Stuart, recorder.

Casualty.—Surgeon C. T. PECKHAM died December 9, 1905, at Buffalo, N. Y.

Removal.—Pharmacist H. E. DAVIS, removed from Service, December 13, 1905, effective November 10, 1905.

SOCIETY REPORTS

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Indianapolis, Indiana, October 10, 11, and 12, 1905.

[Specially reported for *American Medicine*.]

[*Concluded from page 1018.*]

Some Remarks on the Pathology of Epilepsy.—MARC RAY HUGHES (St. Louis, Mo.) shows that each epileptic stage has a distinct pathology, and the entire category for classification of epilepsy, including the psychic varieties, has one common pathology or gross structural change, and that this structural change, whether idiopathic or organic, has to do largely with the movements of the centrifugal and centripetal mental forces as they are found in the psychic equivalent of epilepsy—dual consciousness, obliviousness, and allied states of mental eclampsia.

History and Treatment of Epilepsy.—JOHN W. SELMAN (Greenfield, Ind.), after recounting at length the history of this disease, said that every physician acknowledges that the great cause of epileptic convulsions is the sudden liberation or explosion of nerve force which sweeps everything before it. Epilepsy and other diseases may exist together, and for this reason the prognosis and diagnosis are to be carefully reached and given. January 2, 1905, a man, aged 28, was brought to him, who was having epileptic seizures five and six times a week. There was no aura. Like a flash he was in hard convulsions. The general appearance of the patient indicated great anemia, malnutrition, with diarrhea. The author at once used subcutaneous injections of normal saline solution, with the bitter tonics and arsenic, and at the expiration of 10 days a great change in his condition was noticeable, and in three months he returned home apparently well. The causes of epilepsy are toxic, reflex and traumatic. The treatment of the disease is as various as the disease is variable in its forms and phases, and it should in nearly all cases resolve itself into three divisions, consisting in the removal of any exciting cause, in the checking of the convulsive tendency already set up, and in the prevention of any further attacks by suitable drugs or other measures of relief. The treatment is governed largely by the case, and is medicinal or operative, according to the causal factors at work. In idiopathic epilepsy medicinal means should be followed; while in a case resulting from traumatism, the depressed bone, abscess or tumor should be removed.

The Cigaret: Its Relation to Mental and Nervous Diseases.—W. B. FLETCHER (Indianapolis, Ind.) quoted extensively from articles by physicians and prominent laymen on the cigaret habit, and said that he has sometimes asked himself if the members of the medical profession are not largely responsible for the widespread prejudice against the cigaret. It is so much easier to agree with the grief-stricken mother in assigning the cause of the loved one's downfall to the innocent habit of cigaret smoking than to say to her frankly the real cause which examination has revealed or which has been imparted under the seal of professional confidence. In the past 22 years he has examined over 1,200 cases of nervous disease and insanity brought to the Central Hospital for the Insane or in his private practice, where the cause of the malady was given by their friends as the cigaret habit. In not one case has he reason to believe that tobacco had anything to do with the causation of the disease. They were all young men and some of them insane without doubt. Some of them smoke cigarets to excess, but their insanity is only a cause of their excess, and not the excess the cause of the insanity. Many of them were simple cases of hebephrenia, with a cigaret attachment, so to speak. One poor fellow of 16, and at the time in acute mania, had been severely punished by his father to "beat out the cigaret habit." After three months he recovered and proved to be an unusually bright and truthful boy. He acknowledged that he had smoked three cigarets in his life just before his mind gave way from overwork in the harvest field. Some of the cases were tuberculosis of the brain, but the author thinks he is safe in saying that fully 90% were young fellows reared in idleness, who had acquired other habits of vulgar and vicious companions, which were reducing their vitality and sapping their brain, and the cigaret was used as a cover by patients, parents, and friends of the scapegoat, as an excuse to hide their shame.

A Plea for More Moral Restraint for Students in Medical Colleges.—JOHN M. BATTEN (Downingtown, Pa.) said there are three classes of students in medical colleges: 1. Those who have good morals, are industrious and ambitious, and have a high ideal objective point. 2. Those whose morals are questionable, and are not as industrious as they should be, and are lacking in ambition, and consequently their ideal objective point is only mediocre. This class of students is easily led into evil habits. 3. There is a class of students who may have plenty of means furnished them for necessary and other expenses; and their ideal objective point in life is not high. He thinks their morals are corrupt, and they have not been taught the value of economy. This class of students schemes to do evil and endeavors to corrupt others with whom they associate. He thinks no medical college should have a charter that cannot and will not provide for sufficient moral protection over the students who attend such institutions.

The Tonic Alterative Action of Copper and Arsenic in Primary and Secondary Anemic States.—GEORGE F. BUTLER (Chicago) said that arsenic has a very decided action on tissue change and markedly affects the glandular, nervous, respiratory and cutaneous systems. Copper is reputed to be a violent poison, yet, except so far as its toxic effects as a foreign body in the eye are concerned, this repute is decidedly undeserved. Copper is recommended as an alterative tonic, useful in epilepsy, chorea and other spasmodic conditions, especially those connected with debility, by the older authors, and later therapeutists sustain this old repute of copper. Several authorities were quoted by the essayist to the effect that this drug, in small doses, stimulates both the heart and the capillary circulation, and is a general nerve tonic. As to the preparation to be employed, all agree that while copper sulfate is of value, it has at times unexpected dangerous untoward effects when the point of saturation is reached. These effects, through the influence of the drug on the vascular system, often take the direction of cardiac neuralgias and pseudoanginas. The double salts of copper in small doses exert a cardiac action similar to that of digitalin, strophanthus, helleborein, etc. Hare prefers copper arsenite. He has found that under its use digestion and nutrition improve. It is superior to Fowler's solution in chorea and similar neuroses. In toxemic conditions, like secondary malarious manifestations, with the resultant pallor, copper and arsenic are of decided value. Cases in which the periodic tendency has disappeared, improve decidedly under copper and arsenic, whereas quinin and iron are worse than useless. The influence of arsenic is very marked on chronic rheumatism and socalled rheumatic gout, neuralgias of various sorts, in tic and hemicrania, as well as in angina pectoris, chorea, epilepsy and asthma. In certain of the gouty bronchites, at the onset of pulmonary tuberculosis, in imperfectly cleared-up pneumonic lung consolidation, arsenic acts sometimes with remarkable efficiency. The influence of both drugs on the liver, whose double functions are so necessary to the tissue changes of the system, shows that both play a part in assisting assimilation and at the same time destroying waste products.

The Claims of the Adolescent.—FRANK P. NORBURY (Jacksonville, Ill.) stated that the claims of the

adolescent for recognition by the medical profession are genuine, not hypothetical, and involve three important considerations: 1. Physiologic (a study of growth, development, sex differentiation). 2. Psychologic, normal and morbid, involving honest endeavor of the physician to see the real needs of the individual. 3. Pedagogic, training and treatment to go together. All of these considerations show that a demand exists for qualified men to consider earnestly the problems of mind and body of this period.

The following papers were likewise read: Heads and Tales, by T. B. Greenley, Meadow Lawn, Ky.; Simple Eye Conditions that Should be Familiar to Every Physician, by Mark P. Stevenson, Akron, Ohio; Some Interesting Problems in Urinary Diagnosis, by Arthur R. Elliott, Chicago; Concerning Hepatic Uremia and Its Treatment, by Alfred C. Croftan, Chicago; Enterotoxismus (Autointoxication) from Meat, by Fenton B. Turck, Chicago; The Leukocytes in Pertussis, by F. S. Churchill, Chicago; Remarks on Poliomyelitis, by Hugh T. Patrick, Chicago; Demonstration of Sleep-inducing Method, by J. B. Learned, Northampton, Mass.; Some Rare Sequelas of Syphilis, by Henry J. Scherck, St. Louis, Mo.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

APPEAL TO PHYSICIANS.

BY

T. D. CROTHERS, M.D.,
of Hartford, Conn.

To the Editor of American Medicine:—As chairman of a committee, I wish to appeal to your readers to aid me in securing the names and addresses of medical men, who are interested in the literature, and scientific studies of spirit and drug neurosis, and all phases of inebriety, alcohol and drug taking. The object is, to secure a list of names of physicians who would be pleased to receive reprints, papers, abstracts and other medical literature, on this subject, also to establish a bureau, in which the profession may be made acquainted with the facts and researches along these lines, and thus be able to understand and advise, concerning the great problems which center about the presence and use of alcohol. Such lists are not to be used in any public way, but only as exchange centers, for literature that will be welcomed by all interested readers. For this purpose I should be very happy to receive the names and addresses of any medical men who would like to hear something of the work and studies made in this field.

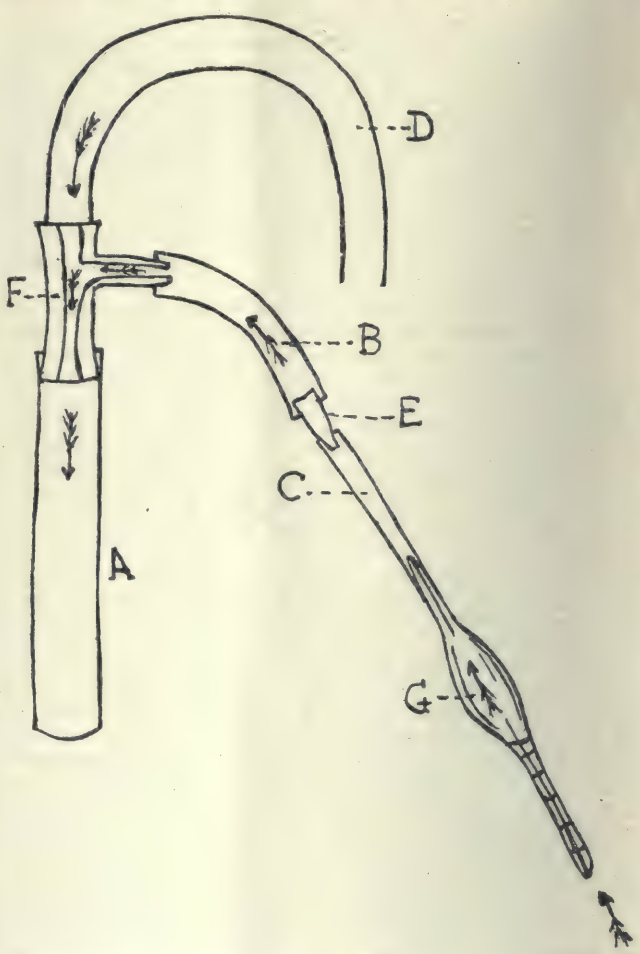
APPARATUS FOR CLEANING HEMOCYTOMETERS.

BY

MALCOLM S. WOODBURY,
of Philadelphia.

During the summer of 1904 I first made a trial of the apparatus described below, in the routine blood work which is carried on in the laboratory of the Clifton Springs Sanitarium, N. Y. Since that time, both Dr. Clark, the hematologist of that institution and myself have employed the apparatus extensively with very satisfactory results, and I feel that others engaged in routine blood-examinations may find it convenient.

The outline sketch which accompanies this description is almost sufficient to explain the entire mechanism, which consists of a water-tap, a "suction pump" and rubber tubing of suitable size. Water is turned on in the tap, and flows through the suction pump, causing a stream of air to pass through the tube (B) in the direction indicated by the arrows. The hemocytometer is inserted into the distal end of the small tube (C), and is immediately emptied of its contents, which pass into the pump, and out through the waste pipe. Water, alcohol, and ether are then in turn drawn through the pipet, each being retained for a moment in the bulb by pressure of the fingers on the tube (C), the pipet in each



A, waste pipe; B, rubber tube; C, small tube; D, water tap; E, glass connection; F, "suction pump"; G, hemocytometer.

instance, then being inverted and allowed to empty. Next a stream of dry air is allowed to pass through the hemocytometer, the interior of which is thus thoroughly dried. The external surface is dried with a clean napkin. The whole process allowing each cleansing fluid to pass through the pipet twice, occupies but one and a half minutes. This method seems to me a great improvement over the inspiration and expiration method, or the syringe methods in common use, for all respiratory exertion is done away with, the moisture of the breath is excluded, and all clogging by means of bits of syringe packing is avoided, and furthermore, the time required is materially shortened.

Canadian Medical Reciprocity with the United Kingdom.—The president of the general medical council, at a meeting recently held in London, England, stated that the effect of the General Laurie amendment (1905) to the British medical act would allow of the provinces of Canada applying for the privilege of medical reciprocity with the United Kingdom. It is expected in England that some, if not all, of the provinces of Canada will extend the same privileges to graduates of the United Kingdom.

ORIGINAL ARTICLES

EXILE AND DRUGS IN THE TREATMENT OF TUBERCULOSIS.[1]

BY

A. JACOBI, M.D.,

of New York.

My remarks will not be academic nor learned. They are meant to be practical only, aye, homely. We have undertaken to fight in tuberculosis an ugly reality, a preposterous anachronism, and may succeed in decades to come with the aid of the thousands who admire or wonder at your exhibits, and of the millions beyond.

Well-to-do or rich people, when tuberculous, are comparatively lucky. Leaving their doctor behind, they may feel inclined to follow part of his orders. A well-directed sanitarium, an equable climate, the South, the Riviera, Egypt, even the Adirondacks are open to them for years, and Greenland is promised. But the vast majority of those inflicted with tuberculosis of the lungs are tied down to their farm or farmwork, their factories, their trade, and their poverty. It is that numberless army of anxious, dissatisfied, hungry, cheerless or woe-begone faces that crowd into your offices, dispensaries, and scanty sanitariums and peer into your eyes for help and consolation.

In this audience of practitioners I may be permitted to divulge one of the many occurrences in a doctor's office. Among my patients, many of whom apply a single time only, are a great many that are inflicted with pulmonary tuberculosis. They will come in any stage, incipient, advanced, moribund. All of them have seen one or half a dozen practitioners, or more, and many have been in half a dozen dispensaries, their lack of hope and confidence driving them from one to another. They have been percussed and auscultated, their sputum has been examined and declared positive by the Health Department, or otherwise. Their diagnosis has been made for them. They know they have either "tuberculosis" or "consumption." When they struck a doctor who recognized a human being in the forlorn creature before him they were told they had tuberculosis. When they addressed a young colleague, an immature colleague, a colleague satisfied with and gratified by the possession of a diploma which is as good as yours—or better, because it is so new and yours is so old—and who likes to exhibit his knowledge and his authority, they were told they had "consumption." The hollow eyes and longing looks betray the fear of impending death, for many have been told that nothing can be done for them. A hundred times every year they ask me: "Have I consumption?" the affirmative answer meaning a death sentence, and a hundred times they hear from me this answer: "You have tuberculosis. If it were to get worse it would run into consumption. But cases of tuberculosis may and often do get entirely well, so there is no reason for despair."

Now and then there is among them a worn out school teacher or her embryo, the Normal-school girl, with no breakfast except a cup of black socalled coffee and a cracker—most of them, however, are working men—many at work, many out of work and not able to find it because their cough and spitting seems to betray them. You know all about them. It is true they do not spit like subway employes, or trolley and "elevated" conductors or gate-keepers, but they have to cough and expectorate some. They cannot help disseminating bacilli, for neither in factories nor sweatshops, neither in subways nor on elevated platforms are there any spittoons in this city which says she is bent upon exterminating tuberculosis.

They are poorly fed and clad, and without sufficient opportunities to keep clean—for they are without means.

Now look for the advice given them that is to work their salvation. Time and again a woeful-looking man will tell me after I have assured him he has tuberculosis and need not run into consumption, that his last doctor —I have many names on my roll of dishonor—has told him to leave the city at once; that unless he leaves for Colorado at once he must perish. Very often I ask the following questions: How much money have you? or your family? or your friends? Has your doctor who told you that you must leave at once also told you that he will pay your railroad fare or support you? How long do you expect to stay away? Is your society, which you hope will contribute to sending you away, ready to give you at least $10 a week for at least half a year or a year? or has some one work for you by which you will be able to live? Have you heard that patients like you starve and die in Colorado because the good people of the State and its cities are unable to support the thousands of arrivals? Have you been informed that we doctors in the East have for years past been warned and requested not to send them any more such patients because they may die in the streets? What has your doctor done for you? Have you taken any medicines to relieve your cough? Do you do anything for your night-sweats? Has your constipation been relieved?

It is not necessary to tell you how many "no's" are received in answer to these questions. As for me, every-one of these cases sickens me. Not to speak of the coarseness and cruelty of the medical oracle enunciated "ore rotundo" to the individual under such circumstances, it is pitiful to think that in the ranks of the profession there are men thoughtless and reckless enough to crush the sick creature by asserting the utter helplessness of his condition.

I claim that starvation in Colorado is not more wholesome than insufficient and improper feeding in a New York rear room; also that the air of a small Colorado attic with no window—or an insufficient one—and closed door, is no better than a tenement dwelling on the East Side; also that a patient fed by his friends, even in the lung block of Cherry street, with occasionally an open window, is better off than a similar patient starving, without a pitying eye to look at him, in a rear attic or in the streets of Denver.

That seems self-evident; not, however, to your New York colleague, who, while ordering impossibilities, scatters the last hopes of a fellow-being. Most of the

[1] Read December 1, 1905, at the Museum of Natural History during the National Tuberculosis Exhibition in New York.

patients of this class have families, or members of families, dependent on them. That is why they must be able to work, or work, though they were incapacitated. There are, however, a number of young men, not married, that have learned a trade. It is safe to send them away. I tell them to leave for a city south or southwest, where they can live and work with their windows open both day and night, and find occupation, and not to return, except on a visit, or unless they will have accumulated a competency.

Modern medical science and art, which have succeeded in appreciating the teaching that the best object of man's endeavor is man himself, have tried to utilize nature in all her bounties. That is why treatment has become hygienic and dietetic in addition to having been medicinal only. As all our mental processes appear to encounter a certain limitation, the comparatively new appreciation of the wholesome influence of unpolluted air and unpoisoned water, and undefiled milk, has so overwhelmed our understanding as to make us forget that mercury, and iodin, and opium, and digitalis, and salines, and arsenic are as kind gifts of nature as spring water, and desert air, and high altitudes. That is—not to speak of the ill use that may be made and has been made of medicines—why we are apt to drop the use of drugs from our considerations! That is why, nowadays, the treatment of tuberculosis is too often deemed to be exclusively a hygienic one. Open window in some shape or other, as dictated by either common sense or fad; fresh air at home or in a sanitarium, neglect of everything, unless or until you succeed in getting into a sanitarium, have, with many, become the rule. It is openly proclaimed—only to emphasize the dignity of hygienic treatment—that sanitarium treatment is the only one to be recommended. Meanwhile, you have one sanitarium bed for 30 sick. That oracular and unjustified conviction is expressed in the advice given to go either to "Colorado" or to perdition.

Nothing is more discouraging and less scientific. Experience teaches more practical and more humane lessons. This paper has to deal more with the cure of established tuberculosis than with its prevention. The latter, however, may prove beneficial in the hands of the physicians. The general practitioner, the family physician, has plenty of opportunities to make himself useful; indeed I fully believe there will again be a time—and very soon, too—in which doctors will not be so scarce and lightly thought of as they are today, and will again be the trusted caretakers of families and the statesmen of the community. They are in a position to notice debility, insufficient metabolism, and low weight and excessive growth, scrofula, tardy convalescence from infectious fevers among the children in a family, and to correct them. Their long acquaintance with the history of a family will tell them that when in one that has no history of tuberculosis, child after child develops some form of tuberculosis, to look after syphilis, and not to rely as a preventive and a cure on socalled antituberculous, but on antisyphilitic treatment. There are many families in which numerous young underweight children of from 3 to 10 years of age, or more, may be changed into robust or promising individuals. It is again the family doctor that has the opportunity of watching the diet, which should contain nuclein with its favorable influence on the formation of uric acid. He will see to it that an excess of fat will not cause gastrointestinal catarrh, that young meat and sweetbreads, eggs, milk, cereals, and fruit, with their proper percentage of iron, are administered in due proportions. He will thus cut into the practice of the lung specialist—whatever that may mean—but will raise a family of good-for-something people.

Another means, both preventive and curative, is the attention to the mucous membrane within reach. It consists of two daily irrigations—not sprays—of the nasopharyngeal cavities with warm (6 to 1,000) salt water to be made from a cup; an occasional spray of a 2% silver nitrate solution; and the resection of hypertrophied tonsils. When Beckmann (1904), however, prevents (and cures) tuberculosis, he does so by exsecting the tonsils according to a method which very few except himself—so he says—ever know how to follow. I am satisfied that if he were in America he would soon learn that he made a grave mistake in so advertising his opinion, himself, and his readiness to operate on all other people's tonsils in his own office.

It has become popular to deny the effect of drugs on any abnormal condition. Because you cannot prove a cure by drugs in a given case of tuberculosis, you give up trying. In cases of pneumonia you are glad enough to speak of your cures. Still, you never actually cured a case of pneumonia. What you did was to arrange the hygiene, diet and medication of your patient so as to enable him to live until his pneumonia had run its full course into convalescence. By succeeding in this you really deserve all the credit of having cured your patient. Now by so arranging the hygiene, diet, and medication of your tuberculous patient as to enable him to resist the local effect of bacteric invasion and the systemic effect of specific and complicating toxins, and to give him rest, and to stimulate his cardiac and peripheral circulation, is to treat and to cure a case of tuberculosis. That is what you are doing by systematic gymnastic exercise of his chest and expansion of its congenital or acquired narrowness; by the daily use of cold water and friction which stimulate the circulation of the surface and of the interior, and thereby enhance metabolism; by insisting upon a copious supply of oxygen and the expulsion of noxious gases through open windows; by overcoming the prejudice against night air and teaching that night air is better than no air; and by a generous and digestible feeding such as the individual case will indicate, and, I might add, individual means will permit. For as long as the means of a hundred millions of Americans are squandered on thieves, and foreign conquests, and pensions, there is no money for the welfare of the people and the extinction of yellow or white plagues.

The wanton theory that you can treat with medicines and cure a pneumonia and typhoid fever, but not a case of tuberculosis, has taken possession of the oracular mind of the Colorado-ridden exile doctor. He should know better and do better. There is a drug treatment for tuberculosis, as for other diseases, and he should be glad

to avail himself of it. There is no panacea, however, for tuberculosis, as there is none for pneumonia or typhoid fever. But there are indications, and improvement of conditions, and prolongation of lives, and recoveries.

I read before the American Climatological Association on July 24, 1892, and published in the *International Medical Magazine* for November, 1892, "Notes on Guaiacol in the Treatment of Pulmonary Tuberculosis." At that time the history of that drug was a short one. Professor Max Schüller, of Berlin, recommended it in 1880; in 1891 he wrote a book, and his first article in Eulenburg's Encyclopedia in 1892. Some of his successors are mentioned in my communication. From 1880 to 1891 Schüller treated 90 cases of tuberculous disease. Four died, 70 were cured, 16 were still under treatment in 1891. Four doses were administered persistently for a long time—from 2 to 3 drops for children, from 3 to 5 for adults, in sugar, water, milk, meat broth, or wine—not in pills nor in capsules, for the undiluted guaiacol may irritate the mucous membrane. Injections into the subcutaneous tissue or the muscles he made only in cases of local tuberculosis, and in oil or glycerin only. It was given in enemas or in inhalations for catarrh of the pharynx, nose, and trachea. The remedy may be combined with expectorants, cardiac stimulants, antipyretics, and for inhalations with turpentine or camphor. Seclusion in rooms or sojourn in institutions was not insisted upon; it was employed in all conditions of life and occupations. Invariably appetite and strength increased—good appetite affords a good prognosis—expectorations became easier, cough less and looser, pus was replaced by mucus, and the results of percussion and auscultation became more favorable. A visible effect on the number of tubercle bacilli in the sputum was obtained after a long interval only. Many cases of socalled surgical tuberculosis improved and recovered without an operation, still, mostly local treatment and the internal treatment with guaiacol were combined. A good effect was obtained in scrofulous eczema containing bacilli, in caseous lymph bodies, and bone tuberculosis. A case of caries of the petrous bone complicated with meningeal symptoms got well after operation, with guaiacol. At that time no renal tuberculosis had been so treated, nor was tuberculosis of the testicle recommended as a safe subject for experimentation at that time. For injection into the tissues, guaiacol was dissolved in water or combined with a 10% mixture of iodoform with glycerin. A bad lupus of the ear was first treated with the actual cautery, then the injection was made. Swelling, pain, and recovery followed. The same injections were made into the capsules of the joints and into tuberculous bones, mainly of the hip, also into the recent wounds of resections and excisions, which would heal without drainage.

What I have read is a nearly verbal quotation of my extract of 1892 from Schüller's publications. It may, or may not, prevent the rediscovery and republication, and rerecommendation by many industrious men, in many States, in many journals and magazines, for the anxiety of furnishing novelties is such that quotations are made now-a-days from the literary output of the last six months only. Whatever was discovered or advised 15 or 20 years ago may be dug out from the junk shop by an honest and painstaking person; but as a rule, if an old author is not quoted it is his fault. Why did he not write yesterday, and why was he born before me and you? Hippocrates would be deemed worth consideration if he lectured in our college or conducted our quiz class. Schüller is not Hippocrates, but in the history of the guaiacol treatment of tuberculosis, external or internal, his name should be mentioned first. To what he published 15 years ago I have little to add, except a communication of his to the *Mittheilungen aus dem Grenzgebiet*, etc., Vol. xv, 1905, p. 208, in which he refers to Küster and Kelly.

In his "Surgery of the Kidneys, the Ureters, and the Adrenals," which forms the fifty-second part of "Deutsche Chirurgie," Ernst Küster said in 1902: "The treatment of tuberculosis of the kidney is wellnigh impossible without an operation. That is why it is useless to speak of a general internal treatment of this condition."

In an address on "Tuberculosis of the Kidney," delivered before the British Gynecological Society, January 8, 1905, Howard A. Kelly has pronounced similar opinions. He says: "Time spent in trying to cure the disease by climate or other methods, is lost time."

Schüller's paper is on "Treatment of Renal Tuberculosis." It contains a brief report of two cases.

A man of 40 was first seen in 1892. Three years previously he had pain in his bladder and bloody urine, and a pleuritic effusion and pulmonary catarrh. He still had a persistent cough, bacilli in his sputum, and right apical dulness, a nodular swelling of his right seminal duct, many tumefied inguinal lymph bodies, and in his urine, tubercle bacilli, epithelia of the kidneys and bladder, and erythrocytes. Operation had been refused. Injections of guaiacol-iodoform-glycerin were repeatedly made into the tumors, part of which had become fistulous and caseous. Guaiacol was given internally for months in succession, and repeatedly again after many interruptions of the treatment. The patient improved, returned to his work; testes and epididymides feel normal to the touch, the cicatrices do not adhere to the deep tissues, he has gained flesh, works uninterruptedly, and was in good health on July 1, 1905.

A girl, aged 3½, had a tuberculous coxitis and in her urine, tissue detritus, epithelial casts, very many tubercle bacilli, and blood casts, also crystals of uric acid. The treatment was as described above: Guaiacol was given in daily doses of 4 or 5 drops only. A year afterward, in 1897, the child looked well, had gained 20 pounds, the joint was movable; there were still a few bacilli in the urine. About the end of June, 1905, the report of the father was as follows: The child is 12 years old, is large and vigorous, walks and jumps easily; had a year ago a scrofulous eruption and a periostitis of a leg. Both are now well and the child appears to be well.

Max Schüller concludes that the treatment with guaiacol is justified—I should rather say indicated (1) in cases of incipient tuberculosis of the bladder and kidneys; (2) to protect the second kidney when one had to be removed; (3) to accelerate or to render permanent the recovery of a kidney, part of which was removed on account of localized tuberculosis; (4) guaiacol is perhaps more indicated in renal tuberculosis than in other forms of the infection, because part of the drug is eliminated through the kidneys.

Between the years of 1891 to 1899 he observed 200 cases of more or less localized tuberculosis, 37 of which were complicated with the same disease in the lungs. He adds that all of these were either healed or improved, and further that other preparations of guaiacol were inferior in this, that when he used them both for injections and internally, relapses were seen more frequently.

It will not do to deny these plain statements. Schüller is known as an honorable man, of high professional standing, of great observing powers and cool judgment. Nor will it become us to look on these cases as exceptional occurrences. There is no reason why everybody should not meet with the same exceptional luck in dozens or in hundreds of cases. Anyway, we are just beginning to look upon tuberculosis as a remediable and a curable disease.

My own experience is of a similar nature, and here it follows:

Most of the cases of tuberculosis I see in my office and occasionally in an out-of-door practice, are in the lungs. I rarely see incipient cases. Some of those, however, whose lungs are not sound are not cases of tuberculosis at all. There may be subclavicular or supraclavicular retraction, diminished or more frequently bronchial respiration, bronchophony, dulness, but no rales and no elevated temperature. This condition which may have lasted and will last a lifetime, is the result of an interstitial pneumonia or peribronchitis which, overcome in childhood, has led to permanent but no longer dangerous or injurious changes. I have described that condition in *Archives of Pediatrics*, January, 1903, and in the third volume, second edition, of "Traité des Maladies des Enfants," by Grancher and Comby. I made this statement before you in order to prove that I am anxious to differentiate and to be sure of my diagnosis.

What I mostly see are cases of advanced tuberculosis, which have been under the observation and treatment of others. They exhibit dulness, rales, bronchophony, bronchial or cavernous respiration; many have copious expectoration of pus, blood, and bacilli; quite a number the elevated temperatures of bronchitis or mixed infection, night-sweats, and emaciation. There is not a morning without one or more of such patients. When I say that I see 200 or 250 of that nature a year, that figure is rather an underestimation. That is why I am certain that during these last 15 years I have treated with guaiacol 3,000 patients inflicted with tuberculosis of the lungs. The vast majority of that number was found in adults. Children with pulmonary tuberculosis are fortunately not numerous. In them the prognosis is much more unfavorable than in adults.

The doses I have used are a little larger than those employed by Schüller. A routine prescription of mine is guaiacol, 50; tincture nux vomica, 40; tincture strophanthus, 30; Fowler's solution, 10; a half teaspoonful to be taken three times a day after meals in hot milk. Very few people object to the taste. Some take it in cold milk while they are at work and unable to procure hot milk, hot broth, or hot water. The above prescription is not expensive and is given to the poor or the working people. Those who can afford to pay for it take the guaiacol carbonate, from 2 gm. to 3 gm. a day, or a grain or more for every minim of the liquid guaiacol, mixed or not with spartein, and small doses of arseni trioxid—the modern pharmacopeia name for arsenous acid.

A very common prescription reads as follows: Guaiacol carbonate, 30° or 40°; strychnin nitrate; arseni trioxid, āā 0.1, spartein sulfate, 3.0; divide in 50 powders, three of which are taken daily after meals. This prescription is ordered for one or two months or for a half year. Many patients present themselves after a still longer absence. Strophanthus or spartein may be taken indefinitely, because they are rapidly eliminated. Digitalis, however, though the fear of cumulation is grossly exaggerated, may, when not taken carefully, have that effect, or may affect the stomach, or may be charged with causing disagreeable results, and the poor patient persuaded by consoling friends that drugs are hurtful, and that he has consumption anyway.

It is desirable to give a mixture of a number of indicated drugs, so long as they are not incompatible. It is useless to make the task of taking medicines onerous. Many of your patients are in business and at work, and should remain there. So let there be a single dose, or a few single doses day after day, month after month.

Otherwise, in regard to digitalis, I wish to repeat what I urged upon the profession in a paper on "Arsenic and Digitalis in the treatment of Consumption," read before the Medical Society of the State of New York, in its session of 1884. Small doses of digitalis—that means for an adult from 3 gr. to 5 gr. of the herb daily, divided into three or four doses, or as many minims of a good fluidextract, or 1 to 1.5 gr. = 0.1 of the solid extract—never the unreliable or inert socalled digitalin—may be given indefinitely for months and years. With a little circumspection, even old hearts and moderate chronic myocarditis, and advanced aortic stenosis may be treated with small doses of digitalis. Patients who take digitalis in this way do not show a cumulative effect, nor are they getting accustomed to it to such an extent as to lose the benefit of its action. There are many conditions which require such gentle, persistent cardiac stimulation. Chronic anemia, chlorosis, the chronic forms of pneumonia, pulmonary infiltration of tuberculosis, demand it to stimulate the heart's contraction and favor a healthy metabolism. I never knew I had, for more than 40 years, practised and taught anything unusual until the attention of the great German Congress on Internal Medicine was drawn to that very practice—my teaching not being known in Germany—by Dr. Groedel, of Nauheim. He was frowned down in 1899. Then Kussmaul, in "Ther. d. Gegenwart," of 1900, published his cases of continued digitalis treatment, and in 1901, Groedel found more favor. That is how the matter stands now, and should remain standing. There is no chronic ailment that does not enfeeble the heart and reduce circulation. Preventive doses of a cardiac stimulant are more than ever required when to general debility is added obstruction in the lungs.

The improvement of patients suffering from tuberculosis of the lungs is complex. We have to deal with objective and subjective symptoms. There is bronchophony, bronchial or even cavernous respiration, rales of

different kinds, dulness, now and then hemorrhages, purulent expectoration containing tubercle bacilli, cough, pleural pain, night-sweats, fever, and emaciation. Most patients in New York City live in the small, airless and lightless rooms of a tenement house—Greater New York had, in 1903, 360,000 dark rooms in 38,000 houses—with insufficient or inadequate food. When such cases improve in great numbers, no accident must be credited with that result, and they do improve. Hundreds of times have I seen the expectoration become mucous after having been purulent, the cough looser and less, night-sweats modified, the appetite better, the temperature less, and emaciation stopped and weight increased. That has happened so often that there is no choice left me but to look for the cause of the improvement in my medication. Instead of losing, they would gain, recover strength, reenter upon their work, and make a living for themselves and their families.

Excessive temperature may require treatment; cooler air, frequent drying up of the perspiration, sponging with alcohol and warm or cold water, irrigation of the bowels with cool water, quinin in the remission, but in the remission only, and occasionally one of the milder coaltars, combined with a cardiac stimulant, such as caffein, or with a moderate dose of whisky and water. The painting of the chest with guaiacol has been recommended.

Use no acetanilid. I have almost despaired of the effect of my frequently repeated warning against acetanilid, the socalled antifebrin. Of all the preparations on the market, this cruel anilin poison is the worst. The western firm which disseminates that curse over the country, and that part of the profession which allows itself to be entangled in the complicity of prescribing it on its own blanks over its own names for their unsuspecting and confiding patients, stand guilty of malfeasance and malpractice. One of the greatest shocks to my feelings as a man and physician has been the discovery that our new Pharmacopeia, which should be the pharmacal gospel of both druggists and doctors, participates in the mistake of recommending it. In that Pharmacopeia, p. 3, you find acetanilid; and p. 368, pulvis acetanilidi compositus—a mixture of acetanilid, caffein, and sodium bicarbonate. You recognize the dangerous stuff. It goes by the name of headache powders or by some exotic alluring name. Your Pharmacopeia recommends doses of 0.48 gm. (7.5 gr.), more than 0.32 gm. (5 gr.) of which are acetanilid—and does not even say how many doses the victim may take without having to pay his obolus to Styx. These headache powders were those a young laboring man had taken when he presented himself in semicollapse and cyanosis a few days ago. They are those which their highest authority permits the pharmacists to sell over the counter. Altogether, I need not say, and you know, that the tendency of the new Pharmacopeia to adopt the compounds of the wholesale manufacturers and introduce them under different names, is an indignity offered to the profession and an encouragement to the nostrum trade.

Many of the intervening symptoms, and others belonging to the process itself, require their own treatment. Some coughs must be treated. A few drops of Magendie's solution, or a hypodermic tablet of 8 mg. ($\frac{1}{8}$ gr.) of morphin placed on the tongue and sucked down without water will be absorbed instantly and act, to say the least, almost as readily as a subcutaneous injection. Night-sweats are improved by a single daily dose—taken at bedtime—of atropin sulfate, 1 mg. ($\frac{1}{60}$ gr.) or less, with or without agaric acid, 0.01 to 0.03 ($\frac{1}{6}$ gr. to $\frac{1}{2}$ gr.). Excessive nocturnal cough requires morphin 8 mg. to 16 mg. ($\frac{1}{8}$ gr. to $\frac{1}{4}$ gr.), which, with or without a vegetable cathartic, is added to the same pills.

Hemorrhage requires ice, rest, cool air, morphin, lead, ergot under the skin, better still, adrenalin in several doses; sometimes ligature of the extremities.

Morphin and lead have lost much of their reputation, not on account of their failure, but because of the insufficiency of doses. When I want a drug to take effect in an emergency I want that effect now and not day after tomorrow—that may be the day of the funeral. The book doses of 8 mg. or 16 mg. ($\frac{1}{8}$ gr. or $\frac{1}{4}$ gr.) of lead subacetate are too small for any effect. Give a grain every hour, with moderate doses of morphin. There is no such thing as lead-poisoning from socalled large doses of lead continued for two or three days. I never saw that sort of poisoning in a New York practice of 52 years, and I try not to be blinder, I believe, than my medical neighbors. You do not save a burning building with an atomizer but with a hose.

In the chronic and subacute forms of osteitis, most of which have a tuberculous origin, phosphorus—not phosphates—is a tissue builder, when given in small and long-continued doses—in small doses, for when given in large doses it is a tissue destroyer. Spondylitis, coxitis, gonitis, inflammation of the tarsus and calcaneum are mostly tuberculous.

I have been, since 1869, impressed with the experiments of Wegner. When he fractured the bones of rabbits he would find that the animals fed on phosphorus produced callus in less time than those left alone. That is why I suggested the use of phosphorus in rachitis, and enjoyed the teaching and practice of Kassowitz, who, on account of the extensive use he made and is making of phosphorus in rachitis, is justly entitled to priority. Hundreds of cases of tuberculous osteitis I have treated with phosphorus, and feel certain today, as I was 30 years ago, that recovery takes place more frequently and more rapidly with than without it. In the same class of cases, mainly when the patients are anemic, I give arsenic. What I have never done without, these 14 years, is guaiacol. Nothing is more short sighted than to rely on bandaging, supporting, or bracing alone. A child with Pott's disease is not crooked only, one with coxitis is not limping only, one with caries of the tarsus is not lamed only—they are sick and in the vestibule of death. Neither codliver oil nor malt preparations—though you call them Maltine and pay 10 times their value for the label—will render the services of guaiacol dispensable.

Similar observations are valid in connection with the tuberculosis of serous membranes, mainly the peritoneum and the pleura. The former is more frequent in children, the latter in adults. Both I have treated exten-

sively with guaiacol—with or without arsenic and a cardiac stimulant—and know in my innermost heart that I have done good.

In addition, permit me to mention the persistent treatment of chronic pulmonary tuberculosis with calcium biphosphate, recommended by some good observers. At present my own experience is too small to count.

One more word. Our special duty this week is to exchange opinions and experiences, and experiments contemplated for the exile—not of tuberculous patients, but of tuberculosis. After all, it is my conviction, no longer an opinion, fortified by my own observations made these 52 years in New York, that we can never assert too often that the treatment of tuberculosis requires light and air, and food and rest—very well—but that there are medicines that have favorable results, even under unfavorable circumstances; and moreover—and I mean positively what I say now—that we cannot do without sanitariums, but that the best sanitarium treatment may be made more effective by medication.

ONE PATIENT'S EXPERIENCE WITH TWO GENERAL PHYSICIANS, ONE NEUROLOGIST, ONE LEADING PHYSICIAN, ONE GASTROLOGIST, TWO OPHTHALMIC SURGEONS, ONE DIAGNOSTICIAN, AND ONE REFRACTIONIST.

BY

GEORGE M. GOULD, M.D.,

of Philadelphia.

On May 2, 1905, a patient consulted me, complaining that for about 18 months his health, physical and mental, had been deteriorating. His symptoms were so peculiar and varied that, as he is a clear-headed, intelligent man, I asked him to write out a description of them in detail. This, he has done, and I quote it in full:

I was something of an athlete in my college days, have not been a drinker, have not had any infectious diseases, and up to October, 1903, I enjoyed almost perfect health. I then began having "spells." A cramp or pain of great intensity would attack me, seemingly in the bowels, the precise point being just below the umbilicus. There was at first a feeling of numbness, followed by this pain or ache of consuming and terrific character. My hands and feet grew cold; I would perspire freely, and the insufferable agony quickly reduced me to a state of great weakness. The pain would increase in intensity until I lost consciousness, collapsed and sank to the floor. I remained unconscious for a few minutes, perhaps five or ten. Sometimes the attacks were not so severe, I did not lose consciousness, and they were then attended by ravenous hunger. The first attack came on in October, 1903, and was set down to indigestion. Within a week another followed, and thereafter the attacks occurred sometimes as often as once a day. After the second or third attack, I carried a card in my pocket:

IF FOUND UNCONSCIOUS, TO BE SENT TO . . . . . [*Home address.*]

From a severe attack I recovered slowly, even with the aid of such stimulants as aromatic spirits of ammonia and brandy. During the remainder of the day a feeling of weakness would always be present.

Soon other symptoms began to manifest themselves—a deeply furred tongue, bad breath, presence of a great amount of gas, acid and burning eructations, discharge of bitter saliva in the morning on rising, occasional and severe attacks of diarrhea, a general feeling of depression and apprehension, the latter almost amounting to terror. I had spells of acute hearing when certain sounds seemed to penetrate and cut through the brain. I also became extremely irritable, impatient, and unreasonable. I seemingly could not bear up under a long interview, and I suffered from strange impressions. I was possessed of a continual desire to get away from whatever I was doing. I had to hold myself in restraint all the time. I continued at my business, however, but for some six months I had to take some one with me on my trips to different American cities, because of my great fear of these attacks. At length I became very accurate and methodical in my habits, pursuing narrowly a prescribed course of action, and when compelled to change these confined ways, I became excited and worried. I had the most vivid feeling of impending danger, and almost a terror of coming things.

When I felt at my best the numbness in the abdomen was often accompanied by a feeling as if a hard lump existed there.

For the past year I have endured this trouble almost daily. No medicine gave permanent relief; no treatment seemed to avail. Vacations and a sea voyage served to brace me up a little, but the trouble in no sense diminished.

Physicians consulted were of different opinions as to the cause of the trouble, but all agreed that I was suffering from no organic difficulty. Most of them thought it a nervous affection that should be treated by prolonged rest, and powerful tonics. In the meantime one phase of the trouble increased—that of terror or fear of impending trouble. I was ever expecting a "spell." As a result, I quickly found myself unable to endure crowded cars. I could not bring myself to take a meal at a restaurant or in a hotel; or if I attempted the feat I was too often obliged to leave the table and seek safety in flight to the street. I could not travel or endure people.

To sum my condition up briefly, I lived in terror and distress the livelong day, and the only relief I derived was in sleep. As soon as my head touched the pillow at night, peace came to me. Through all my trouble I slept restfully and with absolute freedom from attack or symptom. This fact, seemingly out of keeping with the life I led when awake, finally attracted attention to my eyes as the seat of the difficulty.

You will understand, of course, that in the careful and rigid physical examinations that I have undergone, my eyes came in for attention. I was subjected to simple tests, and readily met all the requirements demanded. I could see perfectly, much better than the average man of my age, I suffered no eye ache; headache was unknown to me.

When it was represented to me after a careful examination by a competent oculist that my trouble might be due to eyestrain, and that my vision was defective, it seemed to me like a cry from a far country—a condition too remote to permit of reasonable belief, considering what I was suffering.

I came to you in May of this year and had my first fitting of glasses. I confess to you that I was of little faith, and that at any time during the first month it would not have required much persuasion to have caused me to abandon the glasses.

I stuck, however, and about the first of July began to notice indications of improvement—indications which I was reluctant to admit, for by this time I had become well nigh a confirmed invalid, almost a hypochondriac. I was forced by the facts of my case into the belief that I was better, and with the improvement I began to spread out from the narrow circle in which my com-

plaint had caused me to live. As a result, confidence, in a measure, came back to me, and I began to live once more. Since the middle of the summer (1905) I have steadily improved.

To most of the physicians consulted by this patient during the 19 months before coming to me, I have written a courteous note requesting clinical data, the diagnoses made, the treatment ordered, etc. But one or two answers have been received. Principally from the patient and his family I have gathered the following seemingly trustworthy facts:

1. The first general practitioner consulted pronounced the disease to be "indigestion." The patient was given asafetida pills, much to his disgust; they had no effect on the symptoms. The patient speaks of this physician as "a life-and-death doctor," explaining thereby that he has no interest in functional diseases, but is an excellent and capable physician in severe diseases where life is at stake. It is evident that the diagnosis made in this instance was hysteria—the limbo to which patients are sometimes sent when it is impossible to make a general diagnosis or influence the disease by treatment. With the prescription of asafetida this family physician lost all interest in the case, and turned it over to

2. General physician No. 2. This practitioner "pumped out the stomach" daily for some six weeks, gave electric treatments as often, and ordered many drugs to be taken. The disease continued unaffected during the time.

3. The gastrologist, in a distant city, was next consulted. The usual tests, stomach washings, test-meals, analyses of the stomach contents, etc., were carried out, the resultant diagnosis being "hyperchlorhydria." The patient was ordered stomach washings, exercise, freedom from excitement and business, and ocean trips. He accordingly went on a voyage, without any decided change in the symptoms. He had one of the worst of his attacks after the rest of a month, and while returning home on the steamer.

4. The ophthalmic surgeon was now appealed to, who pronounced "nothing wrong with his eyes." No mydriatic was used in order to reach this diagnosis.

5. The neurologist was now consulted; his own report to me says:

Careful inquiry elicited the fact that this patient had been examined by Dr. —— [a wellknown ophthalmologist], who had reported that "nothing was wrong with his eyes." I only found intestinal indigestion, with the development of a dominant idea.

There is no statement in this report as to the treatment ordered.

6. "The leading physician" in another city was visited. He, as of old, in such circumstances, pronounced the awful word *neurasthenia*, said the patient was "bordering upon nervous breakdown," advised him to go home, go to bed, to feed up, and to rest.

7. The diagnostician in still another city was reached in last resort. His report is as follows:

Careful examination of the urine and other excretions led me to conclude that he was not suffering from any intoxication from the usual source of autointoxication. The gastric analysis, after an Ewald test-breakfast, showed an acidity of 60, depending upon combined chlorids 12, acid salts 8, HCl 40, or 14.60%. On another occasion the total acidity was only 50, and free HCl 30, or 10%. Under the circumstances I could not admit that he was suffering from hyperchlorhydria. His digestion was excellent in every way. He complained of a sensation of burning in the stomach, and other symptoms of sympathetic nerve distress which might be said to be due to gastric hyperesthesia. A careful examination of the nervous system led me to exclude structural lesion of the brain and cord. His symptoms were too transitory and excited by events, which led me to exclude toxemia as the cause of his trouble. His symptoms were such as I have found to arise from brain irritation excited by eyestrain. He had symptoms which made me suspect his eyes, and I felt that I could exclude other sources of irritation of the cranial nerves. His case closely resembled a number of others which I have seen depending upon eyestrain. I felt that other causes could be excluded.

8. Ophthalmologist No. 2 now ordered the following spectacles:

R. + S. 1.00, + Cyl. 0.25 ax. 50°
L. + S. 4.25, + Cyl. 0.75 ax. 180°

There seemed to be some improvement in the general symptoms after wearing these lenses for a couple of months, but he then "went backward again." The patient says he saw better without the glasses than with them, but he has continued to wear them up to the time of consulting me.

9. The refractionist was now commanded to cure this patient. Considerable chaffing and sarcastic "insinuendos" had been thought admissible by physicians, as regards the diagnosis of eyestrain, and those who entertained such crazy notions. Under a cycloplegiac the refractive error was found to be:

R. + Sph. 1.12, + Cyl. 0.50 ax. 90°=20/20
L. + Sph. 3.25, + Cyl. 0.50 ax. 70°=20/50

The image of the left eye was held for only an instant, an indication, in addition to the amblyopia, that the eye was fast going out of use. Upon the return of the accommodation I found that this function was excessive, and although he was at this time only 36, I was compelled, in order to enable him to see without strain both at near and at distance, to order bifocal lenses, as follows:

R. + Cyl. 0.37 ax. 90°
L. + Sph. 2.00 + Cyl. 0.37 ax. 70° } Distance

R. + Sph. 1.25, and Cyl.
L. + Sph. 3.25, and Cyl. } Reading

Two weeks later there was no lessening of the symptoms, but there had been a decrease of the accommodation, so that I was able to order, again in bifocals, as follows:

R. + S. 0.75, + Cyl. 0.37 ax. 90°
L. + S. 2.75, + Cyl. 0.50 ax. 70° } Distance

R. + S. 1.37, and Cyl.
L. + S. 3.37, and Cyl. } Reading

Two months after first seeing him I found that the aura (numbness) was not then followed by the pain in the abdomen, there were no "sinking spells," or lapses of consciousness, and the man was in every way better. From that time improvement has continued until now he is a well man, normal in every way. The visual acuity of the left eye slowly improved, being at the visit of November 17, 1905, 20/20. In a letter he writes:

At the present time (November, 1905) I am so much improved as to put my health completely out of my mind, and attend to my affairs. The "spells" are gone, together with most of the other symptoms, and I am compelled to the belief that the glasses did it.

About December 1, 1905, the patient wrote me he was having trouble with his eyes. There was a feeling of "fuzziness" or "fogginess," which seemed to be partly mental and partly ocular; there was some lack of decision, and "almost vertigo." Complaint was also made of a sensation of "bulging" of the right eye, and there was some actual swelling of the lids of the left. The eyes "burned" some, especially in reading. There were no gastric or intestinal symptoms, and the appetite and digestion were perfect. He continued at his now most strenuously active business life with unabated vigor, at one time spending as many as eight consecutive nights in sleeping cars, working all day, etc. As the symptoms did not improve, I urged him to make the journey to see me. He arrived December 14, and I at once found the visual acuity of the left eye, with correction, had relapsed to almost 20/50. Tests showed a great change had taken place in the axis of astigmatism of this eye. With

Left: + Sph. 3.00 + Cyl. 1.00 ax. 180°

there was 20/20 + vision. The symptoms at once subsided with the new correction. The ametropia of the right eye had not changed. I feel sure there would have been complete relapse had the refraction change in the left eye not been followed by changed lenses.

Luckily for this patient he did not consult a specialist in epilepsy. And what would have been the result had he consulted a surgeon with strong preconceptions as to the value of exploratory incisions in "vague gastric symptoms which do not respond to rational internal treatment!"[1] Five of the nine physicians whom he did consult ordered no drugs, but from the four others, 70 or more preparations, or the boxes and bottles which had contained them, were found when the bureau drawer was cleared out. At one time the patient was taking two doses an hour of five different prescriptions. The patient had never consulted a quack, but chose regular physicians of the highest reputation. He has not a word of censure for any of those who have treated him. Praiseworthy in a layman, exceptionally so in a patient with such a history, it must be called a sin of amiability, when viewed professionally. This case suggests several conclusions:

1. Present-day gastrology, viewed as a specialty, seems in the majority of cases to be worse than a blunder. Except one or two, not a book or an article published on diseases of the stomach, of digestion, and nutrition, even alludes to the most common and clinically evident, most easily demonstrable cause of the majority of such diseases. A noteworthy exception to this rule is the statement by Professor J. H. Musser, of Philadelphia; in the *Journal of the American Medical Association* of November 4, 1905, under the heading, "Nongastric Diseases Presenting Gastric Symptoms," are these words:

THE EYES.—The subject is familiar to all. Who has not seen errors of refraction relieve socalled "bilious attacks," periodic vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions.

[1] Medical News, May 16, 1903.

I prophesy that these sentences, for a number of peculiar reasons, will become famous in medical literature. With individual variations, but with essential identity, I could cite at least a thousand cases in my own practice similar in some ways to this case, in which these digestional and nutritional diseases have been proved to be directly dependent upon eyestrain, and curable by its correction.

2. When the general practitioner treats these obscure diseases of the stomach and intestines he too frequently does so in the same way as the gastrologist, too often showing the same ignorance of their etiology, the same inability to cure, the same useless dependence upon drugs, etc.

3. Generally speaking, the neurologist is like minded as regards the cause of many nervous and psychic symptoms dependent upon eyestrain. In this instance he relied upon the testimony of one, "the leading ophthalmic surgeon of the city," and he learned a lasting lesson. He writes: "Dr. ——— reported that *nothing is wrong with this patient's eyes.* I am very glad you have succeeded in finding and correcting a form of eyestrain which Dr. ——— *won't* believe in. It is not the first time that his examination and opinion has caused me to slip up on a diagnosis." I do not know of more than one or two other neurologists who would have anything but the most supercilious contempt for the idea that symptoms such as those of this patient might be due to eyestrain.

4. This patient's life, his success in life at least, his happiness and that of his family, depended upon the alert-mindedness, the conscientious clinical discrimination of one diagnostician. This careful observer risked a vast deal in coming to the conclusion finally reached, and in forcing through the clinical and therapeutic test, in the face of ridicule, notwithstanding the complete failure of one oculist of the best repute, and despite the seeming failure of another for two or three months.

5. Professionally, we have a financial obligation to our patients. As a rule, we think it is only they who have this obligation, and toward us. Here was a patient who for 18 months gave his money freely to those men we call professional leaders. It was finally proved that they not only did not give him value received, but that because of ignorance or prejudice, or both combined, they wasted his money as well as his time and health. For 30 years these men have had before their eyes the evidence, sufficient to bring testing and conviction in other arts and sciences, that symptoms such as these described may be due to eyestrain. At the end of the 30 years they are only a little nearer the practical application of the truth than they were before its discoverers began to be ignored and poohpoohed.

6. And if this is so of gastrologists, neurologists, general physicians, and consultants, how much more emphatically it is true as regards ophthalmologists. The first one consulted by this patient did not use a mydriatic, does not correct astigmatism, and disbelieves that any systemic disease whatever is due to eyestrain. He naturally reported that "nothing was wrong with this patient's eyes." This, remember, was in 1905, not 1850, and occurred in the United States, and not in the

land of Von Graefe. And yet this patient had a high degree of amblyopia in one eye, had unsymmetric astigmatism, and an eye-wrecking, health-ruining anisometropia! What can be said in excuse of such "ophthalmology?" Thus, of three reputable oculists, one finds "nothing wrong with the eyes"; another prescribes:

R. + Sph. 1.00, + Cyl. 0.25 ax. 50°
L. + Sph. 4.25, + Cyl. 0.75 ax. 180°

and a third orders bifocal lenses utterly different from this correction. Is this science? Is it art? If one correction can cure, the other cannot. Such differences of measurement, relatively, would subject three mechanics, three engineers, or even three tailors, to ridicule and discharge for bungling and incapacity. Why are they permitted in medicine, and dealing, not with a car axle, or a series of land levels, or a suit of clothes, but with the health and life of human beings? Such a condition will, of course, not end until the profession (or the public) demands it, and not then until there is at least one scientific school of refraction in the world.

Errors in Diagnosis and Treatment.—It is evident that the family or general physician first consulted accepted the traditional role of "passing the patient on" with the convenient diagnosis of "hysteria." His asafetida pills and loss of interest in the case are proofs that this view and method of treatment are still routine with many practitioners. It is a roundabout way of saying "I haven't the faintest idea of what is the matter with you; such cases are never cured by any treatment; and so I will take this immoral and cowardly way of ridding myself, and my conscience, of you and your insoluble and intolerable case. I have heard rumors that cranks of many kinds, oculists, hypnotists, eddyites, and the rest, have cured such patients, but I don't believe in such nonsense. So, good morning!"

The second general practitioner, proceeds on the assumed diagnosis of some inscrutable disease of the organs of digestion. That is, he accepts the traditional view that almost all diseases, except infectious ones, are of gastric origin, especially those that show any gastric symptoms. As almost all diseases do show gastric malfunction, the error has greater vogue than it should have acquired in a sane medical world. But this general practitioner accepted the gastrologist's standpoint without this specialist's knowledge and tests. Hence, with no indication from physiologic chemistry as to what to do, and without any hint of the real or clinical nature of the disease, all that was left to do was to try at random, drugs upon drugs, and again drugs.

The neurologist adds to the diagnosis of unknown intestinal disease, another unknown and inexplainable psychic one, relies on an unreliable "ophthalmic surgeon," and "passes the patient on" with the habitual naming of a mystery, and with practical "therapeutic nihilism."

The first "ophthalmologist," the worst sinner of all, leads patients and doctors astray with a nondiagnosis, ludicrous in the unscience and nonsense of its method of determination—an inaccuracy which would be criminal in electric or mechanical engineering.

The gastrologist makes a false diagnosis of hyperchlorhydria, and, *more suo*, never asks what caused this symptom, orders the old hypnotics "rest and travel," and himself goes to dinner—with his conscience.

The leading practitioner "says ditto to the honorable gentleman." He also has heard of the banal idea that such diseases may be due to eyestrain, but it is, of course, beneath his dignity to think of such foolishness. He must hunt LL.D. degrees, consultation cases, presidencies of societies, professorships, and newspaper fame. To help solve the mysteries of actual disease, either from sympathy with the patient, or to further medical science, is not his function.

At last one diagnostician was found whose mind was open to unfashionable truth, whose clinical observation was acute and discriminating, who did not ignore medical reports which do not tally with prejudice—and who was brave enough to order the right thing, even if "foolish" and "unpopular." He was not deceived by the words, "neurasthenia," or "hyperchlorhydria," or "hysteria;" nor by the fact that this patient's case was "peculiar and atypical," for every case of migraine and neurasthenia is peculiar and atypical. He knew that the "conservative" ophthalmic surgeon may know nothing about and care less for accurate refraction. He stuck to his diagnosis, despite apparent failure. He saw to it that his diagnosis was proved or disproved by the accurate clinical test.

In the meantime, what about 100,000 physicians not thus minded? And what about the millions of "migrainous" patients, with the same essential disease as that of this patient, who are dragging their lives out in wretchedness, and hastening to needless and obviable death? From 30% to 50% of all school children, it has been demonstrated, have severe eyestrain, which is producing malnutrition, nervous disease, or "migraine" (the disease the nature of which an eminent "authority" erroneously says is "unknown"), and which is waiting for those who escape the school when they come to the office, the study, the workroom, or the factory life and house life of later years. The case of the patient described, as do a multitude of others, illustrates the chief present-day criminal blunder of medicine, and one of the saddest tragedies of civilization itself.

THE DIAGNOSIS OF BRIGHT'S DISEASE.[1]

BY

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It is scarcely probable that Richard Bright, when he described the acute and chronic nonsuppurative diseases of the kidney in 1827 and subsequently, foresaw the extent to which successive readjustment based upon clinical and pathologic findings would complicate the classification of these interesting conditions and their rational study. Nevertheless, we are assured by A. O. J. Kelly that:

Bright demonstrated the dependence of dropsy and albuminuria upon disease of the kidneys; he recognized

[1] Read before the Nebraska State Medical Society, May 3, 1905.

the relationship of the symptoms to the disease, and he described accurately the lesions in the kidneys. Indeed, such were the profoundness of his knowledge and the accuracy of his observations that many of his statements have withstood the searching inquiries of more recent times. Bright recognized that although albuminuria and dropsy are the characteristic symptoms of certain diseases of the kidneys, in some cases the amount of albumin may be small and the dropsy slight or altogether absent; he described many of the associated phenomena, such as uremia and the cardiovascular changes, and many of the complications, such as blindness, apoplexy, inflammation of the serous membranes, etc.

This much we owe to Richard Bright, and it is a great deal, considering the previous state of knowledge, and the stimulus which these investigations afforded for subsequent research.

Some of the greatest names in pathology are associated with the study of Bright's disease. In 1842, Rokitansky described the amyloid kidney; in 1852, Virchow made further contributions along this line, and during the 18 or 20 years succeeding 1850, this phase of the subject was also investigated by Vogel, Traube, Wilks, Dickinson, Johnson, and by others, who directed attention to changes in the bloodvessels.

In 1872, Gull and Sutton emphasized the importance of alterations in the bloodvessels in the production of cirrhosis and atrophy of the kidneys. Important contributions have been made during the last 20 years by Rosenstein, Stewart, Ziegler, Dickinson, Delafield, Tyson, Councilman, Senator, and this is not all of them by any means. We have, therefore, a very voluminous literature.

The obscurity in which much of the subject of kidney diseases is veiled in the mind of the student arises largely from confusion begotten by the terms in use in our textbooks and other treatises on medicine and pathology. After all, it is not surprising that a student who has learned to associate certain changes and appearances with chronic interstitial nephritis should be a little bit disconcerted when confronted with primary contracted kidney, small red kidney, chronic, diffuse, indurative nephritis, or chronic productive nephritis without exudation. It is comparatively easy to achieve pictures and descriptions of the various forms of Bright's disease, but upon reaching the last analysis we are forced to the conclusion that our cleverest classifications have very little practical value. We are confronted not only by a multiplicity of conditions none of which is sufficiently distinct to be set apart absolutely from all others, but also by a multiplicity of terms, many of which are used interchangeably to describe an identical condition. We have a fine classic literature which has rather needlessly burdened us with difficult names for conditions which are sometimes in themselves comparatively simple. They are never simple in the sense of being altogether separate and distinct, and perhaps the inevitable shading of one condition into another accounts for the richness of the kidney vocabulary.

In considering the various kidney lesions from a pathologic point of view it is as impossible to avoid making certain fairly minute distinctions, as it is unnecessary to make them from a clinical standpoint. Clinically we have acute, subacute, and chronic forms of Bright's disease, and these often shade into each other almost imperceptibly. Pathologicly the same classification applies, but here, too, we find difficulty in saying precisely when a process ceases to be acute and becomes chronic. However, if an acute process is followed for many months or several years by a train of symptoms indicating constant disturbance of kidney function, we certainly feel justified in making a clinical diagnosis of chronic kidney trouble, though we may be much disappointed at autopsy in finding relatively few anatomic changes. Nevertheless, the patient is sick for a long time, and finally dies, possibly with symptoms of uremic poisoning, and even though the anatomic findings do not agree perfectly with any classic description, we know the kidneys have been at fault, and we were perfectly proper in treating the patient for renal insufficiency. In other words, we cannot nor do we need to distinguish clinically the various lesions, otherwise than to say that they are predominantly either acute or chronic, parenchymatous or interstitial.

Acute Congestion.—As the least conspicuous of acute lesions, we may consider acute hyperemia or congestion, which is not such a wellmarked entity that it may not be confused with acute nephritis. In degree, it may be almost as severe as an acute nephritis, and the patient may suffer just as much discomfort. It is very likely to give rise to slight pain or a feeling of heaviness in the loins, general malaise, including headache, possibly a slight rise of temperature, frequent micturition and smoky or red urine containing a little albumin, some red and white blood cells, a few blood or fibrin casts and perhaps some renal cells. There may be other elements as well, but these things are pretty sure to be found in greater or less abundance. The urine is usually decreased in amount, although the patient may think it is increased on account of frequent micturition. The color will be high and the reaction will be decidedly acid, unless enough blood is present to neutralize it. The solid content and specific gravity of the urine may be very little affected, except, relatively, a scanty urine usually being of high specific gravity. Since the albumin is due to denudation of the epithelium lining the renal tubules, it will naturally persist until the epithelium is restored. In a mild hyperemia, there will probably be only a slight trace of albumin, an occasional cast and an occasional blood or renal cell. Severe active hyperemia is sometimes called "catarrhal nephritis." After a case of this sort, as the irritant is removed, the urine increases in quantity, decreases in weight and becomes paler, and the sediment contains some abnormal blood globules, a few casts, which may be brown and granular, and an occasional cell showing fatty degeneration.

Chronic or Passive Congestion.—Passive hyperemia or chronic passive congestion of the kidneys is always secondary to some obstruction to the venous circulation, such as heart or liver disease, abdominal tumors, the pregnant uterus, thrombosis of the renal veins, etc. We may expect to find the urine decreased in quantity, generally high in color and decidedly acid, unless it is quite dilute. The specific gravity will vary with the

degree of concentration. The solid content will usually be absolutely diminished, though it may be relatively increased. The amount of albumin is slight, though in pregnancy it may be considerable. The sediment may contain a few hyaline or finely granular casts, and now and then a blood cell. The symptoms will be those of the primary condition, so we are likely to have dropsy, dyspnea, edema of the lungs, with a hacking cough and prominence of the abdominal veins. The urine gives us a great deal of information in the diagnosis of this condition, unless there is some complicating or superimposed renal condition. In pregnancy, the urine should be watched for a sudden increase in the amount of albumin or the number of casts, which may precede eclampsia. Chronic congestion may be distinguished from chronic interstitial nephritis by the greater quantity of urine in the latter, with little urea, the increased nocturnal secretion, the full, hard pulse, cardiac hypertrophy and absence of dropsy.

Acute Nephritis.—Now let us consider acute nephritis, which covers a number of conditions, but all included under an acute inflammation or degeneration of the kidneys. The names of the different lesions vary with their pathology, and also with the pathologist. Among the synonymous terms given by Anders are acute diffuse nephritis, acute parenchymatous nephritis, exudative, catarrhal, tubal, desquamative and glomerulonephritis of acute course. Why "acute diffuse nephritis?" Because the lesions are very likely to be found not only in the tubules and the glomeruli, but even in the interstitial tissue to the extent of exudation. "Parenchymatous nephritis" because it is the parenchyma that is affected. "Exudative nephritis" because there is sometimes an exudation of round-cells into the tissues. "Catarrhal nephritis" because there is sometimes albuminous exudation in the glomerular capsules and the tubules, together with round-cells. "Tubal nephritis" because it is often the tubules which are most affected, the epithelium showing cloudy swelling, granular or fatty degeneration, with desquamation. "Desquamative nephritis" if the desquamation of epithelium is the most prominent feature. "Glomerulonephritis" if the glomeruli are chiefly affected.

If we follow Delafield we will recognize (1) acute degeneration of the kidneys; (2) acute exudative nephritis, and (3) acute productive nephritis. The "degeneration," of course, refers to the retrogressive changes in the tubules and glomeruli which are always present in greater or less degree in every case of acute Bright's disease. "Acute exudative nephritis," of course, refers to the condition in which we find an exudation of round-cells in the tubules, glomeruli and interstitial tissue. In "acute productive nephritis" we necessarily have a new formation of connective-tissue in the glomeruli and around the vessels and tubules. Strictly speaking an acute nephritis must show an inflammatory exudate of serum, leukocytes, and erythrocytes between the tubules, but the degenerative changes are always present in the tubules and in the glomeruli. These changes are always present in a true acute nephritis and the other terms only emphasize the character of the chief lesion.

According to Councilman acute diffuse nephritis includes (1) acute degenerative nephritis, (2) acute glomerular nephritis, (3) acute hemorrhagic nephritis, and (4) acute interstitial nonsuppurative nephritis. "Acute degenerative nephritis" practically corresponds to Delafield's "acute degeneration." "Acute glomerular nephritis" comprises proliferation and degeneration of the endothelium of the vascular tufts and often the same changes in the capsular epithelium. It is expressly stated that this is accompanied by degeneration of the epithelium of the tubules. "Acute hemorrhagic nephritis" simply shows hemorrhage into the tissue, usually the glomeruli and the tubules, together with degeneration of the epithelium. Thus we have always degeneration of the epithelium, no matter what name we give to our acute nephritis. In "acute interstitial nonsuppurative nephritis" the essential lesion is an acute proliferation of the cells in the intertubular tissue.

In the form of nephritis which we have been discussing, the kidneys are usually enlarged and the capsules tense so that they retract on being cut. The surface of the kidney is usually red, though occasionally paler and shows minute extravasations of blood as does also the cortex. The malpighian bodies are usually markedly distended with blood. On microscopic examination the vessels and vascular loops are found distended with blood and the distribution of the various degenerative and inflammatory changes simply depends on the part of the organ which is most affected, tubules, glomeruli, vessels, etc. The nature of these changes has been sufficiently indicated in the previous classification and it will be remembered that they include degeneration, necrosis, exudation, and proliferation. Among the ordinary symptoms of acute diffuse nephritis are cutaneous edema, which begins usually about the eyes and is sometimes associated with hydrothorax or ascites. The face is pale and anemia begins to be a prominent feature early in the case. Bloodpressure is usually increased, the pulse tense and the second aortic sound accentuated. After a time hypertrophy of the left ventricle may develop. The temperature may be 102° or more and there is very likely to be vomiting and severe headache at the outset and later diarrhea. Thirst is present, appetite wanting, and there may be muscle pains and disturbance of sleep. There is often vesical tenesmus and difficulty and pain in urinating. The urine is usually decreased in amount, varies in color from bright red to brownish black, depending on the amount of normal or altered blood present and the specific gravity is usually above normal. The solids are diminished, especially urea and chlorin, if much dropsy is present. The amount of albumin is generally from ¼% to 1%. The sediment contains many normal and abnormal blood cells, brown granular epithelial cells, epithelial, blood and fibrinous casts and much granular debris, also many leukocytes. Ogden describes three stages, the acute, fatty, and convalescent, but this is an unnecessary refinement. Of course the fatty elements appear as the process becomes less acute and in the convalescent stage all symptoms gradually disappear and the urine returns to normal, being much increased in quantity during the absorption of the dropsy. The attack may last from one or two weeks to as many months. The diagnosis

rests on the features of the urine, the dropsy, the sudden onset, the comparatively short duration, and the fact that it often complicates an acute infectious disease.

Chronic Parenchymatous Nephritis.—Chronic parenchymatous nephritis has also been called subacute glomerular nephritis, fatty degeneration of the kidneys, chronic diffuse nephritis of the parenchymatous type, chronic Bright's disease, chronic exudation, chronic tubal and chronic desquamative nephritis, chronic glomerulonephritis, large white kidney, secondary or fatty and contracted kidney. All these terms explain themselves. While the secondary or fatty and contracted kidney may be as small as that of a chronic interstitial nephritis, it is distinguished from the latter by the fact that the stage of contraction was preceded by a stage of something else and that the production of connective tissue was preceded and overshadowed by degenerative changes. In chronic interstitial nephritis the production of new connective tissue precedes or goes hand in hand with the degenerative changes in tubules and glomeruli.

The kidney in chronic parenchymatous nephritis is considerably enlarged before the stage of contraction begins, the capsule being tense and easily stripped from the organ. The surface and the cortex are of a light butter yellow color, and the medulla is usually red.

Microscopic examination shows marked fatty degeneration of the epithelium of the convoluted tubules and glomeruli. Collections of round-cells are found in the interstitial connective tissue, showing the inflammatory character of the lesion. If the kidney goes on to secondary contraction, it will be very small and yellow and consist principally of fat, with a marked increase of connective tissue.

Patients with chronic parenchymatous nephritis usually exhibit marked pallor, a peculiar pasty complexion. They reach a high grade of anemia. Cutaneous edema is extreme and the serous cavities are very often filled with fluid. The pallor and dropsy may be the first symptoms. There is no elevation of temperature in uncomplicated cases. The blood-pressure is usually increased. There is loss of appetite and irregularity of the bowels. Acute exacerbations with bloody urine sometimes occur so frequently that the condition is spoken of as chronic hemorrhagic nephritis. Excessive edema may give rise to asphyxia, cardiac paralysis, edema of the lungs or of the glottis. Death may be due to inflammation and gangrene of the skin or to exhaustion. Uremia is less common than in chronic interstitial nephritis. The course of the disease may be several years. The urine in what Ogden calls the active stage is small in quantity, high colored, sometimes bloody, acid, of high specific gravity, with the solids absolutely much diminished. The amount of albumin is higher in this than in any other condition, varying from ½% to 4%. The sediment contains many hyaline, granular, and fatty casts, fatty renal and compound granule cells. Waxy cells, if present, are of bad omen. In the inactive stage the urine is still somewhat below normal in amount, color pale, specific gravity somewhat reduced, solids diminished, albumin ¼% to 1%. The sediment is less than in the active stage. In the atrophic stage, which is the stage of secondary contraction, the urine may, according to Eichhorst, more than equal the normal amount, being light yellow in color, specific gravity below 1,015, and the amount of albumin very slight. Edema disappears, the left ventricle becomes hypertrophied, and the pulse hard and wiry. In this stage the patient may die of uremia.

Chronic Interstitial Nephritis.—Chronic interstitial nephritis has been called primary contracted kidney, chronic nephritis, chronic diffuse nephritis of the interstitial type, sclerotic kidney, gouty kidney, small granular kidney, chronic diffuse nephritis without exudation, cirrhotic kidney, red granular kidney, renal arteriosclerosis, chronic productive diffuse nephritis without exudation, etc. Eichhorst makes a division into genuine juvenile contracted kidney, occurring in individuals under 40, and senile or arteriosclerotic kidney in older people. Perhaps it is better to consider the arteriosclerotic or senile atrophic kidney as part of a general condition of arterial hardening. In chronic interstitial nephritis the capsule of the kidney is found to be firmly adherent to the surface with connective tissue dipping down into the kidney substance. The kidney is very small, and covered with nodules which represent fairly normal tissue. There are occasional cystic cavities of varying size, filled with water or colored fluid. The surface is grayish-red, the organ cuts almost like leather, and the cut surface is also grayish-red. Sometimes the cortex is reduced to 1 mm. in thickness. Microscopicly the essential changes are an increased production of connective tissue, which has been accompanied or followed by degenerative changes in the epithelium of the tubules and glomeruli. The capsules of the malpighian bodies are often thickened and the tufts atrophied, while the tubules are compressed in some spots, dilated and cystic in others, and filled with epithelial debris and tube casts. The new connective tissue is diffuse in its distribution.

The symptoms of chronic interstitial nephritis may be latent for years, and may be discovered quite accidentally on examination of the urine. Among the suspicious symptoms are palpitation of the heart, persistent headache, impairment of vision, repeated epistaxis, hoarseness, vomiting, eczema, pruritus, etc. All the symptoms present may arise from uremic poisoning. The urine is increased in amount, and may even reach 6,000 cc. in the 24 hours. The patient usually gets up one or more times at night to empty his bladder. The urine is pale yellow, sometimes greenish, and after shaking, the froth may be retained for some time, as often happens when the urine contains abnormal ingredients. The specific gravity is low, the reaction feebly acid, the percentage of urea low, and the sediment small in amount or absent. There may be a few hyaline and granular casts. The amount of albumin is always small. Hypertrophy of the left ventricle is almost constant, with increased blood-pressure and a hard, wiry pulse. Palpitation is often distressing to the patient. Retinal changes often occur, with partial or even complete blindness. The patient is often pale and becomes rapidly emaciated. The skin is dry, the appetite impaired, and the thirst sometimes as great as in diabetes. The course

of the disease may extend over a good many years, but most patients die of uremia. The diagnosis rests on the urine, the lack of acute symptoms, the tendency to uremia, the age of the patient, nocturnal frequency of urination, the cardiovascular changes, albuminuric retinitis and the lack of edema, except near the end. Distinction is made from simple polyuria by the cardiovascular and retinal changes. From glycosuria, it is sufficiently distinguished by the absence of sugar and the low specific gravity. In making the diagnosis, the age, habits and symptoms of the patient should be studied in connection with frequent urinary examinations. Chronic interstitial is distinguished from chronic parenchymatous nephritis by its occurrence later in life, often a history of gout, syphilis, nerve strain, etc., a slow, insidious onset, absence of dropsy, presence of cardiovascular changes, minute amount of albumin, few casts, large amount of low specific gravity urine, less marked anemia, greater frequency of uremic symptoms and more chronic course.

THE EFFECT OF COPPER SULFATE UPON THE BACTERIOLOGIC AND CHEMIC CONSTITUENTS OF LARGE BODIES OF WATER.[1]

BY

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The following investigation is not meant to supplement the special work of Moore and Kellerman and others concerning the effect of copper sulfate in high dilutions upon algæ, since neither of us can make any pretense toward special training in algology. The limited number of experiments with algæ were simply made for the purpose of comparison with the bactericidal action of copper sulfate.

In order to test the effect of copper sulfate upon algæ and bacteria in large bodies of water, we undertook a series of experiments in a large swimming-tank in one of the clubs in Baltimore. The water in the tank was derived from the general water-supply of Baltimore. This supply is obtained from a surface river passing through the most densely populated rural district of Maryland. The tank contained about 60,000 gallons of water, and was furnished with an overflow which let out about 500 gallons daily. This was replaced by fresh water daily. It will be seen that these conditions would correspond somewhat to a reservoir from which water was constantly drawn for daily use. The temperature of the water was usually maintained at about 70° F.

Six-tenths of a pound of copper sulfate was added to the water at the beginning of the first series of experiments, making a dilution of 1 part of copper sulfate to 1,000,000 parts of water.

Before placing the copper sulfate in the water, the number of algæ was estimated by the Sedgwick-Rafter method. A reference to Table No. I will show the exact number of algæ both before and after the use of the copper sulfate, and the percentages of reduction will only be mentioned, therefore, in this general statement.

Before the addition of copper sulfate the water contained 81 algæ to the cubic centimeter, and 24 hours after the copper sulfate was added to the water there were 96 algæ present. Unfortunately, the amount was not estimated again until 48 hours later, but during this time the number had dropped to 11 algæ, a reduction of 89.6% from the maximum figure. Twenty-four hours after this count the number rose to 18, making a reduction from the maximum of 82%.

In a second series of experiments begun on January 3, 1905, copper sulfate in parts of 1 to 100,000 was added to the water, and just before this the water was found to contain 108 algæ to the cubic centimeter. Twenty-four hours later the number was reduced to 33, a reduction of 79%. In 48 hours only 9 algæ to the cubic centimeter were present, making a reduction of 92%. In 3 days exactly the same number was present, and in 4 days, 7 algæ were found, a reduction of 94%. At the end of 7 days the count per cubic centimeter estimated from 10 fields had fallen to 0. At the end of 11 days the count rose to 9, and in 17 days from the addition of copper sulfate it again fell to 0.

In order to show that this reduction was not the effect of sedimentation, the water organisms were counted just after the water was admitted to the pool, and again at the end of two weeks. No copper sulfate was used during this time. There were 270 algæ at the beginning and 276 at the end of the two weeks. As a matter of interest, it might be added that after passing through a mechanical filter the number was reduced to 18, a reduction of 94%.

Ten days later there were only 3 algæ present.

Effect of Copper Sulfate upon Water Bacteria.—Moore and Kellerman[1] have performed a number of interesting experiments in order to determine the effect of high dilutions of copper sulfate upon the pathogenic water bacteria. They found that the temperature of the water has an important bearing on the bactericidal action of copper sulfate. One to 100,000 parts of copper sulfate destroyed the typhoid bacillus in two hours at 38° C., in four hours at 28° C., in six hours at 23.5° C., and in 12 hours at 14° C. Cultures three and six hours old were more readily destroyed by the dilution before mentioned than cultures 24 and 36 hours old, showing the increased vulnerability of young cultures. The typhoid bacillus was reduced from 5,481 to 0 colonies in eight hours at the room temperature by the same dilution, and 2,187 colonies were reduced to 0 at a temperature of 5° C. in 24 hours.

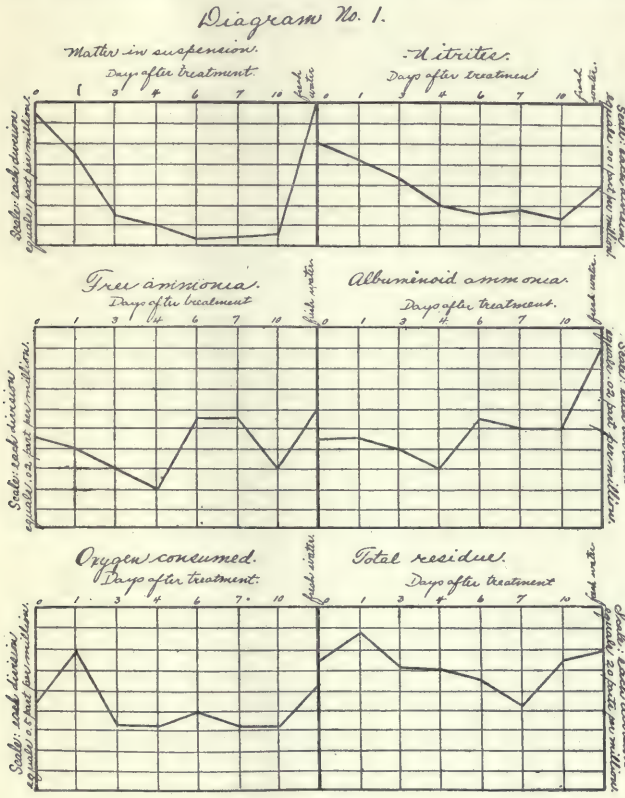
The colon bacillus also showed an increased vulnerability in young cultures, three-hour cultures being destroyed in three hours at 1 to 100,000, while it took nine hours to destroy a 36-hour culture. It took this dilution four hours to destroy the colon bacillus at 38° C., and 12 hours at the room temperature. These investigators thus showed that the typhoid bacillus is more sensitive to the action of the copper than the colon bacillus.

[1] Read at the Twenty-third Annual Meeting of the American Public Health Association, Boston, September 25-29, 1905.

[1] Bulletin No. 64, United States Department of Agriculture, Bureau of Plant Industry, May 7, 1904.

Gildersleeve[1] also performed a number of experiments with copper salts. He used flasks inoculated with various bacteria, and he found that the sulfate, chlorid, acetate, and nitrate were destructive to bacteria, their activity being in the order mentioned. The typhoid and colon bacillus were destroyed in an hour by a solution of copper sulfate of 1 to 250,000, and 1 to 500,000, and 1 to 1,000,000 destroyed these organisms in from 2 to 3 hours. Such fermentative water bacteria as *Bacillus proteus*, *Bacillus cloacæ*, and *Bacillus prodigiosus* were more resistant.

The first series of our experiments consisted in the use of copper sulfate in the club swimming-tank in a dilution of 1 to 1,000,000. Just before the use of copper sulfate the tank contained 2,400 bacteria, and an organism producing about 95% of gas in glucose, lactose, and saccharose. A week before, the colon bacillus had



been found; 24 hours later the colon bacillus was detected, and there were 3,300 bacteria per cubic centimeter present. In 48 hours the count arose to 6,000, but no colon bacilli or other fermentation bacteria were detected in 1 cc. or 50 cc. of water, nor were any colon or other fermentation bacteria found for the next 5 days. On the third day the bacteria were 12,000, on the fourth day 7,200, and on the eighth day they fell to 1,380.

It will be seen that although this dilution had no effect in restraining the growth of the ordinary water bacteria, yet in 48 hours it destroyed the colon bacillus. Since all of the experiments made by other workers show that the typhoid bacillus is more readily destroyed by copper than the colon bacillus, it is fair to assume that if present, the typhoid bacillus was also destroyed.

[1] The American Journal of the Medical Sciences, May, 1905.

In the second experiment the dilution was 1 to 100,000, and before using the copper the tank contained 3,000 bacteria and the colon bacillus. This organism disappeared in 24 hours, and the count fell to 30 bacteria. The colon did not reappear in 18 days, although the bacterial count increased. This increase was as follows: 48 hours 1,200, 3 days 4,500, 4 days 4,500, 6 days 15,600, 7 days 9,000, 11 days 12,000, and 18 days 12,000 bacteria per cubic centimeter.

In a third experiment with a similar dilution the initial count was 1,200, and *Bacillus gasoformans*, producing 90% of gas in the three sugars, was present. In 24 hours the count fell to 70 and no fermentative bacteria were found in 1 cc. or 50 cc. of water. No fermentative bacteria were detected for two weeks, and the bacterial count was as follows: 2 days 90, 4 days 25, 5 days 31,200, 7 days 24,000, 8 days 60,000, 11 days 24,000, 14 days 25,000. A bacterial count taken from the sediment after drawing off the water showed only 600 bacteria present and no fermentative bacteria, while a specimen obtained from the bottom while the water was still in the tank showed 6,700 bacteria and no fermentative bacteria.

In a fourth series of tests the usual dilution of 1 to 100,000 parts of copper sulfate was used. The fresh water just let into the pool contained 1,000 bacteria, and the colon bacillus was found in 1 cc. and 50 cc. of water. No fresh water was added to the tank during these experiments. The counts, which followed in 2, 5, 6, 7, 8, 9, and 14 days, respectively, were: 1,806, 1,350, 3,000, 9,000, 6,720, 840, 1,500, and 1,800 bacteria per cubic centimeter. But, although the copper did not cause any reduction in the number of water bacteria, yet neither the colon bacillus nor any other fermentative bacteria was found in tests made every day of 1 cc. and 50 cc. of water.

A fifth series of tests was made by adding 1 part to 50,000 of copper. A mechanical filter had been installed in the club, and the count only showed three bacteria; 24 hours later 60 bacteria were found, and 48 hours later only five. The number of bacteria is so small that little can be deduced from these experiments, but it seems that even 1 to 50,000 parts of copper will not destroy the water bacteria. It destroyed all fermentative bacteria. On another occasion, after filtration, the water contained 300 bacteria. Twenty-four hours after 1 to 100,000 copper sulfate it contained 270, and five days after 720 bacteria.

When copper was not added, the water in the tank did not show any evidence of the increase of water bacteria. A count made just after the water had filled the pool showed 1,300 bacteria per cubic centimeter, and a week later it showed 1,200 bacteria, and the colon bacillus. At another time the city water gave 1,500 bacteria, and after standing two weeks in the pool, water from the top gave 6,000 bacteria, and that from the bottom 3,000 bacteria per cubic centimeter.

A general survey of these experiments shows that a dilution of 1 to 1,000,000 has no effect upon water bacteria, but that it has a selective effect in destroying the colon bacillus and other fermentative bacteria. The same may be said of dilutions of 1 to 100,000 and 1 to 50,000. Since the typhoid bacillus is destroyed by

TABLE No. I.—Showing the effect upon Algæ.

Time after addition of copper sulfate	Dilution: 1 to 1,000,000.				Dilution: 1 to 100,000.							
		24 hours	72 hours	96 hours		24 hours	48 hours	72 hours	96 hours	7 days	11 days	17 days
Character of determination	Raw water				Raw water							
Diatomaceæ												
Asterionella	24	37	7	11	33	14	1	7	3		7	
Stephanodiscus	7	11	1		9							
Cyclotella	11				2							
Synedra	1	1			31	13					2	
Fragilaria		1										
Surirella		10										
Encyonema					13							
Total	43	60	8	11	88	27	1	7	3		9	
Percentage of reduction	—	—40	81	74	—	69	99	92	97	100	90	100
Chlorophyceæ												
Raphidium	6											
Nephrocytium	2											
Scenedesmus		1										
Protococci					12	3	5	2	2			
Colastrum					1							
Botryococci									2			
Total	8	1			13	3	5	2	4			
Percentage of reduction	—	88	100	100	—	77	61	85	69	100	100	100
Cyanophyceæ												
Chroococcus	20	24		2								
Total	20	24		2								
Percentage of reduction	—	—20	100	80								
Schizomycetes												
Crenothrix	9	14		2	4	3						
Total	9	14		2	4	3						
Percentage of reduction	—	—55	100	88	—	25	100					

CHEMICAL TABLE.—TABLE No. II. Tank in Club. (Figures expressed in parts per million.)

Time after Treatment	Raw water 0	24 hours	3 days	4 days	6 days	7 days	10 days	Fresh water
Odor	none	none	none	none	none	none	none	none
Reaction	neutral	neutral	neutral	neutral	neutral	neutral	neutral	neutral
Color	slightly cloudy	fairly clear	clear	clear	clear	clear	clear	slightly cloudy
Suspended matter	6.5	4.5	1.5	1.0	.3	.4	.5	7.0
Total residue	128	154	122	120	112	84	126	136
Loss on ignition	52	96	44	54	26	16	24	100
Ignited residue	76	58	78	66	86	68	102	36
Chlorin	5.5	5.	4	5	6	6.5	6	6
Nitrites	.025	.021	.017	.015	.013	.014	.007	.015
Nitrates	1.35	1.50	1.20	1.35	1.45	1.30	1.20	1.40
Free ammonia	.09	.08	.06	.04	.11	.11	.06	.09
Albuminoid ammonia	.12	.09	.08	.06	.11	.10	.10	.18
Sulfuric acid (SO_3)	2.404	3.777	7.211	6.432	8.128	8.437	7.321	1.687
Hardness	88.62	92.41	88 34	75.96	73.43	91.15	79.29	86.45
Oxygen consumed	2.20	3.45	1.75	1.60	1.95	1.70	1.65	2.15

TABLE No. IIa.—Muddy Ice-pond. (Figures expressed in parts per million.)

Time after Treatment	Color	Suspended matter	Total residue	Loss on ignition	Ignited residue	Chlorin	Nitrites	Free ammonia	Albuminoid ammonia	Oxygen consumed
Raw water	muddy	724	854	134	720	3.5	.018	.95	3.35	21.60
24 hours	muddy	518	654	132	522	4.0	.007	.85	2.75	17.70
48 hours	muddy	436	576	104	472	3.0	.000	.80	2.45	18.40

weaker dilutions than these bacteria, it is safe to assume that these dilutions will destroy it in large bodies of relatively pure water.

The last experiments were performed on a pond of irregular oblong shape, which by measurement was found to contain about 262,316 gallons, or 829,168 liters of water. The chemic analysis showed that the fine mud in suspension was fine clay, and the pond was covered by a green scum of algæ. It received the washings from a corn field, and was selected as an example of impure water for the purpose of furnishing difficult requirements for the copper sulfate to overcome.

For two days before the use of copper sulfate the water contained 2,100 and 4,500 bacteria respectively, and the colon bacillus was present. Twelve hours after the copper was added to the pool, the water contained 3,000 bacteria and the colon bacillus, 24 hours after it contained 7,500 bacteria and the colon bacillus in 1 cc., in 48 hours 9,000 bacteria and the colon bacillus, and in 3 days 5,100 bacteria and the colon bacillus. It will be seen that in a pond showing only moderate pollution and used as an ice-pond in winter, that the dilution of 1 to 100,000 had no effect either on the water bacteria or the colon bacillus.

Table No. I will show the effect of copper sulfate upon the algæ in detail.

The Effect of Copper Sulfate on the Chemic Constituents of the Water.—Before treatment with copper sulfate the water in the swimming-pool was slightly cloudy, containing 6.5 parts per million of suspended matter. It showed .09 parts of free ammonia and .12 parts of albuminoid ammonia per million parts of water. The water contained .025 parts per million of nitrites; 24 hours after the addition of 1 part of copper sulfate to 100,000 parts of water, the water became less cloudy and showed a decrease of about 32% of suspended matter. The

nitrites were reduced to .021 parts and the free ammonia was reduced from .09 to .08 parts per million while the albuminoid ammonia showed a decrease of 25%.

Three days after treatment the water was clear and at the end of the sixth day contained but 0.3 parts per million of suspended matter. The nitrites steadily decreased, due to oxidation. The free ammonia fell rapidly until the sixth day, when it unexpectedly rose, remained steady for 24 hours, and then decreased as rapidly as it had risen. The albuminoid ammonia, after a decrease of 66⅔%, showed a similar rise on the sixth day, and then steadily diminished.

After the first day following the treatment with copper sulfate, the required oxygen rapidly became less until the fourth day, after which it remained nearly constant.

Table II shows the analyses of the water in the swimming-pool before treatment with copper sulfate and for several days after the treatment.

Table II and Diagram No. 1 show the various degrees of changes undergone by the constituents of the water after treatment with copper sulfate. It also shows the analyses of the pond water before treatment with copper sulfate and for two days after treatment. The water was very muddy, and contained much finely divided clay in suspension, which accounts for the high amount of residue.

Twenty-four hours after treatment, the suspended matter had decreased over 25%. The nitrites decreased considerably, and 48 hours after treatment were absent. The free ammonia and albuminoid ammonia showed a corresponding decrease.

No copper was found in any of the samples of water, but the residue, which weighed 696 gm., remaining in the swimming-pool after the water had been run off, contained 7.0296 gm., or 1.01% of copper. This is but 0.25% of the copper added. The copper compound was insoluble in water.

CONCLUSIONS.

From our limited number of experiments, it would seem that in fairly pure water a dilution of 1 to 100,000 can be depended upon greatly to reduce the algæ and fermentative bacteria, and also clear the water by precipitating the matter in suspension.

In moderately polluted water, the fermentative bacteria are not destroyed.

POSTOPERATIVE NAUSEA AND VOMITING.[1]

BY

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of Asheville, N. C.

Never remembering to have seen a detailed report on a series of cases with regard to postoperative nausea and vomiting, and feeling sure that at least some of the commonly accepted ideas on the subject did not coincide with personal experience, I thought it would be of interest to keep such a report of the cases in which operation was done at the Biltmore Hospital, and by a study of the same, try if possible, to arrive at correct conclusions on the subject.

[1] Read before the annual meeting of the North Carolina State Medical Society, May 24, 1905.

The observations in this paper, then, are based on the study of 100 operative cases; the anesthetic employed in every case was ether. On account of the great infrequency with which we use chloroform, I have a report of only 15 cases, which I shall mention separately. In these the anesthetic was administered by several different doctors; the etherizations were all my own, and in every case the method was the same, viz., by means of a gauze pad, 5 in. or 6 in. long, and 4 in. or 5 in. wide, from 16 to 32 layers in thickness (the number of layers depending upon the coarseness of the gauze used) placed in front of the mouth, at first several inches away, then gradually brought nearer till it rests on the face, and is finally pressed down on each side of the nose, so that the only air the patient inhales passes through the ether-laden gauze. After the patient is once thoroughly anesthetized, the last precaution, keeping the gauze pressed down on each side of the nose, is not as a rule necessary to keep the patient in that condition. By thus gradually bringing the gauze nearer the face, the proportion of the ether in the inhaled air is increased so gradually that the patient usually passes into unconsciousness without a struggle. One great recommendation for this method is its simplicity, for one always has some clean gauze on hand, and using a fresh piece every time insures cleanliness and avoids any possibility of infection.

The simplicity of this method is as advantageous to the patient as to the physician, for alarm is much less likely to be caused, and fear more likely to be allayed by a plain gauze pad than by the rather formidable and elaborate apparatus sometimes employed.

The time required to bring an adult fully under the influence of the anesthetic by this method is about 15 minutes, and the amount of ether required for this purpose is about 4 ounces.

I do not think I am wrong in saying that the general impression with regard to the cause of postoperative nausea and vomiting is that they are the result of the anesthetic, just as postoperative pneumonia is so frequently and in most cases, if not in all, so erroneously attributed to the anesthetic, when really these distressing after-effects are most frequently due to the constitutional effects of the operation itself, associated with the pathologic condition present; the anesthetic itself being, as a rule, a very secondary etiologic factor.

We know that nausea and vomiting frequently occur after operations done under spinal anesthesia. These are commonly attributed to the constitutional action of the cocain used, or else to the interference with the normal relations of the spinal cord. Though I have had no personal experience with this method of anesthesia, and have had no opportunity of observing its effects and the sequence of events, it seems to me highly probable that these after-effects are in many cases, the reflex manifestations of the shock of the operation itself.

Nausea and vomiting are also among the well-recognized symptoms of shock from accidental injuries, so why should this cause be eliminated when the injuries (operations) are intentional? Not that I wish to infer that shock, as usually described, follows most operations, for as a matter of fact it is a comparatively rare sequel, but that there must be some systemic effect is only a

natural deduction from our knowledge, imperfect though it be, of the extremely delicate and complicated workings of the sympathetic nervous system.

It is also a prevalent idea that nausea and vomiting are more likely to occur and be more severe after the use of ether than chloroform. This is a tradition that deserves very thorough investigation, and can be settled only by a careful study of a large number of carefully recorded cases.

I realize only too well that the present number of cases is far too small to warrant any positive conclusions on this subject, but I am setting them forth with the hope that others may be led to make observations in the same direction, especially with regard to chloroform, for it is only by means of the careful record of many cases under different circumstances, that any final conclusions can be justified.

The results in this limited number of cases are at least suggestive, and though in some directions were anticipated, in others were somewhat of a surprise. The majority of the patients came into the hospital the day before the operation, and were prepared in the usual way, the bowels being well emptied by laxatives and enemas. The ether was administered in the manner already described. In a very few cases, while "coming out" of the anesthetic, but while still unconscious, the patient has vomited mucus collected in the stomach during the anesthesia; the vomiting probably being the result of the reflex irritation of an undue amount of mucus in the pharynx and larynx; in the classification, I have considered these patients free from nausea and vomiting, for from the standpoint in question, they were so.

I am not going to weary you with a lot of figures, but give you as few as possible, at the same time making my purpose clear. The operations I have divided into four classes, according to their nature, though of course a number of different operations have had to be included under one head. In many cases multiple operations were performed, such, for instance, as curetment, trachelorrhaphy, perineorrhapy, and hysterorrhaphy, or oophorectomy and hysterrorhaphy, with removal of the appendix. In such cases I have classified them as accurately as possible, making the greater include the less (though it is not always easy to decide which is the greater and which is the less), keeping in view the main object of being able to draw correct conclusions from the cases presented. The four different classes into which, for the sake of comparison, I have divided these operations, are as follows: (1) Dilation and curetment of the uterus; (2) intraabdominal operations on the uterus and its adnexa; (3) other abdominal operations; (4) all other operations.

In Class 1, which includes also some cases of repair of the cervix and perineum, 84% suffered from some degree of nausea and vomiting.

In Class 2, including hysterorrhaphies, hysterectomies, oophorectomies, removal of ovarian cysts, etc., 76% suffered from nausea and vomiting.

In Class 3, including operations for appendicitis, in some cases suppurative, with more or less peritonitis, cholecystotomies, exploratory operations, etc., 52% suffered from nausea and vomiting. With regard to the occurrence of vomiting in this class, in only about 16% was it marked enough to be worth considering, and in only 4% was it severe.

In Class 4, among which are nephrorrhaphies and a number of operations on the male genitourinary organs, 44% had some subsequent nausea and vomiting, but in less than 9% were these after-effects severe enough to be worthy of consideration.

We thus see that the nature of the operation has a very important relation to the after-effects. If we take all cases together, we find that 34% were altogether free from nausea, and though vomiting occurred with almost equal frequency, it was only in 30% of cases that it occurred more than three or four times.

For the sake of comparison, I will mention the fact that of the 15 cases of chloroform anesthesia, of which I have a similar record, including almost as many varieties of operations, only 25% were free from nausea, and in only 38% was the vomiting inconsiderable.

If we take an average of the time the patients reported suffered from postoperative nausea, we find that when ether was the anesthetic, it was 5½ hours, when chloroform was used it was 22½ hours.

Among the cases reported, there were two patients operated on at two different times, ether being used one time and chloroform another, the operations each time being of a similar character. The first case was one of varicocele, ether being the anesthetic employed, no nausea or vomiting following. Two days later, on account of some bleeding, the wound had to be reopened, and this time chloroform was the anesthetic used; nausea and vomiting followed, and were severe for 24 hours, and quite marked for 24 hours longer.

The second case was one of uterine dilation and curetment, followed by hysterorrhaphy; ether was the anesthetic used; for five hours after the operation, nausea and vomiting were present to a moderate degree. About six months later the woman came back to the hospital for a second dilation and curetment. At her own request, chloroform was given, and nausea with vomiting followed, lasting for 36 hours.

In some cases, nausea with vomiting did not occur for some hours after the operation, when it would be started by drinking a few teaspoonfuls of water, and in some cases last for hours.

The great difference in the frequency of postoperative nausea and vomiting in the different sexes is very striking. In this series, 70% of the males were absolutely free from these after-effects, while of the females, only 16% were free. We should naturally expect the sex, whose nervous equilibrium is more easily upset, to be more easily affected in this respect, but so marked a difference I did not expect to find. Yet this great difference alone would indicate the fact so often overlooked, that postoperative nausea and vomiting are more the reflex manifestations of the disturbance caused by the operation than the results of the anesthetic itself, for if it were the anesthetic alone, there is no reason why, as with an ordinary emetic, the results should not be pretty much the same in both sexes.

Another striking fact, which also goes to show that

the etiologic part played by the anesthetic is, as a rule, secondary, is that the amount of nausea and vomiting has absolutely no relation whatsoever to the amount of ether used. This is proved by the fact that the average quantity of ether used in all the cases in which there was no subsequent disturbance, was exactly the same as the average amount used in all cases in which such disturbance was present, viz., 9 ounces. The average time consumed in each operation was just under half an hour. The most serious cases of nausea and vomiting usually occurred in nervous and delicate women.

From this brief and incomplete report, what conclusions may we draw?

1. As a rule, postoperative nausea and vomiting are less dependent on the anesthetic than on other causes; of the predisposing causes, sex seems to be the most important, for other things being equal, women are far more likely to suffer from these after-effects than are men. What we speak of as a nervous disposition, is also a strong predisposing factor; in one whose nervous equilibrium is unsteady, the reflex after-effects are likely to be more severe and prolonged. This was particularly noticeable in some of the cases of this series.

2. The amount of postoperative disturbance seems to bear a more or less definite relation to the nature of the operation, and the operations which are most liable to be followed by this disturbance are those on the uterus and its adnexa, and of these the operation which causes this disturbance most frequently, seems to be dilation. This may be due partly to the fact that women in whom this operation becomes necessary, have frequently suffered a great deal and their nervous equilibrium is apt to be in a somewhat unsteady condition to begin with.

Next in order come oophorectomies, hysterorrhaphies, hysterectomies, etc., then other abdominal operations in which the uterus is not interfered with; and, least upsetting of all, are operations in which neither the abdomen nor the female generative organs are attacked.

3. The common teaching that the administration of ether is followed by nausea and vomiting much more frequently and severely than is that of chloroform, is not borne out by these figures, but of course no great weight can be attached to conclusions based on so small a number of cases. The higher percentage in this series of those suffering from nausea and vomiting, when chloroform was the anesthetic, and the two cases in which chloroform was followed by much more severe after-effects than was ether, indicate that, in spite of the fact that, as a rule, other things are more important than the anesthetic in the production of postoperative nausea and vomiting, still the anesthetic in some cases does play an important etiologic part, and that with some people the use of chloroform is more apt to be followed by these unpleasant after-effects than is ether. That the reverse with some people is the case, is also undoubtedly true.

4. The proper preparation of the patient has much to do with the after-effects, and more important still is the after-treatment. Though in some cases it is an unnecessary hardship, it is a safe rule, at least after abdominal operations, to keep everything out of the stomach for from 12 to 24 hours, for not infrequently, several hours after an operation, the taking of even a very small amount of water will set up a very distressing nausea and vomiting, from which up till that time the patient had been wholly free. Though the number of cases is too small to justify many conclusions, one thing I think is shown, and that is, the degree of gastric disturbance following etherization, has no relation whatsoever to the amount of ether used; the fact that the average amount used in all those who did not suffer from those unpleasant after-effects, is exactly the same as in those who did, proves this conclusively.

THE CONTROL OF NASAL HEMORRHAGE.

BY
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of Buffalo, N. Y.

For the control of nasal hemorrhage, the following procedures have been in vogue: In mild cases, the local application of hemostatics; in severe cases, packing the nasal cavities; in extreme cases, ligation. The first is easily done and gives the patient no particular discomfort. The second is awkward, uncomfortable for the patient, and carries the danger of infection and of a recurrence of the hemorrhage when the packing is removed. Ligation, to be effective, either must include a number of small terminal branches or it must be applied directly to a trunk artery. The arterial branches which supply the intranasal tissues are derived from various directions, and, as they anastomose freely within the nose, a single ligation will not always be effectual.

A simple method for controlling nasal hemorrhage is here presented. It is believed that this method will supersede the old procedures. There may, of course, occur cases of extreme gravity in which the new method will fail, but such cases will be rare. If it does fail, it will be because the hemorrhage is due to the rupture of an artery of good size. In the milder case the local application may still be enough to do, but it will be better to employ the new method. In the method about to be described there is no manipulation within the nose and the comfort of the patient is scarcely disturbed.

The method is this: The subcutaneous injection of adrenal extract into the arterial supply at the nearest accessible point to the bleeding area. The injection may be made directly into the artery supplying the part, or it may be thrown into the tissue closely adjacent to the artery. This certainly is simple, but the result is marvelous. The ingoing arterial current sweeps the solution directly into the leaking area, all the vessels of the part are constringed, and almost at once the hemorrhage ceases.

The three following cases will illustrate:

CASE I.—Mr. R., aged 20. Exostosis removed from left septum, leaving wound nearly an inch in length by a quarter of an inch in width upon the anterior half of septum. Cocain and adrenalin were used locally. There was some slight bleeding during the operation, but this was controlled by adrenalin, and gave no trouble. There was no further bleeding until the second day following the day of operation. Hemorrhage began that afternoon, and, because he could not check it, the patient came to me an hour later. There was free oozing from the cut surface of the septum. This was controlled by packing the nasal cavity lightly with

pledgets of absorbent cotton saturated with 1 to 1,000 adrenalin chlorid solution. After bleeding had been checked the packing was removed, a fresh pledget of adrenalin saturated cotton was placed against the septum, a loose plug of cotton was set in the anterior naris, and the patient was sent home with the caution to remain quiet. At midnight I was called to attend him. He had been bleeding freely for an hour, and when I reached the house he was a sight! He was sitting at a table with his head over a blood bespattered washbowl. His face and hands were covered with blood. Blood was streaming from both anterior nares, with a lesser stream coming, per posterior naris, through the mouth. It was obvious that local applications would be impossible here, and I decided to inject adrenalin solution at once. Plugging the anterior nares, I cleaned the upper lip as thoroughly as could be done under the circumstances and made the injection. Six-tenths of a cubic centimeter (10 m.) of a 1 to 1,000 solution of adrenalin chlorid were thrown into the tissue of the upper lip at a point at about the center of the left side of the lip and in line with a line drawn through the center of the left naris. (See figure.) So sharply did the hemorrhage cease, it seemed almost instantaneous. After waiting several minutes, the nasal chambers were flushed with normal salt solution and a careful local inspection made. The nares were free. There was neither blood, nor bleeding-point visible, while the surface of the septum was blanched as far back as could be seen. There was no further hemorrhage, the septal wound healing promptly.

Because of the severity of the hemorrhage in this case, the after care was unusually elaborate. The nasal chambers were flushed three times daily with normal salt solution; five drops of 1 to 1,000 adrenalin solution were dropped upon the septal wound every three hours, and iron and calcium were given internally.

There were two other facts of interest to be mentioned. The injection was painful, and a moment after the injection, the patient exclaimed: "Oh, Doctor, my heart is going like a steam hammer!" The pulse-rate was then about 100, while the heart was acting with great force. Within ten minutes, however, this had moderated considerably.

CASE II.—Mr. G., aged 72. I was called to the office of a general practitioner one night last winter to check a nasal hemorrhage in this patient. He had been subject to bleeding at the nose for years. The present attack had begun during the afternoon, had ceased without attention, but had broken out again late in the evening. The physician in attendance had applied adrenalin, locally, for some time before I was called, without effect. When I reached him, there was free bleeding from the left naris. I could not determine the exact location of the hemorrhage. It seemed to come from the region of the middle turbinal, but it may have come from the septum high up. The intranasal tissues had a coarse, porous appearance. There had been no operation within or injury to the nose. Proceeding as in the first case, I injected, in the same location, .6 cc. (10 m.) of a 1 to 2,000 solution of adrenalin chlorid. The hemorrhage ceased quickly, but the result was obtained a little less promptly than in the first case. After freeing the nasal cavity of blood clots, there was nothing to show that a hemorrhage had occurred. The after-care was purely local, being confined to the use of normal salt solution and iodin within the nose.

In this case the injection of the solution was very painful, but the cardiac reaction was slight. The pulse-rate was not increased, but the force of the contractions was slightly greater than normal.

CASE III.—Miss H., aged 19. One day at 2 p.m. I removed an ecchondroma from her right septal cartilage, leaving a wound that might be covered by a ten-cent piece. Cocain and adrenalin were used locally. There was no bleeding during the operation. Afterward a light packing of absorbent cotton saturated with 1 to 1,000 adrenalin solution was placed in the anterior naris. At 4 p.m., without the patient having done anything to excite it, hemorrhage began on the operated side, and I was sent for. Compared with the cases before related, this was a slight hemorrhage. I found the blood oozing slowly from cut surface of septum, but, after a half hour's trial with adrenalin locally, there was no let up in the flow. I then injected .6 cc. (10 m.) of a 1 to 2,000 solution of adrenalin chlorid into her upper lip, right side. The bleeding ceased in two minutes and did not recur. The after-care embraced occasional flushing of the nasal cavity and the application of a 10% silver vitellin solution to the seat of operation.

The injection in this case was not greatly painful and the effect upon the heart was not marked. The force of the contractions was increased slightly, but the pulse-rate remained unchanged.

These three are the only cases of severe nasal hemorrhage I have seen since the advent of adrenal extract. They are sufficient, I think, to prove the worth of this method in controlling hemorrhage within the nose. In its use there is one point to be remembered, that is, the action of adrenal extract upon the heart. I can imagine certain conditions of the heart muscle, notably degeneration or dilation, in which the extract would need to be used very cautiously, if at all. In the average case, .6 cc. (10 m.) of a 1 to 2,000 solution is a safe and efficient dose.

This paper deals only with nasal hemorrhage, but it will do no harm to suggest here that this method might be used in other remote hemorrhages. In fact, it may be used to control hemorrhage in any region. Adrenal extract placed within or close to an artery supplying a bleeding area may be carried directly to the part. Or, if the bleeding area be easily accessible, the hypodermic needle may be plunged directly into its substance. In hemorrhage following operation within the pharynx (I have had no opportunity to test it in such cases) either of these methods may prove a very great boon.



The black dot in the center of the left upper lip in the figure shows the location of the injection point in the cases related. Most nasal hemorrhages may be controlled at this point. An arterial twig, the terminal branch of the superior coronary artery (a branch of the facial) here crosses the upper lip and enters the anterior naris to supply the cartilaginous septum. Although this artery is distributed to the anterior septum, almost any part of the nasal chamber may be reached through it, because of its free anastomosis within the nose. Other parts of the nasal cavity may be reached directly through the inter-

nal maxillary artery, which sends a branch, the nasal, through the sphenopalatine foramen into the posterior part of the nasal chamber. This branch gives off two other branches, one of which supplies the bony septum, the other being distributed to the lining of the lateral wall of the nose.

The pharynx may be reached through the facial and internal maxillary arteries. The ascending palatine and tonsillar branches of the facial, supply the faucial tonsils and a portion of the pharynx. The descending palatine, vidian, and pterygopalatine, branches of the internal maxillary, reach the upper pharynx and tonsils.

SPECIAL ARTICLES

THE PAST, PRESENT AND FUTURE OF THE RÖNTGEN RAY.[1]

BY

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A review of what has been accomplished in the decade since Röntgen's discovery, is a fitting subject for the annual address in this decennial year. Congratulation on what has been accomplished and a stimulus for future work can be gathered from it, while it will form a base from which we can look into the future.

This discovery was so fundamental that it has led to revolutions in thought and theory. It has led to other discoveries that are perhaps more revolutionary, but the parent discovery of invisible radiant energy, capable of penetrating opaque substances, was due to Röntgen.

The subsequent discoveries by Becquerel and the Curies of radiant energy as a property of inorganic matter, was a natural consequence. Its bearing was, however, greater, for it altered the concept of matter and disrupted the atom and the molecule, giving a fresh impetus to scientific thought and research.

Before taking up its application to medicine and the progress that has been made, I will quote from the writings of a classic author, words written in 1871, which seem almost prophetic. These quotations refer to a subtle fluid or radiation emitted from a rod carried in the hands of wise men. He wrote:

This fluid is capable of being raised and disciplined into the mightiest agency over all forms of matter, animate or inanimate. It can destroy like the flash of lightning; yet, differently applied, it can replenish or invigorate life, heal and preserve, and on it they chiefly rely for the cure of disease, or rather, for enabling the physical organization to reestablish the due equilibrium of its natural powers, and thereby to cure itself. . . . From it, they extract the light which supplies their lamps, finding it steadier, softer and healthier than the other inflammable materials they had formerly used.

But the effects of the alleged discovery of the means to direct the more terrible force of this agent, were chiefly remarkable in their influence upon social polity. As these effects became familiarly known and skilfully administered, war ceased, for they brought the art of destruction to such perfection as to annul all superiority in number, discipline, or military skill.

[1] The President's Address, delivered at Johns Hopkins Hospital, Baltimore, September 28, 1905.

Further, in speaking of the uses made of this agent therapeutically, he says:

It is their custom, also, at stated but rare periods, perhaps four times a year, to use a bath charged with this substance. They consider that this fluid, sparingly used, is a great sustainer of life; but used in excess, when in the normal state of health, rather tends to reaction and exhausted vitality. For nearly all their diseases, however, they resort to it as the chief assistant to nature in throwing off the complaint.

I once tried the effect of the bath. It was similar in its invigorating powers to that of the baths at Gastein, the virtues of which are ascribed by many physicians to electricity; but, although similar, the effect of this bath was more lasting.

We may shortly expect to find the radium bath employed, in addition to radium and fluorescent waters internally administered, and probably with as good a mental effect.

The description of the wand employed in the use of this agent suggested, though crudely, the radium pencil, while it was wisely tempered in its power according to the wisdom of those entrusted with it, and the uses to be made of it, for he says:

It is hollow, and has in the handle several stops, keys, or springs, by which its force can be altered, modified, or directed—so that by one process it destroys, by another it heals—by one it can rend the rock, by another disperse the vapor, by one it affects bodies, by another it can exercise a certain influence over minds.

It is usually carried in the convenient size of a walking staff, but it has slides by which it can be lengthened or shortened at will. . . . Its powers were not equal in all, but proportioned to the amount of certain properties in the wearer in affinity, or *rapport* with the purposes to be effected. Some were more potent to destroy, others to heal, etc.; much, also, depended on the calmness and steadiness of the manipulator.

Thus what we term the personal equation was given its true value in estimating the result that would be produced.

But he comes closer to the new property of matter recently discovered, in this paragraph:

But when you talk of matter as something in itself inert and motionless, your parents and tutors surely cannot have left you so ignorant as not to know that no form of matter is motionless and inert; every particle is constantly in motion, and constantly acted upon by agencies of which heat is the most apparent and rapid, but this agent, the most subtle, and, when skilfully wielded, the most powerful. So that, in fact, the current launched by my hands, and guided by my will, does but render quicker and more potent the action which is eternally at work upon every particle of matter, however inert and stubborn it may seem. If a heap of metal be not capable of originating a thought of its own, yet, through its internal susceptibility to movement, it obtains the power to receive the thought of the intellectual agent at work on it; and which, when conveyed with a sufficient force of this power it is as much compelled to obey as if it were displaced by a visible bodily force. It is animated for the time being by the soul thus infused into it, so that one may almost say that it lives and reasons.

These quotations from Lord Lytton's book, "The Coming Race," sound almost prophetic when viewed with our present knowledge.

It is impossible to trace out in science the effect of the impetus given by Röntgen's discovery, or even more

than to refer to some of its achievements in advancing medical science. A brief review must suffice and then a few suggestions as to the paths future efforts must take, as expressed for your benefit by prominent workers in other lands. Finally a correlation of facts lately discovered in various fields of science will form the reasons for giving the speculative thoughts they have suggested.

At the time of Röntgen's discovery, the world of science was in a receptive state, well fitted to grasp and utilize it. The rapid progress made in the past decade testifies to the fertility of the soil. The developments in apparatus and technic show the ingenuity and skill of the physicist and manufacturer of instruments. Without their aid the marvels of diagnosis and therapy would have been impossible. The medical profession recognizes this debt and is glad to acknowledge it.

This marvelous progress is, however, also the result of hard study and the development of technic on the part of the operator. He has established the accuracy of this method of diagnosis and made the medical profession realize that the man is negligent in his duty to his patient who does not employ it. He has elicited from expert diagnosticians praise and commendation for its delicacy and exactness.

To the surgeon, it has become an absolute necessity and in many fields of diagnosis the neglect of its employment either shows his ignorance of a valuable modern method or his wilful neglect of his patient's interests. The accuracy of skiagraphs in fracture diagnosis was at one time questioned, owing to a desire to discredit its findings as evidence in court. Today the court will hold the consultant responsible who fails to employ it when it is possible, and progressive medicine will soon leave such surgeons far behind.

Beside this element of accuracy, it has helped to explain the pathology of many surgical conditions, especially in orthopedic surgery, and increased the efficiency of treatment. The problems of calculous nephritis and ureteritis are an example, for beside increasing the accuracy of diagnosis, this method has cleared up the pathology and altered the indications for operation. Another refinement in surgical diagnosis is seen in the location of cerebral tumors, where its aid is important when it is possible to obtain accuracy.

In medical diagnosis, the thorax, on account of its sharp contrasts in densities, has afforded the most fertile field. Fluoroscopic examinations have been valuable, but the greater accuracy has followed the advent of instantaneous exposures. The employment of opaque solutions in the hollow viscera is not a method of recent date, but rapid exposures have increased their value and great progress may be expected in this direction.

The most surprising, and possibly the most valuable, property of the röntgen radiations has been the development of its therapeutic power. As mysterious as is its power to show the bones hidden within the flesh by invisible rays, is its power to stimulate nutrition and alter metabolism without actual contact with the patient. Although its exact physiologic action remains unknown, the results achieved prove its power. It eradicates diseased tissue, not by mutilation and its removal from the body, but by an action on the pathologic cells which restores them to normal conditions. No other agent in therapeutics can produce such restorations. Whether it acts directly upon the cell or influences it through its effect upon the circulation, there is a power exhibited which is unique. The universal action exhibited in widely varying fields can be accounted for only by an action on the cells themselves, or on their metabolism through the medium of nerve energy or nutrition supplied.

The field of its application is ever widening with ever improving results, which are standing the test of time, so that what were apparent cures can be demonstrated to have been absolute. The therapeutic potency of the röntgen rays is established and acknowledged by minds open to conviction. These results must be kept distinct from those obtained by other radiations until the others have shown themselves worthy to be classed with it in power and varied action by their individually produced results.

Radium must prove that its radiations have equal therapeutic power before the two can be associated in therapy. So with other adjuvant methods of treatment. The fluorescence of salts under the röntgen rays is an evidence of energy absorbed in chemic action. Is it reasonable to suppose that energy dissipated in such a manner can increase therapeutic effects?

The problem of advancing röntgen therapy is to utilize its energy more fully, not to dissipate it. Improvement in technic and in our knowledge of the action of its various qualities and their applications, will advance its usefulness, more than confusing its actions by associating its employment with agents whose action, if any, has not been demonstrated.

With the idea of possibly giving fresh impetus to investigation, or of suggesting a thought which will be later worked out, I asked some of our fellow workers abroad to write a few suggestive thoughts as to the directions in which investigation might be carried or improvements be made. Of those asked, Dr. Leopold Freund, of Vienna, and Dr. Albers Schonberg, of Hamburg, responded with suggestions as to methods and directions in which work can be pushed forward.

Dr. Freund wrote:

To give a distinct prognosis of the future of the röntgen ray is a difficult matter, as the results up to the present time are so far-reaching, and technic seems so perfect. I think that with the knowledge we already have, further rapid progress in medicine can hardly be expected. Meanwhile, new paths for research await the strenuous efforts and discovery of scientists in medicine and other fields. Such a result, for instance, would be the production of a tube, which would reduce to a minimum the secondary or vagabond rays, and would be capable of giving out uniform radiations of any given quality.

There might be a method worked out by which through the incorporation, in the tissues, of harmless substances, which are opaque to the röntgen rays, differential shadows can be produced between pathologic and normal structures. The perfecting of methods for measuring the intensity of the röntgen rays, would add materially to our knowledge, and afford accurate guidance in the vexed question of the length of exposure. What can be accomplished under certain conditions is well

known. The study of arterial diseases promises much. I do not mean the study of the main bloodvessels and the heart; which can be accomplished without this development in technic by so many operators in all lands, but I mean that the peripheral bloodvessels may be shown, not, perhaps, by the workman in radiology, but by the master. Valuable data can be secured by radiography concerning the condition of the larger intestines, the physiology of renal secretions, the emptying of the bladder, and perhaps also concerning the sexual functions. Without being a prophet, and without being really scientific, one can glide from the foregoing into phantasies; however, I think, that certain already accomplished work indicates the possibility of accomplishing that suggested.

The future of röntgen-ray therapy can be most clearly recognized by appreciating the character of its physiologic action. We remember that, on the one hand, it alters the bloodvessel walls in a characteristic manner, that, on the other hand, it exerts a distinctly special influence upon the cell elements. When we realize in addition that these rays may possess therapeutic properties dependent upon unrecognized actions, that will later be appreciated as of therapeutic value, we will find that many diseases that now resist our technic and our knowledge of the qualities of the röntgen rays will be beneficially influenced. I should like to call attention to the disease of the bloodvessels, as an indication of the special value of the rays in the production of the valuable results in Addison's disease. When the truth of this theory shall be verified, we shall be at the beginning of an epoch in which one method will produce an amelioration or a cure in numberless, as yet hopeless conditions; when it shall be proved, in addition, that the action of the röntgen rays is primarily due to the changing of the lecithins of the tissues into cholin and other altered products of lecithin, we shall have in our hands an agent capable of influencing, beneficially, pathologic processes which depend upon the overproduction of lecithin-containing tissues, as, for example, many diseases of the brain. I have already undertaken certain researches in this direction.

In addition, many diseases of the circulatory system may readily be benefited by the action of the röntgen rays upon the bloodvessels.

When, in addition, we shall have gained complete control of our apparatus, shall know which quality of rays is appropriate to each disease, which best employed in the depths and on the surface of the body, when our methods of measurement are perfected, there will then be presented an ever-widening field for our endeavors, a field in which we have all worked with our best powers, which holds our interest, has filled our lives, and in which we labor for the good of mankind and the glory of knowledge.

The suggestions of Dr. Albers Schonberg are of a somewhat different character. He says:

I consider it essential to progress, that the practice of röntgenology be restricted to the medical profession, that eventually an examination will be required which will show the physician's qualification for carrying out röntgen technic. In therapy, in addition to diseases of the skin, anomalies of the uterus and ovaries, together with menstrual disorders, will be successfully treated. In obstetrics it will be applied to diagnose twin pregnancies accurately. In internal diagnosis the early recognition of tuberculosis of the lung will be accomplished by instantaneous exposures during the cessation of respiration. An improvement in technic will result from the employment of perfected water-cooled tubes, and the thorough carrying out of partial and general protective measures.

These suggestions are possibly in the minds of some or all, but in bringing them to your attention an impetus may be given to your thoughts that may result in other more important discoveries or the accomplishment of those suggested.

This brief review of the progress made in medical science as the result of the introduction into it of the radiations from a röntgen tube, is very suggestive in its bearings on what we term metabolism, or the life process of the cell. As has been suggested in Freund's remarks, there is probably more than one or two physiologic actions brought to bear upon the vitality and chemic activity of the cell.

In the first place, the vascular system is undoubtedly greatly influenced, as marked changes are found in pathologic examinations. These changes have, however, been chiefly noted in cases of tissue injury. There undoubtedly must be varying degrees of this action, starting with mild stimulation and ending with devitalization. Then, again, there is the chemic change in the cell itself, the stimulation of its autolytic ferments, as some authors put it, resulting in the dissolution of the cell. Again, recent pathologic researches tend to show that malignant cells owe their harmful character to an acquired inherent and unexplained increase in their energy of growth. Does the röntgen energy neutralize or counterbalance this increase in energy and thus bring about their destruction or return to the state of normal cells?

Röntgen radiations proceed from a tube at a distance from the cells they influence. Is it possible that they carry into the tissue that which neutralizes the excessive energy, and that as a result, chemic changes are set up which destroy the cell?

Although such speculative theorizing leads far from solid or demonstrable facts, let us look for a moment with a purely philosophic purpose into some of the recent discoveries of science, and see if by their correlation any shadow of ground can be found upon which to base so purely speculative an hypothesis.

The first five years of the new century have been marked by many discoveries of note. In biology the relation of cellular life to chemic activity has been demonstrated to be so intimate that asexual reproduction has been produced by chemic agents. Certain cells have been shown to possess a form of polarity, the larvas of caterpillars, for instance, turning uniformly one pole toward certain radiations, even when the position of its source is frequently changed. It has also been demonstrated that chemic changes termed metabolism are more or less intimately interdependent upon the positive or negative electric charges associated with them. The result of the discovery of radiation in inanimate matter has influenced the theories of chemistry, and we find the positive or negative ion brought into relation with the processes of chemic combination.

The discovery of radioactivity in what was supposed to be inanimate and solid matter has led to a far-reaching study of radiation, not only in the radioactive salts, but in objects which do not possess this property inherently.

The experiments of Elster and Geitel show that substances can be made radioactive without the presence of any radioactive salt, through the medium of negative

charges of electricity, or the radiations from a Crookes' tube.

The experiment of Rutherford and Soddy with thorium, its division into parts that were radioactive and nonradioactive; their separation by a great distance, and the final loss of radioactivity in the part that had had it, and the production of this property in the part that had it not, suggests a comparison of this process as observed in this inanimate salt with the life and death of animate objects. In thorium, the property of radiation ceased or died in the part that had it, while it was produced or created in the portion which had it not.

Is this not suggestive of a possibility that life in animate things ceases when they cease to give up ions, charged with one form of what we term electricity, while life begins by the assumption of this function of producing ions?

Cathode rays are supposed to be made up of exceedingly small particles, called corpuscles, charged with negative electricity, and form ions which travel many thousands of miles per second. Radium emits negatively charged ions. This radioactivity, this discharge of positively or negatively charged ions, takes place from the leaves of trees; the plants, the animal and the vegetable life; the animal life discharging positive ions, while plant life gives off negative charges.

Can there be any relation between the discharge of oxygen from plants and the negative ions or radiations they give out? Likewise, can the nitrogen given off by the animal body be connected with the discharge of positive ions? Is the necessary interchange between plant and animal life of nitrogen and oxygen not a mode of transferring positively and negatively charged ions? Does oxygen in animal life bear any relation to negatively charged ions, and are they essential to the balance of polarity in cells, to the stimulation of chemic changes by an influx and interchange of electric ions? Are the combustion of tissue, the absorption of oxygen, processes by which the polarity of cells is altered or balanced, and is metabolism and life dependent upon the potential equilibrium of cells? Is life a process of electric interchange which stimulates metabolic changes in plant and animal? Is it one and the same with the radioactivity of material cells, atoms, and molecules, whether animal, vegetable, or mineral? Do the changes termed metabolism in cells really represent changes in electric potential or polarity? And is radioactivity simply a form of atom metabolism discovered in inanimate matter?

If we conceive that there is any truth in these theories, then possibly they will yield a further explanation of the influence of röntgen radiations upon tissues and metabolic processes for the cathode rays are probably molecules of oxygen charged with negative electricity that bombard the anticathode and produce the röntgen rays, so the röntgen rays are either pulsations charged with negative electricity or negatively charged ions, which are carried into the tissues to stimulate by adding their charge where they will stimulate, and destroying where overstimulation or the addition of an excess of negative electricity will change the polarity of the cell and bring about destructive changes or autolysis.

To make this theory applicable to the results seen in the treatment of malignant disease, we have only to assume that malignant cells owe their increased energy of growth, upon which their malignancy is now said to depend, to a condition of overcharging with negative electricity, upon which the energy of all metabolic activity depends. For we know that the röntgen rays can discharge charged bodies and can therefore conduct electricity. It may, therefore, be able to alter this polarity or potentiality of those cells enough to assure their destruction.

It matters little if this speculation is idle or that it is purely speculative theorizing, if it be suggestive and lead to wiser thoughts and theories, ending in studies that will demonstrate truths.

THE WORLD'S LATEST LITERATURE

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Coordinated Specialism in Public Health Work.—F. F. Wesbrook. See *American Medicine*, Vol. X, No. 20, p. 807.

The Tabetic Foot as a Factor in the Ataxia of the Lower Extremities in Tabes Dorsalis.—Sidney I. Schwab and Nathaniel Allison. See *American Medicine*, Vol. X, No. 8, p. 304.

The Water-supply in Ships from Its Beginning to the Present Time.—Henry G. Beyer. See *American Medicine*, Vol. X, No. 7, p. 262.

Present-day Methods of Conducting Labor Cases and the Results Obtained.—John A. McKenna. See *American Medicine*, Vol. X, No. 14, p. 556.

Superior Accessory Thyroids.—J. B. Murphy says accessory thyroids may occur at any age, and are most common in females. In most cases there is no ostensible exciting cause, but in a few cases acute infection may be considered as such, and in several cases puberty was closely related to the development of these tumors. They are generally found at the base of the tongue and vary in size from that of a cherry to that of an egg, or are even larger. The tumor is well encapsulated, not surrounded by an inflammatory area, and is bluish-red in color owing to the abundance of vessels. The consistency is soft and it is sometimes difficult to decide whether one has to deal with a soft tumor or a cyst. The usually accepted theory of their origin is that they are remnants of the thyroglossal tract. While they may accompany normal thyroids they have been found in several instances to be the only thyroid existing. Two personally observed cases are reported. The difficulties of diagnosis are noticed and the lack of constitutional symptoms and often at first of any symptoms whatever. Generally, however, when the true nature of a tumor of the neck is not well established an accessory thyroid should be thought of, and if a tumor is found at the base of the tongue or between it and the hyoid in or near the middle line, if there is no adjacent inflammatory reaction, if there are no marked subjective symptoms, if it undergoes periodic changes in size and tension, if the patient be a woman, and especially if she complains of some disturbance of menstruation, the condition is highly suggestive. In the differential diagnosis, beside the specific differences between accessory thyroids and other growths which are pointed out, particular attention is called to the clinical course, the duration of the growth and the presence or absence of the normal thyroid. Treatment is both medical and surgical, but the administration of drugs is usually unsatisfactory. Potash

iodid may reduce the size of the tumor slightly, and Murphy suggests the use of thyroid tablets or the milk of thyroidectomized goats. The presence of a normal thyroid is to be assured before surgical treatment is attempted, and it must be remembered that in some pathologic conditions of the thyroid the accessory growth may be physiologically compensatory. In such a case operation is justified only when the tumor causes symptoms of asphyxia; even then the surgeon must be conservative and remove only a part of the accessory thyroid. Extirpation is the only effective treatment and the method of election is by the subhyoidal or submental route. The prognosis is good if the normal thyroid is present; the most unpleasant possibility is myxedema, which occurred in five of the cases tabulated. Recurrence of the tumor has been observed in six of the patients operated on.

Albumosuria in Pulmonary Tuberculosis.—J. F. McConnell says that in making a series of urinalyses for the purpose of computing the prognostic value of Ehrlich's reaction in the tuberculous, his attention was directed to the large proportion of the specimens giving a precipitate with the characteristics of an albumose. Finding little in the literature concerning the significance of this substance in the urine in tuberculosis, he has further studied the matter and offers as a result a clinical deduction which he considers to be of importance as putting the empiric therapeutic theory of rest in this disease on a rational basis. He found that febrile cases giving a positive albumose reaction in the urine were not improved by exercise, but rather lost ground, while those giving no albumose reaction were injured by the rest treatment and decidedly benefited by regulated exercise. Details are given of the test employed for the detection of albumose in the urine, and illustrative cases are reported.

Behring's New Tuberculosis Remedy.—A. C. Klebs analyzes Behring's theory of a curative principle. It seems that the curative principle is found in a well-defined constituent of the tubercle bacillus, which Behring calls TC, the same designation as that given years ago by E. Klebs to his assumed curative principle contained in tubercle bacillus cultures. The healing action is exercised by the transformation of this TC within the living body cell into a hypothetic derivative which he calls TX, because he does not know whether it is a ponderable body or not. A cellular immunity is thus produced, quite different from the ordinarily accepted humoral immunity, and Behring says his clear conception of this was derived from an acquaintance with Metchnikoff's work on phagocytosis. Experimental proofs of this, however, are not given. From Behring's sketch of the method of preparation, Klebs understands that the TC is obtained by grinding up what Behring calls the "rest bacillus," a product remaining after certain toxic and nontoxic groups of substances, including Koch's tuberculin, have been removed. Behring considers it of importance for the comprehension of the therapeutic TC action, that although incapable itself of reproduction, it can produce tubercles that do not caseify or soften, but heal spontaneously. From the above statement of the substance of Behring's address, Klebs deduces certain definite facts. First among these is the fact that Behring finds his curative principle preexistent in the tubercle bacillus, and this implies a radical change from his formerly expressed views, and is, he claims, a brilliant vindication of the view persistently maintained by E. Klebs and substantiated by him in numerous tests in animals and men. Klebs sees the mechanism of the immunizing process of his TC in a bactericidal action. A. C. Klebs here thinks, from what he knows of Behring's previous studies, that it is probable that he also imagines a more or less direct bactericidal action to take place. On the whole, he says, "it seems probable that Behring's new method is based on principles that have already been more or less elaborated by others, especially by E. Klebs and Metchnikoff." How much ultimately, suffering mankind is to profit, cannot be predicted, nor can Behring's expressed, though carefully and ambiguously worded expectations mean anything but a plausible, by him yet unproved, hypothesis of a curative principle, applicable in human tuberculosis.

Boston Medical and Surgical Journal.

December 14, 1905. [Vol. CLIII, No. 24.]

Physicians' Duty Toward Tuberculosis.—A. T. Cabot believes that tuberculosis is extremely contagious. The public does not realize this, because the effects of contact are so slow in appearing. Probably if we could recognize all the abortive cases we should find it about as contagious as any infectious disease. The cases, whether pulmonary or surgical, which furnish the contagious element are usually easy to recognize. The measures of control which should be adopted are registration of all cases, disinfection of premises, instruction and sanitary inspection of patients that cannot be separated from their homes, sanatoriums for curable cases, hospitals for the isolation and care of the actively infectious and seemingly incurable, exclusion of children with contagious forms of tuberculosis from the schools, separation of the tuberculous in prisons and reformatories from other inmates. [H.M.]

Medical Record.

December 16, 1905. [Vol. 68, No. 25.]

Inhibitory and Anesthetic Properties of Magnesium Salts.—In studying the action of various substances injected into the brain, S. J. Meltzer found that magnesium produced paralysis rather than convulsions. This element with its salts invariably caused depression or inhibition of nervous and muscular action. In a few seconds after the injection of a small dose of the sulfate or the chlorid, respiration ceased and the animal would die without the struggle of asphyxia and without any sign of sensation, unless artificial respiration was practised for a long time. When injected rapidly, 0.1 of magnesium sulfate is profoundly toxic, but as much as 1.5 of the salt, if injected slowly in the course of an hour, will occasion no untoward symptoms. Herein is the probable explanation of the fact that epsom salt, when taken in the ordinary way, produces no poisonous symptoms; some absorption doubtless occurs, but it occurs so slowly as to be harmless. Solutions of magnesium salts, applied directly to a nerve trunk, caused a complete block, abolishing conduction entirely. By means of subcutaneous injection of magnesium salts, complete general anesthesia, with perfect relaxation of the muscles, but without impairment of the vital reflexes, was produced. The magnesium salts were injected into the subarachnoid space of the spinal cord, mostly by lumbar puncture. Monkeys were the animals experimented upon. The injection of magnesium sulfate, in a dose of about 0.06 per kilo of the animal's weight, caused within a minute or two complete anesthesia and paralysis of the tail and hind legs. This discovery has been put to practical use in 12 operations performed under the influence of intraspinal injection of magnesium sulfate. The highest dose employed was 0.2 per kilo, or 15 drops of a 25% solution for each 20 pounds of body-weight. In the first eight cases some chloroform was used to supplement the effect, as the tentative doses of the salt were very small, but in the last four, the magnesium alone sufficed. The best time for operating was found to be three or four hours after the spinal injection. As a precautionary measure, the Fell-O'Dwyer apparatus for artificial respiration should be on hand whenever this magnesium anesthesia is employed. Finally, Meltzer reports the cure of a case of tetanus. After the employment of 115 cc. of tetanus antitoxin

without effect, the first injection of a solution of magnesium sulfate afforded great relief for 36 hours, and after a few more injections the patient was pronounced cured.

Tumors of the Breast, Movable Kidney, Fractures of the Patella, Flat-Feet, Ectopic Pregnancy, Cirrhosis of the Liver, with Ascites and Enlarged Prostate.—Clarence A. McWilliams says that tumors of the breast should always be looked upon with the greatest suspicion, for 85% of all such growths is malignant. He recommends the removal of the entire breast, the excision of the skin going wide of the growth, both pectoral muscles, and the lymphatics and fatty tissues of the axilla. In 100 operations for cancer of the breast at the Presbyterian Hospital there were 4 deaths as the immediate consequence of the operation. At the end of 3 years there was no recurrence in 34% of the cases. Movable kidney is usually amenable to treatment by nonoperative means, and Gallant's corset is very useful. He operates openly in almost all cases of fractures of the patella when age or some constitutional dyscrasia does not contraindicate, provided there is a half inch or more separation of the fragments. He does not operate in simple fracture of the patella until at least five days have elapsed after the injury, because infection has been shown to be eight times more liable to occur if the operation is done immediately after the injury, when one must deal with acutely inflamed tissues, than if one operates at an interval when processes of repair are well established. Flat-feet, including the weak foot, anterior metatarsalgia or Morton's toe, gonorrheal arthritis or periarthritis, tuberculosis of the ankle or tarsus, the result either of an old fracture or sprain of the tarsus, tabes, etc., must be excluded in diagnosing socalled rheumatism of the feet. Talma's operation in ectopic pregnancy promises well if done sufficiently early and the viscera are in fairly good condition. In general, operation is called for in prostatic hypertrophy only when palliative treatment is a failure. If the symptoms grow constantly worse, if the suffering becomes severe, if the patient cannot urinate without the use of an instrument, if catheterization is painful or impossible, if the patient is too ignorant or careless to trust with a catheter, if only a catheter of very small size can be introduced, if attacks of obstinate retention occur, if there is persistent or recurring cystitis or hematuria, if there are signs of beginning infection of the kidney, if the residual urine gradually increases in amount, and if stone be present, the bladder should be opened. The perineal operation of Young is preferred.

Circulatory Failure.—Louis Faugeres Bishop says that the use of vasodilators in the later stages of circulatory disease is a great error. Another is overestimating the importance of renal complications. In many cases the patient's condition does not improve until the idea of directly influencing the function of the kidneys is abandoned, and the attention is given to the circulation. Still another mistake is that of underestimating the sluggishness of the whole organism and the resulting necessity of increasing the dosage of remedies. He speaks especially of digitalis, strychnin, and sodium iodid as useful, and says that the doses of the first two must be pushed until physiologic action is produced. It is also often an advantage to have the patient sit in a chair rather than stay constantly in bed.

The Treatment of Chronic Constipation.—J. A. Macmillan has found the use of rectal tampons a very valuable plan of treatment in chronic constipation, of the atonic variety. The tampon is made of absorbent cotton, cheese cloth, or lamb's wool, and should be sufficiently large to cause some distention of the bowel. It can be inserted through an ordinary proctoscope and packed into place by means of a long forceps. The best results are obtained when it is placed at the rectosigmoidal junction. The tampon is provided with a piece of string to facilitate withdrawal at the end of from two to six hours. At first the tampon is used every other day, and the interval between treatments is gradually lengthened as improvement follows. He ascribes the value of the measure to the distention of the intestine caused by it. He has been successful in most cases in which he has tried it, though a few failures are noted. In a large proportion of cases enemas and cathartics may be discontinued from the first, and regularity in the passage of normal stools soon begins to be reinstated.

Treatment of Delayed Union in Fractured Tibia and Fibula.—L. M. Kommel's patient, eight weeks after sustaining a complete fracture of the tibia and fibula, showed very little evidence of any attempt at repair of the injury. A venous hyperemia was produced at the point of fracture by means of the tight application of roller bandages above and below the seat of injury. The congestion of the part was allowed to continue for two hours daily. Phosphorus, $\frac{1}{100}$ gr., in pill form, was given three times a day. This treatment was kept up for 30 days. At the end of the first two weeks the patient was encouraged to walk about with the aid of his crutches after the bandages were removed and the local congestion had disappeared. Five weeks after commencing the treatment, the patient walked a mile without inconvenience, and a röntgen-ray picture showed complete union with an abundance of callus.

New York Medical Journal.

December 9, 1905. [Vol. lxxxii, No. 24.]

Avulsion in Trifacial Neuralgia.—Ernest Laplace recommends avulsion of the terminal branches of the trigeminal nerve, for the cure of trifacial neuralgia. The nerve is exposed, clamped with a special curved hemostatic forceps, but not cut. The forceps is now turned very gently from left to right, winding both the proximal and remote parts of the nerve upon itself. This is done very slowly and deliberately, taking as much as two minutes for one turn of the forceps; otherwise the nerve would break. The nerve gradually yields, and winds itself upon the forceps, slowly but steadily, and the winding is kept up until the nerve finally breaks. The nerve thus gradually withdrawn from the tissues, tears itself at its ultimate extremities, and presents itself in its totality as a complete anatomic specimen of a nerve. Laplace has treated four patients by this method during the last two years and pain has not returned in any case. [C.A.O.]

Puerperal Infections.—R. W. Holmes says that practically the battle against puerperal infection is won by an adequate system of asepsis and antisepsis. True autoinfections very rarely arise, and usually are not of serious portent. Puerperal infection is not a specific disease. Diverse types of microorganisms may be the etiologic factors, and any part of the parturient canal may be the seat of the infection. To treat locally a thermal condition of the puerperium without a clear, positive knowledge of the seat of infection, should, in his estimation, be characterized as an obstetric crime. At the present time there is absolutely no method of adequately reaching the offending germs in the uterine submucosa or muscularis. The curet cannot discern the locality of the retained remnants of secundines; the finger alone can ascertain this; a placental forceps more easily, more certainly and with infinitely greater safety, can remove them, under guidance of the finger. He says it is a grave error to neglect digital revision of the uterus, after any instrumentation, for the purpose of cleaning the uterine cavity. Nature, by supplying the reaction zone of Bumm, offers the surest safeguard to the woman; puerperal infections demand the same rest for the uterus as inflamed parts elsewhere require rest. The danger of shreds in the uterus is greatly overestimated as regards their role in infections. Active operative measures endanger the life of the woman doubly

or trebly, to the extent the expectant plan does. He says that the use of saline purges, administration of ergot, hydrastis, etc., remove much of the danger or necessity for active therapy; in a day or two the danger is often passed, for, like a baby, the lying-in woman is subject to evanescent febrile elevations. [C.A.O.]

Spirochæta Pallida.—Charles Herrman says that if a diligent search is made, this microorganism will be found in the majority of cases of syphilis, most frequently in the secondary stage, especially in the later manifestations; less frequently in the primary lesions, the lymphatic glands and the blood; rarely in the tertiary manifestations of the disease. He says that at present it does not appear probable that *Spirochæta pallida* is the sole cause of syphilis. If it does play a part it seems more likely that it only represents one stage in the life of a protozoon which is the cause. [C.A.O.]

Federal Control of Epidemic Diseases.—E. E. Feild believes that epidemic diseases should be placed under federal control. In this way the requirements would be more strictly observed, and a second reason is the regulation and facilitation of freight transportation and passenger traffic and the abolition of the unscientific and pernicious "gunshot" quarantines. The officers of the Public Health and Marine-Hospital Service are far more fully equipped to recognize and treat such diseases than is the average physician. [C.A.O.]

Meat Inspection.—D. A. Hughes, in a summary statement of the value of meat inspection to the public health says: 1. Government inspection gives certification to the people that carcasses passed, their parts, or edible products thereof, are free from disease, and the meat is therefore wholesome. 2. It protects the public against the purveyors and vendors of meats which are diseased and contaminated. 3. By far the largest part of the meats used as foods comes from the meat-packing centers. The total number of live, meat-producing animals in the United States last year was 159,688,826. Of these 59,000,000 were examined before death by federal inspectors at the packing centers and 38,000,000 after death. [C.A.O.]

Medical News.

December 16, 1905. [Vol. 87, No. 25.]

The Adaptation of the Public to the Principles and Practices of the Prevention of Tuberculosis.—Howard S. Anders. See *American Medicine*, Vol. X, No. 16, p. 642.

The Dissemination of Tuberculosis as Affected by Railway Travel.—Charles B. Dudley. See *American Medicine*, Vol. X, No. 21, p. 853.

New Operative Procedure in Intestinal Anastomosis.—B. L. Wright introduces three Lembert sutures, one at the mesenteric attachment; a second, one-third the circumference of the bowel distant from this; and the third, two-thirds the circumference from the first. The assistant takes the first suture in one hand and the second in the other, drawing them in opposite directions, causing inversion of the free edges of the gut, and the formation of a ridge above the general surface of the bowel, through which the permanent continuous suture can be readily passed. The second and third temporary sutures are then held so as to approximate another third of the edges and the operator proceeds as before. The last stitch of the continuous suture must be brought out on the opposite side from the first and tied. The stay sutures may either be removed or tied and cut. The advantages of this method are tight approximation, slight manipulation, few sutures, and reduction of time consumed to a minimum. [H.M.]

Detection of Functional Disturbances of Digestion by Examination of the Feces.—J. D. Steele reminds us of the difficulty of deciding by examination of the feces which of the intestinal digestive processes may be at fault on account of their complexity and interaction and the assumption of vicarious functions by one for another, although the data may be of great value as part of a symptom-complex. This examination is, however, most useful in determining the proper diet for patients with gastrointestinal disease. It is easy to tell whether starches, proteids, or fats are digested and absorbed, and if one of them is not, the amount can be restricted. Much can be determined by naked-eye examinations and the microscope may be employed for confirmation. The writer uses a modification of Schmidt's test diet, given with 5 gr. of carmin or charcoal, making no examination until a red or black stool appears. This determines the period of time required for a passage and develops any latent constipation that may exist with regular movements. If there is diarrhea with a normal period of passage, the trouble lies in the transverse or descending colon. Peristalsis is increased only in inflammation of the ascending colon or small intestine. In normal digestion, little should be seen except small, brown points (oatmeal or cocoa hulls) and occasionally sago-like potato grains. Mucus appears as glassy flakes; remnants of connective tissue have a whitish yellow color and are tough. When numerous and large they indicate gastric impairment. Reddish-brown threads of muscle fiber and remnants of potato show intestinal deficiency. Large crystals of ammonium and magnesium phosphate are seen in foul stools. The author describes the microscopic appearances and three or four chemic tests for routine examinations. [H.M.]

Dissemination of Tuberculosis as Affected by Railway Travel.—C. B. Dudley calls attention to the fact that ticket agents and conductors cannot make a diagnosis of communicable disease and refuse transportation. The proper remedy is legislation, making it a crime for those affected to ask or accept transportation from common carriers. According to Flüger it is nearness to the tuberculous during coughing which most largely contributes to dissemination. According to the majority it is due to pulverized sputum floating in the air. "Prolonged exposure" is generally considered essential and the longest railroad journey hardly answers this requirement. Tuberculous sputum is extremely difficult to dry and to pulverize, and is relatively heavy even when finely divided, and its power to float in the air is small, as has been demonstrated experimentally. A couple of days of strong light and four or five days of diffused light are believed, at least largely, to sterilize it, and windows form a very considerable part of the car. Sternberg's statistics show that railroad employes suffer less from tuberculosis than the average of the community, and the P. R. R. Relief Fund records show that passenger conductors and brakemen suffer less than freight conductors and brakemen. Experiments have also demonstrated that the danger of infection from upholstery is very much less than from naked surfaces. [H.M.]

Centrifugal Urinary Analysis.—A. L. Benedict advises a speed of 2,000 revolutions per minute, and the process must be continued until a constant minimum is reached. Inaccuracies often depend on inaccurate graduation of tubes. Fairly accurate estimates may be made by counting each percentage in bulk precipitate in the case of chlorids, as 0.02% of NaCl; of sulfates, as 0.02% of SO_3; of phosphates, as 0.02% of P_2O_5. The uric acid determination is less liable to blunders than Hopkins' and allied chemic methods. [H.M.]

Egg Albumin in Staining the Capsules of Bacteria.—A. A. Epstein, finding that the elements in serum conducive to preservation of the capsule are albumin, salt, and alkaline reaction, has used white of egg with an equal part of distilled water, or saline solution, with results more satisfactory than those given by the serum itself. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Experimental Researches on the Influence of Emotions on the Secretions of Gastric Juices.—The wonderful researches of Pawlow on the influence of the mind on the secretion of the gastric juice, constitute the most important contribution to physiology within a generation. They are a revelation, and their practical importance to medicine cannot fail to be appreciated. Working along the lines laid down by him, other investigators have confirmed and added to his work. Among the most recent researches, those of Bickel[1] are of the greatest interest. They were made for the purpose of determining whether painful or unpleasant emotions have an inhibitory influence upon the secretion of the gastric juice. It is a fact of universal experience that anger and shock in human beings can arrest digestion, or, at least, abolish appetite. Bickel's experiments, in which he was aided by Sasaki, were made in the following way: A gastric fistula was established in an esophagotomized dog, after the method of Pawlow. The dog, which was very excitable, could be wrought to a pitch of intense fury by having a cat held in front of him in such a way that he could not seize the animal. By means of a pseudofeeding, *i. e.*, one in which meat given by mouth passed out the esophageal opening without entering the stomach, a large amount of gastric juice could be made to flow from the gastrostomy wound. In the course of the first 20 minutes after the feeding, 66.7 cc. of gastric juice was secreted. On the following day, the dog being in a cage, was irritated for five minutes by having the cat held in front of him. After he had become somewhat quieted, a pseudofeeding of five minutes' duration was given, and the gastric juice measured. Although the dog was hungry and had eaten with avidity, there was no noteworthy secretion; during 20 minutes, only 9 cc. of an acid fluid containing large amounts of mucus was obtained. This shows that violent emotions of an unpleasant character are able, practically, to inhibit gastric secretion. In a further experiment, it was demonstrated that an emotional state was not only capable of preventing secretion, but that it also had the power to arrest a secretion that was actively in progress. A secretion of 28.5 cc. in five minutes sank to 3 cc. after the dog had been angered by having the cat held in front of him. As far as the investigation has gone, the quality of the secretion is not modified to any noteworthy degree, except in the amount of mucus. It is the quantity that suffers change. If the canine mind has the influence upon the gastric secretions shown in these experiments, it is a natural inference that the same conditions hold good in a probably greater degree for human beings, and that we have here experimental proof of what immemorial experience has taught us.

[1] Deutsche medicinische Wochenschrift, November 16, 1905.

REVIEW OF LITERATURE

Relief of Hay-fever by Intranasal Operations.—A. C. Howe[1] says that intranasal deformity has been present in a very large percentage of cases of hay-fever examined by him. Among the lesions were deflected and thickened septums, septal spurs, hypertrophied and cystic turbinals, polypi and polypoid degeneration, and bony and membranous synechia. Notes in 12 cases in which radical operation was performed are given. The results are: One case no relief, but the nasal defect was uncorrected; in 4 the attacks of hay-fever were mitigated, but not entirely stopped; 7 were entirely freed from all symptoms. When radical operation entirely corrected the defect there was entire relief of symptoms. [A.G.E.]

A Clinical Study of Influenza in the Epidemic, 1904–5.—M. Dewar[2] notes that those epidemics of influenza (though individual cases are always with us) have been recurring pretty regularly every seven or eight years; that they always occur in the winter from the beginning of December to the end of February; that the period covers eight to ten weeks; that coryza, nasal and conjunctival, ushered in the disease in only a small proportion of the cases, being absent in the majority of those that came under his notice; that in the gastrointestinal forms of the recent epidemic a characteristic feature was invariably present, namely, a pain under the liver, and in the right shoulder—a symptom which he had not observed in previous epidemics. [H.M.]

The Thymus Gland in Children.—J. M. Fortescue-Brickdale[3] finds that the usual weight of a normal thymus gland in a child under a year is under 100 gr. Children suffering from marasmus commonly exhibit fibrotic changes in this organ, with diminution in size. Children suffering from malnutrition secondary to other disease, also show these changes, but not so constantly. Some other factor than mere starvation is probably responsible for them. Enlargement of the thymus and other lymphatic structures may occur as the result of acute toxemia, as in diphtheria, or a more chronic condition, as in the lymphatic constitution. In these enlarged thymus glands eosinophile cells are numerous. In some conditions, especially tuberculosis, cells with basophile or neutrophile granules seem to replace the eosinophiles. True hyaline degeneration occasionally occurs in Hassall's corpuscles, and fatty degeneration is common. [B.K.]

The Digestibility of Dried Milk.—D. Sommerville[4] carried out digestion experiments upon samples from Denmark, South of England, France, Argentina, and New Zealand. The experiments show that as regards its reaction to rennet, to peptic digestion, to pancreatic digestion, and in respect to the condition of its fat, dried milk approaches more nearly to human milk than does fresh milk. Other methods of "humanizing" cow's milk have succeeded in changing the quantities only of the constituents. In the dried preparation the fats and proteids are modified in the direction of greater digestibility, at least so far as the artificial digestions described are concerned. Dried milk possesses the advantages of sterility, constant composition, and increased digestibility. Sommerville believes that this powder, properly reconstituted, will afford a convenient milk for distribution by municipal authorities to the infants of the poor in our large towns. Neither scurvy nor rickets has been observed in the children brought up on this product. [A.G.E.]

Use of Soda Citrate in the Feeding of Infants.—According to F. J. Poynton,[5] the caseinogen of milk in the process of clotting combines with the calcium salts in the milk, to produce a thick clot that is often

[1] Brooklyn Medical Journal, October, 1905.
[2] Scottish Medical and Surgical Journal, September, 1905.
[3] The Lancet, October 7, 1905.
[4] Public Health, October, 1905.
[5] British Medical Journal, October 21, 1905.

difficult for the infant to digest. By the addition of sodium citrate, a sodium combination is formed with the caseinogen, which is much more easily digested. At the same time, calcium citrate is formed, and is used in the system. A stronger milk formula than otherwise can in this way be used. A useful proportion of sodium citrate is 1 gr. to the ounce of pure milk, and as the amount of the latter in the milk mixture is increased, the citrate of sodium must also be increased. The chief uses of citrate of soda are: (1) In weaning the healthy infant; (2) for increasing the amount of milk taken in 24 hours; (3) for correcting milk dyspepsia, and (4) for the avoidance of scurvy. [B.K.]

Measuring Venous Blood-pressure.—H. Sewall[1] describes an instrument devised to measure the pressure of venous blood as he believes information of value may be derived from this as well as from arterial pressure. The instrument is based on the fact that if a vein be occluded by pressure and the blood proximal to this point be forced out, the vein remains empty up to the location of the first valve. When the pressure is relaxed, the blood from the periphery rushes in to fill the vein. The instrument, which contains a spring, measures the pressure which is just sufficient to send the blood past the obstruction. The instrument, called the spring blood-pressure gauge, may easily be carried in the vest pocket. The most convenient vein is one on the back of the hand where it runs on the head of the metacarpal bone. Observations thus far made are not sufficient to warrant conclusions as to their clinical value. [A.G.E.]

Relation of the Suprarenal Bodies to General Morbid Processes.—A. D. Fordyce[2] states that the cortex of the gland is of epithelial origin from both sides of the Wolffian body, while the medulla is derived from the sympathetic system. In the cortex there is a phosphorus containing fat, probably lecithin. The accessory suprarenals consist generally of only cortical tissue. The secretion maintains the physiologic tone of all muscle tissues. It raises blood-pressure by constricting the bloodvessels, except the pulmonary arterioles which possess no vasomotor supply. In old persons these bodies are not inferior in weight. In the old and in adults hemorrhages are less common than in youth. The writer discusses the effect of experimental poisonings. The glands react to muscular exercise by an exaggeration of their normal activity. From a review of recent investigations it does not appear that histologically any marked special reaction in the gland to infective processes is observable. In acute virulent infections there are found acute vascular and cellular changes; in chronic affections more long-standing changes; while the theory of the secretion of lecithin by the cortical cells is so far utterly unproved. [H.M.]

The Blood in Pulmonary Tuberculosis.—J. T. Ullom and F. A. Craig[3] report the findings in 39 cases of pulmonary tuberculosis, with special reference to prognosis. They reach the following conclusions, though the number of cases is too small to draw final deductions: (1) In pulmonary tuberculosis without cavity formation a mild anemia, with a decrease in erythrocytes and a relatively greater decrease in hemoglobin, is constant; (2) from the standpoint of prognosis an increase in erythrocytes, in cases without cavity formation, is of favorable significance; (3) in advanced cases a decrease of leukocytes is of unfavorable import; (4) the actual increase of lymphocytes seems to correspond to the increase of resistance on the part of the organism to the tuberculous infection, but further study is required to confirm this deduction; (5) the transitionals seem to follow the same rule as the lymphocytes in this regard; (6) at the beginning of the investigation the eosinophiles seemed to increase with the patient's improvement, but further study did not support this view. [A.G.E.]

Atypic Leukemia with Osteosclerosis.—C. Nauwerck and P. Moritz[1] report the case of a woman of 37, who gradually developed a severe anemia with a large splenic tumor, without enlargement of the lymph-glands. The blood showed diminished hemoglobin and erythrocytes, also numerous normoblasts and some megaloblasts. The leukocytes numbered about 6,500, and never rose above 11,000. The differential count showed about 5% myelocytes, and an approximately normal ratio of the other constituents. The diagnosis was obscure, but a splenectomy was performed, and the patient died of sepsis 12 days later. After the spleen was removed the eosinophiles entirely disappeared and the normoblasts were greatly increased. At autopsy a myeloid hyperplasia of the bone marrow, as well as the spleen, was found. The diagnosis was therefore made of myeloid leukemia with atypic blood findings. An interesting factor was the osteosclerotic process found in various bones of the body, in which the medullary reticulum at times participated. It is not probable that the osteosclerosis was the determining factor in the peculiar blood picture, although the consequent narrowing of the spaces, in which the bone marrow lay, may have had some influence on the blood formation. [B.K.]

[1] Colorado Medicine, October, 1905.
[2] Scottish Medical and Surgical Journal, September, 1905.
[3] American Journal of the Medical Sciences, September, 1905.

GENERAL SURGERY

J. CHALMERS DACOSTA
JOHN H. JOPSON — LAWRENCE HENDEE
J. COLES BRICK — JOHN W. CHURCHMAN

EDITORIAL COMMENT

The treatment of ulcers by hot normal salt solution has been brought forward by M. A. Veyrasset,[2] of Geneva, as a modification of the hot-water method of Prof. P. Reclus. The salt solution (7 to 1,000) is used at a temperature of about 122° F. and pressure of 4 to 5 feet, the stream being directed against the edges of the ulcer, or poured from a pitcher. The only dressing is a piece of gauze wet with the solution and laid on, the ulcers also being snugly bandaged. The treatment is applied once a day at first and later every two or three days. This is an old treatment for chancroids also, only it is found better to soak the ulcer in the solution many times every day. It is truly surprising how quickly they will recover under such frequent irrigations. Indeed, the continuous bath has long been a last resort in creeping ulcers which resist other methods of treatment and threaten to destroy the penis. No doubt the water removes irritating toxins and many of the bacteria themselves, but it now seems as though the heat itself were an important factor. The bacteria are believed to be injured or even killed by a temperature which may not destroy the tissue cells. Whether or not this is the explanation in ulcers, it is true that all irrigation treatments in gonorrhea are vastly more effective if given as hot as the patient can tolerate. Even hot normal salt solution or plain water has been reported quite efficient, both by European and American writers. As the gonococcus is killed by a continuous temperature of 113° F., it is quite likely that this form of thermotherapy is rational. Unfortunately, hot-water irrigations must be given more frequently than other forms of treatment and are often impracticable. Hot baking or dry heat for

[1] Deutsche Archiv für klinische Medicine, Bd. lxxxiv, p. 558.
[2] Journal de Médecine de Paris, October 28, 1905.

gonorrheal rheumatism is said to be almost a specific. Indeed the use of heat as a bactericide seems to be gaining in favor. Formerly its efficacy was thought to be entirely due to its effect upon the arterioles of the inflamed area.

The treatment of old ulcers by ultraviolet light has been successful in the hands of Dr. Axmann,[1] of Erfurt. The rays are applied a half hour at a time for six or more days. It is said that healing begins quite promptly and even during the application of the rays the ulcers become dry and red. The rays are markedly anesthetic so that pains promptly disappear—a result which also follows similar application to uterine cancers. As infected fresh wounds are also said to be practically disinfected by these applications, it is quite evident that this newest of therapeutic agents is destined to play an important part in our future surgical technic. The possibilities are so great that it would be desirable to have the matter taken up in earnest in America.

The uviol or ultraviolet lamp of Dr. O. Schott, of Jena, is now receiving much attention in scientific journals and is apparently a most important addition to our means of actinotherapy. It is a modification of the Cooper-Hewitt mercury vapor lamp, which generates rays in the upper end of the spectrum, being wholly devoid of red and infrared. The excellence of this lamp is in great part due to the use of the new glass recently invented by Dr. Zchimmer, of Jena, and which is transparent to ultraviolet rays. Ordinary glass filters them out, and so does the cooling apparatus used in most other lamps, which generate heat rays in addition to the short lengths. Consequently, it has not been possible heretofore to secure a cool intense ultraviolet light, though there are several lamps which give smaller amounts. The Cooper-Hewitt light is, by the way, a mere modification of an older invention, and has itself been further improved by others beside Schott, so that this lamp is really a composite of many inventions. Quite a number of experimenters are already at work with the lamp. Its rays are said to be deadly in a minute to flies and smaller insects held at one and a half centimeters distance where there is no heat. Bacteria are also said to be promptly killed and the lamp has already proved to be quite efficient in parasitic skin affections, old ulcers, and fresh infected wounds. It should be useful in superficial newgrowths of every kind. As a local anesthetic for minor operations it should find a useful field. It can be held quite close to the skin, as there are no heat rays, but as it produces an intense inflammation if held there too long, it is not unlikely that there are lurking dangers as with the röntgen ray. It seems to be particularly irritating to the eyes. Owing to a very general disappointment over the failures of ultraviolet lamps, many of which had few, if any, ultraviolet rays, there is a general skepticism as to the value. The feverish enthusiasm aroused by this new lamp would seem to indicate that it is of considerable value. The word uviol, by the way, is a mere abreviation of ultraviolet. The experiments so far seem to indicate that these rays are far more powerful than even Finsen suspected. His work was mostly done with longer rays than those emanating from the uviol lamp. If these first, rather feverish reports are confirmed we have a further proof also that elevated clear climates, in which the ultraviolet sun's rays are strong, do have a harmful effect upon those who are not sufficiently pigmented.

[1] Münchener medicinische Wochenschrift, September 5, 1905.

REVIEW OF LITERATURE

Difficulties and Dangers of the Mastoid Operation.—C. A. Ballance[1] says that two accidents have long been regarded as bugbears of the mastoid operation, namely, (1) injury to the dura mater over the middle fossa or the sinus, and (2) injury to the facial nerve or the horizontal semicircular canal. Regarding the former accident, he says that it is sometimes impossible to remove all disease without exposing the dura; if this structure should be wounded, a risk of intradural infection is added. The chief danger of the operation lies in not removing completely the diseased tissue. Among the vicissitudes of convalescence are (1) temporary paresis of the facial nerve, and (2) delayed healing of the bone cavity, with persistence of discharge. Some cases of chronic otorrhea may be complicated by optic neuritis, which may arise from basal meningitis, but may subside after operation. As to the ultimate results of the mastoid operation, the author says that permanent recovery may be looked for when the operation has been efficiently performed. Even in tuberculous cases the cure is often complete and permanent. In a considerable proportion of cases the hearing is improved, often to normal. As to the selection of cases, the author believes that in any case requiring operation after six weeks of discharge, the complete operation offers the surest chance of cure. [B.K.]

A New Method for the Withdrawal of Pleural Effusions.—W. M. Donald and R. E. Mercer[2] describe a method devised by Forlanini and an instrument of their own to apply his principles and replace the fluid withdrawn by approximately the same quantity of sterilized air. It consists of two bottles stoppered by rubber or cork, through which are inserted tubes of metal or glass which connect with an ordinary fountain syringe tube. The advantages of the method are: All fluid can be withdrawn at once. There is no pain except from introducing the needle. The lung is splinted by the cushion of air and is permitted to expand only very slowly. The air-pressure prevents the leaking of fluid through the cells back into the pleural cavity, and the reaccumulation of the fluid there. The apparatus can be improvised by any physician or manufactured at a low figure. It is especially adapted to cases of old effusion and when there is a tendency to reaccumulation. [H.M.]

Aneurysm of the Abdominal Aorta.—W. Osler[3] tabulates 16 cases of abdominal aneurysm, occurring in his service at Johns Hopkins Hospital; 14 were males, and 9 were under 40. A definite history of syphilis was obtained in 9, and 4 more were doubtful. The most prominent symptom is pain, of a dull, boring, persistent form, with severe paroxysms. Little stress can be laid on pulsation or throbbing, as aortic pulsation occurs normally and abnormally in other conditions, notably in neurotic and hysteric states. Only the presence of a palpable, expansile tumor can be taken as a pathognomonic sign. The greatest difficulty in diagnosis arises when the sac has ruptured behind the

[1] The Lancet, September 30, 1905.
[2] Journal of the Michigan State Medical Society, September, 1905.
[3] The Lancet, October 14, 1905.

peritoneum, with the gradual formation of a large tumor in the flank. This has at times been mistaken for sarcoma and other conditions, and the author cites cases in detail, which illustrate this point. All attempts at treatment of aneurysm of the abdominal aorta have been more or less unsuccessful.

Gastroenterostomy.—A. R. Anderson [1] reports his observations on 26 consecutive cases of gastroenterostomy. The operation was performed for recent ulcer in 1 case, chronic ulcer in 11 cases, pyloric stenosis in 8 cases, and cancer in 6 cases. All had been subjected to prolonged, unavailing medical treatment. The most striking point is the great benefit that was almost uniformly obtained from the operation; cessation of pain and vomiting was immediate, and the rapid increase in weight was remarkable. The most striking improvement occurred in the cases of old callous ulcer about the pylorus, with stenosis. Although the operation was performed for acute ulcer in only one case, the result here was most gratifying. Regarding cancer, the author says that it is highly necessary to make an early diagnosis here, or even to operate before the diagnosis is certain, as a partial gastrectomy is indicated, instead of a simple gastroenterostomy. In some cases of chronic ulcer, it is often difficult to determine whether the lesion is malignant or not, even after a thorough examination is made. In such cases a gastrectomy should be performed, if the patient seems able to stand it; but if his condition is enfeebled, the operation should be confined to a gastroenterostomy. The operation performed was a posterior gastroenterostomy in all cases, the anastomosis being affected by simple suturing. Three deaths are recorded, none, however, being the direct outcome of the operation. [B.K.]

The Uncertain Course of Bullets in Gunshot Wounds.—C. F. Barber [2] relates two cases, one of which is very instructive. A negro received four bullet wounds, two in the scalp being of no importance. A third shot entered the body at the lower border of the sixth rib on the right side and apparently passed into the chest, a probe entering one inch in an upward direction. The fourth bullet entered near the anterior spine of the ilium and appeared to be lost in the muscles of the abdominal wall after being traced to the region of the bladder. This organ did not seem to be injured but later bloody urine appeared and the abdomen was opened. The bladder was intact but the bullet had wounded the pelvic structures and the intestine in several places; these were repaired and the wound closed. The third day the patient died in collapse. Autopsy showed that the bullet which entered the chest wall went downward and backward and passed through the liver and upper end of the right kidney; the patient died of hemorrhage, chiefly from the liver. [A.G.E.]

Racemose Angioma of the Inferior Alveolar Artery.—F. Schlagenhaufer [3] reports as a unique case that of a man, aged 26, seeking assistance because of profuse bleeding from a tooth. Examination showed the left wisdom tooth to be carious, the tooth next to it being loose; the gum in front of the anterior molar was prominent, and throughout the left side the gum had a bloody tinge. During the examination he suddenly began to bleed violently from the position of the anterior molar, it requiring 25 minutes of digital compression to stop the hemorrhage; similar hemorrhages had occurred twice before. The condition not improving, ligation of the external carotid was resorted to, without however checking the bleeding which had started anew during the operation. The lower jaw was then ligated by means of two elastic ligatures after the method of Mikulicz. Hemorrhage stopped but the patient did not recover from the effects of the hemorrhage. An examination of the lower jaw revealed a racemose aneurysm of the inferior alveolar artery, a condition never observed before. Mikulicz has reported a similar case of the external alveolar artery; ligation of the external carotid performed in it had also to be followed by the use of the elastic ligatures mentioned above. [E.L.]

Tuberculous Ulceration of the Ascending Colon Simulating Appendicitis.—G. G. Turner [1] reports the case of a woman who was suddenly seized with pain in the right side of the abdomen and chest, with vomiting, and the appearance of a hard, tender lump in the right iliac fossa. The pain diminished, but the swelling did not, so an operation was decided upon. The appendix and omentum were found normal, but a tumor was found on the outer posterior wall of the ascending colon, just above the ileocecal junction. There were no enlarged glands and no deposits on the surface of the peritoneum. The affected part of the bowel was resected. On examination, the tumor was found to be composed of indurated tissues, surrounding a cavity beneath the mucous membrane. Microscopic examination revealed the tuberculous nature of the growth. The appearance suggested that a diverticulum had become infected with tuberculosis and later with sepsis. The patient made a good recovery. [B.K.]

The Treatment of Gonorrheal Arthritis by Congestion According to Bier.—After reviewing the work of Bier, Habs, Luxembourg, and Laqueur, Hirsch [2] gives the results of his observation with this method of treatment. Since 1898, 25 cases of monoarthritis and polyarthritis gonorrhoica have been treated by him; some of these were treated exclusively by this method, others received additional treatment. Of the 25 cases, 9 were monoarticular, and of these, 5 occurred in the knee-joint; in 2 cases both knees were involved, and in the remaining 14, various joints, most frequently the knee, the wrist, and the ankle-joints; in 7 cases both knees were uninvolved. The treatment was instituted as soon as possible; in 2 cases, however, the procedure had to be abandoned, owing to the pain that resulted after the method was instituted. This is not the rule, the pain usually subsides. He uses an Esmarch band or a rubber tube; he does not interpose padding between the band and the skin and he never applies the band at the exact point twice. Hirsch, with the exception of several small areas of ecchymosis, has never seen any bad effects from the treatment. The band is first applied for a few minutes only, then the length of time is gradually increased to a half or an hour, occasionally it is allowed to remain for from one and a half to two hours; in one case it was kept in place for three hours. During the intervals, cotton padding was at first applied, and later either linseed poultices or tincture of iodin was applied. So soon as possible, passive motion was begun, and later active motion. Of the 25 cases, 10 were cured completely; in 5, there was a slight impediment in the motion of the affected joint or joints; in 4, there was still some thickening of the synovial membrane; in 6, there was either no or but slight improvement. He notes that in but one case did ankylosis occur. [J.F.]

Actinomycosis Limited to the Urinary Tract.—E. M. Stanton [3] reports a case of the rare condition of actinomycosis limited to the urinary tract. Clinically, it was thought to be one of cystitis and pyelonephritis; this was confirmed by autopsy and the true nature was found only by histologic study. The patient was a male of 53, a shoemaker. The right kidney was actinomycotic and possibly the bladder also, though the latter could not be positively demonstrated. The mode of infection was probably through a primary infection elsewhere in the body, the lesion at such point having disappeared at the time of death. [A.G.E.]

[1] The Lancet, September 30, 1905.
[2] Brooklyn Medical Journal, October, 1905.
[3] Virchow's Archiv, Vol. lxxviii, 446.

[1] The Lancet, September 16, 1905.
[2] Berliner klinische Wochenschrift, No. 39, 1905.
[3] Albany Medical Annals, November, 1905.

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The Antituberculosis Association of New Haven county, Conn., has issued its first annual report. Though incorporated in 1902, it already has a plant adequate to its present needs, and promising of continued growth, with plenty of land, both field and forest, at its Gaylor Farm Sanatorium. The buildings are now taxed nearly to their limit, but the general service or administration is suitable for more patients than can now be accommodated. Such a prompt growth is due to the response of charitably-inclined "enthusiasts" and some State assistance, and it tokens a healthy public opinion of the proper sort. There is a cost to each patient, to be sure, but it is so moderate that there are plenty of applicants able to pay it. Unfortunately, a tuberculous patient's earning capacity is cut short, so that he must be assisted, as a rule, by friends. It seems that the fraternal associations would be as well off if they would send their sufferers to local sanatoriums instead of requiring a long, expensive journey to a climate whose benefits are at least doubtful. Homesickness would not be such a factor as it is said to be among these unhappy exiles. Above all else, these local institutions are under skilled and scientific experts—the main thing after all—for few except the experts know what the open-air life really is. The success of this Connecticut venture should be the needed stimulus to similar movements in every part of the country. They deserve all the encouragement a grateful profession can give them, for they are real instruments for the improvement of the race.

Euthanasia comes up for periodical discussion every little while, only to be given an easy death itself. There is always some one ready to resurrect the matter and give it a feeble life preparatory to its next burial. At present it seems to be giving several people and several journals an unnecessary amount of worry. Murder is always murder, no matter how the deed is done. Jurists have repeatedly decided that to cut off a life which has but a short time to run is no less than murder always, and they have called attention to the fact that all murderers merely "shorten" the lives of their victims. No one has any legal right at present to take the life of any one, not even of one who is in dreadful agony and moribund at that. It might be said that we all are moribund from birth. Whether the legal right should be given to a man's relatives to end his existence in such cases has uniformly been answered with an emphatic negative. The execution of the aged, feeble, crippled or diseased was once an Aryan necessity, for they could not be supported, and long after the custom was abandoned the Romans still kept up the yearly ceremony of throwing effigies into the Tiber. The victims generally volunteered, for it was an honorable death, and even among cannibals the old people offered themselves, under the belief that they became divine.

Civilization depends upon the safety of each life, and it would cut away our very foundations to give any one the legal right to destroy others. It is this inherited instinct which causes some States to abolish capital punishments, though it is generally believed that they thereby do not properly guard the lives of the normal citizens. The medical profession has but one reason for its existence, and that reason is the prolongation of life. It is a reason bound up in the very growth of modern society itself. To give a physician the legal right to end a life would therefore destroy the foundation of the existence of the profession. As a body, physicians are emphatic against all such propositions. In addition, it is frequently pointed out that it is not always possible to say when a life is surely doomed. Patients not infrequently recover from conditions which had every appearance of being fatal. If a physician had the right to end a painful life, which apparently was soon to end itself, how long would he retain his practice? People want a doctor who will struggle to keep them alive to the very end, even when appearances are all against them. They may and do demand that he

destroy a fetus to save a mother, but here it is to prolong one life instead of allowing two lives to end.

The philosophy of pain has never been understood, though theologians have written unnumbered tomes to explain it. That it is beneficent is certain, for it would have ceased long ago if it were malevolent. It is an axiom of physiology that the pain sense is necessary to warn us of dangers to existence. To escape all pain is therefore impossible and would be quickly fatal if it were possible. These seem truisms to the physician who sees so much of pain, but the layman is likely to look on it as an unmixed evil and magnify its horrors. It is but an easy step to the belief that the moribund are always in agony. Such suffering is the exception rather than the rule. Designedly or not, according as we look at it, nature obtunds the sensibilities when the blow descends. Injured persons in great shock never suffer. There is so little of the horrible that the very thought of an artificial euthanasia is repugnant. The discussion is generally raised by supersensitive people, who magnify the matter until they believe it to be of vast importance. The pains may not be as great as many believe. Men often learn to ignore habitual pains. Until we know all the uses of pain and its effect upon the moribund, artificial euthanasia is an idle discussion. As a rule, nature provides euthanasia in her own beneficent ways.

The survival of the unfit is in the long run and absolutely a contradiction of terms used by those who have not a clear idea of the law of selection of the fittest for survival—a natural law so universal as to be almost without exceptions. As the medical profession is frequently accused of preserving the unfit by its life-saving methods, it is time to define the law over again. Civilization itself is said to be preserving the very unfittest in its prisons, asylums and hospitals—types which nature in past ages promptly killed off. Scientists, who should know better, are occasionally heard to deplore this modern tendency to upset a law of nature. The only proof of fitness for selection is survival. The only way to prove which one of many pugilists is the best, is to let them fight it out, and the survivor is selected. The men or types of men who survive are, therefore, the fittest for survival, irrespective of the means taken to survive, and what may have been our opinion of the superiority of those who died prematurely. A frail, stupid man who resists all diseases naturally, and who survives to old age after rearing a family, thus proves that he is infinitely more fit for survival than the brilliant strong man who died of typhoid in early manhood. Frail men, with sufficient intelligence to escape causes of death, are also fitter for survival than those who are stronger, but who are unable to avoid dangers, and this process has gone to such an extent in civilization as to have killed off all except the present type of man—frail, naked, and with such weak digestion as to be dependent upon cooked foods. What is fittest for survival in one environment, say savage life, is far different from the fittest for another environment, such as civilization. Man's increasing knowledge merely renders it possible for types to survive now, which formerly perished, and they are therefore the fittest. The law is not defied, it is obeyed. Man can no more upset a natural law by his inventions, than he can stop the law of gravitation by making a balloon. The survival of the unfit is, therefore, an impossibility. The only question which seems to bother biologists is what causes some organisms to so vary as to be more able to survival than others—that is, the origin of variations—is a mystery, but their survival is a foregone conclusion if better fitted for survival.

"Whatever is, is right," is a natural law and not merely the dream of a poet. Survivors are alive by right of fitness. Moreover, every type which nature preserves so carefully may be found to serve some useful end, if merely as a food for other species. If one was harmful it would destroy other types, kill off its own food supply, and die of starvation. There is such a nice balance between present species that if any one were suddenly destroyed, its disappearance would be promptly followed by that of species depending upon it. These laws may even be found to apply to pure parasites, for certain lower animals promptly die if freed of them. The benefit conveyed by a parasite has only here and there been discovered, and then we promptly transfer that organism to the class of symbiotics—those living together for their mutual benefit. A parasite cannot flourish if it injures its food supply, and if it is a mere burden to the host, it must also disappear, so that there is a growing suspicion that such parasites convey some benefit, otherwise the host would disappear by the law of economy, being less fit for survival than those free of the organism. It is our business to discover what that benefit is. Of the immense number of species which man harbors, only a few are known to be beneficial, but the aid given by all of them may in time be discovered. These organisms then survive by right of benefits conferred. Even those which we constantly harbor and which sometimes get the upper hand and kill us, may in some way serve us. It is as absurd to call them useless enemies as to so describe a bull because it occasionally gores a man to death. Infectious disease then is merely an incident, death from such is an accident, as injurious to the parasite as to the host—that is, fatal to both. It is difficult to imagine

what possible benefit the germ of smallpox can confer, yet it doubtless follows the universal law of all surviving species. Man is no exception to the whole living world, and some specimens must die if such elimination will be beneficial to the rest. Pasteur has said that it is possible to eliminate all infectious diseases, but as that would necessitate the destruction of so many species of organisms, disaster would follow to others, and still others. We cannot entirely destroy nature's balances, and it looks as if disease will be man's occasional bad luck forever.

The decreasing virulence of infectious diseases is a direct result of these laws of survival and of the adjustment of mutual benefits of the survivors. Dr. G. Archdall Reid, some years ago, called attention to this process in "The Present Evolution of Man," and apparently proved that the diseases of childhood were once very fatal, but have now become more or less harmless through the destruction of the susceptible and survival of the resistant. Dr. Theobald Smith,[1] in his address to the Congress of Arts and Science in St. Louis, showed that an adjustment has probably been caused in some instances by the survival of only those bacteria which were able to live in the host without the production of free toxins. Consequently those species which have not yet accomplished this are still confined to the surface of the mucous membranes and skin, and only occasionally produce a generalized disease, while those which have so varied as to produce no free toxins have been able to secure a lodgment and cause only local disturbance as a rule, such as tuberculosis and leprosy. Indeed there is some evidence that even these may eventually be harmless through the cure and survival of the immune hosts, so that the trend of events is the disappearance of old diseases and possibly the origin of new ones in the future. To be consistent we must presume also that unless a microorganism confers a benefit, it finally ceases to be even a companion. Those which are enemies purely, such as the virulent bacilli of septicemia with which Pasteur hoped to destroy Australian rabbits, cannot survive, as they destroy themselves by killing their victims too quickly to permit transfer from host to host. If all these curious modern speculations be true, they are certainly bound to change our view of the living world. The most important lesson we can take to heart is the fact that nothing can long survive unless it is useful to something else. It is the law of mutual aid in its most radical form.

The usefulness of dependent classes is very difficult to explain. As harmful habits cannot last, our habit of supporting the clergy, the sick, blind, halt, imbecile and criminal must be beneficial. The clergy are wholly dependent one might say. They are not producers, yet they are carefully supported in every stage of culture even down to that in which there is no idea of a future life. They confer some benefit or they would have perished ages ago as a useless burden. That benefit is self-evident—they bind together the units into a more compact organism—hence societies without religion cannot survive. One reason why the other dependent classes are preserved is also evident—the safer we make every human life, the safer is our own and the safer is society itself. All organisms survive by this law. If we carelessly destroyed, we might be the next victims, and if criminals were executed by the wholesale, it would be easy for our enemies by false evidence to destroy us. Hence there is a use in preserving the burdens of society and though the whole benefit has not yet been discovered, enough is known to prove that it is not wholly harmful. That is, they obey the universal law and they are fit for survival. Some confer great benefits after recovery—one of our best organizers was once a prison convict. Even in this most extreme case —the criminal—we have no right to speak of the survival of the unfit. If we always protect them instead of killing them off, it is because our present habit is the best. Whatever is, is right, is pretty generally true, and benefits the whole, whether or not it does harm to some individuals. All this does not remove the possibility that our present habits may cause the survival of types which may eventually perish, for such has been the past history of all species. Yet we may continue to save every life we can, and may rest assured that we are not instruments for the injury of society by preserving the unfit, nor are we acting unnaturally, nor do we nullify laws of nature.

Beginning of the Red Cross Movement.—All physicians, and most laymen as well, are familiar with the aims, and to an extent with the workings, of the International Red Cross Society. Not everyone, however, has a definite knowledge of its founder and the interesting history of its beginning. A little book by Arnold De Lisle,[1] published recently in England, furnishes a very entertaining account of the inception of the movement which led to the international conference at Geneva in 1863. The story of the founding of the society is essentially the life history of its founder, M. Henri Dunant. Traveling in Italy in 1859, he saw the sufferings of the illy-cared-for soldiers after the battle of Solferino, and for their aid organized an ambulance and relief corps, he himself assisting in caring for the

[1] *American Medicine*, October 22, 1904.

[1] Published by "The Banner," London.

wounded. It was while engaged in this work that he conceived the idea of a neutral relief corps to care for the wounded of both sides during and after all battles. The history of his travels in soliciting the aid of the military and civil rulers of Europe, and in arranging for the conference at Geneva, forms a story of devotion to a humanitarian purpose that is inspiring. The happy outcome of his efforts was a sufficient reward, and the Red Cross Society will be his lasting monument. Though much less needed now, in the days of organized army medical corps, and though at certain times and places its name has been all but dishonored by petty factional bickerings, the society must ever remain an instance of the highest humanitarianism in its founding and its work.

Differentiation of Sex[1] by the Skeleton.—The pelvis is commonly regarded as the distinguishing portion of the skeleton, and in the great majority of instances its peculiarities are conclusive of the sex of the individual. In certain cases, however, even the expert hesitates to give a positive opinion from the specimen examined, and a more infallible guide, or at least an aid to the one in use, is desirable. Very encouraging in this regard is the work of Dr. Thomas Dwight, of Harvard, who is making a careful study of the articular surfaces of the long bones. He records[1] the measurements of the head of a humerus and of a femur from each of 200 males and a like number of females. All the subjects were adults, and the measurements were made with the articular cartilages in place and before they were dried. The results, which are given in their entirety, show that the small size of the joints is quite characteristic of the human female as compared with the male, the number of male joints smaller than the average female joints and of female ones larger than the average male being insignificant. In the two bones particularly studied, the difference in the heads of the humerus is more constant than is that of the femur. As Dr. Dwight says, absolute certainty in the sex of bones does not exist in all cases, and the decision of the expert must be based on the judgment derived from extended observations rather than rigid adherence to a mathematical law; the relations shown, however, give promise of being a distinct aid in the differentiation.

Quackery in tuberculosis sanatoriums is the inevitable result of the unscientific manner in which the modern treatment has been taken up by lay organizations and certain fraternal societies. We have already called attention to the fact that the exploiters of this new and most necessary modern measure, were evidently possessed of an exaggerated idea of the importance of climate and were likely to meet with keen disappointment. The general trend of opinion now seems to lay little or no value to climate and there are many indeed who think that the home cures are more lasting than those which have been made in "ideal" climates. It now seems that the outdoor life, made obligatory by the long journeys to receive the King's Touch, was responsible for the numerous ancient cures of surgical tuberculosis, as so interestingly suggested by Halsted[1] in his article. We have so long given the credit to climate instead of the outdoor life which some climates permitted without expensive equipment, that we must expect the idea to linger in the lay mind a long time. Yet there is evidence that climate has been looked upon in some mystic fashion, by minds not drilled to severely scientific ways of thinking, and it is but a step from this to the "sure cures" which are already invading those institutions not under the medical control of experts. This might have been anticipated, and it is hoped that the tendency will be instantly checked, that there may be nothing to interfere with the success of what is undoubtedly a modern necessity. Should there be a hint of graft in the exploitation of any "sure-cure" or nostrum or quack method, we must expect the whole movement to collapse—a disaster we would regret.

[1] The American Journal of Anatomy, Vol. iv, No. 1.

[1] *American Medicine*, December 2, 1905.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Disorders of Metabolism and Nutrition.—By PROF. DR. CARL VON NOORDEN, Physician-in-Chief to the City Hospital, Frankfort-on-Main. **Part VII: Diabetes Mellitus.** Authorized American edition. Translated under the direction of Boardman Reed, M.D., late Professor of Diseases of the Gastro-intestinal Tract, Hygiene and Climatology, Department of Medicine, Temple College, etc. E. B. Treat & Co., New York, 1905.

Neurotic Disorders of Childhood.—By B. K. RACHFORD, M.D., Professor of Diseases of Children, Medical College of Ohio, University of Cincinnati. E. B. Treat & Co., New York, 1905. Price, $2.75.

Treatment of Diseases of the Eye.—By DR. VICTOR HANKE, First Assistant in the University Eye Clinic of Hofarth Professor E. Tuchs in Vienna. Translated by J. Herbert Parsons, B.S., D.Sc., F.R.C.S., Assistant Ophthalmic Surgeon, University College Hospital, London, etc., and George Coats, M.D., F.R.C.S., Chief Clinical Assistant, Royal London (Moorfield's) Ophthalmic Hospital. W. T. Keener & Co., Chicago, 1905. Price, $1.25 net.

Hygiene and Public Health.—By B. ARTHUR WHITELEGGE, C.B., M.D., B.Sc., (Lond.), F.R.C.P., D.P.H., late County Medical Officer of Health for the West Riding of Yorkshire, etc.; and GEO. NEWMAN, M.D., D.P.H., F.R.S.E., Medical Officer of Health of the Metropolitan Borough of Finsbury, etc. New edition, revised, enlarged and in great part rewritten. W. T. Keener & Co., 1905. Price, $1.75 net.

A Manual of Chemistry.—By ARTHUR P. LUFF, M.D. (Lond.), F.R.C.P., F.I.C., Physician to St. Mary's Hospital, and Lecturer on Medical Jurisprudence in the Medical School; and FREDERIC JAMES M. PAGE, B.Sc. (Lond.), F.I.C., Associate of the Royal School of Mines, etc. Illustrated with 43 engravings. Third edition, revised throughout. W. T. Keener & Co., Chicago, 1905. Price, $1.75 net.

Clinical Methods.—By ROBERT HUTCHISON, M.D., F.R.C.P., Assistant Physician to the London Hospital, etc., and HARRY RAINY, M.A., F.R.C.P., Edinburgh, F.R.S.E., Examiner in Medicine and Clinical Medicine, St. Andrews University, etc. With upward of 150 illustrations and 9 colored plates. Ninth edition. W. T. Keener & Co., 1905. Price, $2.50 net.

AMERICAN NEWS AND NOTES

GENERAL.

$200,000 Wanted for Army Hospital. — The Secretary of War has forwarded to the Secretary of the Treasury for transmission to Congress an additional estimate of $200,000 for an appropriation that will be required for the construction of the army general hospital in the District of Columbia, upon the site recently acquired for that purpose.

Sanitation at Panama.—Colonel William C. Gorgas, chief sanitary officer for the Canal Commission, in his report for the month of August, 1905, published some interesting yellow fever statistics for the period from July 1, 1904, to September 1, 1905. Cases of yellow fever in Panama, Colon, and the Canal Zone: Employes of the Canal Commission appointed from the United States, cases, 69; deaths, 14; mortality, 20.3%. Employes of the Canal Commission appointed from the isthmus, cases, 43; deaths, 10; mortality, 23.2%. Employes of the Panama Railroad Company, cases, 9; deaths, 2; mortality, 22.2%. Persons not employes of the commission or railroad, cases, 83; deaths, 38; mortality, 45.8%. Transients to and from foreign ports, cases, 26; deaths, 10; mortality, 38.5%. During this period 116 cases occurred in Panama, 57 cases in Colon, and 33 cases in the Canal Zone proper. During August, 1905, there were 27 cases of yellow fever on the isthmus.

All About Hospitals.—Frederick Uhlmann, who died at the German Hospital, New York City, on December 13, left a will, made five days before his death, by which he bequeathed $5,000 each to **Mount Sinai Hospital** and the **German Hospital.**—George F. Baer, president of the Reading Railway Company, sent a check for $500 to the **Reading Hospital** as a Christmas gift. — **The University of Pennsylvania Hospital** authorities have just finished a new isolation building and a new laundry, which will practically complete the hospital equipment. The new isolation building is for the cases of contagious diseases which may develop among the patients in the other wards.—The estate of H. H. Houston has given to the **Chestnut Hill Hospital** (Philadelphia) a piece of ground 150 by 225 ft. The hospital at present is located in a building formerly used as a dwelling. An effort will be made to get the city to give an adjoining piece of ground which for years was used as a cemetery for poor people, and to have the bodies removed when this is accomplished. Steps will also be taken to procure funds with which to erect suitable modern hospital buildings.—Isaac Guggenheim, of New York, has offered $250,000 toward the erection of a new building for the **Sydenham Hospital** of that city, provided the hospital authorities, within a reasonable time, raise an endowment. As the Harlem Hospital will move to another section within a few years, it is thought the usefulness of Sydenham will increase very rapidly on the upper east side. The hospital was established two years ago with six beds. It now has 86 beds, 70 of which are free. The Sydenham is a public institution. The city has given it an appropriation of $12,500.—Opposition to the erection of a **city hospital for tuberculous patients on Staten Island** has taken shape in the formation of the Richmond Protective Association. Efforts will be made to prevent the carrying out of the plan to erect such a hospital on city property adjoining the county almshouse. For this purpose, $2,000,000 has been appropriated. Should ground be broken before the association has had an opportunity to present to the Legislature a preventive measure, and have it acted upon, an appeal will be made to the Supreme Court for an injunction. It is proposed to present to the Legislature a bill which will prevent the building of a tuberculosis hospital in any city of the State.

EASTERN STATES.

$50,000 for Harvard Medical School.—Harvard College will receive a legacy of $50,000 for its medical school by the will of Dr. George S. Hyde. The gift to Harvard is in trust to use in whatsoever way the trustees of the college may deem best for the medical school.

New Hampshire Opposes Contract Practice.—At a recent meeting of the Nashua Medical Association a resolution was passed against contract practice, the members of the association agreeing not to enter contracts with lodges, societies, organizations or corporations.

Boston Takes Health Medal.—The award of a gold medal to the Boston Board of Health by the Commissioners of the recent World's Fair at Portland, Ore., is announced. The prize exhibit is illustrative especially of the treatment of infectious diseases as developed and practised by the local authorities.

PHILADELPHIA, PENNSYLVANIA, ETC.

Philadelphia's Health Bill.—There were 245 new cases of measles and 119 of typhoid fever reported to the health authorities last week. The cases of typhoid fever exceed by eight the number reported the week previous.

Braddock to Have New Hospital.—The old Mills homestead at Braddock has been purchased for $30,000, and it is proposed to make alterations to cost $15,000 in order to have an up-to-date general hospital. The institution will be ready for occupancy in the early spring.

Heavy Damages for Accidental Death.—Relatives of the late Dr. J. M. B. Ward, the former quarantine physician at Marcus Hook, Pa., who was killed by a fall through an open hatchway while inspecting the steamer Euxenia, are informed that the commissioner appointed by the United States Admiralty Court has awarded the widow and children of the dead physician a verdict of $25,000 damages against the owners of the steamer. The owners of the steamship, known as "The Steamship Company of Copenhagen," disclaimed all responsibility for the accident, and, acting for the widow and children, City Controller William Ward, a brother of the victim of the accident, at once entered a suit for damages.

New Vital Statistics Law.—All births and deaths on and after January 1 next must be registered within 10 days after their occurrence. On January 1 the new State law regulating vital statistics will go into effect. A failure to comply with the law means a fine ranging from $5 to $50. The registration must be made at the Bureau of Health. The law requires that in the absence of the services of a physician or nurse, the father or mother or other person on the premises must report a birth. Births to the number of 28,832 were reported in Philadelphia between January 1 and December 1 this year. There were 32,137 births last year. The figures for 1904 were about 1,100 more than those reported in 1903. Reports of the Health Bureau show that January, July and August were the heaviest months for births this year, March and September being the lightest.

Over 400 Students Pass State Examination.—The Pennsylvania State Board of Medical Examiners has reported on the examinations held last June in Philadelphia and Pittsburg. Out of 460 candidates there were 56 failures. The candidates represented 38 colleges, including the Universities of Naples, Florence and Turin, the University of Italy and the Western University of London, Ont. There were 109 candidates from Jefferson Medical, 81 from Medico-Chirurgical, 80 from the University of Pennsylvania, 69 from Western Pennsylvania Medical and 25 from Women's Medical. The

failures were: Two from Jefferson Medical, 1.91%; 2 from University of Pennsylvania, 2.5%; 5 from Western Pennsylvania, 7%; 2 from Women's Medical, 8%; 11 from Medico-Chirurgical, 13%. The general averages of the Pennsylvania colleges were: University of Pennsylvania, 83.35; Jefferson Medical, 80.73; Women's Medical, 80.49; Western Pennsylvania Medical, 80.07; Medico-Chirurgical, 78.29. Four candidates were expelled for cheating. The highest average, 96.57, was attained by Dr. William Wellington Woodward, of the class of 1905 of the University of Pennsylvania.

SOUTHERN STATES.

Louisiana Wants School of Tropic Medicine.—The administrators of Tulane University have asked the faculty of the medical department of that institution for an expression of opinion regarding the establishment of a school of tropic medicine in connection therewith.

Virginia State Examining Board.—The State Board of Medical Examiners have examined 108 applicants, one woman and eight negroes being among the number. The board gave Dr. Richard Whitehead, of North Carolina, recently elected dean of the faculty of the University School of Medicine, his certificate without examination.

Louisiana State Medical Society.—A special meeting will be held in New Orleans on February 6, to consider the yellow fever question in all of its phases, and to frame recommendations for needed changes in the existing health laws, to be submitted to the Legislature at its next session. The regular meeting of the State Association will be held in May. In the early part of the same month the regular session of the Legislature will convene. It was therefore deemed advisable to call the special meeting to be held in advance of the legislative session, in order that such recommendations as were deemed desirable might be adopted and compiled for presentation on the convening of the Legislature.

New Orleans Health Board.—Governor Blanchard has announced the membership of the new State Board of Health, with the additional announcement that Dr. Clifford H. Irin, of Bossier Parish, is to be president. Heretofore the president of the Board of Health has been a New Orleans man, but the governor has now made his selection from the northern part of the State in the belief that the appointment of a country physician will aid in restoring confidence among the adjoining States in the health authorities of Louisiana. At the close of the recent yellow fever epidemic, President Souchon and all the members of his board resigned and the appointments are made to fill the vacancy.

WESTERN STATES.

Colorado to Have New Hospitals.—At Boulder Hot Springs a new hospital is to be erected at a cost not exceeding $9,000. The Colorado Conference of Deaconesses is contemplating the erection of a nonsectarian hospital at Colorado Springs to cost about $100,000.

The State Board of Health of Indiana announces that the State Laboratory of Hygiene, Indianapolis, is now open and in position to serve the public without cost. There are two departments, one for bacteriology and one of chemisty. Physicians are supplied with outfits for the culture of diphtheria and for collecting sputum and blood for examination on making application for the same.

Suit against Physician Discharged.—In the suit against Dr. George F. Suker, of Chicago, for $10,000, on the allegation that he had made the patient blind through an operation performed two years ago, the jury was instructed that there was no case against Dr. Suker, the evidence showing that Dr. Suker had treated the patient for two years without charge, the treatment resulting in an improvement of the patient's sight.

Better Sanitary Quarters for Seamen.—Better sanitary quarters for sailors and other employes on steamboats, especially those plying the great lakes, was provided for by a resolution adopted at the conference of the delegates to the convention of the International Lake Seaman's Union, at Cleveland, O. The resolution was embodied in a letter which has been sent to the Surgeon-General at Washington.

Protest against Influx of Incurables into New Mexico.—The associated charities of Albuquerque, at a recent meeting, adopted the following resolution in relation to incurables: The physicians and authorities in other sections are strongly censured for sending health seekers to Albuquerque and New Mexico when they have reached the stage where they are beyond help from climatic advantages or are without sufficient funds to support themselves for a period of at least six months.

To Bar Tuberculous Pupils.—The school management of the board of education has adopted without a dissenting vote a resolution calling for the appointment of a committee to draft a rule providing for the exclusion from the public schools of all victims of the disease. The committee was also empowered to prepare a plan for the medical examination of all "suspicious" pupils, with a view to determining whether or not they should be denied seats in the schoolroom. Tuberculosis was held to be as infectious as smallpox, scarlet fever, or diphtheria.

CANADA.

The British Medical Association will hold its seventy-fourth annual meeting at Toronto, Canada, August 21–25, 1906, under direction of the following officers: President, Mr. George C. Franklin, Leicester, England; president-elect, Dr. Richard A. Reeve, Toronto; treasurer, Dr. H. Radcliffe Crocker, London, England: orator on medicine, Dr. James Barr; orator on surgery, Sir Victor Horsley.

The Toronto free hospital for tuberculous patients has accomplished great work in the year that it has been opened, 5,000 persons have registered at the institution, brought there through the illness of friends or from a personal motive. A large addition is now rapidly nearing completion at a cost of $20,000, which will increase the accommodation to between 60 and 70 patients. When this addition is finished accommodation will be provided for a ward for children ranging from 6 to 12 years of age. The hospital is superintended by the National Sanitarium Association, which also conducts the Muskoka Hospitals at Gravenhurst. Recently $10,000 has been placed at the disposal of the hospital, and Mr. H. C. Hammond, the treasurer of the hospital, will erect a cottage to cost $5,000, at his own expense.

FOREIGN NEWS AND NOTES

GENERAL.

No More Seasickness.—The self-leveling bunk for the prevention of seasickness, which has been experimented on for some time past on one of the Dover-Calais boats, has been found so successful that it is proposed to install it on all the steamers in the service.

The scheme for reorganizing the Indian army hospital corps has been approved by the government of India. The present 26 small companies will be merged into larger companies, and one of them will be attached to each division. The principal medical officer in each case will administrate the company and recruit-

ing will be permitted in the local areas. The headquarters of each company will be placed in the headquarter station of each division, as follows: The first to tenth companies will be with the divisions bearing the same numerals, and the eleventh will be posted for duty to the troops at Aden.

Cremation Societies in Germany.—During the months of July, August and September there were 430 cremations in the 10 crematories of Germany, an increase of 100 over the corresponding months of last year. During the period from January 1 to September 30 there were 1,332 cremations, and in the corresponding period last year 1,014. The indications are that the number of cremations in Germany will increase more rapidly in the future than in the past. Cremation societies have been formed in various cities, and these frequently hold public meetings, and thus a continual increase of membership is assured.

French Population Problem.—According to advance figures given out by the French Census Office in regard to the latest French census (1901) France had a population in that year of 38,466,924. The increase over the figures of 1896 was a little short of 200,000. The women exceed the men by 100 in every 1,000. There are 15,000,000 married persons and over 19,000,000 unmarried. It has also been ascertained that in the category of widowed or divorced persons, between the ages of 15 and 19, there are 216 of the male sex and 2,216 of the other. As to foreigners in France, the figures are 86,684 Germans, 36,224 English, and 3,502 Americans. The most are Italians, who number 326,114. The total number of foreigners in France is 1,021,430, there being a decrease of 30,000 since the last census.

Bubonic Plague Situation.—Far eastern ports are declaring a quarantine against Kobe on account of the increasing prevalence of the bubonic plague there. Gen. Daniloff, superintending the embarkation of Russian prisoners in Japan, asks that no more be embarked at Kobe because of the plague there. From St. Petersburg comes the report that slowly but surely the danger of a great plague epidemic advances. Nothing more can be done to suppress it, and already the infection covers an area of 180 by 300 miles. Owing to the lack of doctors it is impossible to isolate the sick. Reports of the existence of bubonic plague at Honolulu have led Federal Quarantine Officer Connfer to announce a new regulation, under which all packages of freight or express leaving for the coast will have to be fumigated. The order is to satisfy the San Francisco health authorities.

OBITUARIES.

Oliver A. Blumenthal, aged 35, of Syracuse, N.Y., December 20, from tuberculosis, at Saranac Lake, N. Y. He was graduated from Syracuse University, College of Medicine, Syracuse, N. Y., in 1893. Member and delegate to the British Congress on Tuberculosis, London, 1901; member of the Syracuse Academy of Medicine, Central New York and Onondaga Medical Societies. He was a leading physician on disease of the chest. For 10 years had been devoting his entire time to the study of tuberculosis and in this way he contracted the disease. Many of his patients were treated without charge, and in many instances he provided medicine.

Ezra Herbert Wilson, December 19, at his home in Brooklyn, N.Y. He was graduated from the College of Physicians and Surgeons, New York, in 1882. He was a Fellow of the Royal Microscopical Society of London; honorary member of the Society of Military Surgeons; member of the Kings County Medical Society, the Brooklyn Pathological Society, and the Associated Physicians of Long Island. He was the first American to use formaldehyd, and as a surgeon he manufactured all the antitoxin used in Brooklyn.

Nathan G. Bozeman, aged 81, December 16, from apoplexy, at his home in New York City. He was graduated from the College of Physicians and Surgeons, New York City, in 1885. During the Civil war he acted as a member of the examining board of army surgeons for the Confederate army.

J. J. Caldwell, aged 72, December 16, at his home in Summit, N. J. He was graduated from the New York Medical College in 1859. Was a member of the Gynecological Society of Boston and of the American Medical Association. He served as surgeon in the Union army during the Civil war.

John M. Rand, aged 72, suddenly, December 19, at his home in Newark, N. J. He was graduated from Dartmouth Medical College, Hanover, N. H., in 1859. During the Civil war he organized field hospitals, and later became surgeon to the Twenty-fifth Army Corps.

Solomon Baird Wolfe, aged 61, of New York City, December 14, from heart disease, at the office of the Mutual Life Insurance Company, in that city. He was graduated from Shelby Medical College, Nashville, Tenn., in 1862.

Walter W. Naylor, December 17, at his home in Philadelphia. He was graduated from the University of Pennsylvania in 1889. He was assistant in the department of nervous and mental diseases at his Alma Mater.

DeForrest V. Chase, aged 38, December 19, from kidney trouble, at his home in Boston, Mass. He was graduated from the Medical School of Maine at Bowdoin College, Brunswick, Me., in 1889.

Vandy M. Neal, aged 70, December 19, at his home in Hillsboro, Miss. He was graduated from Tulane University of Louisiana, medical department, New Orleans, La., in 1860.

John H. Sanborn, aged 75, December 19, from paralysis, at his home in Franklin Falls, N. H. He was graduated from the Berkshire Medical Institute, Pittsfield, Mass., in 1852.

Norman B. Sherman, aged 63, suddenly, December 22, at his home in Marshall, Mich. He was graduated from the Albany Medical College, Albany, N. Y., in 1861.

Wellman M. Burbank, aged 61, December 20, at his home in Chicago, Ill. He was graduated from Castleton Medical College, Castleton, Vt., in 1844.

Charles A. Williams, aged 65, December 18, at his home in Chicago, Ill. He was graduated from Hahnemann Medical College, Chicago, in 1861.

William C. Armstrong, aged 47, December 20, at his home in Wayne, Pa. He was graduated from the University of Pennsylvania in 1880.

David M. McFall, aged 72, December 20, at his home in Nashville, Tenn. He was graduated from Jefferson Medical College in 1857.

F. P. Villerette, aged 95, of Jacksonville, Fla., December 23, at the home of his daughter in that city.

William Crosby, aged 85, December 18, from heart disease, at his home in Staunton, Va.

FOREIGN.—**M. Radiguet,** December 11, as the result of repeatedly subjecting himself to röntgen rays. He was a self-immolated victim on the altar of science and died expressing his thankfulness that he had been able to establish reliable evidence as to the effect of the röntgen rays upon the human organisms.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended December 23, 1905:

Captain CLARENCE J. MANLY, assistant surgeon, is granted leave for one month, from about December 19.—Major CHAS. WILLCOX, surgeon, is granted leave for four months, from about March 24, with permission to go beyond the sea.—Captain WILLIAM F. LEWIS, assistant surgeon, is granted leave for one month, to

take effect upon his arrival at Chicago.—Lieutenant-Colonel WILLIAM B. DAVIS, deputy Surgeon-General, will proceed to Vancouver Barracks and report to the commanding general, department of the Columbia, for temporary duty as chief surgeon of that department.—Captain CHARLES E. B. FLAGG, assistant surgeon, will proceed to Vancouver Barracks for duty.—First Lieutenant CHARLES Y. BROWNLEE, assistant surgeon, will proceed to Fort Jay for duty.—First Lieutenant JAY W. GRISSINGER, assistant surgeon, will proceed to Alcatraz Island, Cal., for duty.—First Lieutenant EDWARD M. TALBOTT, assistant surgeon, will proceed to Fort Leavenworth for duty.—First Lieutenant John A. CLARK, assistant surgeon, will proceed to Fort Oglethorpe for duty.—First Lieutenant JACOB M. COFFIN, assistant surgeon, will proceed to Hot Springs, Ark., and report to the commanding general of the Army and Navy General Hospital for duty.—First Lieutenant JAMES D. FIFE, assistant surgeon, will proceed to Fort Slocum for duty.—First Lieutenant WILLIAM A. POWELL, assistant surgeon, will proceed to Jefferson Barracks for duty. First Lieutenant EDWIN D. KILBOURNE, assistant surgeon, will report for duty at the General Hospital, Presidio of San Francisco, relieving First Lieutenant Herbert M. Smith, assistant surgeon.—First Lieutenant CHARLES P. FOSTER, assistant surgeon, is assigned to duty in the United States transport service, and will report to the medical superintendent of that service in San Francisco, Cal., for duty.—First Lieutenant HERBERT M. SMITH, assistant surgeon, upon his relief from duty at the General Hospital, Presidio of San Francisco, by First Lieutenant Edwin D. Kilbourne, assistant surgeon, will proceed to Fort Apache for duty.—GEORGE H. CASADY, dental surgeon, is relieved from duty in the Philippines Division, and will proceed by the first available transport sailing after February 1 from Manila, P. I., to San Francisco, Cal., where he will report by telegraph to the military secretary of the army for further orders.—JAMES M. TRUTE, sergeant first class, is relieved from further duty in the Philippines Division, and will be sent to San Francisco, Cal. Upon arrival at the depot of recruits and casuals, Fort McDowell, he will report by letter to the military secretary of the army for orders.—CHAS. W. THORP, contract surgeon, is granted leave for one month.—AUGUST BREITSPRECHER, sergeant first class, is relieved from further duty in the office of the attending surgeon, Washington, D. C., and on January 1 will be sent to San Juan, P. R., for duty.—Lieutenant-Colonel WILLIAM B. DAVIS, deputy Surgeon-General, is granted leave for one month, with permission to apply for an extension of two months.—CHARLES L. LEONARD, sergeant first class, now at the depot of recruits and casuals, Fort McDowell, will be sent to the Presidio of San Francisco for duty with Company B, Hospital Corps.—First Lieutenant JACOB M. COFFIN, assistant surgeon, is granted leave for fifteen days.—So much of orders of December 15, W. D., as relate to First Lieutenants CHARLES Y. BROWNLEE and JAY W. GRISSINGER, assistant surgeons, are amended so as to direct Lieutenant Brownlee to proceed to Alcatraz Island, Cal., for duty, and Lieutenant Grissinger to proceed to Fort Jay for duty.—Captain WM. J. L. LYSTER, assistant surgeon, is granted leave for fifteen days, from about December 18.—Captain HENRY S. GREENLEAF, assistant surgeon, is granted leave for sixteen days, to take effect January 1.—First Lieutenant JOHN A. CLARK, assistant surgeon, is granted leave for one month, with permission to apply for an extension of one month.—JAMES S. KENNEDY, contract surgeon, is granted leave for fourteen days, from about December 20.—Captain BASIL H. DUTCHER, assistant surgeon, leave granted October 26 is extended to include April 14, and Captain Dutcher is authorized to go beyond the sea.—GEORGE H. JONES, contract surgeon, is relieved from duty at Fort Fremont, to take effect upon the expiration of his present leave, and will then proceed to Fort Moultrie for duty.—J. R. BERNHEIM, dental surgeon, now at Fort Porter, will proceed with his outfit and enlisted assistant to Plattsburg Barracks for temporary duty.—JOSEPH PINQUARD, contract surgeon, will proceed from San Francisco, Cal., to Fort Leavenworth for duty, relieving Contract Surgeon James B. Hallwood, who will proceed to his home, Washington, D. C., for annulment of contract.

Changes in the Medical Corps of the U. S. Navy for the week ended December 23, 1905:

R. C. RANSDELL, assistant surgeon, ordered to naval hospital, Newport, R. I.—F. A. RICHARDSON, acting assistant surgeon, detached from naval recruiting station, Baltimore, Md., and ordered to duty with naval recruiting party No. 3, Hutchinson, Kan., January 2.—G. F. DUNCAN, acting assistant surgeon, detached from naval recruiting party No. 3, Wichita, Kan., and ordered home and granted leave until January 23.—O. DIEHL, surgeon, ordered to the Lancaster.—C. E. RIGGS, surgeon, ordered to naval medical supply depot, navy yard, New York, N. Y.—R. H. MICHELS, assistant surgeon, ordered to naval recruiting station, St. Louis, Mo.—R. E. RIGGS, assistant surgeon, detached from Franklin December 26, and ordered to command naval hospital, Port Royal, S. C.—T. C. BLACKBURN, acting assistant surgeon, detached from naval recruiting station, St. Louis, Mo., and ordered to the Franklin.—W. P. KEENE, acting assistant surgeon, detached from naval hospital, Port Royal, S. C., ordered home and granted leave until expiration of appointment as acting assistant surgeon.—C. M. DE VALIN, surgeon, detached from the Lancaster and ordered to naval recruiting station, Baltimore, Md.—L. H. SCHWERIN, acting assistant surgeon, detached from the Hancock and ordered to the Yankton, January 3.

Changes in the Public Health and Marine-Hospital Service for the week ended December 20, 1905:

FAIRFAX IRWIN, surgeon, granted leave of absence for five days from December 26, 1905.—D. A. CARMICHAEL, surgeon, upon being relieved by Assistant Surgeon W. C. Rucker, directed to proceed to Buffalo, N. Y., and assume command of the service at that port.—P. M. CARRINGTON, surgeon, leave of absence granted for seven days from December 14, 1905, amended to read four days only.—J. H. OAKLEY, passed assistant surgeon, granted leave of absence for one day.—J. W. KERR, passed assistant surgeon, assigned to duty at the Bureau, Washington, D. C.—J. M. HOLT, passed assistant surgeon, relieved from temporary command of the service at San Francisco, Cal., and directed to report to Surgeon H. W. Sawtelle for duty.—B. S. WARREN, passed assistant surgeon, upon expiration of present leave status, relieved from duty at Cape Fear Quarantine Station and directed to proceed to Boston, Mass., reporting to the medical officer in command for duty and assignment to quarters—J. T. BURKHALTER, assistant surgeon, granted leave of absence for five days from December 24, 1905.—J. S. BOGGESS, assistant surgeon, granted leave of absence for one month from December 22, 1905.—W. C. RUCKER, assistant surgeon, relieved from duty at Boston, Mass., and directed to proceed to Vineyard Haven, Mass., assuming temporary command of the service at that port and relieving Surgeon D. A. Carmichael.—S. B. FOSTER, acting assistant surgeon, granted leave of absence for ten days from December 12, 1905.—B. E. HOLSENDORF, pharmacist, granted one day's leave of absence under paragraph 210 of the regulations.

Board Convened.—Board convened to meet at Marine Hospital, San Francisco, Cal., December 22, 1905, for the purpose of conducting a medical survey of an officer of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon Hugh S. Cumming, chairman; Passed Assistant Surgeon J. M. Holt, recorder.

ORIGINAL ARTICLES

THE UNCONSCIOUS VALUE OF CAREFUL CLINICAL EXAMINATION OF PATIENTS.

BY
LOUIS FAUGERES BISHOP, A.M., M.D.,
of New York City.
Physician to Lincoln Hospital.

Mental activity is of two kinds, conscious and subconscious, and it has always seemed to me that men differ more in their subconscious than in their conscious mental activity. The erudite student, the highly educated man, in the sense of university training, the bookworm, or the man with unusual memory, all or any of these may excel in conscious mental activity without possessing the subconscious ability that raises the man from the common place to something more eminent.

In medicine, conscious mental activity may be trained and developed so that any intelligent person can be taught to examine a patient and discover the nature of his disease, if it be of the average type. It is not in routine diagnosis that physicians differ much among themselves. It is more in the mental grasp of the relative importance of things, and of the ability to form correct judgments as to what in the light of knowledge and opportunity is the best course for that patient to pursue. For, after all, however much we may be devoted to the diagnostic side of medicine, it is the treatment of the patient that is the fruit of all the rest.

Judgment is to a great extent a result of subconscious mental activity. The conscious mental activity provides the data, and if our judgments are incorrect when we have neglected, by our conscious work, to supply every possible atom of information, we are responsible. For this reason it is very important that in every case in which we seriously undertake the treatment, to make a very complete investigation into the history, the physical signs, and the laboratory findings, and only after collecting these, to form judgments as to the best course of treatment for that particular patient.

The element of time is also important. The patient should be seen, and his history and physical examination reviewed, and the laboratory work repeated. The physician who is to give the opinion should, so far as possible, keep his mind free from conclusions until his final opinion is given upon the case. It is the subconscious mental activity that produces those results that are considered so valuable in all professional work.

This is the reason that the most appreciated work in all professions is done by men, who, while extremely careful workers in every detail, are absolutely unable to explain the origin of their success. One has only to notice that the really great leaders in every profession are men of apparently very simple personalities. We have only to begin with the President of the United States, and review all the great men of our country, to find that the simple elements of love of truth, industry, and that open mindedness that can withhold a judgment until all the premises are in hand, are the qualities that are most evident in all. The careful clinical examination of a patient, carried on while the judgment is suspended, gives the opportunity for the subconscious development of a valuable judgment. This is entirely lost when the investigation is curtailed in time or details, and when the premature judgment is allowed to be formed.

It may be said that all men do not possess the natural ability to form correct judgments upon difficult and complicated questions. This is, of course, true, but, nevertheless, many do possess this ability who do not show it, on account of carelessness in the collection of data and hastiness in forming judgments. One cannot tell what the study of a case may lead to, however simple it may appear; so the only safe rule is to treat a case in detail or not treat it at all.

It would seem that much of the success of the best men in the profession is due to the unconscious value of careful examination of patients.

THE TRANSPLANTATION OF VEINS AND ORGANS.

BY
ALEXIS CARREL, M.D.,
AND
C. C. GUTHRIE, M.D.,
of Chicago.
(From the Hull Physiological Laboratory of the University of Chicago.)

In a previous paper[1] a summary of our first experiments on anastomosis and transplantation of bloodvessels was given. Since this time several other experiments have been performed in order to study the anatomic adaptation of the bloodvessels and the phenomena following the transplantation of organs and tissues.

The reversal of the circulation in the jugular vein, in the carotid artery, in the arteries and veins of a limb, was obtained. It was found that important anatomic changes of a transplanted venous wall soon occur under the stimulus of the increased pressure. These will be described in another place.

The replantation of a limb, the transplantation of the heart and of the kidney, and the replantation of the thyroid gland were performed. The thigh of a dog was completely amputated and afterward replanted by suturing the vessels, the nerves, the bones, the muscles, the aponeuroses and the skin. The pulsations of the popliteal and the posterior tibial arteries immediately became normal, and the femoral vein filled with dark blood. The whole limb except the foot was enveloped in a plaster-of-paris bandage. The circulation of the replanted foot was exaggerated. Swelling occurred about 8 hours after the operation; 24 and 33 hours after the operation, the circulation in the foot was satisfactory; 50 hours after the operation the foot became cold. The dog was then killed. It was found that the circulation had been interrupted by the dressing and not by the obliteration of the anastomoses, which were perfectly good.

The heart of a small dog was extirpated and transplanted into the neck of a larger one by anastomosing the cut ends of the jugular vein and the carotid artery to the aorta, the pulmonary artery, one of the vena cava

[1] Alexis Carrel: Anastomosis and Transplantation of Bloodvessels, *American Medicine*, August, 1905.

and a pulmonary vein. The circulation was reestablished through the heart, about an hour and 15 minutes after the cessation of the beat; 20 minutes after the reestablishment of the circulation, the blood was actively circulating through the coronary system. A small opening being made through the wall of a small branch of the coronary vein, an abundant dark hemorrhage was produced. Then strong fibrillar contractions were seen. Afterward contractions of the auricles appeared, and, about an hour after the operation, effective contractions of the ventricles began. The transplanted heart beat at the rate of 88 per minute, while the rate of the normal heart was 100 per minute. A little later, tracings were taken. Owing to the fact that the operation was made without aseptic technic, coagulation occurred in the cavities of the heart after about two hours, and the experiment was interrupted.

A kidney was extirpated and transplanted by anastomosis of the renal artery to the carotid artery, of the renal vein to the jugular, and the ureter was made to open into the lumen of the esophagus. On the third day after the operation the kidney was directly examined. Its circulation was found normal. A good excretion of urine was going on, samples of which were collected for several hours and compared as to composition with samples of the urine secreted by the normal kidney. The results will be published elsewhere and further experiments will be made.

The thyroid gland was extirpated and replanted with reversal of the circulation. Eleven days after the operation the wound was opened and the gland was found to have a good circulation; on the twenty-fifth day the same was the case; on the forty-fourth day it was easy to perceive, by the touch, the systolic expansion of the gland. The same was the case 94 days after the operation.

We wish to thank Dr. Stewart for granting us the privileges of his laboratory and for his suggestions.

EUCAIN LACTATE AS AN ANESTHETIC FOR OPERATIONS IN THE NOSE AND THROAT.[1]

BY

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A monograph by Dr. Henry Lemaire, which has recently appeared, entitled, "Acute and Chronic Cocainism through the Nasal Mucosa," enumerates the various forms of intoxication which may occur through the local use of cocain. These include: (*a*) Disturbances of the circulation which are the most frequent—tachycardia, pallor of the face and skin, vertigo and vomiting; (*b*) psychic and sensory symptoms including excitability, loquacity, laughing, crying, anger, hallucinations, especially visual, hyperesthesia and mydriasis; (*c*) motor troubles which include clonic convulsions and at times paralysis or aphasia; (*d*) disturbances of respiration. On the day following the attack are often seen mental disturbances, such as insomnia, also spasms and exaggeration of the reflexes.

The author gives the history of 10 cases in which he witnessed acute cocainism. This formidable array of symptoms which may possibly follow the use of cocain in the nose would seem sufficient to deter the most courageous of us from recklessness or indiscretion in its use. It is true that most of us have been singularly fortunate in escaping such unpleasant accidents as the foregoing.

Up to a short time ago, I have been almost sceptical as to the actual occurrence of such accidents. For many years my use of cocain, locally, was free from any disagreeable results. Occasionally a patient would complain of a sensation of faintness, which was ascribed to fright rather than to the drug. In the last two years, however, the possibility of such accidents has demonstrated itself most forcibly. One case, illustrating the psychic manifestations of the drug, occurred in a young woman. On several occasions previously the drug had been freely used without the slightest inconvenience. At the time, a 10% solution introduced on cotton into the nose for the purpose of examining the ethmoid region, was followed by the most pronounced mental symptoms. There was great loquacity, combined with alternate attacks of laughing and crying. This, together with total inability to retain anything on the stomach, continued for a number of days, giving considerable anxiety to the family physician and myself.

Two cases, seen about the same time, would fall into the third group of Lemaire's symptoms, represented by clonic and tonic spasms, with complete anesthesia of the soft palate. Both patients were young people, and the symptoms were regarded by me at the time as manifestations of hysteria. Finally, combined respiratory and circulatory symptoms have been noticed in two young men. A strong solution of cocain, 25% to 30%, was applied on cotton several times to the nasopharynx, preliminary to the removal of adenoid growths. In each instance the symptoms followed from one to two hours after the operation. They left the office in excellent condition, but were seized later with great impairment of the respiration and marked weakness of the pulse, as shown by cyanosis of the lips, which required active stimulation for several hours.

It is sufficient to know that such accidents may occur to justify a careful study clinically of any drug which offers a reasonable promise of producing the anesthetic qualities of cocain without its possible unpleasant results. In this direction, at a recent meeting of this section, Dr. Coakley reported his experience with the use of stovain in the nose and with the same object in view I have, in my hospital and office work during the last four months, studied the effects upon the nose and throat of beta eucain lactate in solutions of different strengths. Eucain alpha and beta have been known to the profession for a number of years. They have, however, never thoroughly commended themselves to rhinologists because of their low degree of solubility and the consequent inability to get a solution sufficiently strong for the more extensive operations in the nose. Eucain

[1] Read before the New York Academy of Medicine, Section on Laryngology, April 26, 1905.

lactate as described by Professor Langgaard, of Berlin, "is a white nonhygroscopic powder melting at 155° C.; 119 parts of it contain as much eucain base as 100 parts of the hydrochlorate. Solutions are nonirritant, even 5% strength causes no irritation in a rabbit's eyes. It produces no hyperemia, ischemia, or shrinkage." This latter quality is of decided advantage in certain cases as of polypoid growths in which cocain may cause a temporary disappearance or shrinkage of the mass to such an extent that its removal is impossible. When, however, contraction is required or desired a solution of adrenalin can be easily added. The drug can be used as high as a 25% aqueous solution. I have used eucain lactate in some 40 to 50 different cases, including some 8 cases for correction of the nasal septum by the Roe method and 4 cases by the Freer method of submucous resection. Here a 10% to 15% aqueous solution was employed on cotton for a space of 10 minutes combined with or followed by a 1 to 5,000 solution of adrenalin chlorid. Just before beginning the operation 20 m. to 30 m. of a 1% solution of eucain lactate combined with adrenalin chlorid according to the following formula:

Eucain lactate	.52	gm. (8 gr.)
Sodium chlorid	1.4	gm. (21 gr.)
Boiling water	52	cc. (14 dr.)
Adrenalin chlorid	1	cc. (18 m.)

was injected at two or three points into the mucous membrane of the nasal septum. In no case was any amount of pain complained of and in most cases none at all.

In one case a 25% solution was used for the removal of extensive tuberculous infiltration in the larynx by means of the galvanocautery, a most painful procedure, and one requiring complete abolition of all sensation; the patient felt no pain. In another case complete anesthesia of the larynx was produced by a 20% solution for the removal of a papilloma. In one case in which adenoids were removed in an adult, good results were noted as regards the absence of pain. In several cases partial removal of the middle turbinated was practised with equally satisfactory results.

In no case was there noted the slightest discomfort or annoyance attending its use nor was there anything that could suggest a possible toxic effect.

CONCLUSIONS.

The impression gained from my use of the drug in this series of cases is that eucain lactate is an excellent substitute for cocain, and that it may be employed in the strongest solutions without fear of toxic symptoms and does not seem to lose its anesthetic qualities under the usual periods of office use. At the same time I believe its anesthetic power is not quite so great as that of cocain, and in the more painful operations on the nose it had best be used in a correspondingly stronger solution. When a 10% solution of cocain would ordinarily be employed, I would recommend a 15% to 20% solution of eucain lactate.

I do not forget the tendency to over enthusiasm wont to attend investigations with new drugs and I do not expect the drug in question will supersede cocain, but I do venture to assert that when, even with weak solutions of cocain freshly prepared, unpleasant results are found to follow, or in cases of weak heart, in which a local anesthetic is desired, eucain lactate will prove a satisfactory substitute, free from all disagreeable consequences.

A PLEA FOR THE CONVICT INSANE.

BY
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During the past few years several attempts have been made to establish an asylum or hospital for convict and criminal insane, in order that they may receive proper treatment for their malady, and at the same time may not, by their presence at already established State hospitals for the insane, injure the sick and innocent wards of the State. The thought underlying this attempt has suggested an inquiry into the present condition, and what has been done for the care of these unfortunates in the Eastern State Penitentiary. The convicts who are received into this institution represent persons convicted of crime in the courts of the counties of the eastern half of Pennsylvania. They are sentenced to terms of from 2 to 30 years, or life, as the law may prescribe for their offense. The mental condition of many of these convicts, from all walks of life, and of a dozen different nationalities, at the time of their admission, is questionable, and later is likely to show marked deterioration; in others, appear those earmarks of instability, which experienced observers learn to recognize as the forerunners of mental disease, and these when subjected to the ordinary curriculum of prison life and discipline, soon break down and often become mental wrecks.

Much has been done to prevent the threatened onset of disease by giving these persons the benefit to be derived from open-air exercise and work, liberal diet and improved surroundings, and ofttimes this treatment has sufficed to postpone or render less severe the attacks which have been anticipated. On the other hand, many convicts of this class progressively deteriorate in spite of all treatment, develop erratic conduct, delusions of persecution and suspicion, and later as these delusions become fixed and center about some one person, the convict becomes a dangerous lunatic, with little hope of improvement under his surrounding conditions, and by reason of the confinement and close observation required, a menace and annoyance to his caretakers and neighbors.

It might be thought that prison was the proper and safe place for a dangerous lunatic, and that his confinement to a cell would ensure the least possible opportunity to damage the community by reason of his violent acts. But it must be remembered that custodial restraint is not all that is required in the treatment of lunatics, and that conditions will and do arise in such cases when change of environment, pure nourishing food, attention to the personal wants of the patient, etc., all require the skilled services of hospital attendants, otherwise the already impaired health of the convict will rapidly fail, and his life, as well as mind, be seriously jeopardized.

A case illustrating this state of affairs occurred only a few months ago, when a convict whose unstable mental condition on admission had caused special observation of his case, developed delusions of persecution and hallucinations of hearing, which for a time he was able to control, but later, at night, he made an attack upon his room mate, repeatedly assaulted the keepers, attempted to set fire to the contents of his bed, and was violent and destructive. He was necessarily confined to a cell, refused food, was sleepless, and as a result of this condition, his physical health became seriously impaired even before it was possible for the writ of transfer, which the committing judge had granted, could become operative.

Another case was that of a young man of 36, who was serving a second term of three years at the penitentiary for larceny. His history showed that since the age of 16 he had been twice a patient in a hospital for insane, with recurrent melancholia, and his father stated that he never considered his son in a sound mental condition, although during the interval of the attacks he was able partially to take care of himself and engage in some light occupation. This man's disease manifested itself a few weeks after his admission, was characterized by depression, strong suicidal tendencies, fears of poisoning, refusal of food, emaciation and consequent exhaustion. The care of this patient was specially taxing, as it involved the care of extra attendance and at times the undivided services of the prison physician. Every effort was made by the prison authorities to secure his transfer to a State hospital, as affording the best chance for his recovery or improvement from the attack. The hearing and official consideration of the case were delayed, and finally the application was declined; not for the reason that the convict was sane, but because it was thought his detention would be better effected in a prison than a hospital. I might state that the patient has improved under treatment, and he will be discharged at the expiration of his sentence to the care of his friends.

A case which by reason of the repeated application for transfer and other appeals has become famous, is that of a life convict, an inmate of the prison for many years past. This man's conduct, while not dangerous, yet is so disorderly and troublesome as to be a constant source of annoyance to his fellow prisoners, and his mental unsoundness is evident to all observers. He is still retained at the prison, for the sole reason that in the opinion of the committing judge, prison was the proper place for convicts, sane or insane. So this man must spend the remainder of his life confined to his cell, and deprived of those methods of medical treatment which would lessen perhaps the severity of his disease, and whose condition, had his crime been committed in another State, would have entitled him to enlightened treatment in a hospital for the insane.

So we could continue citing cases, in which with the disease developed, or developing, the patients must needs be cared for in an institution which was never intended by its founders to serve such a purpose. Suffice it to know that a few years ago there were no fewer than 46 cases in the prison at one time, which, had we a hospital for the convict insane would have been received therein as patients, and at this writing there are several convicts at the institution whose damaged mental state should entitle them to special care and treatment elsewhere.

During the past year there were 7 persons admitted to the penitentiary whose mental state was questionable. In the preceding year 11 such cases were admitted, and for the past 20 months, 25 convicts have been under special observation for suspected or actual mental trouble. Of this number 9 have been transferred to State hospitals, and 2 have been discharged.

A phase of this question which has seldom been considered, but which is nevertheless important, is the effect produced upon sane convicts by their association with the insane. It is well known that the safety of the community and welfare of the prison demand that strict discipline be preserved at all times, and the knowledge that the least infraction of it will serve to bring immediate punishment upon the offender. It can be readily seen how the conduct of one or two irresponsible insane convicts will soon demoralize the whole neighborhood, and the constant contentions and altercations between keeper and patient will not make for that universal respect for authority which is the keynote of discipline.

It is often the case that the audible remarks which the prisoners make concerning the condition or peculiarities of the patient are rude and offensive, and tend to aggravate the state of the lunatic, who is already in a morbid and sensitive condition.

It has been the object and purpose of the prison authorities to have all insane and mentally defective convicts transferred as soon as their disease is established, but with the wellknown reluctance of State hospitals to receive this troublesome class of cases, and with the constant admission to the penitentiary of convicts with questionable mental capacity, the care of this class becomes year by year increasingly heavy upon the prison, and renders the fact more evident that the State should provide some special accommodation for this class of unfortunates. This might be well done either in a converted wing or ward of some already established State penal institution, or better, in a hospital established for the sole care of these cases.

The claims of these unfortunates are just, the demand is urgent, and when we look around to the neighboring States and see the large and elaborate institutions which are devoted solely to this class, in order to give them the benefit of proper and humane treatment, and at the same time protect citizens from their acts of violence, it appears that our State is not upholding the reputation she has enjoyed for enlightened progress and humanity.

MALARIAL INFECTION IN KURDISTAN.

BY

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Two articles upon the occurrence of latent and masked malaria published in *American Medicine* within the past year have awakened my especial interest, because of my own somewhat similar experience here in Kurdistan as well as in America. During my interneship in a Denver hospital there were admitted a number of patients with malarial chills. In no case, I believe, was a blood-examination made, but the attacks were so typic in character, and yielded so readily to quinin, that no doubt could be entertained of the diagnosis. The fact of especial interest was that in most of these cases there was no history of chills previous to residence in Colorado, although malaria is not indigenous to that State. It became my custom to inquire, "How long since you left

Missouri?" this question usually bringing a reply to the effect that the patient came from that State, and from a malarious district, but that he had never had chills until coming to Colorado. The change to a higher altitude, by its effect in withdrawing, in part, the blood from the spleen and internal organs to the peripheral bloodvessels, I regard as the exciting cause of the development of an active attack from an infection long present but latent. Here, even on the high plateaus of Armenia, and in the elevated valleys of the Kurdish Taurus, at an elevation of 4,000 feet to 6,000 feet above sea level, malaria abounds, and occasionally, though rarely, develops a malignant type. Here, also, I have frequently observed evidences of chronic infection, with enlarged spleen, with no history of chills; and in my own blood (stained specimen) I found the plasmodium before ever having had a malarial chill—a discovery made accidentally while using a specimen for comparison. Residence in either Bitlis or Moush necessitates the frequent taking of quinin for the relief of sundry symptoms of malaise, apparently remote from any malarial origin, but which doubtless are due to an obscure mild type of paludism. After major surgical operations with prolonged anesthesia it is my experience that a latent malaria very generally becomes evident. I recall four cases of vesical calculus in which the patients developed malarial chills following suprapubic lithotomy, and in no case was there a history of recent chills save one, in which the last chill had occurred three months previous to operation. Another patient had had chills two years before, and the other two could give no history of chills whatever. Nearly half of my candidates for life insurance in Bitlis gave history of definite chills, a proportion which holds good in a general way for the histories of the dispensary patients when carefully taken. Add to this the large number of latent and masked cases, and it will be realized that an elevation of 5,000 feet and the entire absence of extensive marsh lands does not necessarily imply freedom from malaria.

A second consideration I would urge with especial emphasis. I do not believe that to the bite of the mosquito can be attributed each and every individual case of chills. The importance of the mosquito in the life history of the malarial parasite is unquestioned, and that the bite of the insect frequently accounts for a succeeding attack of malaria, no one who has studied the subject is likely to deny, but I submit the following facts, in spite of their personal nature, as evidence that malaria can occur in the individual without the bite of the mosquito.

My little girl, at the age of 14 months, in February, 1904, developed several attacks of malaria. The cold and the heavy snowfall should put the mosquito out of the question as the immediate agent of infection, and it seems unlikely that infection of the previous summer should have occurred and remained latent with absolutely no malaise or indisposition, especially as the summer months were spent in a mountain camp where mosquitos and malaria are alike unknown. Born in the winter, with two feet of snow on the ground, spending her first summer in a region free from malaria, and then after months of perfect health, suddenly and severely stricken with the malady no less than five times during the months of February and March of her second year, it is difficult to hold the mosquito responsible in her case. My own case is further evidence: The summer of 1904 was spent in Erzroum, where malaria is occasionally found, but where the entire summer was spent in freedom from any symptoms of it, and with never a sight of a mosquito. In the autumn I returned to Bitlis, arriving in November, in the midst of rains and cold, which a mosquito could hardly tolerate. The middle of November I went to Moush, where typhoid was epidemic and where malaria also abounds. A severe case of chills occurred shortly after my arrival in the family with whom I resided. After some weeks' stay there, I suddenly suffered a sharp attack of malaria, although taking tonic doses of quinin. Where did I get it? Probably not from a mosquito, unless from one whose bite dates from a year ago, and the infection from which remained latent ever since, and I do not think that likely, as my removal to the higher altitude of Erzroum would have most probably rendered the infection evident had it existed.

I am aware this is dealing in uncertainties, but the facts seem to me to be of significance. To these personal experiences, I could add a score of cases of apparently primary malarial infection occurring in the dead of winter among my patients with no possibility of mosquitos as the agents. But there are other insects than mosquitos in the Orient, and unfortunately they are always with us. The pest of fleas, bedbugs, and lice is one of the greatest, perhaps the greatest trial of the foreigner resident in this country. At best, he can only reduce them to a somewhat negligible quantity on his own premises, and at the worst, when he is on the road and dependent upon native accommodations, the insects succeed fairly well in reducing him to like proportions. These omnipresent unmentionable insects are industrious bloodsuckers, and are by no means particular about sterilization of their instruments. That they inject a fluid into the wound which they make, is probable, from the inflammatory reaction which follows their bite, and it is more than likely that transference of disease germs is occasionally the result.

The suggestion that vermin may transfer malaria directly, is not original with me, as I first heard of it as the opinion of my colleague in Van, Dr. C. D. Ussher, who based his theory on the observed fact that chills prevail in certain houses and affect particularly certain families. At the time, I did not accept his views, but longer residence in the country has changed my opinion, and I am persuaded that in Turkey at all events, malaria is often transmitted by vermin through direct inoculation. The present campaign against the mosquito should be supplemented by persistent warfare against bedbugs, fleas, and lice which infest a population living in crowded and unhygienic conditions. The antimalarial warfare, then, assumes a threefold aspect: 1. To exterminate the mosquito, which pretty clearly holds a position essential in the life history of the plasmodium. 2. The extermination of the plasmodium itself, by saturating the inhabitants of malarial districts with quinin. 3. When this cannot be thoroughly done, or until it is

done, as an important means of prophylaxis—the extermination of vermin.

I would add in conclusion that I have found the estivoautumnal organism very prevalent and occasionally very resistant to quinin in the form of the sulfate, and in these cases the more soluble hydrobromid acts well. Much the same effect can be secured by the sulfate taken in conjunction with plenty of acid, such as lemon juice, but it fails occasionally, and then I resort to the hydrobromid, with lemon juice or tartaric acid.

A PRELIMINARY REPORT ON THE RELATIONS OF MIND RHYTHM TO NERVOUSNESS.

BY

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of Philadelphia.

Of greater importance than the knowledge of the circulation of the blood stream is the knowledge that the mind has its rhythm, a physiologic process which resembles closely the systolic and diastolic periods of the heart, although differing in the essential nature of its mechanics. The heart, being a pump, propels; and the brain, being the center of nervous activity, correlates, and ceases to correlate, the modes of motion which energetically disturb its axones and fibrillas. I do not intend to discuss the nature of this energy, but to study the rhythm of its function. Sleep is the *pralaya* or the diastole, in which the worn units reconstruct themselves. Waking is the period of active or passionate dissipation of the stores accumulated during rest. The fluctuation of day and night is one potent cause of a 12-hour rhythm. But variations in physique, and the effects of environment, as well as the exercise of personal desire, have resulted in the establishment of many individualities of other rhythms than a 12-hour one.

Life may exist without breath, as *in utero*, where aeration is performed *extra illo*. The function of mind appears to depend as much on respiration as anything. The Hindoo Yoga practices, while not scientific, are interesting in this connection. But throughout life the rapidity of pulse-beat is steadily lessened, and the period of cerebral activity extended as the sleep period decreases. It is a fact well known to neurologists that many cases of melancholia occur in which the cardiac cycle is weakened, and sleep will not become normal without the exhibition of digitalin or other treatment. There are other mental disturbances related to the changes in pulse and breathing. The fear of an asthmatic, or the alarm which seizes one suffering from angina pectoris, are examples.

These rhythms are related. At a period of average adult development, the usual length of the sleep period is from seven to eight hours in 24. The pulse is from 65 to 80 per minute. In infancy, the pulse is more rapid, and sleep is also broken into shorter and still more frequent occurrences, with a greater proportion of the day to its credit. A woman does with less night sleep than a man, and takes her midday nap more readily. In warm climates, the afternoon siesta is common to both sexes, and the pulses of the people are quicker, or more readily stirred (which is the point, for it is excitability I refer to), and the rhythm of life is generally more acute.

A reversal of the common day-and-night rhythm may also be noted. Two examples of this—Goethe and Schiller, the latter preferring night, and the former day in which to work—may show what is meant.

However, I wish to direct attention to a class of individuals whose day of 24 hours contains a natural mental cycle of more or less than a complete single systole and diastole. These suffer a martyrdom which is worse, because so difficult to recognize. They are the idle, the shiftless, the ne'er-do-wells, who fail to hold their jobs, or never keep their duties in mind. In the beginning of the day they prosper, but soon their mental powers decrease, until, although awake, it is of no consequence; they might as well lie down, as sleep open-eyed and standing.

Perhaps, later in the afternoon, the old animation returns, and as one who regains day after an all-night vigil, they attend to affairs. I know a plumber, who many times comes home in the midst of a busy period, to lie down and sleep. He cannot resist doing this.

It would be more strange if such varied cycles did not exist. How ridiculous to believe that all men should have the same possibilities of waking and sleeping! This difference of rhythm is another source of trouble which will assume proportions in settling the problems of complex life today. When men lived more in the open, and night brought an end to their toil, because no one could make them labor in the darkness, their right to dispose of 12 hours gave a better chance to equalize needs. The benefits of night illumination have been bought with a price. Now that day and night no more limit labor, the differences in mental qualities are thrown into the limelight, and in diagnosing nervous troubles, we must take them into account. Many who could do good work for five or six hours, are utterly unable to measure up to an eight or a ten-hour schedule. But it is a fact that those who are not able to work so long at a time, are better able to do good work for acute and more frequent intervals. These nervous individuals are of the highest value to the race, but eventually may be trampled out of existence. In the present stage of evolution, the type of excellence is less a physical than an intellectual one; people of intelligence are able to overcome the purely forcible efforts of others. Mind, however, cannot remain equally energetic for long periods. S. Weir Mitchell says that literary creative work cannot well extend over a length of two hours with no failing of intensity and strength. In modern life the mind is intensely called upon. More than brute strength is demanded. The machine has charged itself with that. I believe many seek literary occupation because subconsciously they think it possible to work at intervals and under conditions more congenial than the fixed day-and-night stadium of vulgar necessity.

Aside from these effects on the progress of the race, there are many other consequences of this irregularity of mind rhythm present to the physician. It is important and enlightening to inquire into periods of sleepiness in a nervous patient. I think such should be watched, and their sleep tabulated, while at the same time they are

doing some fairly taxing work, mental, of course, such as arranging index cards, which could be performed in the open air. I have under observation many interesting cases of nervous alteration of the sleep rhythm.

One case which I think shows evidence of a varying period of sleep is that of a young man, who is a sexual neurasthenic, having lost sexual inclination at the age of 25, subsequent to an attack of gonorrhea. He has but one testis descended, and he has also marked alternation of gastric and mental symptoms. At the times when he has gastric disturbances he is sleepy in the late forenoon, and fighting this off, he again feels the influence in the afternoon at 3 o'clock or 4 o'clock. His astigmatism is thoroughly corrected, which, I believe, should be done in all nervous cases. When the sexual weakness becomes annoying, the patient does not complain of sleepy attacks. This variability I have discussed in a paper[1] on symptoms which I have termed "parasthenic," and which are characterized as due to varying nerve tonicity.

The symptoms which we observe in connection with cases of normal or pathologic sleep modifications, or the need of different sleep cycles, are those which would appear in anyone who is compelled to remain awake beyond what he can easily endure, or to sleep at hours when not accustomed. When these difficulties occur in those of neurasthenic or parasthenic constitution, it becomes a factor neither negligible nor easily susceptible to relief in modern strenuous times. The first step is to recognize their needs fully. Later I shall publish a detailed account of cases and symptoms; but in conclusion, I would say the battle is won if these unfortunates are accorded a place in the ranks of deserving sufferers.

INDICATIONS AND CONTRAINDICATIONS TO THE USE OF THE OBSTETRIC FORCEPS.[2]

BY

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To attempt to answer the question as to the indications and contraindications to the use of the obstetric forceps, one must necessarily presuppose a good working knowledge (1) of the anatomy of the female pelvis with the dimensions of its various planes and straits; (2) the ability to diagnose accurately the various presentations and positions. That no hard and fast lines can be laid down to be followed unfailingly, of course, is understood.

The various textbooks all give the "classic" indications, contraindications, and conditions necessary to the application of the forceps and therefore no attempt will be made to elaborate along these accepted lines, but to bring this subject before you in as practical light as possible.

At the very beginning I would say the question is one which requires no knowledge other than any general practitioner possesses and my experience goes a long way to convince me that the use of the forceps when not indicated or failure to use them when strongly indicated is not in the majority of instances due to a lack of the proper knowledge, but through carelessness and neglect of the usual methods that these same men would follow in judging any other class of cases. Not once but many times I have been requested to assist with a delivery, which, in the medical attendant's opinion, required the application of the forceps and to find other measures clearly indicated. This is not said with any desire to criticise, but as a simple statement of facts, and as I have always claimed that obstetrics is necessarily the specialty of the general practitioner it seems passing strange that so many good, active, and conscientious practitioners should allow themselves to get into the rut which undoubtedly many of them are in.

To allow any primipara to go to full term without a careful pelvimetry examination and investigation into the capacity of the birth canal is no doubt absolutely wrong, but how many men in general practice are taking time to do this? This same rule must also be extended to include multiparas who give a history of a previous tedious or complicated labor. Attention to this one precaution alone will go a long way toward answering the question before us in at least a certain percentage of cases.

I very much doubt that the forceps are ever used for the purpose of economizing time and to suit the convenience of the physician. My experience is that the average practitioner is conscientiously trying to do his duty, and in many instances I have seen the application of the forceps delayed at a great personal sacrifice to the physician, but unfortunately not always was this sacrifice necessary or indicated, and I believe that the forceps are oftener used too late than too early. The knowledge of when, and when not to use the forceps is not acquired by intuition, but by the same painstaking means as is necessary to acquire any other knowledge, although it seems to be the generally accepted belief of many practitioners that it is a very simple matter.

Measuring the pelvis for all primiparas and multiparas with a previous history of difficult labor will clear up many doubtful questions, and before leaving this phase of the subject I would strongly urge that this become a routine method in all of the class of cases just mentioned; the satisfaction of knowing the size and capacity of the pelvis through which you are expecting to deliver the fetus will amply repay one for the little additional time and trouble, especially when an unexpected dystocia develops.

It is almost impossible to mention all of the indications for the use of the forceps, but in a general way it may be said that the disproportion between the expulsion force and the pelvic resistance is the chief and most frequent indication, and that a certain amount of experience with a good deal of common sense is necessary to be always able correctly to pick the proper time for their application. As I have said before, I believe the chief difficulty is not due to lack of experience or good judgment, but to the haphazard way in which the matter is so often decided.

The cervix as a cause of dystocia is often overlooked,

[1] Quarterly Journal of Inebriety, April, 1905. Narcosomania.

[2] Read by request before North Branch Philadelphia County Medical Society, June, 1905.

and many a forceps operation could be prevented by attention to this point, as a rigid or edematous cervix will frequently tire out a fairly strong uterine muscle, and thus produce a condition of inertia requiring the use of the forceps. If this condition is recognized early, and manual dilation of the cervix is done during a pain, and the cervix carefully and gently forced over the advancing head, labor can often be materially shortened and forceps application prevented. Next to uterine inertia and small pelvic diameters, the various malpositions of the head are frequent causes of dystocia requiring the use of the forceps. The question of the application of the forceps to a posterior occiput has been much discussed, and there seems to be some diversity of opinion. That a too early application is to be avoided I think is wise, as the use of the forceps before rotation has taken place will often drag the occiput posterior and prevent the anterior rotation which will often take place late if left to nature.

The ability to recognize the various presentations and positions by vaginal touch is not easy, but the habit of examining each patient carefully, and not being satisfied with the mere diagnosis of a head presentation will soon make this a possible and comparatively simple task, for, with a proper knowledge of the location of the large anterior fontanel and the directions of the sutures, the diagnosis of the various positions is readily reached.

A very important factor in sizing up the situation as to the possible necessity for the use of the forceps, is to take into consideration the elasticity and nonelasticity of the muscular tissues of the pelvic canal. Strong and muscular women with strong uterine contraction will very often be unable to overcome the stronger resistance of the muscle of the pelvic floor and vagina and if after carefully watching a patient of this description who is having good contraction pains and with practically no advancement for a reasonable time (and it is not a question of minutes or hours, but of different type) the forceps should be used. A failure of the head to recede is always an indication for the use of the forceps, as this phenomenon indicates an undue pressure on the soft parts of the pelvic canal.

A careful and repeated examination of the fetal heart sound should never be neglected, for this is ofttimes a danger signal calling for a rapid emptying of the uterus, to which too little attention has been paid. It accounts for some of the fetal mortality in forceps application which has been blamed on the injury resulting from the use of the forceps. As to the contraindications to the use of the forceps, I have very little to say, for the foregoing reason. In hydrocephalic or macerated heads, the forceps are very likely to slip and they can better be managed by a perforater and the use of the cephalotribe.

Pelvic diameters indicating a canal too small to allow a normal average head to pass through are, of course, a contraindication, but a discussion of the various diameters cannot be taken up at this time; a good practical rule, however, that will be of assistance in deciding many questions is whether the presenting head can be forced into the canal by pressure from above; if one hand is placed above the pelvis and the fingers of the examining hand placed in the vagina, it can be readily ascertained whether it is possible to compel the head to enter the superior strait, and if this can be brought about a short time prior to the date of the expected confinement, it is comparatively safe to assume that the same head can be expected to go through the main straits of the pelvis.

The manner in which a woman will labor with a normal presentation differs considerably from one who is afflicted with a malpresentation. This observation has been brought to my attention by witnessing the labors of a number of malpresentations, including face, brow, and shoulder presentations, and while it is not an absolute rule, it is fairly safe to assume that a woman who has had several labor pains and then a period of comparative rest, followed by another attack of more or less severe pain, extending over a rather lengthy period, is suffering from a condition of either a pelvic deformity, or malpresentation, which interferes with the proper engagement of the presenting parts and thus produces an atypical labor.

This will, no doubt, also account for the number of histories of women who have been in labor for three to four days.

Many authors hold that the application of the forceps is only justifiable in head presentations, but undoubtedly there are certain conditions under which forceps can be used on a high breech when it is impossible to bring down a leg. The forceps here, if applied properly, bistrochanteric diameter will be of great use in dragging the presenting parts down within reach of the finger, so that a leg or legs can be delivered, although, as a rule, a breech should be considered as a contraindication.

A head freely movable at the brim should not be considered as calling for the use of the forceps, as version is the first operation, but I have seen cases in which forceps were carefully and successfully used.

The indications and contraindications are not the only elements in the problem before us, for the conditions present are of paramount importance. The classic and accepted ones, such as the presentation and engagement of the head, the rupture of the bag of water, the dilated or dilatable os, etc., require no comment, but I would like to call your attention, in closing, to the importance of the use of an anesthetic to a surgical degree in all cases. This I do, not from a purely humanitarian standpoint, but because of the muscular relaxation that can be secured by this method. You are all familiar with the involuntary muscular contraction that is present in the anticipation or the actual suffering of pain, as in the familiar illustration of the dentist and his chair, and I am quite sure that if chloroform is used for the short, low and easy forceps operations, and ether for the long, high and tedious ones, the percentage of good results, at least as to the condition of the pelvic floor, will be higher, and you will be more satisfied than with the older and rather brutal method of delivery without an anesthetic, still practised by a large number of the profession.

To repair the teeth of children at truant schools, the appointment of dentists is the latest hygienic proposal of the Education Committee of the London County Council.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 23, 1905. [VOL. XLV, NO. 26.]

The Medical Features of the Papyrus Ebers.—Carl H. von Kline. See *American Medicine*, Vol. X, No. 13, p. 516.

Water-supply in Ships from Its Beginning to the Present Time.—Henry G. Beyer. See *American Medicine*, Vol. X, No. 7, p. 262.

Psychosis of Morphinism.—T. D. Crothers. See *American Medicine*, Vol. X, No. 11, p. 431.

Comparison of the Quick and the Slow Methods of the Treatment of Morphinism.—A. J. Pressey. See *American Medicine*, Vol. X, No. 11, p. 431.

The Elimination of Chlorids in Nephritis.—J. L. Miller referring first to Widal and Laval's observation as to the inability of certain nephritic patients to eliminate sodium chlorid in a normal manner and to the confirmation of their findings by others, reports his own observations as to chlorid elimination in patients suffering from various types of nephritis, uremia and myocarditis, and also in normal individuals. The patients were kept on a fairly uniform diet, and when possible were weighed daily. The chlorids were estimated by the Volhard method for a period of nine days, the first and last three of which they received only the chlorids contained in their food, while in the three middle days an additional 10 gm. daily was administered. He concludes as follows: In patients with moderately severe nephritis associated with edema, the ingestion of large amounts of sodium chlorid is followed by a chlorid retention. The patient gains in weight, the edema becomes more marked, the albumin increases and symptoms may develop resembling uremia. In patients with severe nephritis, and especially those with uremia, chlorid retention is very marked, as scarcely any of the extra chlorids administered are eliminated. In individuals with apparently healthy kidneys, following the ingestion of sodium chlorid, there is a chlorid retention equal to that of mild nephritis. The individual gains in weight, but there is no visible edema, no albuminuria and no uremic symptoms appear.

Diethyloxyacetyl Urea.—E. M. Houghton has investigated this substance, one of a new group of chemic bodies belonging to the methane series and condensation products of urea and the various oxyacetic acids. It is a clear, transparent, oily liquid, specific gravity 1107, with a peculiar characteristic ethereal odor and taste. It is soluble in about 20 parts of water, and is soluble in most of the organic solvents, e. g., alcohol, ether, chloroform, etc. The sodium salt forms flaky, very soluble crystals, having a mild ethereal taste. Its chemic structure warrants the belief that the depressing ethyl group, 40%, and stimulating nitrogen, 9.6%, are in the right proportion to produce a safe and efficient hypnotic. Experiments on cold-blooded and warm-blooded animals show that diethyloxyacetyl urea is a relatively nontoxic chemic compound, the estimated fatal dose for man being nearly two ounces. It produces prompt hypnotic action with any of the usual methods of administration in warm-blooded and in cold-blooded animals, and complete anesthesia is produced by large doses and is followed by complete recovery. The pulse-rate, blood-pressure, cardiac action, and respiration are influenced little, if at all, by reasonable doses.

Inversion of the Uterus.—L. V. Friedman describes the types of uterine inversion and suggests the use of the term "initial" instead of "partial" for the cases in which the fundus has not passed the the internal os, reserving the latter term for those cases in which the os has been passed, but the uterine cavity is not yet obliterated. He thinks the condition is probably much more frequent than is indicated by the oft-published statistics of Denham and v. Braun, and that the mortality is higher than Winckel's figure of 22% in 54 cases. The prognosis of acute cases will probably always be grave, in spite of the ease of immediate reposition; shock or sudden overwhelming hemorrhages are possibilities to be feared. A certain number of cases are probably unrecognized and these may affect the mortality statistics. A diagnosis is often very difficult, and in no other condition is an error more dangerous to the patient. Inversion may occur after labor without pain, hemorrhage or pronounced shock, and the favorable time for replacing may have elapsed before the attendant is aware of the complication. While in acute inversion immediate reposition is usually advisable. Friedman, in case of severe shock, provided the hemorrhage can be controlled, would defer manipulation. Leaving an adherent placenta until after reposition, has many objections; its removal is then more difficult and it adds to the bulk to be replaced. The objections to the vaginal method are the danger of infection, the risk of injury to the tubes and ligaments and even to the bowels, the resulting adhesions and the possibility of the rupture of a uterine scar in a later pregnancy. He believes that with the progress of surgery, the method by abdominal section and intraabdominal dilation of the cervical ring will yet give better results than the vaginal operation, though at present the statistics are not nearly so favorable. He gives the details of the operation, and reports two patients thus operated on successfully by himself shortly after delivery, attempts at taxis having failed. If this operation can be perfected so as to insure invariably mechanical success, he believes that it will be an ideal procedure for reposition of the inverted uterus without injuring its peritoneal investment. It also permits inspection of the tubes, which in some cases may require resection.

Röntgen Diagnosis of Urinary Lithiasis.—Carl Beck claims that with modern skiagraphic technic, lumbar exploration and other like procedures for suspected nephrolithiasis in this field the result is as great as that in the diseases of the bones. The chemic composition of the calculi determines the density of their shadows, but this is of less importance than bringing the calculous area as near to the plate as possible and keeping the field absolutely quiet. These two requirements are met by the use of a tubular diaphragm, which also has the advantage of permitting the passage only of the focal rays, but also the disadvantage of showing only a small area at a time. A general exposure, therefore, must precede that of a limited area. The criterion of a good plate is that of the vertebras, the eleventh and twelfth ribs, and the outlines of the iliopsoas muscle can be clearly defined. Failing this, and showing a number of calculous-like shadows, a plate is absolutely misleading and a new trial should be made and repeated until satisfactory. If the plate is good and shows the indications of calculi, the tubular diaphragm is applied in the same position as for the general exposure, but the shoulder of the exposed side is more elevated. The tubular diaphragm is best pressed obliquely under the rib arch so that its center corresponds with the landmarks on the large plate. The time of exposure should be three minutes in thin and five or six minutes in stout individuals. If the large plate is negative, Beck still makes a diaphragmatic exposure, and if this shows the criteria distinctly, he can assure his patient that he does not suffer from nephrolithiasis. It is not necessary, however, that the bones show textural details. Usually the longer the exposure lasts, the clearer will the bones show and the less marked will be the calculi. The same applies even more to the technic of biliary skiagraphy, and the reason of so many failures in this, he says, is that the exposures irridiate away, so to speak, the calculi. The same general principles apply to the skiagraphy of the urinary bladder, but the diaphragm is not so necessary. The patient should be in the recumbent position and the center of the

tube should be directed to the upper margin of the symphysis. The coccyx should show well, but the sacrum give no details. An oblique exposure should also be made, as it may show whether the stone is free or encysted. For showing numbers and position of calculi, the röntgen method is far superior to the cystoscope, and it is much more pleasant for the patient. Beck's experience has led him to think that skiagraphy of the renal regions is always necessary when vesical calculus is suspected, and since he has acted on this suggestion he has always found renal calculus whenever one existed in the bladder. This explains the common recurrence of vesical calculus after operation.

Gonorrheal Inflammations.—S. M. Burnett remarks that while gonorrheal iritis has long been recognized by ophthalmologists, it is a singular fact that it is almost entirely ignored in the treatises on genitourinary diseases, with the exception of two American textbooks. Opinions differ as to its frequency, some authors holding it to be extremely rare, while others consider it rather common. It seems from his own experience, to be rare in Washington, even in a class, the negroes, in which gonorrhea is most rife. It may appear under various forms; the socalled spongy iritis, usually one of the rarest types, is met here, he thinks, with greater comparative frequency than the other forms. Another distinctive feature is its tendency to recur during the same or subsequent attacks of gonorrhea. Like gonorrheal rheumatism, it almost invariably appears in the declining stage of the disease, and one or both eyes may be affected. The importance of an early correct diagnosis for proper treatment is obvious, as a delay of a few days or even of a few hours may mark the line between the preservation of good vision and partial or complete blindness. An illustrative case is reported. Burnett also gives the account of a case of conjunctivitis occurring in connection with gonorrhea, which he considers an instance of the rare indigenous infection by gonorrheal toxins, as careful examination of the purulent discharge revealed only pure mucopus. This case suggests to him the importance of bacteriologic examination in every case of purulent conjunctivitis occurring in gonorrheic patients. If no gonococci are found the prognosis is materially modified as compared with cases in which they are present. No author, so far as he has observed, has mentioned the pronounced mucopurulent type of conjunctivitis from endogenous gonorrheal toxin infection seen in the case here described.

Hygiene Teaching in Public Schools.—Helen C. Putnam analyzes the various state laws regarding the teaching of hygiene in the public schools. She says that the study has compelled a radical alteration of her preconceived ideas based on certain general rather pessimistic statements in lay, scientific and medical current literature. As the movement was initiated by the Woman's Christian Temperance Union, all the laws include a provision regarding "physiology and hygiene with special reference to the nature and effects of alcoholic drinks and other narcotics." The general interpretation of this clause is that physiology and hygiene shall be taught, including the special topic indicated. She calls attention to the following points: 1. No law states what shall be taught as to the nature and effects of alcoholic drinks and narcotics; nor that total abstinence shall be taught. 2. No law prevents the teaching of hygiene through "domestic science," physical training, biology, medical inspection; nor from other viewpoints than physiologic, as economic, or sociologic. 3. No law requires indorsement of textbooks by the Woman's Christian Temperance Union. 4. Forty-two laws do not stipulate the space for temperance instruction in hygiene. Forty-three laws do not specify the number and length of lessons in hygiene (including temperance). In other words, the laws requiring the study of hygiene put the teaching on a par with the teaching of language, mathematics and other studies required. They are not hindrances, but proffer openings. Whoever wishes a change should accomplish it, not by trying to alter laws, but by convincing school authorities that some other textbook or method will give better results than those now in use.

Typhoid Fever.—J. F. Jenkins insists on the recumbent position from the beginning in typhoid fever. Milk, preferably given with pepsin and hydrochloric acid, and two soft-boiled eggs every 24 hours, occasionally alternating with barley or rice water for a change, make a very efficient diet during the whole course of the fever. In the later stages a little old whisky, as a stimulant to a flagging pulse, may be added to the milk. In the early stages, fractional doses of calomel, followed by a small dose of rochelle salts or sodium phosphate, are indicated; in some cases they may be repeated from time to time during the first and second weeks. Intestinal antiseptics are of value, he states, in checking putrefaction and relieving diarrhea and tympanitis, and, therefore, should be prescribed. When the temperature rises to 102.5°, cold sponging or tubbing should be resorted to, and it is advisable to follow up the bath by vigorous frictions. Frequently a small amount of stimulant is indicated after the bath. When there is delirium or coma, the ice-bag to the head will relieve and often induce a natural sleep. During convalescence a tepid sponge bath of alcohol and water, equal parts, he thinks, has a beneficial effect. One should insist on the patient taking from a quart to a quart and a half of boiled water every 24 hours, as the typhoid patient does not usually demand water, even when the temperature is high. Diarrhea, when excessive, is often checked by reduction or change of diet, and full doses of bismuth subnitrate will usually be effective. For restlessness in the late stages, Jenkins has found Hoffman's anodyne a very useful remedy. In the later stage stimulants are required for supporting the feeble heart action, and during convalescence he advises hexamethylenamin in 5 gr. doses, three times a day, to destroy the bacilli in the urine.

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December 23, 1905. [Vol. 68, No. 26.]

The Neurasthenic States Caused by Excessive Light.—Chas. E. Woodruff first refers to the various ways in which different forms of light have been made use of for therapeutic purposes, and then goes on to explain his theory that an excess of light may be injurious, owing to the underlying law that the effect of the short waves is always destructive and never constructive. His view is that the various races have been provided by nature with a degree of cutaneous pigmentation suitable for the average intensity of light in the region in which they are native. The blond, fair-skinned races are indigenous in the comparatively dark, gloomy, northern countries, while the inhabitants of tropic and subtropic latitudes are universally brunet. This principle is so radical that the blonds, in the course of time, tend to become extinct if they migrate to more sunshiny regions. By extending the process of reasoning, the author states that the excess of sunlight to which the people of many parts of this country are exposed is distinctly injurious and is a potent cause of neurasthenia. He states that, as a matter of fact, neurasthenia is commoner in blonds than brunets, is worse in cities than in the country, and is vastly benefited or cured by removal to dark, cloudy climates. The same element is of importance in the treatment of tuberculosis, and the author says that excellent results in treating the disease in this country and in Europe are obtained in sanatoriums where there is a minimum of sunshine. Woodruff suggests that a uniform system of recording complexions be adopted, for the purpose of gathering statistics, and he has devised a numeric scheme of notation, by using which it will be possible to secure uniformity in the records.

The Curative Treatment of Pneumonia, with Points on Hydrotherapy and Therapeutic Fasting in Fevers.—Charles E. Page enters a strong protest against what he terms the noncurative, not to say killing treatment of pneumonia, which is the prevailing one and includes drugs and forced feeding plus, the mischievous effects of hot poultices on hot lungs. The essential features of his own plan consist in the use of cool applications to the chest and abstinence from practically all nourishment except water. In this way the disease when taken early is frequently aborted, and the normal deathrate becomes 5% for private and hospital cases combined, while in private practice alone it is about 2%. For pneumonia the procedure recommended is as follows: A large towel, coarse linen or cotton, is folded lengthwise in the middle, then folded crosswise in the middle, and half the length of this four-ply towel is wrung tightly from ice-water, or the coldest water obtainable, and again folded crosswise, so as to give four thicknesses of damp towel next the skin, and the same, dry, outside. The damp folds should be freshened as often as they become at all hot, whether this be in 10, 20, or 30 minutes. At first, in severe cases, the changes will be as often as every 8 or 10 minutes, the intervals lengthening more and more as the inflammation subsides, and breathing consequently becomes deeper and easier. When the patient is able to breathe naturally, and the compress no longer becomes hot, and before it is felt to be an uncomfortable treatment, this local cooling should cease. In some cases hot applications are also made to the legs.

Congenital Stenoses of the Urethra.—Faxton E. Gardner says that this malformation is much commoner than one would be led to suppose from the very scanty literature of the subject, the reported instances of the condition reaching a total of 110. The chief points to be borne in mind are: (1) The urethra is formed by three embryologic portions: (*a*) the posterior urethra developed from the urogenital sinus, and separated from the next portion by the cloacal membrane; (*b*) the spongy portion developed from the urethral groove and closed during the first stages of its development by the cloacal membrane, at its posterior extremity, and the epithelial wall of the glans, at its anterior; (*c*) the balanic portion developed independently. (2) The spongy and the balanic portions; *i. e.*, the whole anterior urethra are not derived as the posterior, from a hollow embryonic organ, but, on the contrary, develop in a solid, continuous mass of epithelial cells. It is therefore not surprising that congenital strictures are more common in the anterior than in the posterior urethra. Nocturnal incontinence and diurnal frequency of micturition are characteristic features. Incontinence in children, if not accounted for by some evident external malformation, is frequently due to a congenital stricture and not to "essential incontinence," or to "congenital irritability," as it is usually alleged. In adults every stricture is not necessarily the result of trauma or gonorrhea, and gonorrheal strictures develop much more quickly on the basis of an already existing congenital stenosis. The treatment is gradual dilation, only rarely is it necessary to resort to internal or external urethrotomy.

Dysmenorrhea at Puberty, and Uterine Tumors. Frank DeWitt Reese presents the following two questions: 1. Is dysmenorrhea a symptom denoting the presence of uterine fibroids at puberty? 2. Are the causes of dysmenorrhea exciting causes of fibroid tumors of the uterus? As a result of his own experience and of the statements of other authors he considers that there is no doubt that fibroid tumors exist in utero previous to menstruation and are the exciting causes of dysmenorrhea in many cases. Of the last 31 cases of uterine fibroids that have come under the author's observation, all with but one exception have begun menstruation with severe pain. He also believes that the various causes of dysmenorrhea are possible causes of uterine fibroids, and cites numerous observations from the literature in support of this view. An illustrative case is described, showing the following four stages of progress in the evolution of the tumor: 1. Dysmenorrhea at puberty. 2. A deformity of the uterus (extreme anteflexion) discovered at the first local examination, at the age of 30 years. 3. At 36 years of age there were backache, leucorrhea, and an enlarged uterus with a hard, uneven surface. 4. At 38, a tumor of the uterus had developed to such an extent that the patient detected it herself through the abdominal walls. The indications, accordingly, are to relieve the causes of dysmenorrhea at puberty in order to avoid the necessity of operating on fibroid tumors later.

Tonsillitis.—R. M. Niles says that the patient should be isolated, should receive broken doses of calomel, followed by saline laxative or croton oil, quinin in tonic doses. Strychnin, aconitin, sodium salicylate, guaiac, and anodynes may also be required. Hot alkaline gargles and a spray of hydrogen peroxid are useful. Potassium chlorate has little value. Often the application of the tincture or vinegar of capsicum produces the most brilliant results. Congestion and edema are reduced, the separation of sloughs is facilitated, granulations are stimulated, vasomotor inertia is overcome, and normal tissue metabolism is reestablished. Tincture of capsicum, full strength or diluted with cod-liver oil, should be applied to the Schneiderian mucous membranes in the treatment of the rhinitis, which is a frequent concomitant of the tonsillar involvement. The nasal mucosa is first cocainized, and the capsicum is then applied with a cotton-covered applicator.

New York Medical Journal.

December 16, 1905. [Vol. lxxxii, No. 25.]

The Management of Abortion.—A. F. Currier takes up in some detail the treatment of spontaneous and induced abortion, and also the indications for inducing abortion. If abortion has taken place he advises that the uterus be carefully explored with the finger, and if it is not possible to remove all the debris in this way he resorts to the dull curet. The uterine cavity having been cleansed, it should be irrigated with a large quantity of hot saline solution and then loosely packed with a long strip of aseptic gauze, which should be removed in 24 hours. Daily vaginal douches, with hot saline solution, or a 1 to 10,000 of corrosive mercuric chlorid during the ensuing week, may be effective in preventing undesirable complications. [C.A.O.]

Ventral Suspension.—Swithin Chandler says that of all the methods, it is his opinion that suspending the uterus by suturing the fundus uteri to the abdominal peritoneum, and repairing injuries and removing diseased parts, or both, when necessary, is the operation par excellence. Care should be taken to complete the operation by repairing the anterior and posterior vaginal walls, and, in fact, all tears, as well as to remove all diseased conditions. It is also just as important to take care that no blood is left in the abdominal incision, no bleeding points untied, no open wounds intraabdominally left uncovered, no possible correctible relaxation or other displaced organs unattended to, as it is to properly have enough tissue enclosed in the uteroabdominal wall sutures. In summing up, he says first be sure of your diagnosis; second, have the proper requirements; third, see that all requirements are most carefully fulfilled, and that by a surgeon most highly educated in his work, who will do his part with a zeal for the interest of the patient. [C.A.O.]

Constipation.—H. A. Brav says that the great variety of causes of this condition may be described under the following headings: (1) Mechanical obstruction; (2) defective peristaltic action; (3) deficient intestinal secretion; (4) deficiency of liquids; (5) deficient

nervous excitability; (6) muscular spasm in the lower part of the rectum; (7) general disturbances. The treatment in each case depends upon the cause. It has been his experience that the prolonged use of purgatives and enemas soon lose their power, and that the observation of dietetic and hygienic rules will, in most cases, suffice to regularly perform the function of defecation. [C.A.O.]

Medical News.

December 23, 1905. [Vol. 87, No. 26.]

Wandering Gallstones.—W. L. Estes. See *American Medicine*, Vol. X, No. 18, p. 724.

Chronic Rheumatism.—Charles F. Painter. See *American Medicine*, Vol. X, No. 17, p. 684.

A Clinical and Bacteriologic Study of the Communicability of Cerebrospinal Meningitis and the Probable Source of Contagion.—Charles Bolduan and Mary E. Goodwin. See *American Medicine*, Vol. X, No. 21, page 853.

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY
NORMAN B. GWYN BERNARD KOHN
HELEN MURPHY

EDITORIAL COMMENT

Copper salts for actinomycosis and blastomycosis have been tried with encouraging results by Dr. Arthur D. Bevan,[1] of Chicago. It has long been known that extremely dilute solutions of copper sulfate are toxic for the algæ which contaminate water reservoirs, and are also destructive of the ordinary rusts of grain. Since the ray fungus is a rust parasite of certain grains it naturally suggested a similar curative treatment when it happened to find a lodgment in man. The French chemists have long proved that copper was not so poisonous as once believed and have succeeded in repealing many of the French laws directed against the use of copper cooking utensils. It is even stated that 2 gr. to 8 gr. of the sulfate can be taken daily for six months without harm. Though Bevan does not throw out hopes of having found a specific, he does think that the copper administered in a few cases in doses of ¼ gr. to ½ gr. three times daily together with irrigation of the abscesses or local lesions with 1% solution has been at least partly responsible for the improvement. In the case of blastomycosis, the iodids have been more or less beneficial, particularly when combined with röntgen rays, which not only seem to harm the fungus directly, but also liberate iodin locally for further germicidal action. Yet this treatment occasionally fails, even in local infections, and nearly always fails in general blastomycosis, which is a very fatal condition. It seems that the copper salt in addition to this treatment is beneficial in like manner to the mercurial course combined with iodids in syphilis. One case of actinomycosis is reported improved by the copper after the failure of iodids and röntgen ray. Should these favorable results be confirmed, it is one more illustration of the unexpected practical benefits so commonly derived from scientific research, undertaken for purely scientific reasons and having no special practical end in view. By all means let us have more and more of such pure science.

[1] Journal American Medical Association, November 11, 1905.

REVIEW OF LITERATURE.

Gastric Atony and the Chemistry of the Stomach.—The experiments of R. Kaufmann[1] show that under normal conditions the total acidity of the gastric contents may vary between 5 and 90, while the quantity of free HCl may vary from 0 to 2 per 1000. If symptoms occur within these limits, such symptoms must be ascribed partly to other factors than the changes in the chemistry of the stomach. Certain symptoms (cramps, acid eructations, pyrosis) occur more frequently with high acid values; but these values are often found without symptoms. Hence, the manifestations of so-called hyperacidity must be due to some complication, especially since the symptoms can be made to disappear under treatment, without affecting the percentages of HCl. This complication, which is responsible for the appearance of the symptoms, is usually some disturbance of the motility of the stomach. The author describes in detail his method of examining the stomach for determination of its size and motility. The symptoms of hyperacidity, as well as those of subacidity, may appear in cases of atony with dilation, or in cases of dilation with pyloric stenosis and increased motility. When these conditions are relieved, the symptoms disappear. In a certain number of cases, however, no abnormality in size or motility can be detected. These patients are usually neurasthenics, and it may be assumed that the symptoms are due to a hyperesthesia of the gastric mucous membrane. [B.K.]

Rheumatic Myocarditis.—P. Geipel[2] reports his investigations of five cases of myocarditis from articular rheumatism. The myocardial changes arise principally from the interstitial tissue, especially that in the neighborhood of the valvular insertions and the origins of the great vessels, and that around the bloodvessels of the heart. The interstitial myocarditis occurs in the form of nodules, consisting of an enlargement and fusion of the connective-tissue cells, often with hyaline degeneration in the center, the nodule being surrounded by a round-cell infiltration. Combined with this there is often a new formation of fibrillar ground substance. A fatty degeneration, disintegration or vacuolated degeneration of isolated muscle fibers accompanies these interstitial changes. Rheumatic myocarditis therefore shows a picture distinct from that typical of other infections, but is not entirely characteristic of rheumatism, as it occurs at times in other conditions. [B.K.]

The Larynx in Typhoid Fever.—C. Jackson[3] took advantage of the typhoid epidemic in Pittsburg to study the affections of the larynx, which occurred in 360 cases of typhoid fever. Three types of lesions were observed: 1. Subacute laryngitis without solution of continuity of the mucosa. 2. Ulcerative laryngitis. 3. Perichondritis with or without chondrial necrosis. Of the first, there were 227 cases; of the second, 68; of the third, 17. The larger part of the paper is devoted to a masterly discussion of the second group of cases. Thrombosis of laryngeal vessels is probably the most frequent local initial lesion. The severity of the lesion is in direct proportion to the toxemia, pyrexia not being in itself a factor, but only an index of the toxemia. Death may occur from laryngeal stenosis without even the suspicion of a laryngeal lesion in the absence of laryngoscopy. If pain and hoarseness be depended upon, a diagnosis will rarely be made. Cyanosis and dyspnea are rare, apnea is common. The point emphasized by the paper is that serious and fatal lesions of the larynx in typhoid fever are much more frequent than is realized. [A.G.E.]

[1] Zeitschrift für klinisch Medicin, Bd. lxxv, p. 491.
[2] Deutsche Archiv für klinische Medicine, Bd. lxxxv, p. 75.
[3] American Journal of the Medical Sciences, November, 1905.

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